

TRANSPORTATION MOBILITY PLAN

CITY PARK HOMES

PROPOSED MIXED-USE SUBDIVISION

12,371 HIGHWAY 48 AND 5,262 – 5,318 MAIN STREET

TOWN OF WHITCHURCH-STOUFFVILLE

FILE NOS: PRE26.002 & PSC.26.W.0034

AUGUST 13TH 2026

Table of Contents

	Page
1. Introduction	1
2. Subject Development – Study Area	3
3. Existing Road Network.....	4
3.1 Road Network.....	4
3.2 Transit Services	5
4. Existing Multimodal Analysis	7
4.1.1 Existing Auto Network Volumes.....	7
4.1.2 Existing Auto Network Analysis.....	8
4.2 Existing Transit Network Analysis	10
4.3 Existing Cycling Network Analysis	11
4.4 Existing Pedestrian Network Analysis	12
5. Future Total Background Multimodal Analysis	13
5.1 Other Background Developments.....	13
5.1.1 Proposed Commercial Development (5,211 - 5,241 Stouffville Road)	14
5.1.2 Proposed Mixed-Use Development (5,061 Stouffville Road)	17
5.2 Auto Traffic Growth Rate	21
5.3 Future (2030) Total Background Transportation Network Improvements.....	22
5.4 Future (2030) Total Background Auto Network Analysis	22
5.5 Future (2030) Total Background Transit Network Analysis	24
5.6 Future (2030) Total Background Cycling Network Analysis.....	25
5.7 Future (2030) Total Background Pedestrian Network Analysis.....	26
5.8 Future (2035) Total Background Transportation Network Improvements.....	26
5.9 Future (2035) Total Background Auto Network Analysis	27
5.10 Future (2035) Total Background Transit Network Analysis	29
5.11 Future (2035) Total Background Cycling Network Analysis.....	30
5.12 Future (2035) Total Background Pedestrian Network Analysis.....	31
6. Trip Generation and Distribution	32
6.1 Trip Generation.....	32
6.2 Total Site-Generated Trips	32
6.3 Trip Distribution and Assignment.....	34

Table of Contents - Continued

	Page
7. Future Total Multimodal Analysis	36
7.1 Future (2030) Total Transportation Network Improvements	36
7.2 Future (2030) Total Auto Network Analysis	36
7.2.1 Recommended Improvements	40
7.3 Future (2030) Total Transit Network Analysis	42
7.4 Future (2030) Total Cycling Network Analysis	43
7.5 Future (2030) Total Pedestrian Network Analysis	44
7.6 Future (2035) Total Auto Network Analysis	45
7.6.1 Recommended Improvements	49
7.7 Future (2035) Total Transit Network Analysis	51
7.8 Future (2035) Total Cycling Network Analysis	52
7.9 Future (2035) Total Pedestrian Network Analysis	53
8. Transportation Demand Management	55
9. Summary	56

Tables

Page

Table 1	Existing (2026) Traffic – Auto Network.....	9
Table 2	Existing (2026) Traffic – Transit Network	10
Table 3	Existing (2026) Traffic – Cycling Network	11
Table 4	Existing (2026) Traffic – Pedestrian Network	12
Proposed Commercial Development (5,211 - 5,241 Stouffville Road)		
Table 5	Site-Generated Trips	15
Proposed Mixed-Use Development (5,061 Stouffville Road)		
Table 6	Trip Generation Rates with Inbound and Outbound Percentages	17
Table 7	Site-Generated Trips	18
Table 8	Growth of Background Traffic.....	21
Table 9	Future (2030) Total Background Traffic – Auto Network	23
Table 10	Future (2030) Total Background Traffic – Transit Network.....	24
Table 11	Future (2030) Total Background Traffic – Cycling Network.....	25
Table 12	Future (2030) Total Background Traffic – Pedestrian Network.....	26
Table 13	Future (2035) Total Background Traffic – Auto Network	28
Table 14	Future (2035) Total Background Traffic – Transit Network.....	29
Table 15	Future (2035) Total Background Traffic – Cycling Network.....	30
Table 16	Future (2035) Total Background Traffic – Pedestrian Network.....	31
Table 17	Trip Generation Rates and Formulae with Inbound and Outbound Percentages	32
Table 18	Site-Generated Trips	33
Table 19	Future (2030) Total Traffic- Auto Network.....	38
Table 20	Future (2030) Total Traffic- with Improvements – Auto Network	41
Table 21	Future (2030) Total Background Traffic – Transit Network.....	42
Table 22	Future (2030) Total Background Traffic – Cycling Network.....	43
Table 23	Future (2030) Total Background Traffic – Pedestrian Network.....	44
Table 24	Future (2035) Total Traffic- Auto Network.....	47
Table 25	Future (2035) Total Traffic- with Improvements – Auto Network	50
Table 26	Future (2035) Total Background Traffic – Transit Network.....	51
Table 27	Future (2035) Total Background Traffic – Cycling Network.....	52
Table 28	Future (2035) Total Background Traffic – Pedestrian Network.....	53
Table 29	Transportation Demand Management Checklist	54

Figures

Following Page

Figure 1	Location Plan	2
Figure 2	Proposed Concept Plan	3
Figure 3	Existing (2026) Traffic Volumes - A.M. Peak Hour	7
Figure 4	Existing (2026) Traffic Volumes - P.M. Peak Hour	7
Figure 5	Location of Anticipated Background Developments	13
Figure 6	Trip Assignment of Proposed Commercial Development	16
	(5,211 - 5,241 Stouffville Road) - A.M. Peak Hour	
Figure 7	Trip Assignment of Proposed Commercial Development	16
	(5,211 - 5,241 Stouffville Road) - P.M. Peak Hour	
Figure 8	Trip Assignment of Proposed Mixed-Use Development (5,061 Stouffville Road).....	20
	- A.M. Peak Hour	
Figure 9	Trip Assignment of Proposed Mixed-Use Development (5,061 Stouffville Road).....	20
	- P.M. Peak Hour	
Figure 10	Future (2030) Total Background Traffic Volumes - A.M. Peak Hour	22
Figure 11	Future (2030) Total Background Traffic Volumes - P.M. Peak Hour.....	22
Figure 12	Future (2035) Total Background Traffic Volumes - A.M. Peak Hour	27
Figure 13	Future (2035) Total Background Traffic Volumes - P.M. Peak Hour.....	27
Figure 14	Trip Assignment of the Subject Subdivision - A.M. Peak Hour	35
Figure 15	Trip Assignment of the Subject Subdivision - P.M. Peak Hour	35
Figure 16	Future (2030) Total Traffic Volumes - A.M. Peak Hour	36
Figure 17	Future (2030) Total Traffic Volumes - P.M. Peak Hour	36
Figure 18	Future (2035) Total Traffic Volumes - A.M. Peak Hour	46
Figure 19	Future (2035) Total Traffic Volumes - P.M. Peak Hour	46

Appendices

Appendix A	Terms of Reference
Appendix B	Transit Route Maps
Appendix C	Turning Movement Counts
Appendix D	Signal Timing Plans
Appendix E	Level of Service Definitions
Appendix F	Synchro Analysis: Signalized and Un-signalized Intersection Capacity Analysis for Existing (2026), Future (2030 & 2035) Total Background and Future (2030 & 2035) Total Traffic
Appendix G	Relevant Excerpts from the Transportation Mobility Plan Guidelines for Development Applications
Appendix H	Relevant Excerpts from Background Studies
Appendix I	Traffic Growth Rates – Received from the Region of York

1. Introduction

CANDEVCON GROUP INC. was retained by City Park Homes to undertake a Transportation Mobility Plan in support of the proposed Mixed-Use Subdivision at 12,371 Highway 48 and 5,262 – 5,318 Main Street, which is immediately east of Highway 48 and north of Main Street in the Town of Whitchurch-Stouffville. **Figure 1** illustrates the location of the proposed Mixed-Use Subdivision.

As a requirement of the approval process, the Town of Whitchurch-Stouffville and Region of York require the preparation of a Transportation Mobility Plan to evaluate the proposed Mixed-Use Subdivision and to examine the implications of the proposed Mixed-Use Subdivision on the adjacent transportation infrastructure.

Study parameters, assumptions and analytical approaches were presented through the terms of reference and were submitted to the Town of Whitchurch-Stouffville and Region of York staff. Information was subsequently exchanged with the Town and the Region and the principal study assumptions and the scope of work were agreed upon. The terms of reference and the correspondence with the Town and Region are provided in **Appendix A**.

It is anticipated that the proposed Mixed-Use Subdivision will be fully built-out and occupied by 2030. As a result, an interim year of 2030 and a horizon year of 2035 was analyzed, representing the year of full build-out and five (5) years post development.

The purpose of this Study is to determine the traffic impacts of the proposed Mixed-Use Subdivision on the surrounding road network and at nearby intersections and to analyze the vehicular accesses.

1. Introduction - Continued

The Transportation Mobility Plan addresses the future operations at the following intersections:

- Highway 48 at Main Street/Stouffville Road,
- Proposed Site Access “1” at Highway 48,
- Proposed Site Access “2” at Main Street.

The Highway 48 at Main Street/Stouffville Road intersection was studied under the Existing (2026), Future (2030 & 2035) Total Background and Future (2030 & 2035) Total Traffic scenarios. The proposed Site Access “1” at Highway 48 and proposed Site Access “2” at Main Street intersections were studied under the Future (2030 & 2035) Total Traffic scenario.

The Transportation Mobility Plan addresses the traffic operations during the Weekday A.M. and Weekday P.M. Peak Hours.



TRANSPORTATION MOBILITY PLAN
12,371 HIGHWAY 48 AND 5,262 - 5,318 MAIN STREET
TOWN OF WHITCHURCH-STOUFFVILLE

LOCATION PLAN



CANDEVCON GROUP INC. CONSULTING ENGINEERS AND PLANNERS 3350 GOREWAY DRIVE BRAMPTON ON. L6P 0M7	
DATE: JUNE. 24th 2026	JOB No. W26018
DESIGN: S.N.	FIG. No.
SCALE: N.T.S.	1

2. Subject Development – Study Area

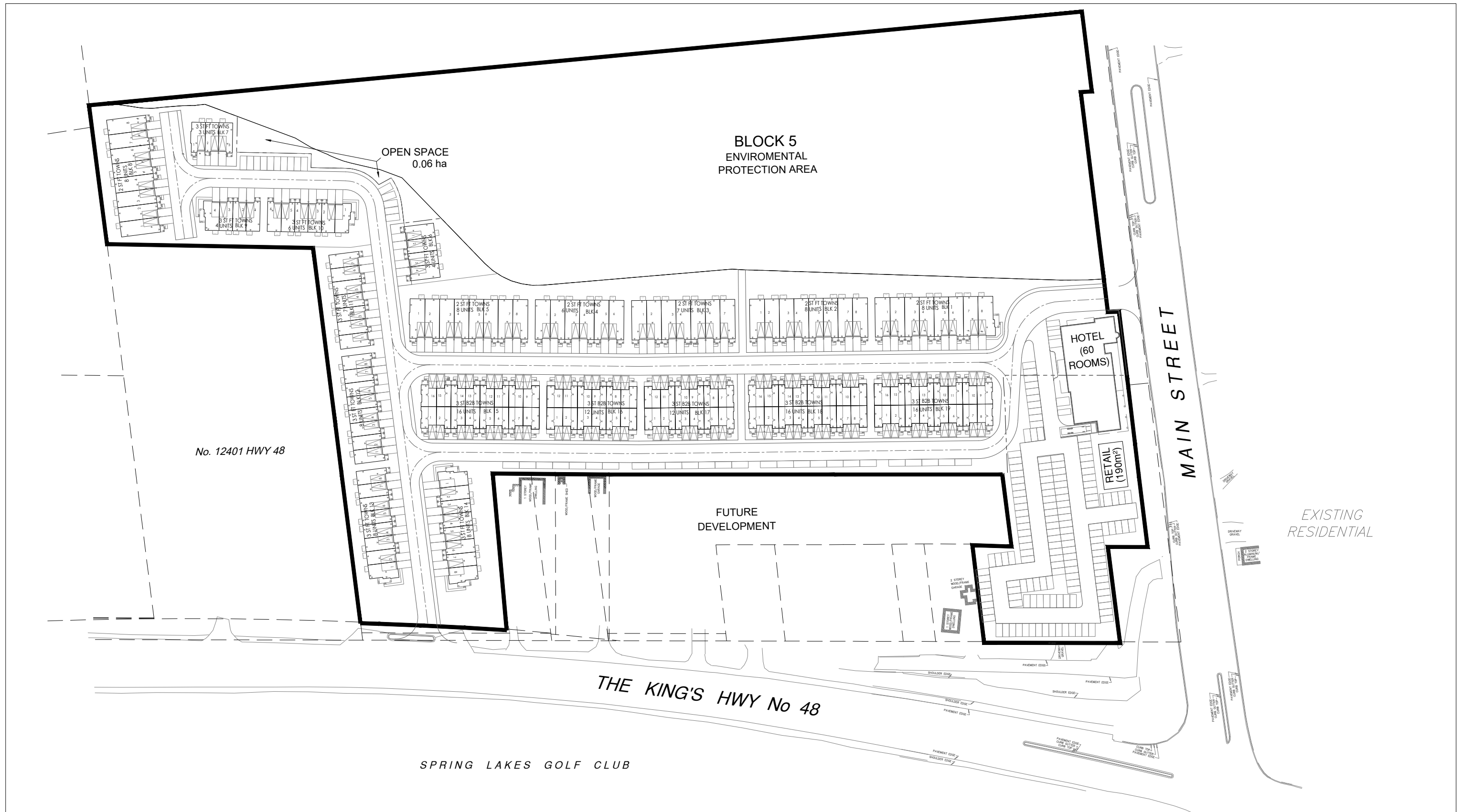
The Subject Property is located immediately east of Highway 48 and north of Main Street, in the Town of Whitchurch-Stouffville. The total area of the property is 7.14 hectares.

The Subject Land is surrounded by the following land uses:

- To the north, vacant lands with a commercial development and Millard Street beyond,
- To the east, vacant lands,
- To the south, Main Street,
- To the west, Highway 48, Fockler Lane and existing residential.

The proposed Mixed-Use Subdivision comprises 165 townhouse units, a commercial building with a gross floor area (G.F.A.) of 2,045 ft² and a hotel with 60 rooms. A full-moves access at Main Street and a full-moves access at Highway 48 will service the proposed Mixed-Use Subdivision.

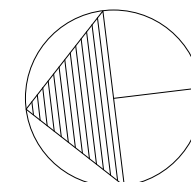
The proposed Concept Plan is provided in **Figure 2**.



TRANSPORTATION MOBILITY PLAN

12,371 HIGHWAY 48 AND 5,262 - 5,318 MAIN STREET
TOWN OF WHITCHURCH-STOUFFVILLE

PROPOSED CONCEPT PLAN



CANDEVCON GROUP INC.
CONSULTING ENGINEERS AND PLANNERS

TEL. (905) 794-0600

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DATE AUG., 5th 2026

JOB No W26018

DRAWN S.G.K.

FIGURE No.

SCALE 1:1500

2

3. Existing Road Network

3.1 Road Network

The road network within the Study Area comprises Highway 48 and Main Street/Stouffville Road.

Highway 48

Highway 48 is a north-south arterial road that is under the jurisdiction of the Ministry of Transportation Ontario (MTO) with the Region of York eventually taking ownership. Within the Study Area, Highway 48 is a four (4) lane roadway with a rural cross-section and a posted speed limit of 80 km/h.

Main Street/Stouffville Road

The arterial road is under the jurisdiction of the Region of York west of Highway 48 as Stouffville Road and is under the jurisdiction of the Town of Whitchurch Stouffville east of Highway 48 as Main Street. Main Street/Stouffville Road is a four (4) lane roadway with an urban cross-section and a posted speed limit of 60 km/h. Within the Study Area, pedestrian sidewalks are provided on both sides.

3. Existing Road Network - Continued

3.2 Transit Services

The transit routes within the vicinity of the Study Area that are operated by York Region Transit (YRT) and GO Transit (GO) are as follows:

- 9 Ninth Line (YRT) – The bus route operates between the Sam Miller Way at Highway 48 and the 14th Avenue at Ninth Line intersections via Ninth Line, 14th Avenue, Riverwalk Drive, Box Grove Bypass, Reeves Way Boulevard, Hoover Park Drive, 10th Line, Main Street, Baker Hill Boulevard, Millard Street, Sam Miller Way and Highway 48. During the morning and afternoon peak periods, the bus frequencies are between 33 and 50 minutes.
- 70-71 Stouffville (GO) – The bus route operates between Union Station and the intersection of Railway Street at Albert Street. During the morning and afternoon peak periods, the bus frequencies are between 15 and 93 minutes.
- 414 St. Katharine Drexel (YRT) – The bus route operates between the Hoover Park Drive at Sandford Drive intersection and the St. Katharine Drexel Secondary School via Hoover Park Drive, Ninth Line, Reeves Way Boulevard, York-Durham Line, Main Street, 10th Line, Hemlock Drive, Millard Street, Baker Hill Boulevard and Meridian Drive. The bus route makes one (1) trip before school and two (2) trips after school.
- 415 Stouffville District School (YRT) – The bus route operates between the intersection of Millard Street at Highway 48 and the Stouffville District Secondary School via Millard Street, 10th Line, Main Street, York-Durham Line, Hoover Park Drive, Reeves Way Boulevard and Ninth Line. The bus route makes two (2) trips before school and two (2) trips after school.
- 417 Bill Hogarth School (YRT) – The bus route operates between the Bill Hogarth Secondary School and the Hoover Park Drive at Sandford Drive intersection via Whites Hill Avenue, Bur Oak Avenue, Church Street, Ninth Line, Main Street, Baker Hill Boulevard, Millard Street, 10th Line, Hoover Park Drive and Reeves Way Boulevard. The bus route makes two (2) trips before school and two (2) trips after school.

3. Existing Road Network - Continued

3.2 Transit Services - Continued

The transit route maps are provided in **Appendix B** for reference.

The existing transit stops within the vicinity of the Study Area comprises:

- A transit stop on Main Street that is west of Baker Hill Boulevard/Ringwood Drive. The transit stop provides access to Routes 70-71 that travel in the eastbound direction.
- A transit stop on Main Street that is east of Baker Hill Boulevard/Ringwood Drive. The transit stop provides access to Routes 9, 70-71, 414 and 417 that travel in the westbound direction.
- A transit stop on Millard Street that is west of Automall Boulevard. The transit stop provides access to Route 415 that travels in the eastbound direction.
- A transit stop on Millard Street that is east of Baker Hill Boulevard. The transit stop provides access to Routes 9 and 415 that travel in the westbound direction.

4. Existing Multimodal Analysis

4.1.1 Existing Auto Network Volumes

For the intersection of Highway 48 at Main Street/Stouffville Road, turning movement counts were conducted by Ontario Traffic Inc. (OTI). The turning movement counts received from OTI are provided in **Appendix C**.

For the intersection of Highway 48 at Main Street/Stouffville Road, the turning movement counts taken on Tuesday June 23rd, 2026 from 7:00 A.M. to 9:00 A.M. and from 4:00 P.M. to 6:00 P.M. captured the A.M. and P.M. Peak Hours. The A.M. and P.M. Peak Hour traffic volumes occurred between 8:00 A.M. and 9:00 A.M. and between 4:15 P.M. and 5:15 P.M., respectively.

The Existing (2026) peak hour traffic volumes are provided in **Figures 3 and 4**.

Existing (2026) Traffic Volumes - A.M. Peak Hour

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville

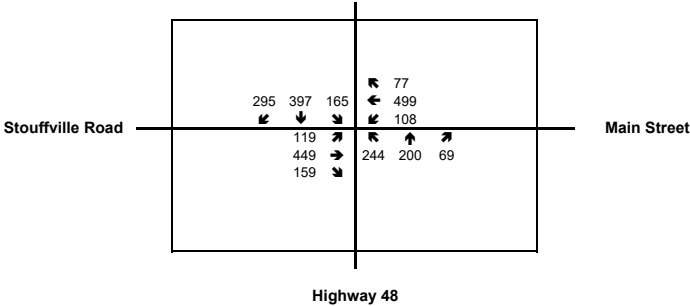


Figure No: 3

Date: July 8 2026

Prepared by: B.W.



Existing (2026) Traffic Volumes - P.M. Peak Hour

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville

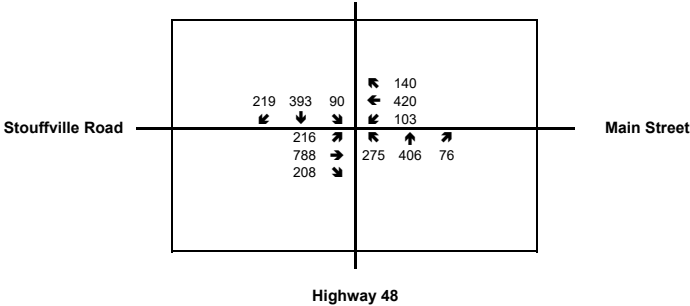


Figure No: 4
Date: July 8 2026
Prepared by: B.W.



4. Existing Multimodal Analysis - Continued

4.1.2 Existing Auto Network Analysis

The Existing (2026) peak hour traffic volumes are provided in **Figures 3 and 4** and the Level of Service (LOS) was analyzed using SYNCHRO STUDIO 12.0 software¹.

Highway 48 at Main Street/Stouffville Road was analyzed as an actuated uncoordinated signalized intersection with Highway 48 as the main street. The lane configuration used in the analysis comprises: a left, a through and a shared through-right turning lane at the northbound and southbound approaches; and a left, two (2) through and a right turning lane at the eastbound and westbound approaches. The signal timing plans were received from the Region of York and are included in **Appendix D**.

The results of the analysis are summarized in **Table 1**. The related calculations are provided in **Appendix F**. The Level of Service definitions for signalized and un-signalized intersections are included in **Appendix E** for reference.

¹ Synchro Studio Software, Version 12, CUBIC Transportation Systems, 2023.

4. Existing Multimodal Analysis - Continued

4.1.2 Existing Auto Network Analysis - Continued

Table 1: Existing (2026) Traffic – Auto Network

Intersection	Turning Movement/ Approach	A.M. Peak Hour				P.M. Peak Hour			
		V/C	LOS	Delay ¹	95 th % Queue (m)	V/C	LOS	Delay ¹	95 th % Queue (m)
Highway 48 at Main Street/ Stouffville Road (Signalized)	Overall	0.74	C	25.5	n/a	0.88	C	29.6	n/a
	EBL	0.50	C	27.4	31.4	0.59	C	27.3	47.9
	EBT	0.61	D	36.5	57.6	0.76	D	38.5	102.6
	EBR	0.36	A	6.8	15.2	0.36	A	5.2	16.1
	WBL	0.36	C	22.7	25.2	0.49	C	25.1	24.0
	WBT	0.68	D	38.4	64.2	0.42	C	30.6	53.6
	WBR	0.19	A	2.5	3.9	0.25	A	5.4	13.2
	NBL	0.74	C	30.6	68.7	0.88	D	52.3	97.4
	NB T/R	0.22	B	18.1	29.8	0.39	C	26.7	60.6
	SBL	0.30	B	14.4	34.6	0.23	B	18.0	23.3
	SB T/R	0.55	B	19.7	73.9	0.56	C	26.5	77.3

Note 1: Delays are measured in seconds per vehicle.

The analysis of the Existing (2026) Traffic Conditions indicates that the signalized intersection operates at a Level of Service “C” during the A.M. and P.M. Peak Hours.

All of the turning movements operate at a Level of Service “D” or better during the A.M. and P.M. Peak Hours.

The queue lengths at the northbound left turning lane may result in a spillback of vehicles into the adjacent lane during the A.M. and P.M. Peak Hours.

4. Existing Multimodal Analysis - Continued

4.2 Existing Transit Network Analysis

To evaluate the transit network, the description of the study area as provided in Section 3 was utilized in conjunction with the criteria set forth in Table 4 of the Region of York's Transportation Mobility Plan Guidelines for Development Applications². The results of the analysis are summarized in **Table 2** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Table 2: Existing (2026) Traffic – Transit Network

Transit Stop Location	Transit Route and Direction	A.M. Peak Period		P.M. Peak Period	
		Access to Transit Stop	Transit Headway ¹	Access to Transit Stop	Transit Headway ¹
West Leg of Main Street at Baker Hill Boulevard/ Ringwood Drive	GO 70-71 NB	D	F (72)	D	E (25)
East Leg of Main Street at Baker Hill Boulevard/ Ringwood Drive	YRT 9 NB	D	F (35)	D	F (37)
	GO 70-71 SB		F (38)		F (70)
	YRT 414 SB		F		F
	YRT 417 NB		F		F
West Leg of Millard Street at Automall Boulevard	YRT 415 SB	D	F	D	F
East Leg of Millard Street at Baker Hill Boulevard	YRT 9 NB	D	F (35)	D	F (37)
	YRT 415 NB	D	F	D	F

Note 1: The average headway in minutes is provided in brackets.

² Transportation Mobility Plan Guidelines for Development Applications, York Region, 2025.

4. Existing Multimodal Analysis - Continued

4.2 Existing Transit Network Analysis - Continued

Since the proposed land uses within the Subject Property are within 600 metres, the transit stops within the vicinity of the Subject Property operate at a Level of Service “D”. All of the transit routes that use the concerned transit stops operate at a Level of Service “E” or “F”.

4.3 Existing Cycling Network Analysis

To evaluate the cycling network, the description of the study area as provided in Section 3 was utilized in conjunction with the criteria set forth in Table 8 of the Region of York’s Transportation Mobility Plan Guidelines for Development Applications. The results of the analysis are summarized in **Table 3** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Table 3: Existing (2026) Traffic – Cycling Network

Intersection	Leg	Segment LOS	Intersection LOS
Highway 48 at Main Street/ Stouffville Road	North	E*, F	E
	East	F	
	South	F	
	West	F	

* Applies to the Level of Service for north or east side of the roadway.

A paved shoulder with a width that is greater than or equal to 1.2m is provided on the east side of Highway 48; north of Main Street/Stouffville Road. As a result, that segment operates at a Level of Service “E”. All of the other segments for the concerned intersection do not provide bicycle provisions and operate at a Level of Service “F”.

4. Existing Multimodal Analysis - Continued

4.4 Existing Pedestrian Network Analysis

To evaluate the pedestrian network, the description of the study area as provided in Section 3 was utilized in conjunction with the criteria set forth in Table 6 of the Region of York's Transportation Mobility Plan Guidelines for Development Applications. The results of the analysis are summarized in **Table 4** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Table 4: Existing (2026) Traffic – Pedestrian Network

Intersection	Leg	Segment LOS	Intersection LOS
Highway 48 at Main Street/ Stouffville Road	North	E*, F	D
	East	D	
	South	F	
	West	D	

* Applies to the Level of Service for north or east side of the roadway.

The intersection of Highway 48 at Main Street/Stouffville Road provides pedestrian signal heads and delineated crosswalks. Highway 48 has segments that provide a paved shoulder (Level of Service “E”) or do not provide pedestrian provisions (Level of Service “F”). In addition, with curb-faced sidewalks (no buffer) that have a width that is less than 1.5 metres, Main Street/Stouffville Road operates at a Level of Service “D”.

5. Future Total Background Multimodal Analysis

5.1 Other Background Developments

This Transportation Mobility Plan will consider two (2) anticipated background developments within the vicinity of the Study Area. It is assumed that these anticipated background developments will be constructed by the 2030 interim year.

A proposed Commercial Development owned by Flato Developments Inc. and located at 5,211 - 5,241 Stouffville Road is immediately west of Highway 48 and south of Stouffville Road (OPA23.001). The proposed Commercial Development comprises a fast-food restaurant with a drive-thru and 1,323 ft², a coffee shop with a drive-thru and 2,199 ft² and 1,272 ft² of commercial land use. A full-moves access that connects with Stouffville Road will service the proposed Commercial Development. Details regarding the site-generated traffic volumes were taken from its Transportation Mobility Plan Update³. Relevant excerpts from the Transportation Mobility Plan Update are provided in **Appendix H**.

A proposed Mixed-Use Development owned by Times 4750 Inc. and located at 5,061 Stouffville Road is immediately west of Highway 48 and south of Stouffville Road (OPA21.002). The proposed Mixed-Use Development comprises 1,243 high-rise apartment units and a day nursery with a G.F.A. of 10,333 ft². The proposed Mixed-Use Development is a part of a proposed Subdivision that provides a road network with unrestricted access to Stouffville Road. Although it is assumed that the road network for the proposed Subdivision will be built by the 2030 interim year, it is assumed that the other land uses will not be constructed by the 2035 horizon year. Details regarding the site-generated traffic volumes were taken from its Transportation Impact Study⁴. Relevant excerpts from the Transportation Impact Study are provided in **Appendix H**.

The location of these anticipated background developments is illustrated in **Figure 5**.

³ Transportation Mobility Plan Update, C.F. Crozier & Associates Inc., Updated September 2023.

⁴ Transportation Impact Study, Nextrans Consulting Engineers, May 2, 2025.



TRANSPORTATION MOBILITY PLAN
12,371 HIGHWAY 48 AND 5,262 - 5,318 MAIN STREET
TOWN OF WHITCHURCH-STOUFFVILLE

**LOCATION OF ANTICIPATED
BACKGROUND DEVELOPMENTS**



CANDEVCON GROUP INC. CONSULTING ENGINEERS AND PLANNERS 3350 GOREWAY DRIVE BRAMPTON ON. L6P-0M7	
DATE: JUNE. 26th 2026	JOB No. W26018
DESIGN: S.N.	FIG. No.
SCALE: N.T.S.	5

5. Future Total Background Multimodal Analysis - Continued

5.1.1 Proposed Commercial Development (5,211 - 5,241 Stouffville Road)

For the fast-food restaurant with a drive-thru (Land Use 934), the coffee shop with a drive-thru (Land Use 937) and commercial land uses (Land Use 822), the resulting number of trips was determined by using the findings from the ITE Trip Generation Manual 11th Edition and the G.F.A./G.L.A.⁵. The proposed Commercial Development comprises a fast-food restaurant with a drive-thru and 1,323 ft², a coffee shop with a drive-thru and 2,199 ft² and 1,272 ft² of commercial land use. In addition, using the findings from the ITE Trip Generation Manual 11th Edition, the background study assumed a pass-by percentage of 40% during the P.M. Peak Hour for the commercial land uses along with a pass-by percentage of 50% during the A.M. Peak Hour and 55% during the P.M. Peak Hour for the fast-food restaurant and coffee shop.

The resulting number of trips generated is provided in **Table 5** for the A.M. and P.M. Peak Hours.

⁵ Trip Generation Manual (11th Edition), Institute of Transportation Engineers, September 2021.

5. Future Total Background Multimodal Analysis - Continued

5.1.1 Proposed Commercial Development (5,211 - 5,241 Stouffville Road) - Continued

**Table 5: Proposed Commercial Development (5,211 - 5,241 Stouffville Road)
- Site-Generated Trips**

Land Use	G.F.A./ G.L.A.	Trips	A.M. Peak Hour (Adj. Street)			P.M. Peak Hour (Adj. Street)		
			Trips In	Trips Out	Total	Trips In	Trips Out	Total
Strip Retail Plaza (<40k) (LU 822)	1,272 ft ²	Gross Trips	4	3	7	9	9	18
		Pass-by Trips	0	0	0	4	4	8
Fast-Food Restaurant with Drive-Through (LU 934)	1,323 ft ²	Gross Trips	30	29	59	23	21	44
		Pass-by Trips	15	15	30	13	12	25
Coffee/Donut Shop with Drive- Through (LU 937)	2,200 ft ²	Gross Trips	96	93	189	43	43	86
		Pass-by Trips	48	47	95	24	24	48
Total	4,795 ft ²	Gross Trips	130	125	255	75	73	148
		Pass-by Trips	63	62	125	41	40	81

The proposed Commercial Development is expected to generate 255 auto trips (130 inbound trips and 125 outbound trips) during the A.M. Peak Hour and 148 auto trips (75 inbound trips and 73 outbound trips) during the P.M. Peak Hour.

The assumed trip distribution and assignment is based on the results of the 2016 Transportation Tomorrow Survey.

5. Future Total Background Multimodal Analysis - Continued

5.1.1 Proposed Commercial Development (5,211 - 5,241 Stouffville Road) - Continued

The assumed trip distribution and assignment is as follows:

- 30% from the north via Highway 48,
- 50% from the east via Main Street,
- 10% from the south via Highway 48,
- 10% from the west via Stouffville Road.

Total 100% inbound

- 30% to the north via Highway 48,
- 30% to the east via Main Street,
- 30% to the south via Highway 48,
- 10% to the west via Stouffville Road.

Total 100% inbound

The site-generated trip volumes and trip assignment used in the analysis are illustrated in **Figures 6 and 7** for the A.M. and P.M. Peak Hours.

**Trip Assignment of Proposed Commercial Development (5,211 - 5,241 Stouffville Road)
A.M. Peak Hour**

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville

Note: Trips may not balance due to pass-by trips.

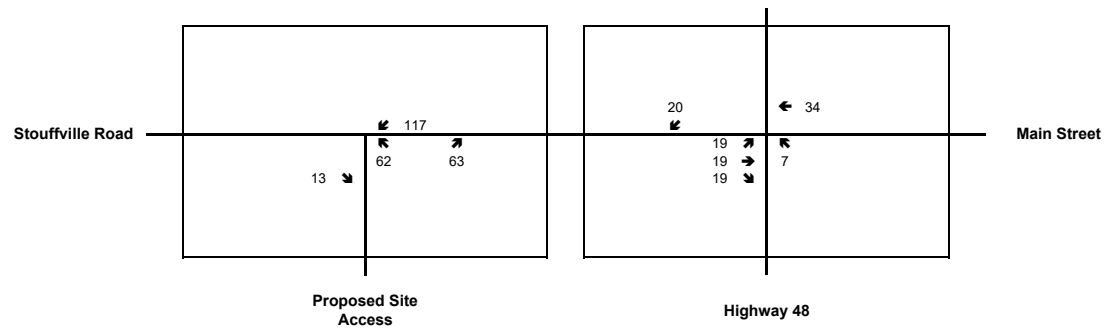


Figure No: 6

Date: June 24 2026

Prepared by: B.W.



**Trip Assignment of Proposed Commercial Development (5,211 - 5,241 Stouffville Road)
P.M. Peak Hour**

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville

Note: Trips may not balance due to pass-by trips.

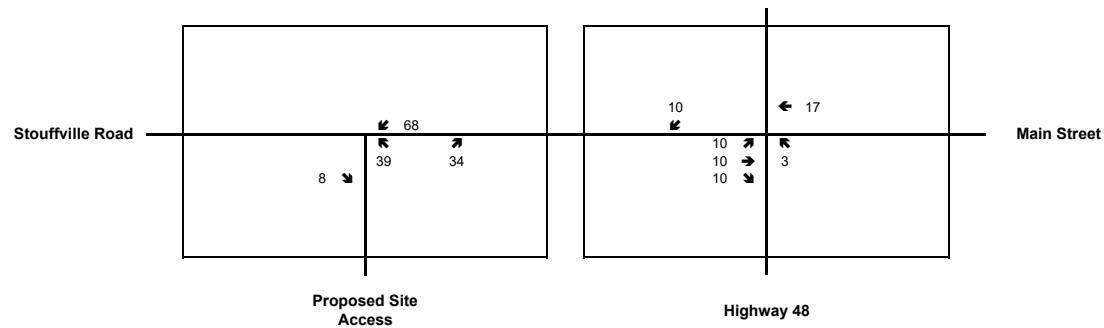


Figure No: 7

Date: June 24 2026

Prepared by: B.W.



5. Future Total Background Multimodal Analysis - Continued

5.1.2 Proposed Mixed-Use Development (5,061 Stouffville Road)

For the high-rise apartment units (Land Use 222) and the day nursery (Land Use 565), trip generation rates from the ITE Trip Generation Manual 11th Edition were applied for the A.M. and P.M. Peak Hours.

Table 6 summarizes the trip generation rates along with the percentages of incoming and outgoing trips for the A.M. and P.M. Peak Hours.

**Table 6: Proposed Mixed-Use Development (5,061 Stouffville Road)
- Trip Generation Rates with Inbound and Outbound Percentages**

ITE Land Use	A.M. Peak Hour			P.M. Peak Hour		
	Trip Rate	% In	% Out	Trip Rate	% In	% Out
Multifamily Housing (High-Rise) (LU 222)	0.27 (Note 1)	34%	66%	0.32 (Note 1)	56%	44%
Day Care Center (LU 565)	11.00 (Note 2)	53%	47%	11.12 (Note 2)	47%	53%

Note 1: The trip rate is per dwelling unit.

Note 2: The trip rate is per 1,000 ft² of G.F.A.

For the high-rise apartment units (Land Use 222), the resulting number of trips was determined by using the trip generation rates provided in **Table 6** and the number of dwelling units. The proposed Mixed-Use Development comprises 1,243 dwelling units.

For the day nursery (Land Use 565), the resulting number of trips was determined by using the trip generation rates provided in **Table 6** and the G.F.A. The proposed Mixed-Use Development comprises a day nursery with a G.F.A. of 10,333 ft².

5. Future Total Background Multimodal Analysis - Continued

5.1.2 Proposed Mixed-Use Development (5,061 Stouffville Road) - Continued

The resulting number of trips generated is provided in **Table 7** for the A.M. and P.M. Peak Hours.

Table 7: Proposed Mixed-Use Development (5,061 Stouffville Road) - Site-Generated Trips

Land Use	Quantity	A.M. Peak Hour (Adj. Street)			P.M. Peak Hour (Adj. Street)		
		Trips In	Trips Out	Total	Trips In	Trips Out	Total
Multifamily Housing (High-Rise) (LU 222)	1,243 dwelling units	114	222	336	223	175	398
Day Care Center (LU 565)	10,333 ft ²	70	62	132	63	71	134
Total	-	184	284	468	286	246	532

The proposed Mixed-Use Development is expected to generate 468 auto trips (184 inbound trips and 284 outbound trips) during the A.M. Peak Hour and 532 auto trips (286 inbound trips and 246 outbound trips) during the P.M. Peak Hour.

For the residential land use, the assumed trip distribution and assignment is based on the results of the 2016 Transportation Tomorrow Survey.

5. Future Total Background Multimodal Analysis - Continued

5.1.2 Proposed Mixed-Use Development (5,061 Stouffville Road) - Continued

The assumed trip distribution and assignment is as follows:

- 8% from the north via Highway 48,
- 24% from the east via Main Street,
- 15% from the south via Highway 48,
- 53% from the west via Stouffville Road.

Total 100% inbound

- 6% to the north via Highway 48,
- 16% to the east via Main Street,
- 14% to the south via Highway 48,
- 64% to the west via Stouffville Road.

Total 100% inbound

For the day nursery, the assumed trip distribution and assignment is based on existing travel patterns.

5. Future Total Background Multimodal Analysis - Continued

5.1.2 Proposed Mixed-Use Development (5,061 Stouffville Road) - Continued

The assumed trip distribution and assignment is as follows:

A.M. Peak Hour

- 24% from the north via Highway 48,
- 25% from the east via Main Street,
- 23% from the south via Highway 48,
- 28% from the west via Stouffville Road.

Total 100% inbound

- 19% to the north via Highway 48,
- 12% to the east via Main Street,
- 30% to the south via Highway 48,
- 39% to the west via Stouffville Road.

Total 100% inbound

P.M. Peak Hour

- 18% from the north via Highway 48,
- 13% from the east via Main Street,
- 35% from the south via Highway 48,
- 34% from the west via Stouffville Road.

Total 100% inbound

- 26% to the north via Highway 48,
- 21% to the east via Main Street,
- 24% to the south via Highway 48,
- 29% to the west via Stouffville Road.

Total 100% inbound

The site-generated trip volumes and trip assignment used in the analysis are illustrated in **Figures 8 and 9** for the A.M. and P.M. Peak Hours.

**Trip Assignment of Proposed Mixed-Use Development (5,061 Stouffville Road)
A.M. Peak Hour**

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville

Note: Location of Anticipated Background Development is shaded in grey.

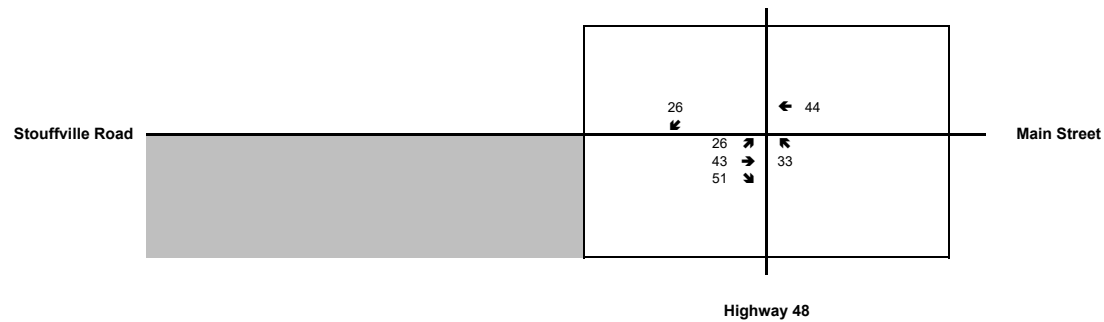


Figure No: 8

Date: June 26 2026

Prepared by: B.W.



**Trip Assignment of Proposed Mixed-Use Development (5,061 Stouffville Road)
P.M. Peak Hour**

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville

Note: Location of Anticipated Background Development is shaded in grey.

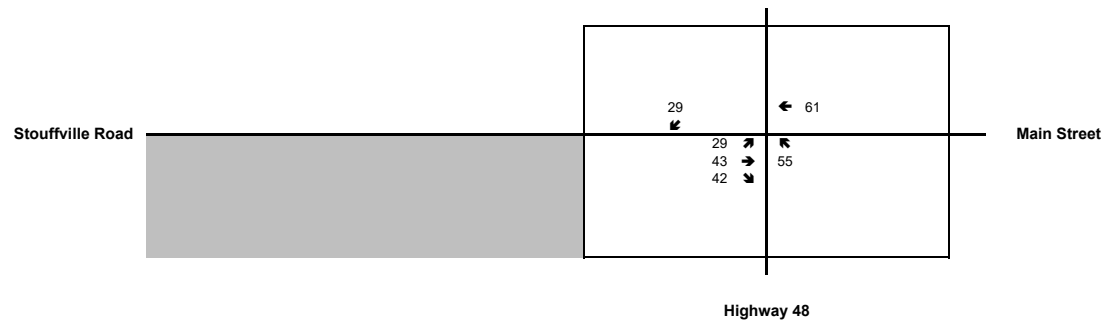


Figure No: 9

Date: June 26 2026

Prepared by: B.W.



5. Future Total Background Multimodal Analysis - Continued

5.2 Auto Traffic Growth Rate

To determine the background growth on Highway 48, Main Street and Stouffville Road, traffic volume outputs that were provided by the Region of York's Activity Based Model for 2016 and 2036 were used. The traffic volume outputs that were received from the Region of York are provided in **Appendix I**.

The growth rates from the Region of York's Activity Based Model and the growth rates that were used to determine the Future (2030 & 2035) Total Background Traffic Volumes are summarized in **Table 8**.

Table 8: Growth of Background Traffic

Roadway	Annual Growth Rate			
	Travel Demand Forecasts - Region of York		Growth of Background Traffic – Future Total Background Volumes	
	A.M Peak Hour	P.M Peak Hour	A.M. Peak Hour	P.M. Peak Hour
Highway 48 NB	0.0%	1.0%	0.5%	1.0%
Stouffville Road EB	0.7%	1.0%	0.7%	1.0%
Highway 48 SB	1.2%	0.8%	1.2%	0.8%
Main Street WB	0.7%	0.8%	0.7%	0.8%

For the Highway 48 at Main Street/Stouffville Road intersection, traffic growth was applied to the turning movements entering the roadway.

5. Future Total Background Multimodal Analysis - Continued

5.3 Future (2030) Total Background Transportation Network Improvements

For the 70-71 Stouffville (GO) bus route, there are plans to improve the headway to 15 minutes or less for the entire day⁶. Although timing was not provided for this improvement, this Study assumes that this improvement will be provided by the 2030 interim year.

5.4 Future (2030) Total Background Auto Network Analysis

The Future (2030) Total Background Traffic was determined by projecting the Existing (2026) Traffic Volumes with four (4) years of background growth and adding the site-generated trips from the anticipated background developments.

The Future (2030) Background Traffic Volumes are provided in **Figures 10 and 11** for the A.M. and P.M. Peak Hours.

For the Future (2030) Total Background Auto Network Analysis, the Level of Service (LOS) was analyzed using SYNCHRO STUDIO 12.0 software.

For the Highway 48 at Main Street/Stouffville Road intersection, the signal timing plans and the lane configuration used in the Existing (2026) Auto Network Analysis were used in the Future (2030) Total Background Auto Network Analysis.

The results of the analysis are summarized in **Table 9** and the related calculations are provided in **Appendix F**.

⁶ Stouffville Line GO Expansion, Metrolinx, Site Visited July 21st, 2026.
<https://www.metrolinx.com/en/projects-and-programs/stouffville-line-go-expansion>

Future (2030) Total Background Traffic Volumes - A.M. Peak Hour

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville

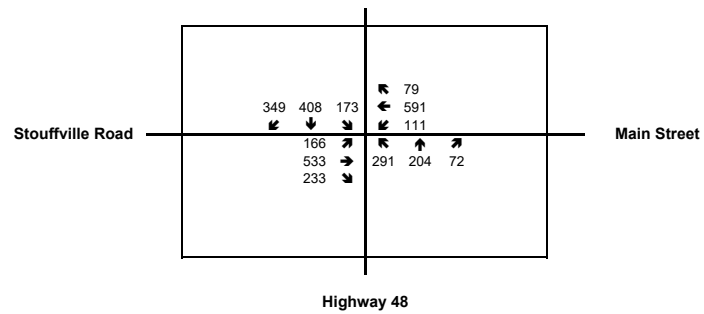


Figure No: 10

Date: July 8 2026

Prepared by: B.W.



Future (2030) Total Background Traffic Volumes - P.M. Peak Hour

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville

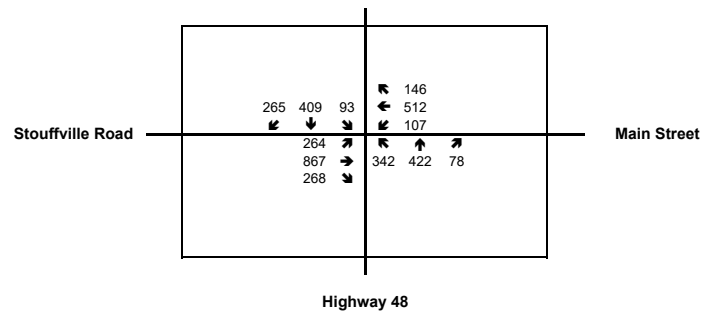


Figure No: 11

Date: July 8 2026

Prepared by: B.W.



5. Future Total Background Multimodal Analysis - Continued

5.4 Future (2030) Total Background Auto Network Analysis - Continued

Table 9: Future (2030) Total Background Traffic – Auto Network

Intersection	Turning Movement/ Approach	A.M. Peak Hour				P.M. Peak Hour			
		V/C	LOS	Delay ¹	95 th % Queue (m)	V/C	LOS	Delay ¹	95 th % Queue (m)
Highway 48 at Main Street/ Stouffville Road (Signalized)	Overall	1.01	C	31.5	n/a	1.25	D	41.3	n/a
	EBL	0.77	D	45.3	50.3	0.79	D	40.8	65.8
	EBT	0.66	D	36.9	68.7	0.79	D	39.2	115.3
	EBR	0.44	A	6.4	17.9	0.41	A	5.0	18.0
	WBL	0.40	C	23.2	25.7	0.55	C	27.7	24.7
	WBT	0.73	D	39.1	77.0	0.49	C	31.1	65.7
	WBR	0.18	A	2.5	4.3	0.25	A	5.2	13.4
	NBL	1.01	E	76.7	105.0	1.25	F	163.1	152.5
	NB T/R	0.23	B	19.2	30.5	0.42	C	28.3	63.2
	SBL	0.33	B	15.8	36.1	0.25	B	19.2	23.7
	SB T/R	0.61	C	21.4	81.1	0.62	C	27.3	82.8

Note 1: Delays are measured in seconds per vehicle.

The analysis of the Future (2030) Total Background Conditions indicates that the signalized intersection will continue to operate at a Level of Service “C” during the A.M. Peak Hour and begin to operate at a Level of Service “D” during the P.M. Peak Hour. Traffic impacts due to the growth in background traffic will be low during the A.M. and P.M. Peak Hours.

The northbound left turning lane will begin to operate at a Level of Service “F” during the P.M. Peak Hour and with a volume over capacity ratio that is greater than 1.0 during the A.M. and P.M. Peak Hours. The queue lengths may continue to result in a spillback of vehicles into the adjacent lane during the A.M. and P.M. Peak Hours.

For the eastbound left turning lane, the queue length may begin to result in a spillback of vehicles into the adjacent lane during the P.M. Peak Hour.

5. Future Total Background Multimodal Analysis - Continued

5.5 Future (2030) Total Background Transit Network Analysis

To evaluate the transit network, the criteria set forth in Table 4 of the Region of York's Transportation Mobility Plan Guidelines for Development Applications was utilized. The results of the analysis are summarized in **Table 10** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Table 10: Future (2030) Total Background Traffic – Transit Network

Transit Stop Location	Transit Route and Direction	A.M. Peak Period		P.M. Peak Period	
		Access to Transit Stop	Transit Headway ¹	Access to Transit Stop	Transit Headway ¹
West Leg of Main Street at Baker Hill Boulevard/ Ringwood Drive	GO 70-71 NB	D	C (15)	D	C (15)
East Leg of Main Street at Baker Hill Boulevard/ Ringwood Drive	YRT 9 NB	D	F (35)	D	F (37)
	GO 70-71 SB		C (15)		C (15)
	YRT 414 SB		F		F
	YRT 417 NB		F		F
West Leg of Millard Street at Automall Boulevard	YRT 415 SB	D	F	D	F
East Leg of Millard Street at Baker Hill Boulevard	YRT 9 NB	D	F (35)	D	F (37)
	YRT 415 NB	D	F	D	F

Note 1: The average headway in minutes is provided in brackets.

5. Future Total Background Multimodal Analysis - Continued

5.5 Future (2030) Total Background Transit Network Analysis - Continued

With the improvements to the headway for the 70-71 Stouffville (GO) bus route, impacts will be low during the A.M. and P.M. Peak Hours. Since the proposed land uses within the Subject Property are within 600 metres, the transit stops within the vicinity of the Subject Property operate at a Level of Service “D”. All of the transit routes that use the concerned transit stops operate at a Level of Service “C” or “F”.

5.6 Future (2030) Total Background Cycling Network Analysis

To evaluate the cycling network, the criteria set forth in Table 8 of the Region of York’s Transportation Mobility Plan Guidelines for Development Applications was utilized. The results of the analysis are summarized in **Table 11** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Table 11: Future (2030) Total Background Traffic – Cycling Network

Intersection	Leg	Segment LOS	Intersection LOS
Highway 48 at Main Street/ Stouffville Road	North	E*, F	E
	East	F	
	South	F	
	West	F	

* Applies to the Level of Service for north or east side of the roadway.

Improvements to the cycling network are not anticipated. Therefore, traffic conditions for the Existing (2026) and Future (2030) Total Background are the same.

A paved shoulder with a width that is greater than or equal to 1.2m is provided on the east side of Highway 48; north of Main Street/Stouffville Road. As a result, that segment operates at a Level of Service “E”. All of the other segments for the concerned intersection do not provide bicycle provisions and operate at a Level of Service “F”.

5. Future Total Background Multimodal Analysis - Continued

5.7 Future (2030) Total Background Pedestrian Network Analysis

To evaluate the pedestrian network, the description of the study area as provided in Section 3 was utilized in conjunction with the criteria set forth in Table 6 of the Region of York's Transportation Mobility Plan Guidelines for Development Applications. The results of the analysis are summarized in **Table 12** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Table 12: Future (2030) Total Background Traffic – Pedestrian Network

Intersection	Leg	Segment LOS	Intersection LOS
Highway 48 at Main Street/ Stouffville Road	North	E*, F	D
	East	D	
	South	F	
	West	D	

* Applies to the Level of Service for north or east side of the roadway.

Improvements to the pedestrian network are not anticipated. Therefore, traffic conditions for the Existing (2026) and Future (2030) Total Background are the same.

The intersection of Highway 48 at Main Street/Stouffville Road provides pedestrian signal heads and delineated crosswalks. Highway 48 has segments that provide a paved shoulder (Level of Service “E”) or do not provide pedestrian provisions (Level of Service “F”). In addition, with curb-faced sidewalks (no buffer) that have a width that is less than 1.5 metres, Main Street/Stouffville Road operates at a Level of Service “D”.

5.8 Future (2035) Total Background Transportation Network Improvements

Improvements are not anticipated for the 2035 horizon year.

5. Future Total Background Multimodal Analysis - Continued

5.9 Future (2035) Total Background Auto Network Analysis

The Future (2035) Total Background Traffic was determined by projecting the Existing (2026) Traffic Volumes with nine (9) years of background growth and adding the site-generated trips from the anticipated background developments.

The Future (2035) Background Traffic Volumes are provided in **Figures 12 and 13** for the A.M. and P.M. Peak Hours.

For the Future (2035) Total Background Auto Network Analysis, the Level of Service (LOS) was analyzed using SYNCHRO STUDIO 12.0 software.

For the Highway 48 at Main Street/Stouffville Road intersection, the signal timing plans and the lane configuration used in the Existing (2026) Auto Network Analysis was used in the Future (2035) Total Background Auto Network Analysis.

The results of the analysis are summarized in **Table 13** and the related calculations are provided in **Appendix F**.

Future (2035) Total Background Traffic Volumes - A.M. Peak Hour

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville

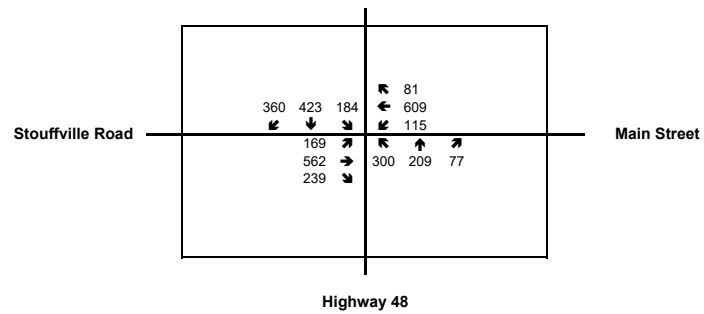


Figure No: 12

Date: July 8 2026

Prepared by: B.W.



Future (2035) Total Background Traffic Volumes - P.M. Peak Hour

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville

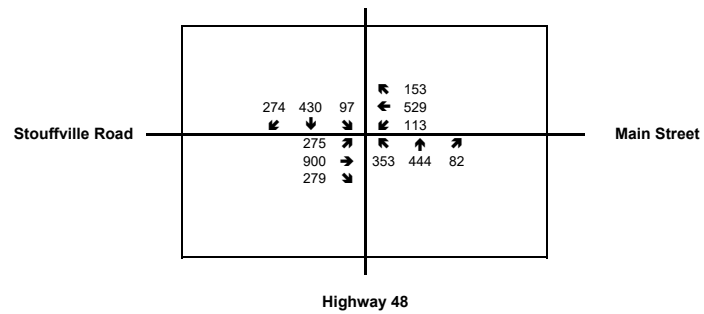


Figure No: 13

Date: July 8 2026

Prepared by: B.W.



5. Future Total Background Multimodal Analysis - Continued

5.9 Future (2035) Total Background Auto Network Analysis - Continued

Table 13: Future (2035) Total Background Traffic – Auto Network

Intersection	Turning Movement/ Approach	A.M. Peak Hour				P.M. Peak Hour			
		V/C	LOS	Delay ¹	95 th % Queue (m)	V/C	LOS	Delay ¹	95 th % Queue (m)
Highway 48 at Main Street/ Stouffville Road (Signalized)	Overall	1.09	C	34.4	n/a	1.37	D	46.6	n/a
	EBL	0.80	D	48.9	54.1	0.83	D	44.8	74.1
	EBT	0.68	D	37.5	73.0	0.80	D	39.6	121.2
	EBR	0.45	A	6.3	18.1	0.42	A	5.0	18.1
	WBL	0.43	C	23.9	26.5	0.60	C	30.6	26.1
	WBT	0.74	D	39.3	79.7	0.49	C	31.0	68.0
	WBR	0.18	A	2.7	4.8	0.26	A	5.1	13.7
	NBL	1.09	F	102.1	113.9	1.37	F	211.7	163.8
	NB T/R	0.24	B	19.3	31.3	0.48	C	30.4	66.8
	SBL	0.35	B	16.4	38.3	0.29	C	20.1	24.7
	SB T/R	0.64	C	22.4	85.7	0.65	C	29.1	89.0

Note 1: Delays are measured in seconds per vehicle.

The analysis of the Future (2035) Total Background Conditions indicates that the signalized intersection will continue to operate at a Level of Service “C” during the A.M. Peak Hour and a Level of Service “D” during the P.M. Peak Hour. Traffic impacts due to the growth in background traffic will be low during the A.M. and P.M. Peak Hours.

The northbound left turning lane will begin to operate at a Level of Service “F” during the A.M. Peak Hour and continue to operate at a Level of Service “F” during the P.M. Peak Hour. In addition, the turning lane will continue to operate with a volume over capacity ratio that is greater than 1.0 and with queue lengths that may result in a spillback of vehicles into the adjacent lane during the A.M. and P.M. Peak Hours.

For the eastbound left turning lane, the queue length may continue to result in a spillback of vehicles into the adjacent lane during the P.M. Peak Hour.

5. Future Total Background Multimodal Analysis - Continued

5.10 Future (2035) Total Background Transit Network Analysis

To evaluate the transit network, the criteria set forth in Table 4 of the Region of York's Transportation Mobility Plan Guidelines for Development Applications was utilized. The results of the analysis are summarized in **Table 14** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Table 14: Future (2035) Total Background Traffic – Transit Network

Transit Stop Location	Transit Route and Direction	A.M. Peak Period		P.M. Peak Period	
		Access to Transit Stop	Transit Headway ¹	Access to Transit Stop	Transit Headway ¹
West Leg of Main Street at Baker Hill Boulevard/ Ringwood Drive	GO 70-71 NB	D	C (15)	D	C (15)
East Leg of Main Street at Baker Hill Boulevard/ Ringwood Drive	YRT 9 NB	D	F (35)	D	F (37)
	GO 70-71 SB		C (15)		C (15)
	YRT 414 SB		F		F
	YRT 417 NB		F		F
West Leg of Millard Street at Automall Boulevard	YRT 415 SB	D	F	D	F
East Leg of Millard Street at Baker Hill Boulevard	YRT 9 NB	D	F (35)	D	F (37)
	YRT 415 NB	D	F	D	F

Note 1: The average headway in minutes is provided in brackets.

Improvements to the transit network are not anticipated. Therefore, traffic conditions for the Future (2030) Total Background and Future (2035) Total Background are the same.

5. Future Total Background Multimodal Analysis - Continued

5.10 Future (2035) Total Background Transit Network Analysis - Continued

Since the proposed land uses within the Subject Property are within 600 metres, the transit stops within the vicinity of the Subject Property operate at a Level of Service “D”. All of the transit routes that use the concerned transit stops operate at a Level of Service “C” or “F”.

5.11 Future (2035) Total Background Cycling Network Analysis

To evaluate the cycling network, the criteria set forth in Table 8 of the Region of York’s Transportation Mobility Plan Guidelines for Development Applications was utilized. The results of the analysis are summarized in **Table 15** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Table 15: Future (2035) Total Background Traffic – Cycling Network

Intersection	Leg	Segment LOS	Intersection LOS
Highway 48 at Main Street/ Stouffville Road	North	E*, F	E
	East	F	
	South	F	
	West	F	

* Applies to the Level of Service for north or east side of the roadway.

Improvements to the cycling network are not anticipated. Therefore, traffic conditions for the Existing (2026) and Future (2035) Total Background are the same.

A paved shoulder with a width that is greater than or equal to 1.2m is provided on the east side of Highway 48; north of Main Street/Stouffville Road. As a result, that segment operates at a Level of Service “E”. All of the other segments for the concerned intersection do not provide bicycle provisions and operate at a Level of Service “F”.

5. Future Total Background Multimodal Analysis - Continued

5.12 Future (2035) Total Background Pedestrian Network Analysis

To evaluate the pedestrian network, the description of the study area as provided in Section 3 was utilized in conjunction with the criteria set forth in Table 6 of the Region of York's Transportation Mobility Plan Guidelines for Development Applications. The results of the analysis are summarized in **Table 16** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Table 16: Future (2035) Total Background Traffic – Pedestrian Network

Intersection	Leg	Segment LOS	Intersection LOS
Highway 48 at Main Street/ Stouffville Road	North	E*, F	D
	East	D	
	South	F	
	West	D	

* Applies to the Level of Service for north or east side of the roadway.

Improvements to the pedestrian network are not anticipated. Therefore, traffic conditions for the Existing (2026) and Future (2035) Total Background are the same.

The intersection of Highway 48 at Main Street/Stouffville Road provides pedestrian signal heads and delineated crosswalks. Highway 48 has segments that provide a paved shoulder (Level of Service “E”) or do not provide pedestrian provisions (Level of Service “F”). In addition, with curb-faced sidewalks (no buffer) that have a width that is less than 1.5 metres, Main Street/Stouffville Road operates at a Level of Service “D”.

6. Trip Generation and Distribution

6.1 Trip Generation

For the townhouse units (Land Use 220), the hotel (Land Use 310) and commercial land use (Land Use 822), trip generation rates and formulae from the ITE Trip Generation Manual Edition 11th Edition were applied for the A.M. and P.M. Peak Hours.

Table 17 summarizes the trip generation rates and formulae along with the percentages of incoming and outgoing trips for the A.M. and P.M. Peak Hours.

Table 17: Trip Generation Rates and Formulae with Inbound and Outbound Percentages

ITE Land Use	A.M. Peak Hour			P.M. Peak Hour		
	Trip Rate/ Fitted Curve Equation	% In	% Out	Trip Rate/ Fitted Curve Equation	% In	% Out
Multifamily Housing (Low-Rise) (LU 220)	$T = 0.31X + 22.85$ (See Note 1)	24%	76%	$T = 0.43X + 20.55$ (See Note 1)	63%	37%
Hotel (LU 310)	0.46 (See Note 2)	56%	44%	0.59 (See Note 2)	51%	49%
Strip Retail Plaza (<40k) (LU 822)	$\ln(T) = 0.66 \ln(X) + 1.84$ (See Note 3)	60%	40%	$\ln(T) = 0.71 \ln(X) + 2.72$ (See Note 3)	50%	50%

Note 1: T represents the total number of trips and X represents the total number of dwelling units.

Note 2: Trip Rate is per room.

Note 3: T represents the total number of trips and X represents every 1,000ft² of G.L.A.

6.2 Total Site-Generated Trips

For the townhouse units, the resulting number of trips generated were determined using the trip generation formulae provided in **Tables 17** and the number of dwelling units. The proposed Residential Development comprises 165 dwelling units.

For the hotel, the resulting number of trips generated were determined using the trip generation rates provided in **Tables 17** and the number of rooms. The hotel provides 60 rooms.

6. Trip Generation and Distribution - Continued

6.2 Total Site-Generated Trips - Continued

For the commercial land use, the resulting number of trips generated were determined using the trip generation formulae provided in **Tables 17** and the G.L.A. The proposed Residential Development comprises 2,045 ft² of commercial land use. In addition, this Study applied a pass-by percentage of 34% for the P.M. Peak Hour. The pass-by trip percentage was based on the data provided in the ITE Trip Generation Handbook 3rd Edition⁷.

The resulting number of trips generated is provided in **Table 18**.

Table 18: Site-Generated Trips

ITE Land Use	Quantity	Trips	A.M. Peak Hour			P.M. Peak Hour		
			Trips In	Trips Out	Total	Trips In	Trips Out	Total
Multifamily Housing (Low-Rise) (LU 220)	165 dwelling units	Gross Trips	18	56	74	58	34	92
Hotel (LU 310)	60 rooms	Gross Trips	16	12	28	18	17	35
Strip Retail Plaza (<40k) (LU 822)	2,045 ft ²	Gross Trips	6	4	10	12	13	25
		Passby Trips	0	0	0	4	4	8
TOTAL	-	Gross Trips	40	72	112	88	64	152
		Passby Trips	0	0	0	4	4	8

The proposed Mixed-Use Subdivision is expected to generate a total of 112 net trips during the A.M. Peak Hour (40 inbound trips and 72 outbound trips) and 152 net trips during the P.M. Peak Hour (88 inbound trips and 64 outbound trips).

⁷ Trip Generation Handbook (3rd Edition), Institute of Transportation Engineers, September 2017.

6. Trip Generation and Distribution - Continued

6.3 Trip Distribution and Assignment

For residential land use, based on the nature of the land use, the majority of the trips generated will not be local traffic. Therefore, the A.M. Peak Period work trip distribution from the 2022 Transportation Tomorrow Survey and the future road network was utilized for the assumed trip distribution and trip assignment.

The assumed trip distribution and assignment will be as follows:

- 2% (2%) to/from the north via Highway 48,
- 10% (10%) to/from the east via Main Street,
- 22% (22%) to/from the south via Highway 48,
- 66% (66%) to/from the west via Main Street.

For the hotel, based on the nature of the land use, the majority of the trips generated will not be local traffic. Therefore, the all-day and all-purpose trip distribution from the 2022 Transportation Tomorrow Survey and the future road network was utilized for the assumed trip distribution and trip assignment.

The assumed trip distribution and assignment will be as follows:

- 7% (7%) to/from the north via Highway 48,
- 33% (33%) to/from the east via Main Street,
- 13% (13%) to/from the south via Highway 48,
- 47% (47%) to/from the west via Main Street.

6. Trip Generation and Distribution - Continued

6.3 Trip Distribution and Assignment - Continued

For the commercial land use, based on the nature of the land use, the assumed trip distribution and assignment is based on the future residential land use within the vicinity of the proposed Mixed-Use Subdivision.

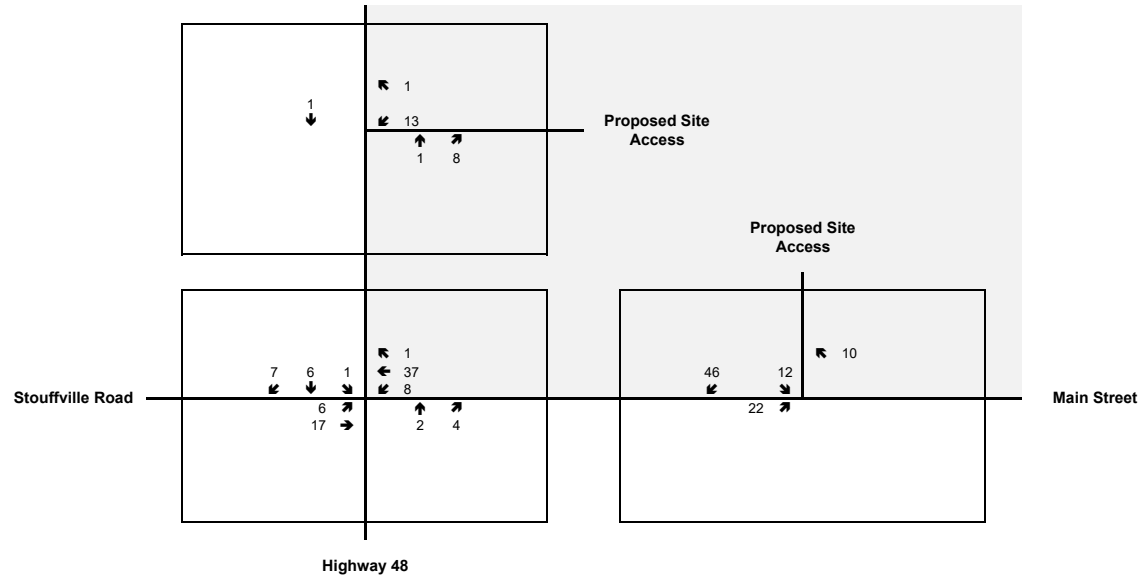
The assumed trip distribution and assignment will be as follows:

- 5% (5%) to/from the north via Highway 48,
- 45% (45%) to/from the east via Main Street,
- 50% (50%) to/from the west via Main Street.

The site-generated trip volumes and trip assignment used in the analysis are illustrated in **Figures 14 and 15**.

Trip Assignment of Subject Subdivision - A.M. Peak Hour

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville



Note: Location of Subject Development is shaded in grey.

Figure No: 14

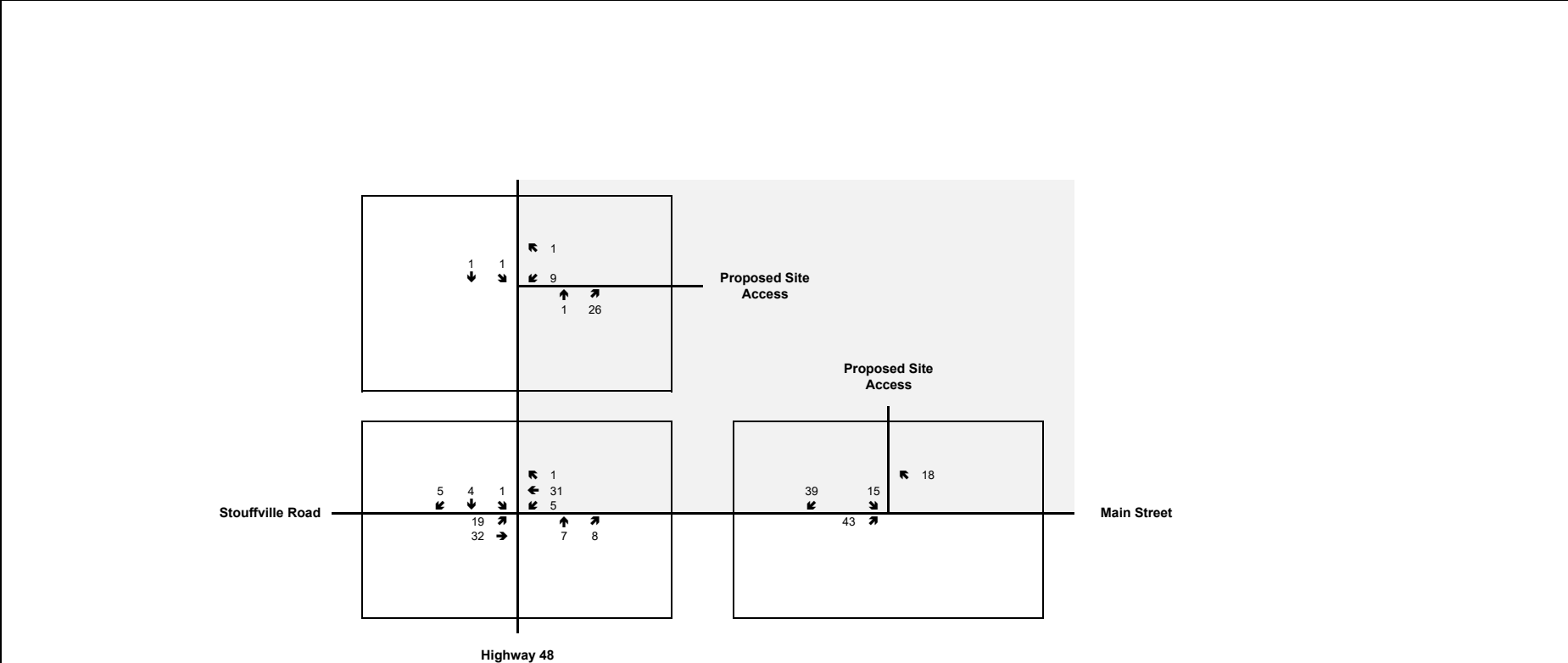
Date: August 5 2026

Prepared by: B.W.



Trip Assignment of Subject Subdivision - P.M. Peak Hour

W26018 Proposed Mixed-Use Subdivision City Park Homes Town of Whitchurch-Stouffville
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**Notes: 1. Location of Subject Development is shaded in grey.
2. Trips may not balance due to passby trips.**

Figure No: 15

Date: August 5 2026

Prepared by: B.W.



7. Future Total Multimodal Analysis

7.1 Future (2030) Total Transportation Network Improvements

For the proposed Site Access “1” at Highway 48 and proposed Site Access “2” at Main Street intersections, a curb-faced sidewalk (no buffer) that has a width of 1.5 metres will be provided on one side of the private road.

7.2 Future (2030) Total Auto Network Analysis

The Future (2030) Total Traffic Volumes were determined by using the Future (2030) Total Background Traffic Volumes and adding the site-generated trips from the proposed Mixed-Use Subdivision.

The Future (2030) Total Traffic Volumes are provided in **Figures 16 and 17** for the A.M. and P.M. Peak Hours.

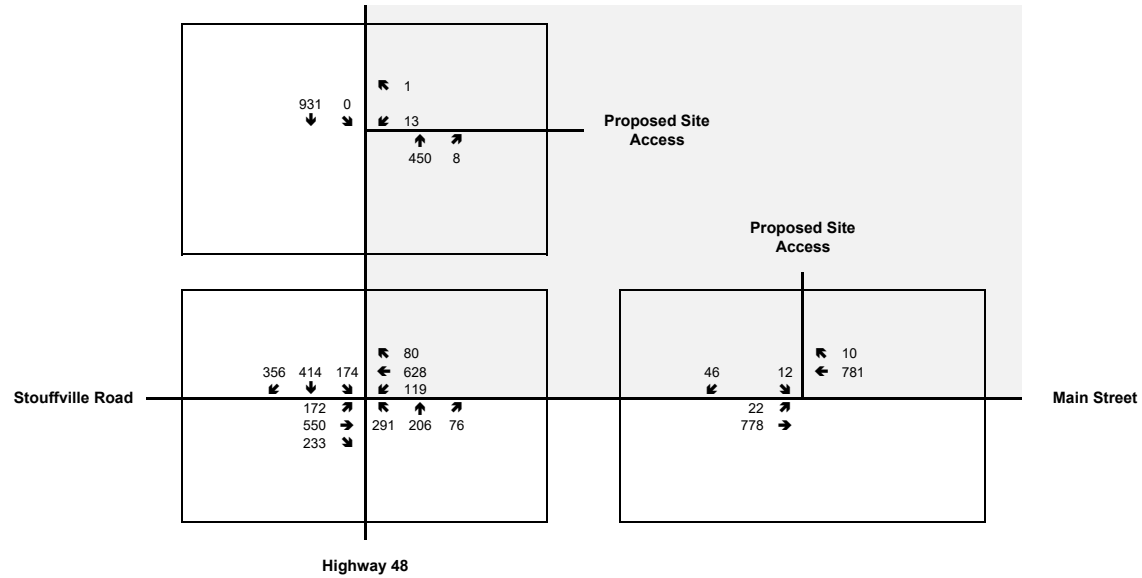
For the Future (2030) Total Auto Network Analysis, the Level of Service (LOS) was analyzed using SYNCHRO STUDIO 12.0 software.

For the Highway 48 at Main Street/Stouffville Road intersection, the signal timing plans and the lane configuration used in the Existing (2026) Auto Network Analysis was used in the Future (2030) Total Auto Network Analysis.

Proposed Site Access “1” at Highway 48 was analyzed as an un-signalized intersection with a stop-control at the westbound approach. The lane configuration used in the analysis comprises a through and a shared through-right turning lane at the northbound approach; a shared through-left and a through lane at the southbound approach; and a shared left-right turning lane at the westbound approach.

Future (2030) Total Traffic Volumes - A.M. Peak Hour

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville



Note: Location of Subject Development is shaded in grey.

Figure No: 16

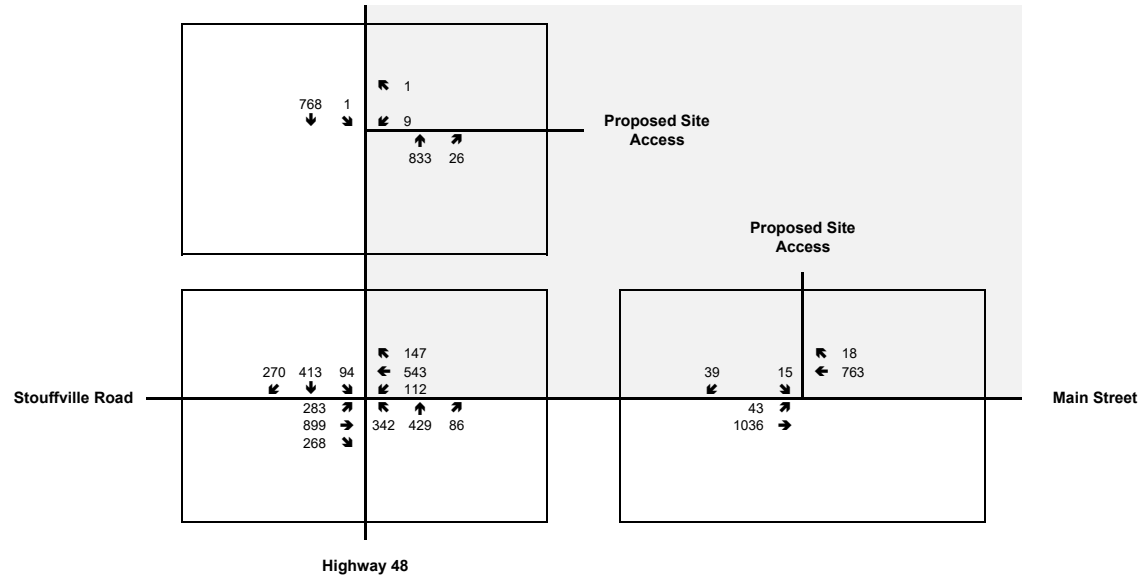
Date: August 5 2026

Prepared by: B.W.



Future (2030) Total Traffic Volumes - P.M. Peak Hour

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville



Note: Location of Subject Development is shaded in grey.

Figure No: 17

Date: August 5 2026

Prepared by: B.W.



7. Future Total Multimodal Analysis - Continued

7.2 Future (2030) Total Auto Network Analysis - Continued

Proposed Site Access “2” at Main Street was analyzed as an un-signalized intersection with a stop-control at the southbound approach. The lane configuration used in the analysis comprises a left and two (2) through lanes at the eastbound approach; a shared left-right turning lane at the southbound approach; and a through and a shared through-right turning lane at the westbound approach.

The results of the analysis are summarized in **Table 19** and the related calculations are provided in **Appendix F**.

7. Future Total Multimodal Analysis - Continued

7.2 Future (2030) Total Auto Network Analysis - Continued

Table 19: Future (2030) Total Traffic – Auto Network

Intersection	Turning Movement/ Approach	A.M. Peak Hour				P.M. Peak Hour			
		V/C	LOS	Delay ¹	95 th % Queue (m)	V/C	LOS	Delay ¹	95 th % Queue (m)
Highway 48 at Main Street/ Stouffville Road (Signalized)	Overall	1.05	C	33.4	n/a	1.28	D	43.5	n/a
	EBL	0.83	D	55.3	57.2	0.88	D	51.0	81.5
	EBT	0.65	D	36.6	71.1	0.80	D	39.6	120.8
	EBR	0.43	A	6.2	17.7	0.41	A	5.0	18.0
	WBL	0.43	C	23.7	27.3	0.59	C	30.1	25.8
	WBT	0.75	D	39.5	82.3	0.50	C	31.3	70.1
	WBR	0.17	A	2.5	4.5	0.25	A	5.1	13.5
	NBL	1.05	F	89.8	108.9	1.28	F	176.4	152.7
	NB T/R	0.24	B	19.5	31.2	0.47	C	30.0	65.2
	SBL	0.33	B	16.4	36.8	0.27	B	19.9	24.1
	SB T/R	0.63	C	22.3	84.3	0.63	C	27.9	84.0
Proposed Site Access “1” at Highway 48 (Un-signalized)	Overall	0.06	A	0.2	n/a	0.07	A	0.2	n/a
	WB Approach	0.06	C	20.2	1.5	0.07	D	29.9	1.5
	NB Approach	0.00	A	0.0	0.0	0.00	A	0.0	0.0
	SB Approach	0.00	A	0.0	0.0	0.00	A	9.9	0.0
Proposed Site Access “2” at Main Street (Un-signalized)	Overall	0.18	A	0.7	n/a	0.23	A	0.9	n/a
	EBL	0.03	A	9.8	0.8	0.06	A	9.9	1.5
	EBT	0.00	A	0.0	0.0	0.00	A	0.0	0.0
	WB Approach	0.00	A	0.0	0.0	0.00	A	0.0	0.0
	SB Approach	0.18	C	17.4	4.5	0.23	C	22.9	6.0

Note 1: Delays are measured in seconds per vehicle.

7. Future Total Multimodal Analysis - Continued

7.2 Future (2030) Total Auto Network Analysis - Continued

Highway 48 at Main Street/Stouffville Road

The analysis of the Future (2030) Total Traffic Conditions indicates that the signalized intersection will continue to operate at a Level of Service “C” during the A.M. Peak Hour and a Level of Service “D” during the P.M. Peak Hour. Due to the inclusion of site-generated trips, traffic impacts will be low during the A.M. and P.M. Peak Hours.

The northbound left turning lane will begin to operate at a Level of Service “F” during the A.M. Peak Hour and continue to operate at a Level of Service “F” during the P.M. Peak Hour. In addition, the turning lane will continue to operate with a volume over capacity ratio that is greater than 1.0 and a queue length that may result in a spillback of vehicles into the adjacent lane during the A.M. and P.M. Peak Hours.

For the eastbound left turning lane, the queue length may begin to result in a spillback of vehicles into the adjacent lane during the A.M. Peak Hour and may continue to result in a spillback of vehicles into the adjacent lane during the P.M. Peak Hour.

Proposed Site Access “1” at Highway 48

The analysis of the Future (2030) Total Traffic Conditions indicates that the un-signalized intersection will operate at a Level of Service “A” during the A.M. and P.M. Peak Hours.

All of the turning movements will operate at a Level of Service “C” or better during the A.M. Peak Hour and a Level of Service “D” or better during the P.M. Peak Hour.

Proposed Site Access “2” at Main Street

The analysis of the Future (2030) Total Traffic Conditions indicates that the un-signalized intersection will operate at a Level of Service “A” during the A.M. and P.M. Peak Hours.

All of the turning movements will operate at a Level of Service “C” or better during the A.M. and P.M. Peak Hours.

7. Future Total Multimodal Analysis - Continued

7.2.1 Future (2030) Total Auto Network Analysis – Recommended Improvements

For the Highway 48 at Main Street/Stouffville Road intersection, there are critical turning movements during the A.M. and P.M. Peak Hours, which are mainly attributed to background traffic.

To address traffic operation concerns, the following recommendations should be considered for the 2030 interim year:

Highway 48 at Main Street/Stouffville Road

- Modify the Weekday A.M. and P.M. Signal Timing Plans,
- Increase the storage of the northbound left turning lane by 70 metres,
- Increase the storage of the eastbound left turning lane by 45 metres.

The results of the analysis are summarized in **Table 20** and the related calculations are provided in **Appendix F**.

7. Future Total Multimodal Analysis - Continued

7.2.1 Future (2030) Total Auto Network Analysis – Recommended Improvements - Continued

Table 20: Future (2030) Total Traffic – with Improvements – Auto Network

Intersection	Turning Movement/ Approach	A.M. Peak Hour				P.M. Peak Hour			
		V/C	LOS	Delay ¹	95 th % Queue (m)	V/C	LOS	Delay ¹	95 th % Queue (m)
Highway 48 at Main Street/ Stouffville Road (Signalized)	Overall	0.97	C	32.1	n/a	0.96	D	38.3	n/a
	EBL	0.75	D	41.8	47.6	0.94	E	66.4	99.1
	EBT	0.61	D	35.6	72.0	0.88	D	48.7	133.2
	EBR	0.42	A	5.9	17.7	0.43	A	5.7	19.4
	WBL	0.42	C	23.5	27.6	0.66	D	40.5	33.9
	WBT	0.76	D	41.8	86.0	0.59	D	38.1	78.7
	WBR	0.18	A	2.3	3.9	0.28	A	5.7	13.7
	NBL	0.97	E	66.1	102.8	0.96	E	60.3	113.6
	NB T/R	0.24	C	20.0	31.4	0.41	C	26.7	60.3
	SBL	0.37	B	18.5	37.6	0.27	B	18.1	21.8
	SB T/R	0.70	C	26.7	91.0	0.70	C	33.2	89.5

Note 1: Delays are measured in seconds per vehicle.

With the recommended improvements, all of the turning movements will operate at acceptable Levels of Service during the A.M. and P.M. Peak Hours.

7. Future Total Multimodal Analysis - Continued

7.3 Future (2030) Total Transit Network Analysis

To evaluate the transit network, the criteria set forth in Table 4 of the Region of York's Transportation Mobility Plan Guidelines for Development Applications was utilized. The results of the analysis are summarized in **Table 21** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Table 21: Future (2030) Total Traffic – Transit Network

Transit Stop Location	Transit Route and Direction	A.M. Peak Period		P.M. Peak Period	
		Access to Transit Stop	Transit Headway ¹	Access to Transit Stop	Transit Headway ¹
West Leg of Main Street at Baker Hill Boulevard/ Ringwood Drive	GO 70-71 NB	D	C (15)	D	C (15)
East Leg of Main Street at Baker Hill Boulevard/ Ringwood Drive	YRT 9 NB	D	F (35)	D	F (37)
	GO 70-71 SB		C (15)		C (15)
	YRT 414 SB		F		F
	YRT 417 NB		F		F
West Leg of Millard Street at Automall Boulevard	YRT 415 SB	D	F	D	F
East Leg of Millard Street at Baker Hill Boulevard	YRT 9 NB	D	F (35)	D	F (37)
	YRT 415 NB	D	F	D	F

Note 1: The average headway in minutes is provided in brackets.

Improvements to the transit network are not anticipated. Therefore, traffic conditions for the Future (2030) Total Background and Future (2030) Total Traffic are the same.

7. Future Total Multimodal Analysis - Continued

7.3 Future (2030) Total Transit Network Analysis - Continued

Since the proposed land uses within the Subject Property are within 600 metres, the transit stops within the vicinity of the Subject Property operate at a Level of Service “D”. All of the transit routes that use the concerned transit stops operate at a Level of Service “C” or “F”.

7.4 Future (2030) Total Cycling Network Analysis

To evaluate the cycling network, the criteria set forth in Table 8 of the Region of York’s Transportation Mobility Plan Guidelines for Development Applications was utilized. The results of the analysis are summarized in **Table 22** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Improvements to the cycling network are not anticipated. Therefore, traffic conditions for the Existing (2026) and Future (2030) Total Traffic are the same.

Table 22: Future (2030) Total Traffic – Cycling Network

Intersection	Leg	Segment LOS	Intersection LOS
Highway 48 at Main Street/ Stouffville Road	North	E*, F	E
	East	F	
	South	F	
	West	F	
Proposed Site Access “1” at Highway 48	North	F	F
	East	F	
	South	F	
Proposed Site Access “2” at Main Street	North	F	F
	East	F	
	West	F	

* Applies to the Level of Service for north or east side of the roadway.

7. Future Total Multimodal Analysis - Continued

7.4 Future (2030) Total Cycling Network Analysis - Continued

For the Highway 48 at Main Street/Stouffville Road intersection, a paved shoulder with a width that is greater than or equal to 1.2m is provided on the east side of Highway 48; north of Main Street/Stouffville Road. As a result, that segment operates at a Level of Service “E”. All of the other segments for the concerned intersection do not provide bicycle provisions and operate at a Level of Service “F”.

Since the proposed Site Access “1” at Highway 48 and proposed Site Access “2” at Main Street intersections do not provide any bicycle provisions, all of the segments operate at a Level of Service “F”.

7.5 Future (2030) Total Pedestrian Network Analysis

To evaluate the pedestrian network, the criteria set forth in Table 6 of the Region of York’s Transportation Mobility Plan Guidelines for Development Applications was used. The results of the analysis are summarized in **Table 23** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Table 23: Future (2030) Total Traffic – Pedestrian Network

Intersection	Leg	Segment LOS	Intersection LOS
Highway 48 at Main Street/ Stouffville Road	North	E*, F	D
	East	D	
	South	F	
	West	D	
Proposed Site Access “1” at Highway 48	North	F	C
	East	F*, C	
	South	F	
Proposed Site Access “2” at Main Street	North	C*, F	C
	East	D	
	West	D	

* Applies to the Level of Service for north or east side of the roadway.

7. Future Total Multimodal Analysis - Continued

7.5 Future (2030) Total Pedestrian Network Analysis - Continued

Highway 48 at Main Street/Stouffville Road

Improvements to the pedestrian network are not anticipated. Therefore, traffic conditions for the Existing (2026) and Future (2030) Total Traffic are the same.

The intersection provides pedestrian signal heads and delineated crosswalks. Highway 48 has segments that provide a paved shoulder (Level of Service “E”) or do not provide pedestrian provisions (Level of Service “F”). In addition, with curb-faced sidewalks (no buffer) that have a width that is less than 1.5 metres, Main Street/Stouffville Road operates at a Level of Service “D”.

Proposed Site Access ‘1’ at Highway 48

Since pedestrian provisions are not provided, Highway 48 operates at a Level of Service "F".

For the proposed roadway, a curb-faced sidewalk (no buffer) with a width of 1.5 metres (Level of Service “C”) is provided on the south side.

Proposed Site Access ‘2’ at Main Street

A curb-faced sidewalk (no buffer) with a width that is less than 1.5 metres (Level of Service "D") is provided on both sides of Main Street and a curb-faced sidewalk (no buffer) with a width that is 1.5 metres (Level of Service "C") is provided on the east side of the proposed roadway.

7.6 Future (2035) Total Auto Network Analysis

The Future (2035) Total Traffic Volumes were determined by using the Future (2035) Total Background Traffic Volumes and adding the site-generated trips from the proposed Mixed-Use Subdivision.

7. Future Total Multimodal Analysis - Continued

7.6 Future (2035) Total Auto Network Analysis - Continued

The Future (2035) Total Traffic Volumes are provided in **Figures 18 and 19** for the A.M. and P.M. Peak Hours.

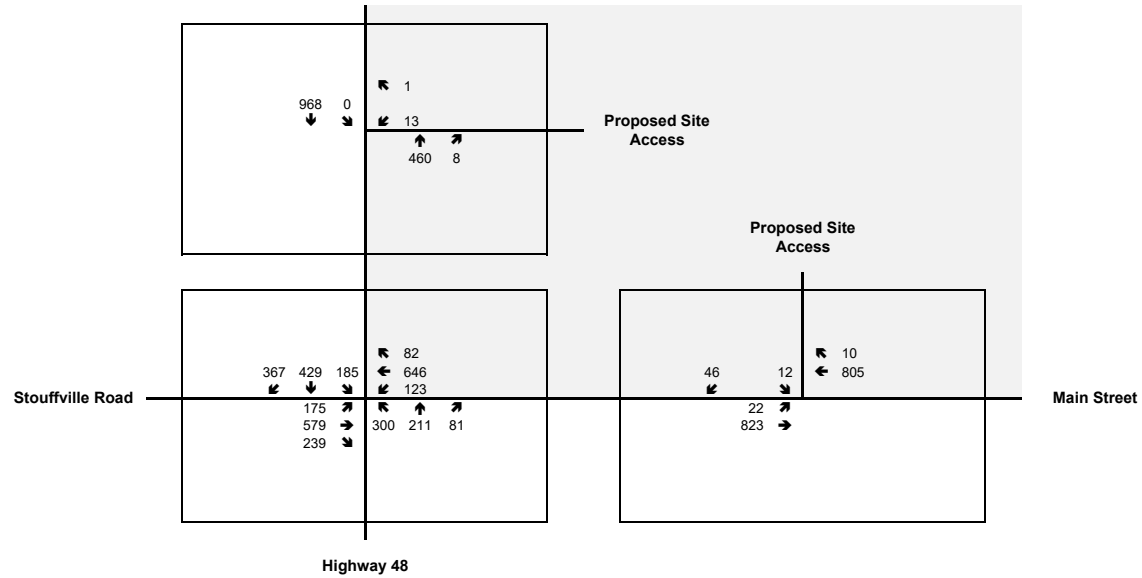
For the Future (2035) Total Auto Network Analysis, the Level of Service (LOS) was analyzed using SYNCHRO STUDIO 12.0 software.

The signal timing plans and lane configurations used in the Future (2030) Total Auto Network Analysis were used in the Future (2035) Total Auto Network Analysis.

The results of the analysis are summarized in **Table 24** and the related calculations are provided in **Appendix F**.

Future (2035) Total Traffic Volumes - A.M. Peak Hour

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville



Note: Location of Subject Development is shaded in grey.

Figure No: 18

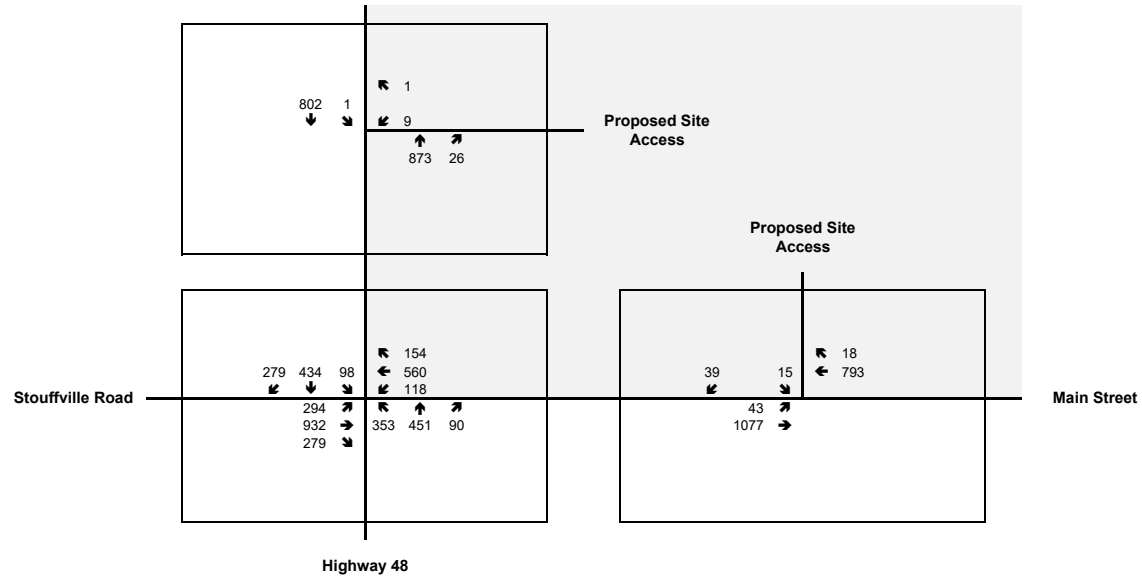
Date: August 5 2026

Prepared by: B.W.



Future (2035) Total Traffic Volumes - P.M. Peak Hour

W26018
Proposed Mixed-Use Subdivision
City Park Homes
Town of Whitchurch-Stouffville



Note: Location of Subject Development is shaded in grey.

Figure No: 19
Date: August 5 2026
Prepared by: B.W.



7. Future Total Multimodal Analysis - Continued

7.6 Future (2035) Total Auto Network Analysis - Continued

Table 24: Future (2035) Total Traffic – Auto Network

Intersection	Turning Movement/ Approach	A.M. Peak Hour				P.M. Peak Hour			
		V/C	LOS	Delay ¹	95 th % Queue (m)	V/C	LOS	Delay ¹	95 th % Queue (m)
Highway 48 at Main Street/ Stouffville Road (Signalized)	Overall	1.14	D	36.6	n/a	1.40	D	49.2	n/a
	EBL	0.85	E	57.2	60.4	0.92	E	58.4	89.7
	EBT	0.67	D	36.8	75.0	0.82	D	40.2	126.6
	EBR	0.44	A	6.0	17.9	0.41	A	4.9	18.1
	WBL	0.46	C	24.4	28.0	0.65	C	34.2	30.7
	WBT	0.75	D	39.4	85.0	0.51	C	31.2	72.4
	WBR	0.18	A	2.7	4.9	0.26	A	5.0	13.7
	NBL	1.14	F	120.0	119.8	1.40	F	228.7	165.3
	NB T/R	0.25	B	19.9	32.4	0.49	C	31.0	69.0
	SBL	0.36	B	17.3	39.6	0.30	C	20.5	24.8
	SB T/R	0.66	C	23.4	89.8	0.66	C	29.6	90.2
Proposed Site Access “1” at Highway 48 (Un-signalized)	Overall	0.06	A	0.2	n/a	0.08	A	0.2	n/a
	WB Approach	0.06	C	20.9	1.5	0.08	D	32.6	1.5
	NB Approach	0.00	A	0.0	0.0	0.00	A	0.0	0.0
	SB Approach	0.00	A	0.0	0.0	0.00	B	10.1	0.0
Proposed Site Access “2” at Main Street (Un-signalized)	Overall	0.19	A	0.7	n/a	0.24	A	0.9	n/a
	EBL	0.03	A	9.9	0.8	0.06	B	10.0	1.5
	EBT	0.00	A	0.0	0.0	0.00	A	0.0	0.0
	WB Approach	0.00	A	0.0	0.0	0.00	A	0.0	0.0
	SB Approach	0.19	C	18.2	5.3	0.24	C	24.5	6.8

Note 1: Delays are measured in seconds per vehicle.

7. Future Total Multimodal Analysis - Continued

7.6 Future (2035) Total Auto Network Analysis - Continued

Highway 48 at Main Street/Stouffville Road

The analysis of the Future (2035) Total Traffic Conditions indicates that the signalized intersection will begin to operate at a Level of Service “D” during the A.M. Peak Hour and continue to operate at a Level of Service “D” during the P.M. Peak Hour. Due to the inclusion of site-generated trips, traffic impacts will be low during the A.M. and P.M. Peak Hours.

The northbound left turning lane will continue to operate at a Level of Service “F” with a volume over capacity ratio that is greater than 1.0 and a queue length that may result in a spillback of vehicles into the adjacent lane during the A.M. and P.M. Peak Hours.

For the eastbound left turning lane, the queue length may begin to result in a spillback of vehicles into the adjacent lane during the A.M. Peak Hour and may continue to result in a spillback of vehicles into the adjacent lane during the P.M. Peak Hour.

Proposed Site Access “1” at Highway 48

The analysis of the Future (2030) Total Traffic Conditions indicates that the un-signalized intersection will continue to operate at a Level of Service “A” during the A.M. and P.M. Peak Hours. With the growth in background traffic, impacts will be minimal during the A.M. Peak Hour and low during the P.M. Peak Hour.

All of the turning movements will continue to operate at a Level of Service “C” or better during the A.M. Peak Hour and a Level of Service “D” or better during the P.M. Peak Hour.

7. Future Total Multimodal Analysis - Continued

7.6 Future (2035) Total Auto Network Analysis - Continued

Proposed Site Access “2” at Main Street

The analysis of the Future (2030) Total Traffic Conditions indicates that the un-signalized intersection will continue to operate at a Level of Service “A” during the A.M. and P.M. Peak Hours. With the growth in background traffic, impacts will be minimal during the A.M. Peak Hour and low during the P.M. Peak Hour.

All of the turning movements will continue to operate at a Level of Service “C” or better during the A.M. and P.M. Peak Hours.

7.6.1 Future (2035) Total Auto Network Analysis – Recommended Improvements

To address the growth in background traffic, in addition to the recommendations made for the 2030 interim year, the following recommendations should be considered for the 2035 horizon year:

Highway 48 at Main Street/Stouffville Road

- Modify the Weekday A.M. and P.M. Signal Timing Plans,
- Increase the storage of the northbound left turning lane by 15 metres,
- Increase the storage of the eastbound left turning lane by 10 metres.

The results of the analysis are summarized in **Table 25** and the related calculations are provided in **Appendix F**.

7. Future Total Multimodal Analysis - Continued

7.6.1 Future (2035) Total Auto Network Analysis – Recommended Improvements - Continued

Table 25: Future (2035) Total Traffic – with Improvements – Auto Network

Intersection	Turning Movement/ Approach	A.M. Peak Hour				P.M. Peak Hour			
		V/C	LOS	Delay ¹	95 th % Queue (m)	V/C	LOS	Delay ¹	95 th % Queue (m)
Highway 48 at Main Street/ Stouffville Road (Signalized)	Overall	0.99	C	34.0	n/a	1.03	D	42.1	n/a
	EBL	0.89	E	65.2	66.4	1.00	F	80.2	108.1
	EBT	0.68	D	38.7	78.2	0.91	D	51.3	147.2
	EBR	0.44	A	6.3	18.4	0.44	A	5.7	19.7
	WBL	0.48	C	26.5	29.4	0.70	D	43.4	37.9
	WBT	0.7	D	41.9	88.7	0.60	D	38.4	81.2
	WBR	0.18	A	2.5	4.4	0.29	A	6.2	15.2
	NBL	0.99	E	70.2	105.6	1.03	E	78.7	127.4
	NB T/R	0.24	B	19.0	31.3	0.44	C	27.2	63.7
	SBL	0.38	B	17.9	38.3	0.28	B	18.5	22.6
	SB T/R	0.69	C	25.7	92.2	0.74	D	35.6	96.5

Note 1: Delays are measured in seconds per vehicle.

With the recommended improvements, the level of improvement is low. There are critical turning movements for the concerned intersection during the P.M. Peak Hour. However, this is considered to be acceptable during the Weekday Peak Periods.

7. Future Total Multimodal Analysis - Continued

7.7 Future (2035) Total Transit Network Analysis

To evaluate the transit network, the criteria set forth in Table 4 of the Region of York's Transportation Mobility Plan Guidelines for Development Applications was utilized. The results of the analysis are summarized in **Table 26** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Table 26: Future (2035) Total Traffic – Transit Network

Transit Stop Location	Transit Route and Direction	A.M. Peak Period		P.M. Peak Period	
		Access to Transit Stop	Transit Headway ¹	Access to Transit Stop	Transit Headway ¹
West Leg of Main Street at Baker Hill Boulevard/ Ringwood Drive	GO 70-71 NB	D	C (15)	D	C (15)
East Leg of Main Street at Baker Hill Boulevard/ Ringwood Drive	YRT 9 NB	D	F (35)	D	F (37)
	GO 70-71 SB		C (15)		C (15)
	YRT 414 SB		F		F
	YRT 417 NB		F		F
West Leg of Millard Street at Automall Boulevard	YRT 415 SB	D	F	D	F
East Leg of Millard Street at Baker Hill Boulevard	YRT 9 NB	D	F (35)	D	F (37)
	YRT 415 NB	D	F	D	F

Note 1: The average headway in minutes is provided in brackets.

Improvements to the transit network are not anticipated. Therefore, traffic conditions for the Future (2030) Total Background and Future (2035) Total Traffic are the same.

7. Future Total Multimodal Analysis - Continued

7.7 Future (2035) Total Transit Network Analysis - Continued

Since the proposed land uses within the Subject Property are within 600 metres, the transit stops within the vicinity of the Subject Property operate at a Level of Service “D”. All of the transit routes that use the concerned transit stops operate at a Level of Service “C” or “F”.

7.8 Future (2035) Total Cycling Network Analysis

To evaluate the cycling network, the criteria set forth in Table 8 of the Region of York’s Transportation Mobility Plan Guidelines for Development Applications was utilized. The results of the analysis are summarized in **Table 27** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Traffic conditions for the Future (2030) Total Traffic and Future (2035) Total Traffic are the same.

Table 27: Future (2035) Total Traffic – Cycling Network

Intersection	Leg	Segment LOS	Intersection LOS
Highway 48 at Main Street/ Stouffville Road	North	E*, F	E
	East	F	
	South	F	
	West	F	
Proposed Site Access “1” at Highway 48	North	F	F
	East	F	
	South	F	
Proposed Site Access “2” at Main Street	North	F	F
	East	F	
	West	F	

* Applies to the Level of Service for north or east side of the roadway.

7. Future Total Multimodal Analysis - Continued

7.8 Future (2035) Total Cycling Network Analysis - Continued

For the Highway 48 at Main Street/Stouffville Road intersection, a paved shoulder with a width that is greater than or equal to 1.2m is provided on the east side of Highway 48; north of Main Street/Stouffville Road. As a result, that segment operates at a Level of Service “E”. All of the other segments for the concerned intersection do not provide bicycle provisions and operate at a Level of Service “F”.

Since the proposed Site Access “1” at Highway 48 and proposed Site Access “2” at Main Street intersections do not provide any bicycle provisions, all of the segments operate at a Level of Service “F”.

7.9 Future (2035) Total Pedestrian Network Analysis

To evaluate the pedestrian network, the criteria set forth in Table 6 of the Region of York’s Transportation Mobility Plan Guidelines for Development Applications was used. The results of the analysis are summarized in **Table 28** and the criterion provided by the Transportation Mobility Plan Guidelines for Development Applications is provided in **Appendix G** for reference.

Table 28: Future (2035) Total Traffic – Pedestrian Network

Intersection	Leg	Segment LOS	Intersection LOS
Highway 48 at Main Street/ Stouffville Road	North	E*, F	D
	East	D	
	South	F	
	West	D	
Proposed Site Access “1” at Highway 48	North	F	C
	East	F*, C	
	South	F	
Proposed Site Access “2” at Main Street	North	C*, F	C
	East	D	
	West	D	

* Applies to the Level of Service for north or east side of the roadway.

Traffic conditions for the Future (2030) Total Traffic and Future (2035) Total Traffic are the same.

7. Future Total Multimodal Analysis - Continued

7.9 Future (2035) Total Pedestrian Network Analysis - Continued

Highway 48 at Main Street/Stouffville Road

The intersection provides pedestrian signal heads and delineated crosswalks. Highway 48 has segments that provide a paved shoulder (Level of Service “E”) or do not provide pedestrian provisions (Level of Service “F”). In addition, with curb-faced sidewalks (no buffer) that have a width that is less than 1.5 metres, Main Street/Stouffville Road operates at a Level of Service “D”.

Proposed Site Access ‘1’ at Highway 48

Since pedestrian provisions are not provided, Highway 48 operates at a Level of Service "F".

For the proposed roadway, a curb-faced sidewalk (no buffer) with a width of 1.5 metres (Level of Service “C”) is provided on the south side.

Proposed Site Access ‘2’ at Main Street

A curb-faced sidewalk (no buffer) with a width that is less than 1.5 metres (Level of Service "D") is provided on both sides of Main Street and a curb-faced sidewalk (no buffer) with a width that is 1.5 metres (Level of Service "C") is provided on the east side of the proposed roadway.

8. Transportation Demand Management

As per the Region of York's Transportation Mobility Plan Guidelines, a transportation demand management checklist is required to assess any future transportation demand management opportunities in the proposed development.

The Transportation Demand Management Checklist has been provided in **Table 29**. With the strategies proposed in **Table 29**, the level of management for transportation demand is adequate.

Table 29: Transportation Demand Management Checklist

No.	TDM Measures	Yes/No	Action Plan	Estimated Cost
1.	Information Packages (YRT/Viva/TTC Maps, GO schedules, cycling maps)	Yes	To be provided to the owner on the day of closing. (To coordinate with York Region) To be provided to the employee on the day of employment.	\$300
2.	The distribution of Pre-Loaded (\$20) Presto Cards.	Yes	To be provided to the owner on the day of closing. (To coordinate with York Region)	\$3300
3.	An information session regarding transit and active transportation.	Yes	One (1) Session for all of the dwelling units. (To coordinate with York Region)	\$1500
4.	Pedestrian Connections	Yes	Will be provided in the Site Plan.	Included
5.	Pedestrian Connections to Transit Facilities	Yes	Will be provided in the Site Plan.	Included
6.	Illumination of Pedestrian Facilities	Yes	Will be provided in the Site Plan.	Included
7.	Distribute and collect travel surveys	Yes	To coordinate with Town of Whitchurch-Stouffville.	\$7,000
8.	Encouraging Car Pool Arrangements	Yes	To coordinate with Property Management Groups (all land uses)	\$0

9. Summary

The proposed Mixed-Use Subdivision is expected to generate a total of 112 net trips during the A.M. Peak Hour (40 inbound trips and 72 outbound trips) and 152 net trips during the P.M. Peak Hour (88 inbound trips and 64 outbound trips). Traffic impacts due to the inclusion of site-generated trips are low during the A.M. and P.M. Peak Hours.

A full-moves access at Main Street and a full-moves access at Highway 48 will service the proposed Mixed-Use Subdivision.

For the proposed site accesses, the following recommendations should be considered:

Proposed Site Access '1' at Main Street

- A stop-control at the southbound approach,
- A left turning lane with 15 metres of storage at the eastbound approach.

Proposed Site Access '2' at Highway 48

- A stop-control at the westbound approach.

With the recommended improvements, for the 2030 interim year and the 2035 horizon year, all of the turning movements for the intersections above will operate at acceptable Levels of Service during the A.M. and P.M. Peak Hours.

For the 2030 interim year and the 2035 horizon year, the Highway 48 at Main Street/Stouffville Road intersection will operate with critical turning movements during the A.M. and P.M. Peak Hours, which are mainly attributed to background traffic.

9. Summary - Continued

To address traffic operation concerns, the following recommendations should be considered for the 2030 interim year:

Highway 48 at Main Street/Stouffville Road

- Modify the Weekday A.M. and P.M. Signal Timing Plans,
- Increase the storage of the northbound left turning lane by 70 metres,
- Increase the storage of the eastbound left turning lane by 45 metres.

With the recommended improvements, all of the turning movements will operate at acceptable Levels of Service during the A.M. and P.M. Peak Hours.

To address the growth in background traffic, in addition to the recommendations made for the 2030 interim year, the following recommendations should be considered for the 2035 horizon year:

Highway 48 at Main Street/Stouffville Road

- Modify the Weekday A.M. and P.M. Signal Timing Plans,
- Increase the storage of the northbound left turning lane by 15 metres,
- Increase the storage of the eastbound left turning lane by 10 metres.

With the recommended improvements, the level of improvement is low. There are critical turning movements during the P.M. Peak Hour. However, this is considered to be acceptable during the Weekday Peak Periods.

The level of accessibility to the transit stops is adequate for the proposed Mixed-Use Subdivision. In addition, the proposed pedestrian walkways within the Subject Subdivision provide a continuous connection to the transit stops on Main Street that are nearby.

9. Summary - Continued

Although the proposed Mixed-Use Subdivision comprises roadways with a pedestrian sidewalk on one side that will provide the segment an acceptable Levels of Service for pedestrians, with the facilities provided by Highway 48, Main Street and Stouffville Road, the Level of Service for the pedestrian and cycling network is low.

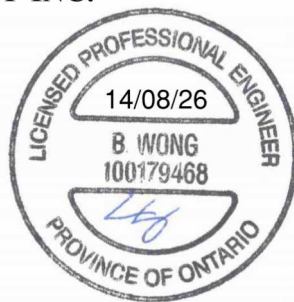
In addition, the Transportation Demand Management Strategies recommended for the proposed Mixed-Use Subdivision is adequate.

The concerned intersections will operate at acceptable Levels of Service during the A.M. and P.M. Peak Hours for the 2030 interim year and the 2035 horizon year. Traffic impacts due to the inclusion of site-generated trips are low.

This Report was prepared by:

CANDEVCON GROUP INC.

Brian Wong, P. Eng.
Intermediate Transportation Engineer



David Lee, P. Eng.
Project Manager



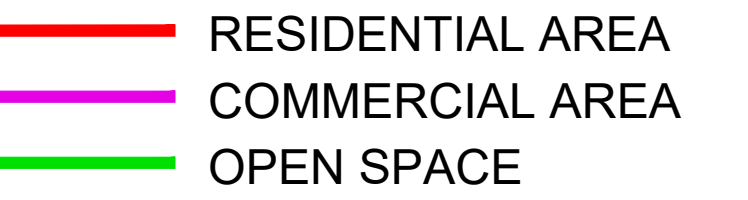
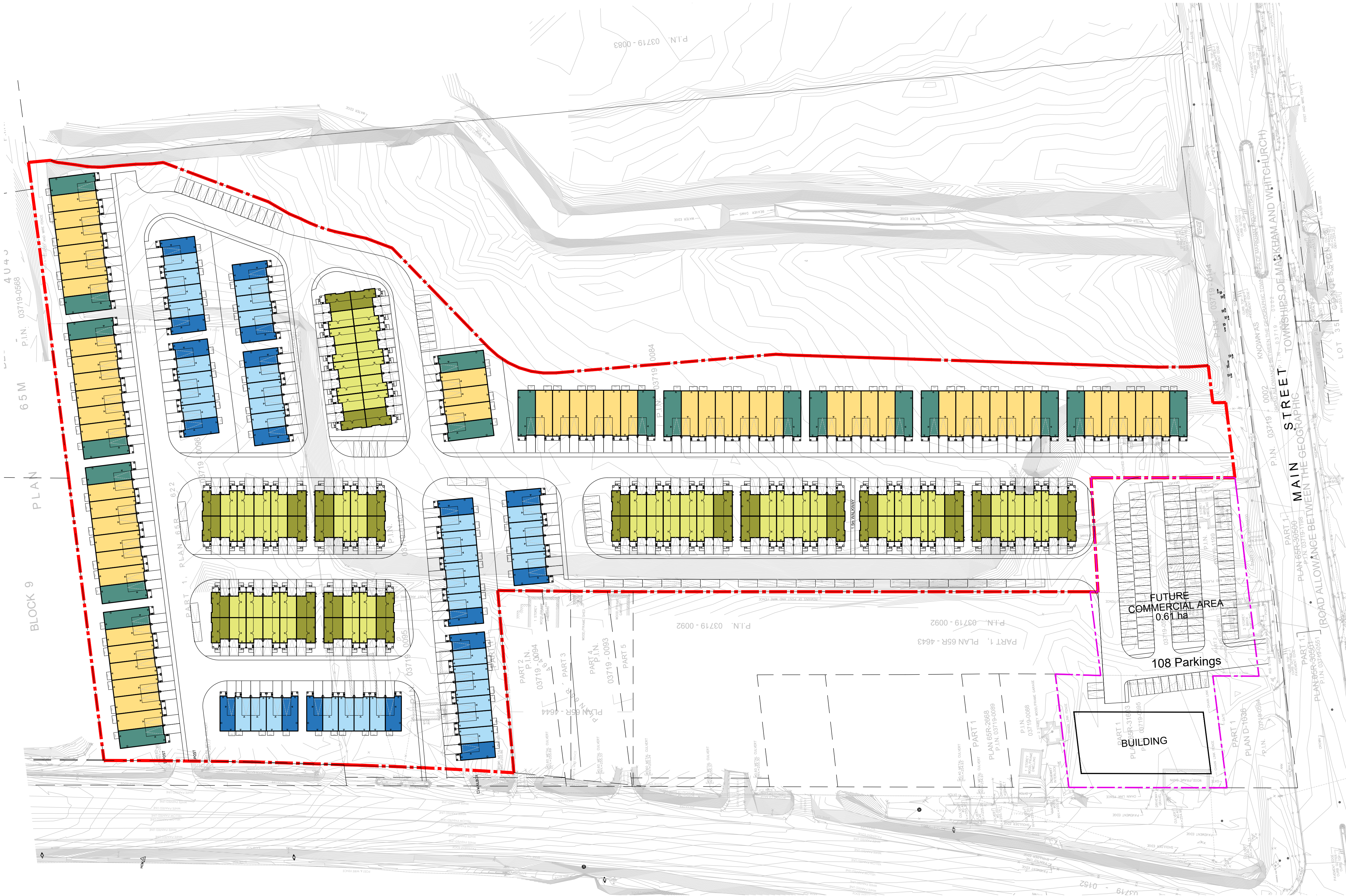
APPENDIX A

TERMS OF REFERENCE

Traffic Impact Study – Terms of Reference

- a) Assemble, review and confirm background data (i.e. traffic volume/flow on the adjacent road network during weekday peak hours) available from official sources, existing road geometry and access locations.
- b) Conduct turning movement counts (if necessary) at the Highway 48 at Main Street intersection during Weekday AM and Weekday PM Peak Hours.
- c) Establish existing traffic patterns and historic travel growth rates for the study area.
- d) Consult with the Region of York and Town of Whitchurch-Stouffville to confirm data as required (i.e. growth trends, other proposed development timing etc.), issues/developments to be addressed and any anticipated future road improvements.
- e) Assess future trips generated by the proposed Residential Development during Weekday AM and Weekday PM Peak Hours.
- f) Develop the trip distribution and traffic assignment for the proposed Residential Development during Weekday AM and Weekday PM Peak Hours.
- g) Establish the five (5) year time horizon post build-out for the proposed Residential Development to forecast future peak periods of street traffic.
- h) Analyze the traffic operations during peak periods at the following key site access points. (To be confirmed with the Region of York and Town of Whitchurch-Stouffville)
 - Highway 48 at Main Street,
 - Proposed Site Access “1” at Highway 48,
 - Proposed Site Access “2” at Highway 48,
 - Proposed Site Access “3” at Main Street.
- i) Complete traffic operations and volume-capacity analyses using the Synchro 12.0 software.
- j) Assess existing and future (five (5) year post horizon) total background and total traffic operations at the proposed key access points mentioned above.
- k) Prepare a Study to summarize the findings of the traffic impact analyses, as well as recommend any improvements required to mitigate the traffic impacts. Submit Study to the Region of York and Town of Whitchurch-Stouffville for review/comments.
- l) Provide and circulate copies of the Study to all applicable approval authorities (first submission only).

SITE STATISTICS	
LOT AREA	4.95 Ha
2ST FL TOWNS	74
3ST FL TOWNS	56
B2B TOWNS	106
TOTAL NO. OF UNITS	236
DENSITY	48 UPH
VISITOR PARKING	59(0.25 PER/UNIT)

[illegible]

DRAWING

CONCEPT PLAB

DATE 15-APR-26	SCALE 1:750
DRAWN BY PP	CHECKED BY RP
PROJECT NUMBER 25065	DRAWING NUMBER SP100-ALT

Brian Wong

From: Wong, Veronica <Veronica.Wong@york.ca>
Sent: May 15, 2026 3:04 PM
To: Brian Wong
Cc: Bui, Vi; David Lee; Filing West; Schleihau, David
Subject: RE: W26018 - Highway 48 and Main Street - Terms of Reference (Region)

EXTERNAL EMAIL. PROCEED WITH CAUTION.

Hi Brian

Please see our comments below regarding the terms of reference.

1. The transportation study shall be consistent with the Region's [Transportation Mobility Plan Guidelines](#) (2025)
2. Traffic Counts, Signal Timings, model outputs, and historical AADTs can be purchased through traffic.data@york.ca.
3. As per the Region's [2026 10-Year Roads and Transit Capital Construction Program](#), there are no planned improvements in the vicinity of the site.
4. Future horizon years should include build-out year and five-years post build-out.
5. The Region defers to the Town of Whitchurch-Stouffville to provide relevant background developments to include.
6. We accept growth calculations in three different ways, namely from historic AADT analysis, EMME model analysis or from recently approved studies in the area. Please document the method used in the report, and provide relevant calculations in an appendix.
7. The Region has also provided comments on the draft plan submitted as part of the pre consultation application (PSC.26.W.0034), please see these comments below:
 - a. It should be noted that this section of Main Street is under the jurisdiction of the Town of Whitchurch-Stouffville. The Region requests that all building setbacks, above and below ground and private utilities be located a minimum of 18 metres from the centerline of construction of Main Street.

Please note, this is not an approval, the Region will provide additional detailed comments when a study is submitted for review.

Thank you

Our working hours may be different. Please do not feel obligated to reply outside of your scheduled working hours.

Veronica Wong | Transportation Planner

Transportation & Infrastructure Planning | Public Works

The Regional Municipality of York | 17250 Yonge Street | Newmarket, ON L3Y 6Z1
O: 905-830-4444 | veronica.wong@york.ca | www.york.ca

Our Mission: **Working together to serve our thriving communities – today and tomorrow**

From: Brian Wong
Sent: April 22, 2026 10:08 AM

To: Bui, Vi <vi.bui@york.ca>

Cc: David Lee <david@candevcon.com>; Filing West <filingwest@candevcon.com>

Subject: W26018 - Highway 48 and Main Street - Terms of Reference (Region)

Good Morning Vi,

We are preparing a Traffic Impact Study for a proposed Residential Development that is immediately north of Main Street and east of Highway 48 (PRE26.002 & PSC.26.W.0034).

Please find the Terms of Reference and the latest Concept Plan attached for your review and comment.

If you require any further information, please do not hesitate to contact me.

Brian Wong, P.Eng.

Intermediate Transportation Engineer

CANDEVCON GROUP INC.

CONSULTING ENGINEERS & PLANNERS

GTA WEST OFFICE (CORPORATE)

9358 Goreway Drive, Brampton, Ontario, L6P 0M7

Tel.: (905)794-0600 Ext 2059

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Brian Wong

From: Pezhman Imani <pezhman.imani@townofws.ca>
Sent: May 25, 2026 9:48 AM
To: Brian Wong
Cc: Stan Tsysar; Filing West; David Lee
Subject: RE: W26018 - Highway 48 and Main Street - Terms of Reference (Town)
Attachments: 25065-SP_original + Parcel 8(17-APR-26).pdf; W26018 - TOR [FINAL].pdf

This is the first time you received an email from this sender (pezhman.imani@townofws.ca). Exercise caution when clicking links, opening attachments or taking further action, before validating its authenticity.

Hello Brian,

Your email was forwarded to me.

Traffic and Transportation studies will be reviewed once a formal application is submitted, at which time the materials will also be reviewed by the Town's peer reviewer consultant. At this stage, we can only refer you to the Town's Design Criteria for reference:

[Town of Whitchurch-Stouffville Standards v9.pdf](#)

In addition, my preliminary understanding is that there is a major development proposed at the southwest corner of the noted intersection. Please ensure the Traffic and Transportation Study considers the cumulative impacts of all relevant developments within the study area, including the proposed development located at the southwest corner of the noted intersection, where applicable. Supporting assumptions and traffic assignments should be clearly identified in the study.

I also understand that coordination with, and/or approval from, MTO may be required.

Regards,



Pezhman Imani, P.Eng , PMP

Senior Development Engineer | Engineering and Public Works
111 Sandiford Drive, Stouffville, Ontario L4A 0Z8

t: 905-640-1900 ext. 2291 | tf: 855-642-TOWN | townofws.ca



From: Troy Whitten <troy.whitten@townofws.ca>
Sent: Thursday, May 21, 2026 10:49 AM
To: Pezhman Imani <pezhman.imani@townofws.ca>
Subject: Fw: W26018 - Highway 48 and Main Street - Terms of Reference (Town)

Good morning, Pezhman

As per our phone conversation this morning, I am forwarding the traffic study Terms of Reference provided by Brian Wong of CANDEVCON Group Inc. (Consulting Engineers & Planners).

Brian is currently seeking direction on this project, as well as an appropriate point of contact on our end to coordinate next steps and review.

Thanks,
Troy



TROY WHITTEN

Operations Technologist
Engineering & Public Works Commission
111 Sandiford Drive, Stouffville, Ontario L4A 0Z8
t: 905-640-1900 ext. 4242 | tf: 855-642-TOWN |
townofws.ca

Respecting Your Right To Disconnect – If your normal working hours aren't the same as mine, I hope you're on an amazing adventure, playing with your dog, going for a well deserved nap or you're lounging poolside. In that case, please feel free to wait until your core business hours to provide me with a response, unless otherwise stated.

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From: Brian Wong <brian@candevcon.com>

Sent: Monday, May 11, 2026 10:52 AM

To: Troy Whitten <troy.whitten@townofws.ca>

Cc: Frank Auciello <frank.auciello@townofws.ca>; Luigi Colangelo <luigi.colangelo@townofws.ca>; Asrin Takamoli <asrin.takamoli@townofws.ca>; Filing West <filingwest@candevcon.com>; David Lee <david@candevcon.com>

Subject: RE: W26018 - Highway 48 and Main Street - Terms of Reference (Town)

Good Morning Troy,

I am just following up.

If you require any further information, please do not hesitate to contact me.

Brian Wong, P.Eng.

Intermediate Transportation Engineer

CANDEVCON GROUP INC.

CONSULTING ENGINEERS & PLANNERS

GTA WEST OFFICE (CORPORATE)

9358 Goreway Drive, Brampton, Ontario, L6P 0M7

Tel.: (905)794-0600 Ext 2059

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From: Brian Wong

Sent: May 4, 2026 12:54 PM

To: Troy Whitten <troy.whitten@townofws.ca>

Cc: Frank Auciello <frank.auciello@townofws.ca>; Luigi Colangelo <luigi.colangelo@townofws.ca>; 'Asrin Takamoli' <asrin.takamoli@townofws.ca>; Filing West <filingwest@candevcon.com>; David Lee <david@candevcon.com>

Subject: RE: W26018 - Highway 48 and Main Street - Terms of Reference (Town)

Good Afternoon Troy,

We are preparing a Traffic Impact Study for a proposed Residential Development that is immediately north of Main Street and east of Highway 48 (PRE26.002). Please find the Terms of Reference and the latest Concept Plan attached for your review and comment.

If you require any further information, please do not hesitate to contact me.

Brian Wong, P.Eng.

Intermediate Transportation Engineer

CANDEVCON GROUP INC.

CONSULTING ENGINEERS & PLANNERS

GTA WEST OFFICE (CORPORATE)

9358 Goreway Drive, Brampton, Ontario, L6P 0M7

Tel.: (905)794-0600 Ext 2059

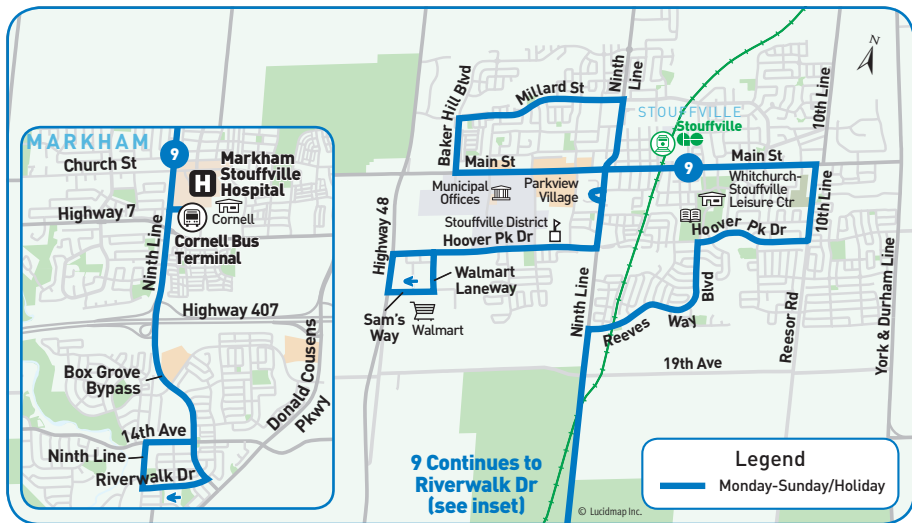
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APPENDIX B

TRANSIT ROUTE MAPS

9

Ninth Line

YORK
REGION
TRANSIT

009 NINTH LINE NORTHBOUND



Thursday June 25th 4:00 a.m.

WEEKDAY

In effect from Sunday, April 26th 2026 to Saturday, June 27th 2026

MAIN ST / BAKER HILL RD	6738
	6:10 a.m.
	6:40 a.m.
	7:21 a.m.
	7:54 a.m.
	8:27 a.m.
	9:00 a.m.
	9:33 a.m.
	10:06 a.m.
	10:50 a.m.
	11:34 a.m.
	12:18 p.m.
	1:02 p.m.
	1:43 p.m.
	2:27 p.m.
	3:09 p.m.
	3:52 p.m.
	4:26 p.m.
	5:05 p.m.
	5:47 p.m.
	6:21 p.m.
	6:55 p.m.
	7:33 p.m.
	8:11 p.m.
	8:49 p.m.

009

NINTH LINE SOUTHBOUND

Thursday June 25th 4:00 a.m.

WEEKDAY

In effect from Sunday, April 26th 2026 to Saturday, June 27th 2026

MAIN ST / SANDFORD DR
1808
6:23 a.m.
6:52 a.m.
7:26 a.m.
7:59 a.m.
8:32 a.m.
9:05 a.m.
9:38 a.m.
10:11 a.m.
10:43 a.m.
11:27 a.m.
12:11 p.m.
12:55 p.m.
1:40 p.m.
2:24 p.m.
3:23 p.m.
4:05 p.m.
4:38 p.m.
5:11 p.m.
5:47 p.m.
6:37 p.m.
7:08 p.m.
7:46 p.m.
8:24 p.m.
8:57 p.m.

70-71

Route number
Numéro du trajet

Stouffville



CONTACT US

1-888-438-6646
416-869-3200
TTY: #711 or call
1 (800) 855-0511

gotransit.com/schedules

@GOtransitST

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Say Something.
24/7 Transit Safety Dispatch:
1-877-297-0642

prestocard.ca

Sign-up for email or
text alerts/ Inscrivez-
vous pour recevoir des
alertes par courriel ou
message texte.
gotransit.com/OnTheGO

Stouffville



GO Train and Bus Schedule/
Horaire des trains et des autobus GO

METROLINX

ST 70 71

- Uxbridge
- Goodwood
- Old Elm GO
- Stouffville GO
- Mount Joy GO
- Markham GO
- Centennial GO
- Unionville GO
- Milliken GO
- Agincourt GO
- Kennedy GO
- Union Station

Daily / Quotidiennement

Includes GO Bus routes 70 and 71/
Inclut les trajets 70 et 71 d'autobus GO

Effective / À partir de:

10 JUNE
JUIN **2026**



How to read our schedules

- Step 1**

Find the station or terminal you are departing from. Stops are listed across the top in the order they are served.
- Step 2**

The upper left corner tells you what day the schedule is for and the direction of travel.
- Step 3**

Look across the rows for available departure times.
- Step 4**

Not all trains or buses stop at every station. If you see → the train or bus will not stop at that station.

Schedule times shown in 24-hour clock

Midnight to noon
00 01 - 12 00

Noon to midnight
12 01 - 24 00

Legend

- Train trips
- Bus trips
- Trip does not serve this location.
- Check below for connecting trips.
- GO Train service is accessible to passengers using mobility devices at this location.
- GO Bus service is accessible to passengers using mobility devices at this location.
- GO Train & GO Bus service is accessible to passengers using mobility devices at this location.
- Parking available.

For the latest schedule information and updates, please visit gotransit.com/schedules.

Notes

- h**

Trip holds for connection from train.
- s**

GO Bus services GO Station from bus stop on street.

Bicycles

1. Bicycles are not allowed in Union Station or on-board trains during morning rush hour (6:30-9:30) and evening rush hour (15:30-18:30), Monday to Friday.
2. Foldable bicycles are allowed on-board trains at all times.

Comment lire nos horaires

- Étape 1**

Trouvez votre gare ou terminus de départ. La liste des arrêts est donnée en haut dans l'ordre dans lequel ils sont desservis.
- Étape 2**

Le coin supérieur gauche vous indique le jour pour lequel l'horaire est donné et la direction de circulation.
- Étape 3**

Regardez dans les rangées pour obtenir les heures de départ offertes.
- Étape 4**

Les trains ou les autobus ne s'arrêtent pas tous à chaque gare. Si vous voyez le symbole → le train ou l'autobus ne s'arrêtera pas à cette gare.

Indications selon un système horaire de 24 heures

De minuit à midi:
00 01 - 12 00

De midi à minuit:
12 01 - 24 00

Légende

- Horaire des trains
- Horaire des autobus
- Trajet ne sert pas cette station.
- Vérifiez les trajets de correspondance cidessous.
- Service de trains GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.
- Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.
- Les services de trains et d'autobus GO sont accessibles aux utilisateurs d'un appareil d'aide à la mobilité à cet endroit.
- Stationnement disponible.

Pour consulter les horaires les plus récents et les mises à jour, veuillez visiter gotransit.com/schedules.

Notes

- h**

Les départ de l'autobus est retardé pour assurer la correspondance avec le service de trains.
- s**

Les autobus GO desservent la gare à partir de l'arrêt situé sur la rue.

Vélos

1. Les vélos ne sont pas autorisés dans la gare Union ou à bord des trains du lundi au vendredi, pendant l'heure de pointe (6:30-9:30) et pendant l'heure de pointe du soir (15:30-18:30).
2. Les vélos pliables sont permis à bord des trains en tout temps.

Monday to Friday (except holidays) Du lundi au vendredi (sauf les jours fériés)													
SOUTHBOUND / EN DIRECTION SUD													
Route Number Numéro du trajet	Zone→ Trip Number Numéro du parcours	76 Uxbridge Railway St. @ Albert St.	Dp 75 Goodwood Hwy. 47 @ Front St.	74 Stouffville Old Elm GO	Dp 74 Stouffville Stouffville GO	73 Markham Mount Joy GO	Dp 72 Markham Markham GO	72 Markham Centennial GO	71 Markham Unionville GO	70 Scarborough Milliken GO	7 Scarborough Agincourt GO	77 Scarborough Kennedy GO	2 Toronto Union Station
71	71050	04 20	04 31	04 40	04 46	05 00	05 04	05 08	05 15	→	→	→	05 45
	7705			05 08	05 12	05 23	05 28	05 34	05 39	05 45	05 51	06 01	06 20
	7707			06 08	06 12	06 23	06 28	06 34	06 39	06 45	06 51	07 01	07 20
	7907			06 38	06 42	06 53	06 58	07 04	07 09	07 15	07 21	07 31	07 50
70B	70110	06 30	06 41	06 53↓									
	7709			07 08	07 12	07 23	07 28	07 34	07 39	07 45	07 51	08 01	08 20
	7209								07 59	08 05	08 11	08 21	08 40
	7909			07 38	07 42	07 53	07 58	08 04	08 09	08 15	08 21	08 31	08 50
	7711			08 08	08 12	08 23	08 28	08 34	08 39	08 45	08 51	09 01	09 20
70B	70220	08 33	08 44	08 53↓									
	7713			09 08	09 12	09 23	09 28	09 34	09 39	09 45	09 51	10 01	10 20
	7415					10 25	10 29	10 34	10 39	10 45	10 51	11 01	11 20
70D	70300	10 28	10 39	10 48	10 54	11 11↓							
	7417					11 25	11 29	11 34	11 39	11 45	11 51	12 01	12 20
	7419					12 25	12 29	12 34	12 39	12 45	12 51	13 01	13 20
70D	70380	12 28	12 39	12 48	12 54	13 11↓							
	7421					13 25	13 29	13 34	13 39	13 45	13 51	14 01	14 20
	7423					14 25	14 29	14 34	14 39	14 45	14 51	15 01	15 20
70D	70460	14 28	14 39	14 48	14 54	15 11↓							
	7425					15 25	15 29	15 34	15 39	15 45	15 51	16 01	16 20
	7127								16 36	16 42	16 48	16 58	17 17
71E	71620					16 00	16 05	16 11	16 25	→	→	→	17 20
71C	71630			15 40	15 46	16 05	16 10	16 16	16 30	→	→	→	17 25
70	70650	16 05	16 16	16 27	16 33	16 55	17 00	17 06	17 20↓				
	7129								17 37	17 43	17 51	17 59	18 18
71	71650	17 40	17 51	18 00	18 06	18 25	18 30	18 36	18 45	→	→	→	19 30
70D	70680	18 28	18 39	18 48	18 54	19 11↓							
	7433					19 25	19 29	19 34	19 39	19 45	19 51	20 01	20 20
	7435					20 25	20 29	20 34	20 39	20 45	20 51	21 01	21 20
70D	70760	20 31	20 42	20 51	20 57	21 11↓							
	7437					21 25	21 29	21 34	21 39	21 45	21 51	22 01	22 20
	7439					22 25	22 29	22 34	22 39	22 45	22 51	23 01	23 20
71	71840	22 45	22 56	23 05	23 11	23 25	23 29	23 33	23 40	→	→	→	00 10
71C	71910			01 10	01 16	01 30	01 34	01 38	01 45	→	→	→	02 15

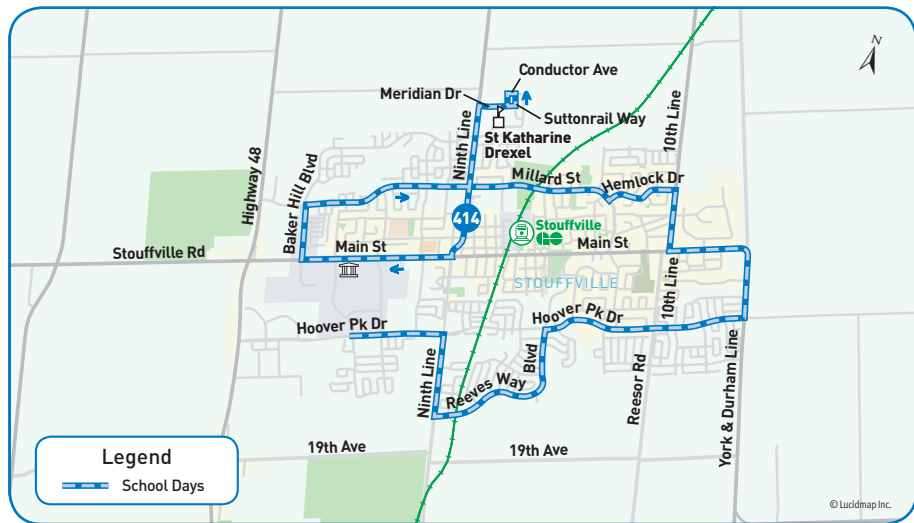
Monday to Friday (except holidays) Du lundi au vendredi (sauf les jours fériés)													
NORTHBOUND / EN DIRECTION NORD													
Route Number Numéro du trajet	Zone→ Trip Number Numéro du parcours	Toronto 2 Union Station	Dp 77 Scarborough Kennedy GO	7 Scarborough Agincourt GO	70 Scarborough Milliken GO	71 Markham Unionville GO	72 Markham Centennial GO	72 Markham Markham GO	73 Markham Mount Joy GO	Ar Stouffville Stouffville GO	74 Stouffville Old Elm GO	Ar Goodwood Hwy. 47 @ Front St.	76 Uxbridge Railway St. @ Albert St.
71	71111	06 43	→	→	→	07 13	07 20	07 25	07 33	07 48	07 58	08 04	08 23
71	71171	07 48	→	→	→	08 25	08 35	08 42	08 50	09 07	09 17	09 24	09 43
	7410	09 00	09 18	09 28	09 34	09 40	09 45	09 50	09 56				
	7412	10 00	10 18	10 28	10 34	10 40	10 45	10 50	10 56				
70D	70331								11 04h	11 17	11 27	11 33	11 49
	7414	11 00	11 18	11 28	11 34	11 40	11 45	11 50	11 56				
	7416	12 00	12 18	12 28	12 34	12 40	12 45	12 50	12 56↓				
70D	70411								13 04h	13 17	13 27	13 33	13 49
	7418	13 00	13 18	13 28	13 34	13 40	13 45	13 50	13 56				
	7420	14 00	14 18	14 28	14 34	14 40	14 45	14 50	14 56↓				
70D	70491								15 04h	15 19	15 29	15 35	15 51
	7622	15 00	15 18	15 28	15 34	15 40	15 45	15 50	15 55	16 07	16 13		
	7222	15 32	15 50	16 00	16 06	16 13							
	7624	16 00	16 18	16 28	16 34	16 40	16 45	16 50	16 55	17 07	17 13		
	7824	16 30	16 48	16 58	17 04	17 10	17 15	17 20	17 25	17 37	17 43		
70B	70651										17 51h	17 57	18 11
	7324	16 50	17 08	17 18	17 24	17 31							
	7626	17 00	17 18	17 28	17 34	17 40	17 45	17 50	17 55	18 07	18 13		
	7826	17 32	17 50	18 00	18 06	18 12	18 17	18 22	18 27	18 39	18 45		
	7428	18 15	18 33	18 43	18 49	18 55	19 00	19 05	19 11↓				
70D	70721								19 19h	19 32	19 42	19 48	20 04
	7430	19 00	19 18	19 28	19 34	19 40	19 45	19 50	19 56↓				
70D	70741								20 04h	20 16	20 24	20 30	20 44
	7432	20 00	20 18	20 28	20 34	20 40	20 45	20 50	20 56↓				
70D	70791								21 04h	21 16	21 24	21 30	21 44
	7434	21 00	21 18	21 28	21 34	21 40	21 45	21 50	21 56				
	7436	22 00	22 18	22 28	22 34	22 40	22 45	22 50	22 56↓				
70D	70861								23 08h	23 20	23 28	23 34	23 48
	7638	23 00	23 18	23 28	23 34	23 39	23 44	23 49	23 54	00 06	00 12		
	7640	00 01	00 18	00 28	00 34	00 39	00 44	00 49	00 54	01 06	01 12		
71C	71901	01 10	→	→	→	01 35	01 40	01 45	01 50	02 00	02 10		
71C	71961	02 45	→	→	→	03 10	03 15	03 20	03 25	03 35	03 45		

Saturday and Sunday Samedi et dimanche														
SOUTHBOUND / EN DIRECTION SUD														
Route Number Numéro du trajet	Zone→ Trip Number Numéro du parcours	Exception	Uxbridge 76 Dp Railway St. @ Albert St.	Goodwood 75 Hwy. 47 @ Front St.	Stouffville 74 Dp Old Elm GO	Stouffville 74 Stouffville GO	Markham 73 Dp Mount Joy GO	Markham 72 Markham GO	Markham 72 Centennial GO	Markham 71 Unionville GO	Scarborough 70 Milliken GO	Scarborough 7 Agincourt GO	Scarborough 77 Kennedy GO	Toronto 2 Ar Union Station
71	71140		05 45	05 58	06 07	06 13	06 29	06 33	06 38	06 45	→	→	→	07 15
	7709				07 09	07 13	07 24	07 29	07 35	07 40	07 45	07 51	08 01	08 20
70B	70160		07 34	07 47	07 54↓									
	7711				08 09	08 13	08 24	08 29	08 35	08 40	08 45	08 51	09 01	09 20
	7713				09 09	09 13	09 24	09 29	09 35	09 40	09 45	08 51	10 01	10 20
70D	70260		09 28	09 41	09 48	09 54	10 11↓							
	7415						10 26	10 30	10 35	10 40	10 45	10 51	11 01	11 20
	7417						11 26	11 30	11 35	11 40	11 45	11 51	12 01	12 20
70D	70340		11 28	11 41	11 48	11 54	12 11↓							
	7419						12 26	12 30	12 35	12 40	12 45	12 51	13 01	13 20
	7421						13 26	13 30	13 35	13 40	13 45	13 51	14 01	14 20
70D	70420		13 28	13 41	13 48	13 54	14 11↓							
	7423						14 26	14 30	14 35	14 40	14 45	14 51	15 01	15 20
	7425						15 26	15 30	15 35	15 40	15 45	15 51	16 01	16 20
70D	70510		15 28	15 41	15 48	15 54	16 11↓							
	7427						16 26	16 30	16 35	16 40	16 45	16 51	17 01	17 20
	7429						17 26	17 30	17 35	17 40	17 45	17 51	18 01	18 20
70D	70630		17 28	17 41	17 48	17 54	18 11↓							
	7431						18 26	18 30	18 35	18 40	18 45	18 51	19 01	19 20
	7433						19 26	19 30	19 35	19 40	19 45	19 51	20 01	20 20
70D	70720		19 31	19 44	19 51	19 57	20 11↓							
	7435						20 26	20 30	20 35	20 40	20 45	20 51	21 01	21 20
	7437						21 26	21 30	21 35	21 40	21 45	21 51	22 01	22 20
71	71840		21 30	21 43	21 52	22 00	22 18	22 22	22 27	22 35	→	→	→	23 05
71C	71880				23 10	23 16	23 30	23 34	23 38	23 45	→	→	→	00 15
71C	71910				01 10	01 16	01 30	01 34	01 38	01 45	→	→	→	02 10

Saturday and Sunday Samedi et dimanche													
NORTHBOUND / EN DIRECTION NORD													
Route Number Numéro du trajet	Zone→ Trip Number Numéro du parcours	Toronto 2 Dp Union Station	Scarborough 6 Kennedy GO	Scarborough 7 Agincourt GO	Scarborough 70 Milliken GO	Markham 71 Unionville GO	Markham 72 Centennial GO	Markham 72 Markham GO	Markham 73 Ar Mount Joy GO	Stouffville 74 Stouffville GO	Stouffville 74 Old Elm GO	Goodwood 75 Hwy. 47 @ Front St.	Uxbridge 76 Ar Railway St. @ Albert St.
71	71171	07 43	→	→	→	08 13	08 19	08 23	08 28	08 43	08 53	08 59	09 18
	7410	09 00	09 18	09 28	09 34	09 39	09 44	09 49	09 55↓				
70D	70291								10 03h	10 16	10 26	10 32	10 48
	7412	10 00	10 18	10 28	10 34	10 39	10 44	10 49	10 55				
	7414	11 00	11 18	11 28	11 34	11 39	11 44	11 49	11 55↓				
70D	70371								12 03h	12 16	12 26	12 32	12 48
	7416	12 00	12 18	12 28	12 34	12 39	12 44	12 49	12 55				
	7418	13 00	13 18	13 28	13 34	13 39	13 44	13 49	13 55↓				
70D	70451								14 03h	14 16	14 26	14 32	14 48
	7420	14 00	14 18	14 28	14 34	14 39	14 44	14 49	14 55				
	7422	15 00	15 18	15 28	15 34	15 39	15 44	15 49	15 55↓				
70D	70551								16 03h	16 16	16 26	16 32	16 48
	7424	16 00	16 18	16 28	16 34	16 39	16 44	16 49	16 55				
	7626	17 00	17 18	17 28	17 34	17 39	17 44	17 49	17 55↓				
70D	70671								18 03h	18 16	18 26	18 32	18 48
	7628	18 00	18 18	18 28	18 34	18 39	18 44	18 49	18 55				
	7630	19 00	19 18	19 28	19 34	19 39	19 44	19 49	19 55↓				
70D	70751								20 03h	20 16	20 26	20 32	20 46
	7432	20 00	20 18	20 28	20 34	20 39	20 44	20 49	20 55				
	7634	21 00	21 18	21 28	21 34	21 39	21 44	21 49	21 54	22 06	22 12↓		
70B	70831										22 20h	22 26	22 40
	7636	22 00	22 18	22 28	22 34	22 39	22 44	22 49	22 54	23 06	23 12		
	7638	23 00	23 18	23 28	23 34	23 39	23 44	23 49	23 54	00 06	00 12↓		
70B	70891										00 22h	00 28	00 42
71C	71891	00 20	→	→	→	00 50	00 56	10 10	01 06	01 17	01 30		
71C	71901	01 15	→	→	→	01 45	01 50	01 55	02 00	02 10	02 20		
71C	71961	02 45	→	→	→	03 10	03 15	03 20	03 25	03 35	03 45		

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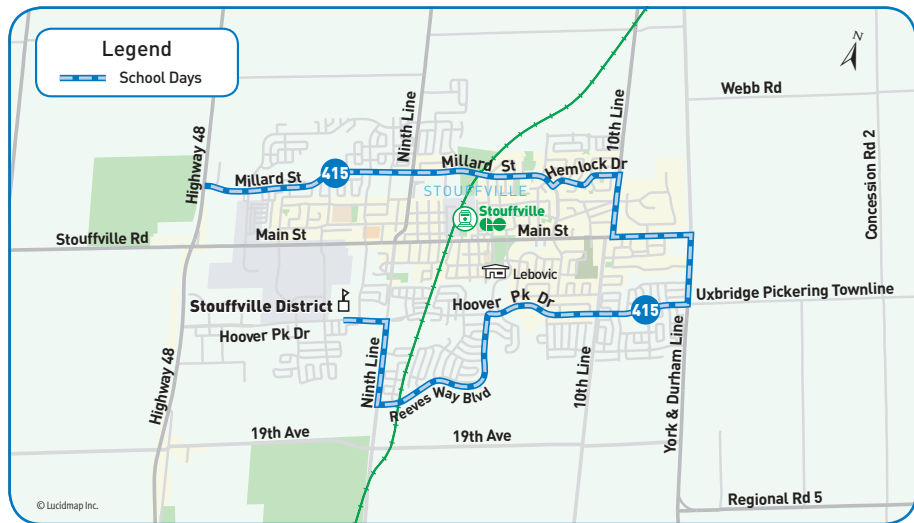
St. Katharine Drexel School Special



415

Stouffville District School Special

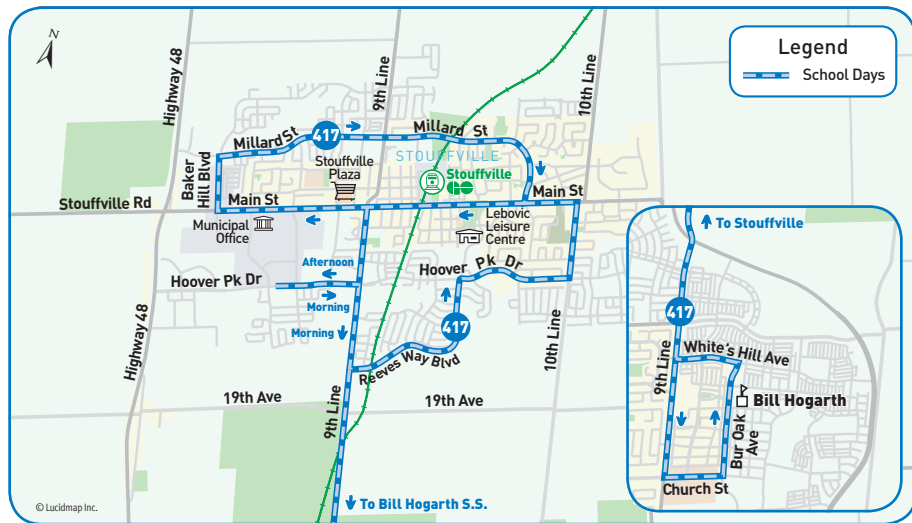
YORK
REGION
TRANSIT



417

Bill Hogarth School Special

YORK
REGION
TRANSIT



APPENDIX C

TURNING MOVEMENT COUNTS

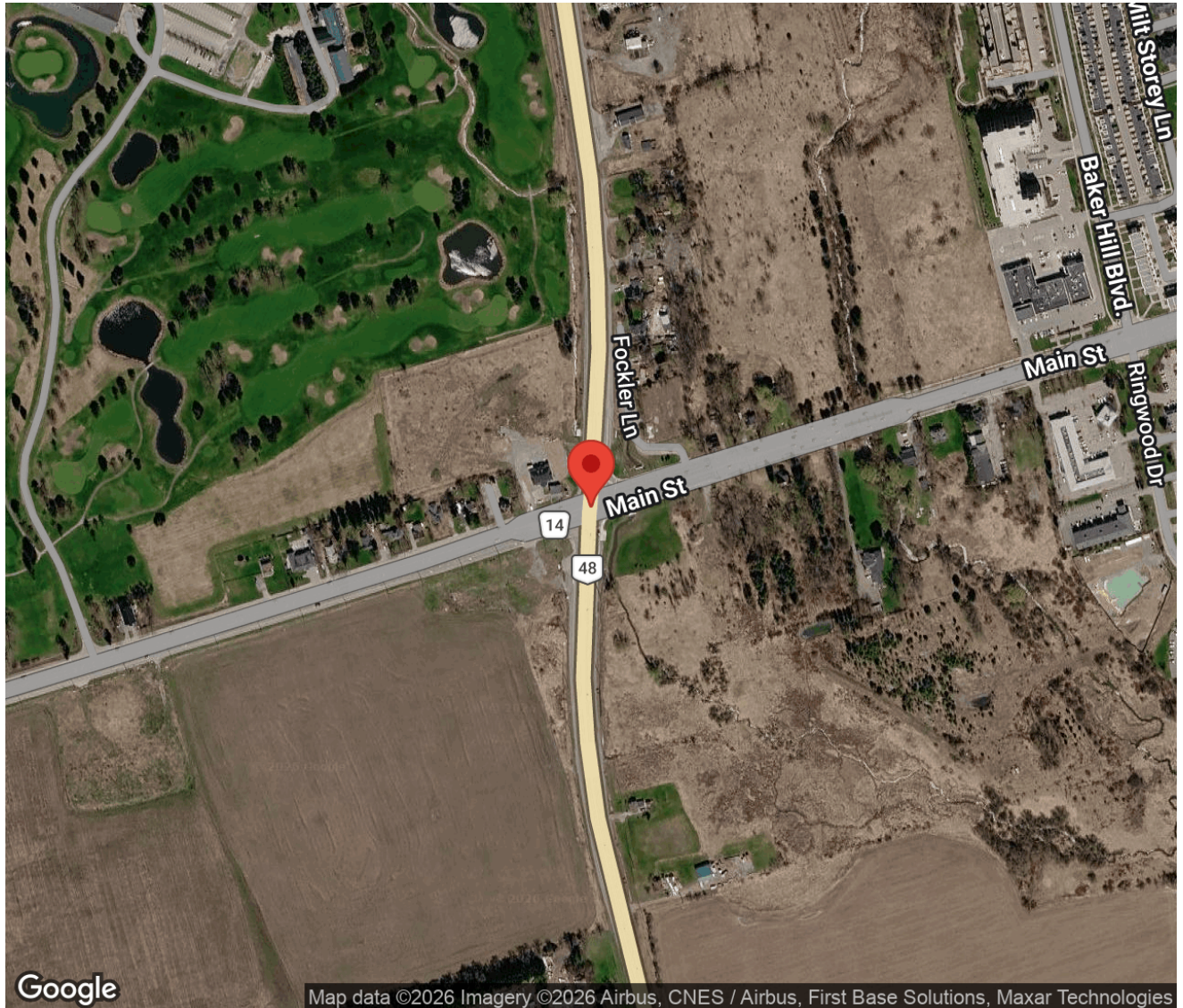
Project #26-210 - Candevcon Group Inc.

Intersection Count Report

Intersection: Hwy 48 & Main St
Municipality: Stouffville
Count Date: Tuesday, Jun 23, 2026
Site Code: 2621000001
Count Categories: Cars, Trucks, Bicycles, Pedestrians
Count Period: 07:00-09:00, 16:00-18:00
Weather: Clear
Comments:

Traffic Count Map

Intersection:	Hwy 48 & Main St
Site Code:	2621000001
Municipality:	Stouffville
Count Date:	Jun 23, 2026



Traffic Count Summary

Intersection: Hwy 48 & Main St
 Site Code: 2621000001
 Municipality: Stouffville
 Count Date: Jun 23, 2026

Hwy 48 - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	95	312	309	0	716	2	234	198	45	0	477	2	1193
08:00 - 09:00	165	397	295	0	857	9	244	200	69	0	513	0	1370
BREAK													
16:00 - 17:00	84	381	191	1	657	9	288	406	73	1	768	5	1425
17:00 - 18:00	98	388	241	1	728	9	227	334	82	0	643	7	1371
GRAND TOTAL	442	1478	1036	2	2958	29	993	1138	269	1	2401	14	5359

Traffic Count Summary

Intersection: Hwy 48 & Main St
 Site Code: 2621000001
 Municipality: Stouffville
 Count Date: Jun 23, 2026

Main St - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	77	492	63	0	632	1	128	272	117	0	517	7	1149
08:00 - 09:00	108	499	77	1	685	8	119	449	159	1	728	11	1413
BREAK													
16:00 - 17:00	106	405	132	0	643	5	225	782	229	0	1236	3	1879
17:00 - 18:00	97	405	99	1	602	7	186	670	162	0	1018	5	1620
GRAND TOTAL	388	1801	371	2	2562	21	658	2173	667	1	3499	26	6061

Traffic Count Data

Intersection: Hwy 48 & Main St
Site Code: 2621000001
Municipality: Stouffville
Count Date: Jun 23, 2026

North Approach - Hwy 48

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	16	55	59	0	130	2	5	6	0	13	0	0	0	0	0	0
07:15	19	61	84	0	164	0	7	10	0	17	0	0	0	0	0	0
07:30	21	90	66	0	177	3	9	5	0	17	0	0	0	0	0	2
07:45	33	74	71	0	178	1	11	8	0	20	0	0	0	0	0	0
08:00	33	79	87	0	199	1	7	2	0	10	0	0	0	0	0	0
08:15	48	99	67	0	214	1	10	5	0	16	0	0	0	0	0	5
08:30	36	94	70	0	200	0	8	1	0	9	0	1	0	0	1	2
08:45	42	93	58	0	193	4	6	5	0	15	0	0	0	0	0	2
SUBTOTAL	248	645	562	0	1455	12	63	42	0	117	0	1	0	0	1	11

Traffic Count Data

Intersection: Hwy 48 & Main St
Site Code: 2621000001
Municipality: Stouffville
Count Date: Jun 23, 2026

North Approach - Hwy 48

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
16:00	15	75	47	1	138	2	13	4	0	19	0	0	1	0	1	3
16:15	22	88	39	0	149	2	11	2	0	15	0	0	0	0	0	1
16:30	18	87	50	0	155	1	3	5	0	9	0	0	1	0	1	4
16:45	22	89	39	0	150	2	15	3	0	20	0	0	0	0	0	1
17:00	22	90	76	0	188	1	10	4	0	15	0	0	0	0	0	1
17:15	20	99	64	0	183	1	11	5	0	17	0	0	0	0	0	2
17:30	24	86	48	0	158	2	8	4	0	14	0	0	1	0	1	2
17:45	27	76	36	1	140	0	7	3	0	10	1	1	0	0	2	4
SUBTOTAL	170	690	399	2	1261	11	78	30	0	119	1	1	3	0	5	18
GRAND TOTAL	418	1335	961	2	2716	23	141	72	0	236	1	2	3	0	6	29

Traffic Count Data

Intersection: Hwy 48 & Main St
Site Code: 2621000001
Municipality: Stouffville
Count Date: Jun 23, 2026

South Approach - Hwy 48

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	50	28	2	0	80	4	1	2	0	7	0	0	0	0	0	0
07:15	57	51	10	0	118	5	1	1	0	7	0	0	0	0	0	1
07:30	54	48	8	0	110	2	0	3	0	5	0	0	0	0	0	1
07:45	55	68	16	0	139	6	1	3	0	10	1	0	0	0	1	0
08:00	60	35	7	0	102	4	2	1	0	7	0	0	0	0	0	0
08:15	59	48	20	0	127	6	3	1	0	10	1	0	0	0	1	0
08:30	60	50	13	0	123	3	3	1	0	7	1	0	0	0	1	0
08:45	46	58	26	0	130	4	1	0	0	5	0	0	0	0	0	0
SUBTOTAL	441	386	102	0	929	34	12	12	0	58	3	0	0	0	3	2

Traffic Count Data

Intersection: Hwy 48 & Main St
Site Code: 2621000001
Municipality: Stouffville
Count Date: Jun 23, 2026

South Approach - Hwy 48

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	66	95	10	1	172	4	2	3	0	9	0	0	1	0	1	2
16:15	68	105	16	0	189	8	2	3	0	13	1	0	0	0	1	2
16:30	75	96	15	0	186	8	1	3	0	12	1	0	1	0	2	0
16:45	52	105	18	0	175	4	0	2	0	6	1	0	1	0	2	1
17:00	55	95	15	0	165	2	2	2	0	6	0	0	0	0	0	0
17:15	78	84	15	0	177	5	0	2	0	7	1	0	0	0	1	2
17:30	35	72	22	0	129	6	1	1	0	8	0	0	0	0	0	2
17:45	42	77	25	0	144	2	3	0	0	5	1	0	0	0	1	3
SUBTOTAL	471	729	136	1	1337	39	11	16	0	66	5	0	3	0	8	12
GRAND TOTAL	912	1115	238	1	2266	73	23	28	0	124	8	0	3	0	11	14

Traffic Count Data

Intersection: Hwy 48 & Main St
Site Code: 2621000001
Municipality: Stouffville
Count Date: Jun 23, 2026

East Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	13	108	22	0	143	2	7	0	0	9	0	0	0	0	0	0
07:15	22	118	10	0	150	0	9	0	0	9	0	0	0	0	0	1
07:30	22	121	21	0	164	2	8	1	0	11	0	0	0	0	0	0
07:45	15	118	8	0	141	1	3	1	0	5	0	0	0	0	0	0
08:00	26	126	13	1	166	2	3	1	0	6	0	0	0	0	0	0
08:15	27	116	18	0	161	1	9	0	0	10	1	4	0	0	5	4
08:30	26	112	21	0	159	1	5	0	0	6	0	1	0	0	1	1
08:45	23	117	23	0	163	0	5	1	0	6	1	1	0	0	2	3
SUBTOTAL	174	936	136	1	1247	9	49	4	0	62	2	6	0	0	8	9

Traffic Count Data

Intersection: Hwy 48 & Main St
Site Code: 2621000001
Municipality: Stouffville
Count Date: Jun 23, 2026

East Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	26	95	25	0	146	2	2	0	0	4	0	0	0	0	0	1
16:15	25	105	35	0	165	1	6	1	0	8	0	0	0	0	0	2
16:30	28	88	33	0	149	1	7	0	0	8	0	0	1	0	1	0
16:45	21	96	36	0	153	2	6	1	0	9	0	0	0	0	0	2
17:00	23	108	32	1	164	2	4	1	0	7	0	0	0	0	0	1
17:15	25	98	28	0	151	1	6	0	0	7	0	1	0	0	1	3
17:30	21	93	20	0	134	0	4	1	0	5	0	0	0	0	0	1
17:45	22	86	17	0	125	1	4	0	0	5	2	1	0	0	3	2
SUBTOTAL	191	769	226	1	1187	10	39	4	0	53	2	2	1	0	5	12
GRAND TOTAL	365	1705	362	2	2434	19	88	8	0	115	4	8	1	0	13	21

Traffic Count Data

Intersection: Hwy 48 & Main St
 Site Code: 2621000001
 Municipality: Stouffville
 Count Date: Jun 23, 2026

West Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	19	43	13	0	75	6	5	4	0	15	0	0	9	0	9	3
07:15	34	64	13	0	111	5	3	3	0	11	0	0	9	0	9	1
07:30	21	54	19	0	94	2	7	6	0	15	1	0	6	0	7	3
07:45	37	92	28	0	157	3	4	3	0	10	0	0	4	0	4	0
08:00	22	85	24	0	131	3	5	3	0	11	0	0	7	0	7	1
08:15	24	104	31	0	159	8	2	3	0	13	0	0	13	0	13	5
08:30	21	109	33	1	164	6	6	2	0	14	0	0	7	0	7	3
08:45	28	132	29	0	189	7	5	1	0	13	0	1	6	0	7	2
SUBTOTAL	206	683	190	1	1080	40	37	25	0	102	1	1	61	0	63	18

Traffic Count Data

Intersection: Hwy 48 & Main St
Site Code: 2621000001
Municipality: Stouffville
Count Date: Jun 23, 2026

West Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	55	150	45	0	250	1	11	2	0	14	0	1	3	0	4	1
16:15	51	207	52	0	310	4	8	4	0	16	0	0	5	0	5	1
16:30	56	182	52	0	290	5	4	1	0	10	0	0	3	0	3	0
16:45	51	215	54	0	320	2	4	4	0	10	0	0	4	0	4	1
17:00	44	165	28	0	237	3	2	1	0	6	0	1	0	0	1	1
17:15	45	199	27	0	271	2	4	1	0	7	0	0	2	0	2	1
17:30	39	152	50	0	241	1	2	2	0	5	0	0	1	0	1	0
17:45	51	140	50	0	241	1	5	0	0	6	0	0	0	0	0	3
SUBTOTAL	392	1410	358	0	2160	19	40	15	0	74	0	2	18	0	20	8
GRAND TOTAL	598	2093	548	1	3240	59	77	40	0	176	1	3	79	0	83	26

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 09:00:00

One Hour Peak

From: 08:00:00
To: 09:00:00

Intersection: Hwy 48 & Main St
Site Code: 2621000001
Count Date: Jun 23, 2026

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Main St runs E/W

North Approach

	Out	In	Total
	806	361	1167
	50	35	85
	1	0	1
Totals	857	396	1253

Hwy 48

	0	1	0	0
	13	31	6	0
	282	365	159	0
Totals	295	397	165	0






East Approach

	Out	In	Total
	649	656	1305
	28	27	55
	8	1	9
Totals	685	684	1369

Main St

				Totals
	0	0	1	1
	0	24	95	119
	1	18	430	449
	33	9	117	159






Peds: 11



Peds: 9

Peds: 0

Peds: 8

Main St

Totals			
1	1	0	0
77	75	2	0
499	471	22	6
108	102	4	2






West Approach

	Out	In	Total
	643	979	1622
	51	52	103
	34	8	42
Totals	728	1039	1767

				
Totals	244	200	69	0
	225	191	66	0
	17	9	3	0
	2	0	0	0

Hwy 48

South Approach

	Out	In	Total
	482	584	1066
	29	44	73
	2	36	38
Totals	513	664	1177

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Hwy 48 & Main St
Site Code: 2621000001
Count Date: Jun 23, 2026
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Hwy 48						South Approach Hwy 48						East Approach Main St						West Approach Main St						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	34	86	89	0	0	209	64	37	8	0	0	109	28	129	14	1	0	172	25	90	34	0	1	149	639
08:15	49	109	72	0	5	230	66	51	21	0	0	138	29	129	18	0	4	176	32	106	47	0	5	185	729
08:30	36	103	71	0	2	210	64	53	14	0	0	131	27	118	21	0	1	166	27	115	42	1	3	185	692
08:45	46	99	63	0	2	208	50	59	26	0	0	135	24	123	24	0	3	171	35	138	36	0	2	209	723
Grand Total	165	397	295	0	9	857	244	200	69	0	0	513	108	499	77	1	8	685	119	449	159	1	11	728	2783
Approach %	19.3	46.3	34.4	0	-	-	47.6	39	13.5	0	-	-	15.8	72.8	11.2	0.1	-	-	16.3	61.7	21.8	0.1	-	-	-
Totals %	5.9	14.3	10.6	0	-	30.8	8.8	7.2	2.5	0	-	18.4	3.9	17.9	2.8	0	-	24.6	4.3	16.1	5.7	0	-	26.2	-
PHF	0.84	0.91	0.83	0	-	0.93	0.92	0.85	0.66	0	-	0.93	0.93	0.97	0.8	0.25	-	0.97	0.85	0.81	0.85	0.25	-	0.87	0.95
Cars	159	365	282	0	-	806	225	191	66	0	-	482	102	471	75	1	-	649	95	430	117	1	-	643	2580
% Cars	96.4	91.9	95.6	0	-	94	92.2	95.5	95.7	0	-	94	94.4	94.4	97.4	100	-	94.7	79.8	95.8	73.6	100	-	88.3	92.7
Trucks	6	31	13	0	-	50	17	9	3	0	-	29	4	22	2	0	-	28	24	18	9	0	-	51	158
% Trucks	3.6	7.8	4.4	0	-	5.8	7	4.5	4.3	0	-	5.7	3.7	4.4	2.6	0	-	4.1	20.2	4	5.7	0	-	7	5.7
Bicycles	0	1	0	0	-	1	2	0	0	0	-	2	2	6	0	0	-	8	0	1	33	0	-	34	45
% Bicycles	0	0.3	0	0	-	0.1	0.8	0	0	0	-	0.4	1.9	1.2	0	0	-	1.2	0	0.2	20.8	0	-	4.7	1.6
Peds	-	-	-	-	9	-	-	-	-	-	0	-	-	-	-	-	8	-	-	-	-	-	11	-	28
% Peds	-	-	-	-	32.1	-	-	-	-	-	0	-	-	-	-	-	28.6	-	-	-	-	-	39.3	-	-

Peak Hour Diagram

Specified Period

From: 16:00:00

To: 18:00:00

One Hour Peak

From: 16:15:00

To: 17:15:00

Intersection: Hwy 48 & Main St

Site Code: 2621000001

Count Date: Jun 23, 2026

Weather conditions:

Clear

**** Signalized Intersection ****

Major Road: Main St runs E/W

North Approach

	Out	In	Total
	642	739	1381
	59	22	81
	1	1	2
Totals	702	762	1464

Hwy 48

	1	0	0	0
	14	39	6	0
	204	354	84	0
Totals	219	393	90	0






East Approach

	Out	In	Total
	631	918	1549
	32	34	66
	1	3	4
Totals	664	955	1619

Main St

				Totals
	0	0	0	0
	0	14	202	216
	1	18	769	788
	12	10	186	208

Peds: 7

Peds: 3



Peds: 5

Peds: 3

Main St

Totals			
	1	1	0
	140	136	3
	420	397	23
	103	97	6

West Approach

	Out	In	Total
	1157	851	2008
	42	59	101
	13	4	17
Totals	1212	914	2126

				
Totals	275	406	76	0
	250	401	64	0
	22	5	10	0
	3	0	2	0

Hwy 48

South Approach

	Out	In	Total
	715	637	1352
	37	55	92
	5	12	17
Totals	757	704	1461

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

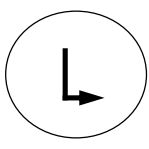
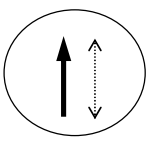
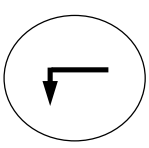
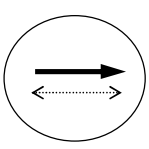
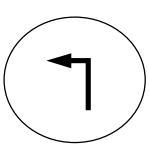
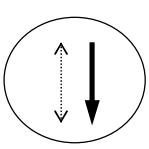
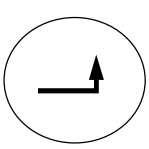
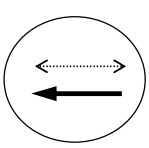
Intersection: Hwy 48 & Main St
Site Code: 2621000001
Count Date: Jun 23, 2026
Period: 16:00 - 18:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Hwy 48						South Approach Hwy 48						East Approach Main St						West Approach Main St						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:15	24	99	41	0	1	164	77	107	19	0	2	203	26	111	36	0	2	173	55	215	61	0	1	331	871
16:30	19	90	56	0	4	165	84	97	19	0	0	200	29	95	34	0	0	158	61	186	56	0	0	303	826
16:45	24	104	42	0	1	170	57	105	21	0	1	183	23	102	37	0	2	162	53	219	62	0	1	334	849
17:00	23	100	80	0	1	203	57	97	17	0	0	171	25	112	33	1	1	171	47	168	29	0	1	244	789
Grand Total	90	393	219	0	7	702	275	406	76	0	3	757	103	420	140	1	5	664	216	788	208	0	3	1212	3335
Approach %	12.8	56	31.2	0	-	-	36.3	53.6	10	0	-	-	15.5	63.3	21.1	0.2	-	-	17.8	65	17.2	0	-	-	-
Totals %	2.7	11.8	6.6	0	-	21	8.2	12.2	2.3	0	-	22.7	3.1	12.6	4.2	0	-	19.9	6.5	23.6	6.2	0	-	36.3	-
PHF	0.94	0.94	0.68	0	-	0.86	0.82	0.95	0.9	0	-	0.93	0.89	0.94	0.95	0.25	-	0.96	0.89	0.9	0.84	0	-	0.91	0.96
Cars	84	354	204	0	-	642	250	401	64	0	-	715	97	397	136	1	-	631	202	769	186	0	-	1157	3145
% Cars	93.3	90.1	93.2	0	-	91.5	90.9	98.8	84.2	0	-	94.5	94.2	94.5	97.1	100	-	95	93.5	97.6	89.4	0	-	95.5	94.3
Trucks	6	39	14	0	-	59	22	5	10	0	-	37	6	23	3	0	-	32	14	18	10	0	-	42	170
% Trucks	6.7	9.9	6.4	0	-	8.4	8	1.2	13.2	0	-	4.9	5.8	5.5	2.1	0	-	4.8	6.5	2.3	4.8	0	-	3.5	5.1
Bicycles	0	0	1	0	-	1	3	0	2	0	-	5	0	0	1	0	-	1	0	1	12	0	-	13	20
% Bicycles	0	0	0.5	0	-	0.1	1.1	0	2.6	0	-	0.7	0	0	0.7	0	-	0.2	0	0.1	5.8	0	-	1.1	0.6
Peds	-	-	-	-	7	-	-	-	-	-	3	-	-	-	-	-	5	-	-	-	-	-	3	-	18
% Peds	-	-	-	-	38.9	-	-	-	-	-	16.7	-	-	-	-	-	27.8	-	-	-	-	-	16.7	-	-

APPENDIX D

SIGNAL TIMING PLANS

LOCATION: Hwy 48 & Stouffville Rd (YR 14)/ Main St CTCS: 430 (MTO Signal) MODE/COMMENT: SA PREPARED/CHECKED BY: MAB PREPARATION DATE: June 12, 2025 IMPLEMENTATION DATE: June 12, 2025		MUNICIPALITY: Whitchurch-Stouffville COMPUTER SYSTEM: Centracs CONTROLLER/CABINET TYPE: Econolite EOS / TS2T1		
		DESIGN WALK SPEED: CHANNEL/DROP:		
NEMA Phase (MTO)	Normal Time	Free	Phase Mode (Fixed/Demanded/Callable)	Remarks
		24 hrs, 7 days		
		Pattern 99 Plan 99		
1. S/B Left Turn Arrow 	WLK FDW MIN 7 EXT 3 MAX1 7 MAX2 0 AMB 3 ALR 1 SPLIT	0	Callable/Extendable by setback loop	Pedestrian Minimums: NSWK = 19 sec., NSFD = 14 sec. EWWK = 19 sec., EWFD = 14 sec. Emergency vehicle pre-emption 3: Serve NSG/NSDW min 20 secs and up to 100 secs if there are continuous emergency calls in NS direction.
2. Northbound  Hwy 48	WLK 19 FDW 14 MIN 33 EXT 4.6 MAX1 36 MAX2 0 AMB 5.9 ALR 2.0 SPLIT	0	Veh Min Recall & Ped Recall MAX Int = 30 secs with 2 secs increment	Emergency vehicle pre-emption 4: Serve EWG/EWDW min 20 secs and up to 100 secs if there are continuous emergency calls in EW direction. EW phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum EWG is 10 seconds. If ongoing vehicle demand exists on the stopbar loop, the EWG is capable of providing vehicle extensions up to the maximum green. If a pedestrian call is received, the pedestrian minimum will be served.
3. W/B Left Turn Arrow 	WLK FDW MIN 7 EXT 3 MAX1 7 MAX2 0 AMB 3 ALR 1 SPLIT	0	Callable/Extendable by setback loop	Please see reverse page for Pretime. Updated to EOS firmware
4. Eastbound  Stouffville Rd	WLK 19 FDW 14 MIN 10 EXT 3 MAX1 40 MAX2 0 AMB 5.0 ALR 2.7 SPLIT	0	Callable/Extendable by stopbar loop	
5. N/B Left Turn Arrow 	WLK FDW MIN 7 EXT 3 MAX1 7 MAX2 0 AMB 3 ALR 1 SPLIT		Callable/Extendable by setback loop	
6. Southbound  Hwy 48	WLK 19 FDW 14 MIN 33 EXT 4.6 MAX1 36 MAX2 0 AMB 5.9 ALR 2.0 SPLIT	0	Veh Min Recall & Ped Recall MAX Int = 30 secs with 2 secs increment	
7. E/B Left Turn Arrow 	WLK FDW MIN 7 EXT 3 MAX1 7 MAX2 0 AMB 3 ALR 1 SPLIT		Callable/Extendable by setback loop	LEGEND: SA - Semi-Actuated signal WLK - Walk time FDW - Flashing Don't Walk time MIN - Minimum green time EXT - Extension time MAX1 - Maximum green time 1 MAX2 - Maximum green time 2 AMB - Amber ALR - All Red CL - Cycle Length OF - Offset VP - Vehicle Permissive NSWK - North/South Walk EWWK - East/West Walk NSG - North/South Green EWG - East/West Green NSFD - North/South Flashing Don't Walk EWFD - East/West Flashing Don't Walk TSP - Transit Priority APS - Audible Pedestrian Signal RLC - Red Light Camera
8. Westbound  Main St	WLK 19 FDW 14 MIN 10 EXT 3 MAX1 40 MAX2 0 AMB 5.0 ALR 2.7 SPLIT	0	Callable/Extendable by stopbar loop	
	CL OF VP	0 (FREE) 0 (FREE) 0 (FREE)		

NOTES:

APPENDIX E

LEVEL OF SERVICE DEFINITIONS

Table 8-1 Signalized Intersection Level of Service

Control Delay Per Vehicle (s)	LOS
≤10	A
10 to 20	B
20 to 35	C
35 to 55	D
55 to 80	E
>80	F

Signing Settings

For an unsignalized two-way stopped controlled (TWSC), all-way stop-controlled (AWSC) or a roundabout intersection, the Level of Service for the intersection is calculated by taking the Intersection Delay and converting it to a letter using Table 8-2.

Table 8-2 TWSC, AWSC and Roundabout Level of Service Criteria

Control Delay Per Vehicle (s)	LOS
≤10	A
10 to 15	B
15 to 25	C
25 to 35	D
35 to 50	E
>50	F

The LOS criteria for TWSC, AWSC and roundabout intersections are different than that used for a signalized intersection. The primary reason for this is that drivers expect different levels of performance between signalized and unsignalized intersections.

Intersection Capacity Utilization

Intersection Capacity Utilization is the 2003 (ICU 2003) for the intersection. Full details of the ICU 2003 can be found in the topic, Intersection Capacity (ICU) Report (see page 24-10). A full description of ICU 2003 along with commentary and instructions is available in the reference book, **Intersection Capacity Utilization 2003** available from Trafficware.

The ICU is shown for unsignalized intersections because it represents the potential capacity for the intersection if it were to be signalized.

ICU Level of Service

The ICU Level of Service (LOS) gives insight into how an intersection is functioning and how much extra capacity is available to handle traffic fluctuations and incidents. ICU is not a value that can be measured with a stopwatch, but it does give a good reading on the conditions that can be expected at the intersection. Full details of the ICU LOS can be found in the topic, Intersection Capacity (ICU) Report.

Letters A to H are assigned to the intersection based on the Intersection Capacity Utilization using Table 8-3. Note that the ICU 2003 includes additional levels past F to further differentiate congested operation.

APPENDIX F

SYNCHRO ANALYSIS

**SIGNALIZED AND UN-SIGNALIZED INTERSECTION CAPACITY ANALYSIS FOR
EXISTING (2026), FUTURE (2030 & 2035) TOTAL BACKGROUND AND
FUTURE (2030 & 2035) TOTAL TRAFFIC**

HCM Signalized Intersection Capacity Analysis

3: Stouffville Road/Main Street & Highway 48

Existing AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	449	159	108	499	77	244	200	69	165	397	295
Future Volume (vph)	119	449	159	108	499	77	244	200	69	165	397	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		130.0	55.0		45.0	45.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Satd. Flow (prot)	1521	3510	1541	1755	3510	1585	1706	3332	0	1755	3182	0
Flt Permitted	0.332			0.385			0.293			0.578		
Satd. Flow (perm)	529	3510	1521	711	3510	1546	524	3332	0	1062	3182	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			167			124		45			174	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		462.5			242.6			295.2			401.6	
Travel Time (s)		27.8			14.6			13.3			18.1	
Confl. Peds. (#/hr)	9					9	11		8	8		11
Confl. Bikes (#/hr)			1			6						1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	6%	4%	4%	3%	7%	5%	4%	4%	8%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	125	473	167	114	525	81	257	284	0	174	729	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	33.0		7.0	33.0	
Minimum Split (s)	11.0	40.7	40.7	11.0	40.7	40.7	11.0	40.9		11.0	40.9	
Total Split (s)	11.0	47.7	47.7	11.0	47.7	47.7	11.0	43.9		11.0	43.9	
Total Split (%)	9.7%	42.0%	42.0%	9.7%	42.0%	42.0%	9.7%	38.6%		9.7%	38.6%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.9		3.0	5.9	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7	7.7	4.0	7.7	7.7	4.0	7.9		4.0	7.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Act Effect Green (s)	31.5	20.8	20.8	31.5	20.8	20.8	47.1	36.2		47.1	36.2	
Actuated g/C Ratio	0.33	0.22	0.22	0.33	0.22	0.22	0.50	0.38		0.50	0.38	
v/c Ratio	0.50	0.61	0.36	0.36	0.68	0.19	0.74	0.22		0.30	0.55	
Control Delay (s/veh)	27.4	36.5	6.8	22.7	38.4	2.5	30.6	18.1		14.4	19.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	27.4	36.5	6.8	22.7	38.4	2.5	30.6	18.1		14.4	19.7	
LOS	C	D	A	C	D	A	C	B		B	B	
Approach Delay (s/veh)		28.6			31.9			24.0			18.7	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	17.7	42.4	0.0	14.1	47.8	0.0	24.7	15.3		15.4	42.1	
Queue Length 95th (m)	31.4	57.6	15.2	25.2	64.2	3.9	#68.7	29.8		34.6	73.9	
Internal Link Dist (m)		438.5			218.6			271.2			377.6	

Synchro 12 Report

HCM Signalized Intersection Capacity Analysis

3: Stouffville Road/Main Street & Highway 48

Existing AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)	55.0		130.0	55.0		45.0	45.0			70.0		
Base Capacity (vph)	249	1489	741	314	1489	727	348	1299		579	1322	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.50	0.32	0.23	0.36	0.35	0.11	0.74	0.22		0.30	0.55	

Intersection Summary

Area Type: Other

Cycle Length: 113.6

Actuated Cycle Length: 94.7

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.74

Intersection Signal Delay (s/veh): 25.5

Intersection LOS: C

Intersection Capacity Utilization 84.6%

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: 3: Stouffville Road/Main Street & Highway 48

 Ø1	 Ø2	 Ø3	 Ø4
11 s	43.9 s	11 s	47.7 s
 Ø5	 Ø6	 Ø7	 Ø8
11 s	43.9 s	11 s	47.7 s

HCM Signalized Intersection Capacity Analysis

3: Stouffville Road/Main Street & Highway 48

Existing PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	788	208	103	420	140	275	406	76	90	393	219
Future Volume (vph)	216	788	208	103	420	140	275	406	76	90	393	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		130.0	55.0		45.0	45.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Satd. Flow (prot)	1706	3579	1555	1722	3444	1601	1690	3453	0	1706	3163	0
Flt Permitted	0.447			0.171			0.309			0.439		
Satd. Flow (perm)	800	3579	1531	310	3444	1570	549	3453	0	786	3163	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			217			146		20			99	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		462.5			242.6			295.2			401.6	
Travel Time (s)		27.8			14.6			13.3			18.1	
Confl. Peds. (#/hr)	7		3	3		7	3		5	5		3
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	2%	5%	6%	6%	2%	8%	1%	13%	7%	10%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	225	821	217	107	438	146	286	502	0	94	637	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	33.0		7.0	33.0	
Minimum Split (s)	11.0	40.7	40.7	11.0	40.7	40.7	11.0	40.9		11.0	40.9	
Total Split (s)	11.0	47.7	47.7	11.0	47.7	47.7	11.0	43.9		11.0	43.9	
Total Split (%)	9.7%	42.0%	42.0%	9.7%	42.0%	42.0%	9.7%	38.6%		9.7%	38.6%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.9		3.0	5.9	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7	7.7	4.0	7.7	7.7	4.0	7.9		4.0	7.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Act Effect Green (s)	42.4	31.7	31.7	42.4	31.7	31.7	47.9	38.5		47.0	36.1	
Actuated g/C Ratio	0.40	0.30	0.30	0.40	0.30	0.30	0.45	0.36		0.45	0.34	
v/c Ratio	0.59	0.76	0.36	0.49	0.42	0.25	0.88	0.39		0.23	0.56	
Control Delay (s/veh)	27.3	38.5	5.2	25.1	30.6	5.4	52.3	26.7		18.0	26.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	27.3	38.5	5.2	25.1	30.6	5.4	52.3	26.7		18.0	26.5	
LOS	C	D	A	C	C	A	D	C		B	C	
Approach Delay (s/veh)		30.8			24.4			36.0			25.4	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	30.6	81.3	0.0	13.4	39.5	0.0	37.8	40.1		10.8	50.6	
Queue Length 95th (m)	47.9	102.6	16.1	24.0	53.6	13.2	#97.4	60.6		23.3	77.3	
Internal Link Dist (m)		438.5			218.6			271.2			377.6	

Synchro 12 Report

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Existing PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)	55.0		130.0	55.0		45.0	45.0			70.0		
Base Capacity (vph)	381	1360	716	218	1309	687	325	1272		411	1147	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.59	0.60	0.30	0.49	0.33	0.21	0.88	0.39		0.23	0.56	

Intersection Summary

Area Type: Other

Cycle Length: 113.6

Actuated Cycle Length: 105.5

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.88

Intersection Signal Delay (s/veh): 29.6

Intersection LOS: C

Intersection Capacity Utilization 90.6%

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: 3: Stouffville Road/Main Street & Highway 48

 Ø1	 Ø2	 Ø3	 Ø4
11 s	43.9 s	11 s	47.7 s
 Ø5	 Ø6	 Ø7	 Ø8
11 s	43.9 s	11 s	47.7 s

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Future (2030) Total Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	533	233	111	591	79	291	204	72	173	408	349
Future Volume (vph)	166	533	233	111	591	79	291	204	72	173	408	349
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		130.0	55.0		45.0	45.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Satd. Flow (prot)	1521	3510	1541	1755	3510	1585	1706	3331	0	1755	3166	0
Flt Permitted	0.264			0.316			0.247			0.574		
Satd. Flow (perm)	421	3510	1521	584	3510	1546	442	3331	0	1054	3166	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			245			124			46			200
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		462.5			242.6			295.2			401.6	
Travel Time (s)		27.8			14.6			13.3			18.1	
Confl. Peds. (#/hr)	9					9	11		8	8		11
Confl. Bikes (#/hr)			1			6						1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	6%	4%	4%	3%	7%	5%	4%	4%	8%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	175	561	245	117	622	83	306	291	0	182	796	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	33.0		7.0	33.0	
Minimum Split (s)	11.0	40.7	40.7	11.0	40.7	40.7	11.0	40.9		11.0	40.9	
Total Split (s)	11.0	47.7	47.7	11.0	47.7	47.7	11.0	43.9		11.0	43.9	
Total Split (%)	9.7%	42.0%	42.0%	9.7%	42.0%	42.0%	9.7%	38.6%		9.7%	38.6%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.9		3.0	5.9	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7	7.7	4.0	7.7	7.7	4.0	7.9		4.0	7.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Act Effect Green (s)	34.5	23.8	23.8	34.5	23.8	23.8	47.1	36.1		47.1	36.1	
Actuated g/C Ratio	0.35	0.24	0.24	0.35	0.24	0.24	0.48	0.37		0.48	0.37	
v/c Ratio	0.77	0.66	0.44	0.40	0.73	0.18	1.01	0.23		0.33	0.61	
Control Delay (s/veh)	45.3	36.9	6.4	23.2	39.1	2.5	76.7	19.2		15.8	21.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	45.3	36.9	6.4	23.2	39.1	2.5	76.7	19.2		15.8	21.4	
LOS	D	D	A	C	D	A	E	B		B	C	
Approach Delay (s/veh)		30.8			33.1			48.7			20.4	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	25.7	51.8	0.0	14.5	58.6	0.0	~34.3	16.9		17.9	50.3	
Queue Length 95th (m)	#50.3	68.7	17.9	25.7	77.0	4.3	#105.0	30.5		36.1	81.1	
Internal Link Dist (m)		438.5			218.6			271.2			377.6	

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Future (2030) Total Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)	55.0		130.0	55.0		45.0	45.0			70.0		
Base Capacity (vph)	228	1443	769	290	1443	708	304	1261		558	1297	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.77	0.39	0.32	0.40	0.43	0.12	1.01	0.23		0.33	0.61	

Intersection Summary

Area Type: Other

Cycle Length: 113.6

Actuated Cycle Length: 97.6

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.01

Intersection Signal Delay (s/veh): 31.5

Intersection LOS: C

Intersection Capacity Utilization 91.7%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Stouffville Road/Main Street & Highway 48

 Ø1	 Ø2	 Ø3	 Ø4
11 s	43.9 s	11 s	47.7 s
 Ø5	 Ø6	 Ø7	 Ø8
11 s	43.9 s	11 s	47.7 s

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Future (2030) Total Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	867	268	107	512	146	342	422	78	93	409	265
Future Volume (vph)	264	867	268	107	512	146	342	422	78	93	409	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		130.0	55.0		45.0	45.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Satd. Flow (prot)	1706	3579	1555	1722	3444	1601	1690	3458	0	1706	3149	0
Flt Permitted	0.374			0.141			0.263			0.418		
Satd. Flow (perm)	669	3579	1531	255	3444	1570	467	3458	0	749	3149	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			279			152		19			138	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		462.5			242.6			295.2			401.6	
Travel Time (s)		27.8			14.6			13.3			18.1	
Confl. Peds. (#/hr)	7		3	3		7	3		5	5		3
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	2%	5%	6%	6%	2%	8%	1%	13%	7%	10%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	275	903	279	111	533	152	356	521	0	97	702	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	33.0		7.0	33.0	
Minimum Split (s)	11.0	40.7	40.7	11.0	40.7	40.7	11.0	40.9		11.0	40.9	
Total Split (s)	11.0	47.7	47.7	11.0	47.7	47.7	11.0	43.9		11.0	43.9	
Total Split (%)	9.7%	42.0%	42.0%	9.7%	42.0%	42.0%	9.7%	38.6%		9.7%	38.6%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.9		3.0	5.9	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7	7.7	4.0	7.7	7.7	4.0	7.9		4.0	7.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Act Effect Green (s)	45.2	34.5	34.5	45.2	34.5	34.5	47.9	38.5		47.0	36.1	
Actuated g/C Ratio	0.42	0.32	0.32	0.42	0.32	0.32	0.44	0.36		0.43	0.33	
v/c Ratio	0.79	0.79	0.41	0.55	0.49	0.25	1.25	0.42		0.25	0.62	
Control Delay (s/veh)	40.8	39.2	5.0	27.7	31.1	5.2	163.1	28.3		19.2	27.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	40.8	39.2	5.0	27.7	31.1	5.2	163.1	28.3		19.2	27.3	
LOS	D	D	A	C	C	A	F	C		B	C	
Approach Delay (s/veh)		33.0			25.7			83.1			26.4	
Approach LOS		C			C			F			C	
Queue Length 50th (m)	38.7	92.2	0.0	13.9	49.6	0.0	~75.6	44.6		12.1	57.6	
Queue Length 95th (m)	#65.8	115.3	18.0	24.7	65.7	13.4	#152.5	63.2		23.7	82.8	
Internal Link Dist (m)		438.5			218.6			271.2			377.6	

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Future (2030) Total Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)	55.0		130.0	55.0		45.0	45.0			70.0		
Base Capacity (vph)	346	1325	742	201	1275	677	285	1241		387	1141	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.79	0.68	0.38	0.55	0.42	0.22	1.25	0.42		0.25	0.62	

Intersection Summary

Area Type: Other

Cycle Length: 113.6

Actuated Cycle Length: 108.3

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.25

Intersection Signal Delay (s/veh): 41.3

Intersection LOS: D

Intersection Capacity Utilization 97.7%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Stouffville Road/Main Street & Highway 48

	Ø1		Ø2		Ø3		Ø4
11 s		43.9 s		11 s		47.7 s	
	Ø5		Ø6		Ø7		Ø8
11 s		43.9 s		11 s		47.7 s	

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Future (2035) Total Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	562	239	115	609	81	300	209	77	184	423	360
Future Volume (vph)	169	562	239	115	609	81	300	209	77	184	423	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		130.0	55.0		45.0	45.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Satd. Flow (prot)	1521	3510	1541	1755	3510	1585	1706	3328	0	1755	3166	0
Flt Permitted	0.252			0.292			0.230			0.568		
Satd. Flow (perm)	402	3510	1521	539	3510	1546	412	3328	0	1044	3166	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			252			124			49			198
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		462.5			242.6			295.2			401.6	
Travel Time (s)		27.8			14.6			13.3			18.1	
Confl. Peds. (#/hr)	9					9	11		8	8		11
Confl. Bikes (#/hr)			1			6						1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	6%	4%	4%	3%	7%	5%	4%	4%	8%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	178	592	252	121	641	85	316	301	0	194	824	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	33.0		7.0	33.0	
Minimum Split (s)	11.0	40.7	40.7	11.0	40.7	40.7	11.0	40.9		11.0	40.9	
Total Split (s)	11.0	47.7	47.7	11.0	47.7	47.7	11.0	43.9		11.0	43.9	
Total Split (%)	9.7%	42.0%	42.0%	9.7%	42.0%	42.0%	9.7%	38.6%		9.7%	38.6%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.9		3.0	5.9	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7	7.7	4.0	7.7	7.7	4.0	7.9		4.0	7.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Act Effect Green (s)	35.0	24.3	24.3	35.0	24.3	24.3	47.0	36.1		47.0	36.1	
Actuated g/C Ratio	0.36	0.25	0.25	0.36	0.25	0.25	0.48	0.37		0.48	0.37	
v/c Ratio	0.80	0.68	0.45	0.43	0.74	0.18	1.09	0.24		0.35	0.64	
Control Delay (s/veh)	48.9	37.5	6.3	23.9	39.3	2.7	102.1	19.3		16.4	22.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	48.9	37.5	6.3	23.9	39.3	2.7	102.1	19.3		16.4	22.4	
LOS	D	D	A	C	D	A	F	B		B	C	
Approach Delay (s/veh)		31.8			33.5			61.7			21.2	
Approach LOS		C			C			E			C	
Queue Length 50th (m)	26.1	55.2	0.0	15.0	60.8	0.0	~41.9	17.6		19.6	54.2	
Queue Length 95th (m)	#54.1	73.0	18.1	26.5	79.7	4.8	#113.9	31.3		38.3	85.7	
Internal Link Dist (m)		438.5			218.6			271.2			377.6	

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Future (2035) Total Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)	55.0		130.0	55.0		45.0	45.0			70.0		
Base Capacity (vph)	223	1435	771	279	1435	705	290	1256		551	1290	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.80	0.41	0.33	0.43	0.45	0.12	1.09	0.24		0.35	0.64	

Intersection Summary

Area Type: Other

Cycle Length: 113.6

Actuated Cycle Length: 98.1

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.09

Intersection Signal Delay (s/veh): 34.4

Intersection LOS: C

Intersection Capacity Utilization 92.7%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Stouffville Road/Main Street & Highway 48

	Ø1		Ø2		Ø3		Ø4
11 s		43.9 s		11 s		47.7 s	
	Ø5		Ø6		Ø7		Ø8
11 s		43.9 s		11 s		47.7 s	

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Future (2035) Total Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	900	279	113	529	153	353	444	82	97	430	274
Future Volume (vph)	275	900	279	113	529	153	353	444	82	97	430	274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		130.0	55.0		45.0	45.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Satd. Flow (prot)	1706	3579	1555	1722	3444	1601	1690	3458	0	1706	3152	0
Flt Permitted	0.365			0.132			0.248			0.372		
Satd. Flow (perm)	653	3579	1531	239	3444	1570	441	3458	0	666	3152	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			291			159		19			131	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		462.5			242.6			295.2			401.6	
Travel Time (s)		27.8			14.6			13.3			18.1	
Confl. Peds. (#/hr)	7		3	3		7	3		5	5		3
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	2%	5%	6%	6%	2%	8%	1%	13%	7%	10%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	286	938	291	118	551	159	368	548	0	101	733	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	33.0		7.0	33.0	
Minimum Split (s)	11.0	40.7	40.7	11.0	40.7	40.7	11.0	40.9		11.0	40.9	
Total Split (s)	11.0	47.7	47.7	11.0	47.7	47.7	11.0	43.9		11.0	43.9	
Total Split (%)	9.7%	42.0%	42.0%	9.7%	42.0%	42.0%	9.7%	38.6%		9.7%	38.6%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.9		3.0	5.9	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7	7.7	4.0	7.7	7.7	4.0	7.9		4.0	7.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Act Effect Green (s)	46.4	35.6	35.6	46.4	35.6	35.6	47.0	36.1		47.0	36.1	
Actuated g/C Ratio	0.42	0.33	0.33	0.42	0.33	0.33	0.43	0.33		0.43	0.33	
v/c Ratio	0.83	0.80	0.42	0.60	0.49	0.26	1.37	0.48		0.29	0.65	
Control Delay (s/veh)	44.8	39.6	5.0	30.6	31.0	5.1	211.7	30.4		20.1	29.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	44.8	39.6	5.0	30.6	31.0	5.1	211.7	30.4		20.1	29.1	
LOS	D	D	A	C	C	A	F	C		C	C	
Approach Delay (s/veh)		34.0			26.0			103.2			28.0	
Approach LOS		C			C			F			C	
Queue Length 50th (m)	40.6	97.0	0.0	14.9	51.6	0.0	~89.0	49.2		13.2	64.7	
Queue Length 95th (m)	#74.1	121.2	18.1	26.1	68.0	13.7	#163.8	66.8		24.7	89.0	
Internal Link Dist (m)		438.5			218.6			271.2			377.6	

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Future (2035) Total Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)	55.0		130.0	55.0		45.0	45.0			70.0		
Base Capacity (vph)	344	1311	745	196	1261	675	269	1152		352	1127	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.83	0.72	0.39	0.60	0.44	0.24	1.37	0.48		0.29	0.65	

Intersection Summary

Area Type: Other

Cycle Length: 113.6

Actuated Cycle Length: 109.4

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.37

Intersection Signal Delay (s/veh): 46.6

Intersection LOS: D

Intersection Capacity Utilization 99.3%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Stouffville Road/Main Street & Highway 48

 Ø1	 Ø2	 Ø3	 Ø4
11 s	43.9 s	11 s	47.7 s
 Ø5	 Ø6	 Ø7	 Ø8
11 s	43.9 s	11 s	47.7 s

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Future (2030) Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	550	233	119	628	80	291	206	76	174	414	356
Future Volume (vph)	172	550	233	119	628	80	291	206	76	174	414	356
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		130.0	55.0		45.0	45.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Satd. Flow (prot)	1521	3510	1541	1755	3510	1585	1706	3328	0	1755	3166	0
Flt Permitted	0.240			0.306			0.235			0.570		
Satd. Flow (perm)	383	3510	1521	565	3510	1546	421	3328	0	1047	3166	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			245			124		49			200	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		462.5			242.6			295.2			401.6	
Travel Time (s)		27.8			14.6			13.3			18.1	
Confl. Peds. (#/hr)	9					9	11		8	8		11
Confl. Bikes (#/hr)			1			6						1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	6%	4%	4%	3%	7%	5%	4%	4%	8%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	181	579	245	125	661	84	306	297	0	183	811	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	33.0		7.0	33.0	
Minimum Split (s)	11.0	40.7	40.7	11.0	40.7	40.7	11.0	40.9		11.0	40.9	
Total Split (s)	11.0	47.7	47.7	11.0	47.7	47.7	11.0	43.9		11.0	43.9	
Total Split (%)	9.7%	42.0%	42.0%	9.7%	42.0%	42.0%	9.7%	38.6%		9.7%	38.6%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.9		3.0	5.9	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7	7.7	4.0	7.7	7.7	4.0	7.9		4.0	7.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Act Effect Green (s)	35.6	24.9	24.9	35.6	24.9	24.9	47.0	36.1		47.0	36.1	
Actuated g/C Ratio	0.36	0.25	0.25	0.36	0.25	0.25	0.48	0.37		0.48	0.37	
v/c Ratio	0.83	0.65	0.43	0.43	0.75	0.17	1.05	0.24		0.33	0.63	
Control Delay (s/veh)	53.3	36.6	6.2	23.7	39.5	2.5	89.8	19.5		16.4	22.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	53.3	36.6	6.2	23.7	39.5	2.5	89.8	19.5		16.4	22.3	
LOS	D	D	A	C	D	A	F	B		B	C	
Approach Delay (s/veh)		32.2			33.7			55.2			21.2	
Approach LOS		C			C			E			C	
Queue Length 50th (m)	26.6	53.7	0.0	15.5	63.1	0.0	~38.3	17.5		18.6	53.2	
Queue Length 95th (m)	#57.2	71.1	17.7	27.3	82.3	4.5	#108.9	31.2		36.8	84.3	
Internal Link Dist (m)		438.5			218.6			271.2			377.6	

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Future (2030) Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)	55.0		130.0	55.0		45.0	45.0			70.0		
Base Capacity (vph)	218	1426	763	288	1426	702	291	1248		549	1285	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.83	0.41	0.32	0.43	0.46	0.12	1.05	0.24		0.33	0.63	

Intersection Summary

Area Type: Other

Cycle Length: 113.6

Actuated Cycle Length: 98.7

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.05

Intersection Signal Delay (s/veh): 33.4

Intersection LOS: C

Intersection Capacity Utilization 92.8%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Stouffville Road/Main Street & Highway 48

	Ø1		Ø2		Ø3		Ø4
11 s		43.9 s		11 s		47.7 s	
	Ø5		Ø6		Ø7		Ø8
11 s		43.9 s		11 s		47.7 s	

HCM Un-signalized Intersection Capacity Analysis 6: Highway 48 & Proposed Site Access '1'

Future (2030) Total AM

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	1	450	8	0	931
Future Vol, veh/h	13	1	450	8	0	931
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	1	489	9	0	1012
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	999	249	0	0	498	0
Stage 1	493	-	-	-	-	-
Stage 2	506	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	240	751	-	-	1062	-
Stage 1	579	-	-	-	-	-
Stage 2	571	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	240	751	-	-	1062	-
Mov Cap-2 Maneuver	240	-	-	-	-	-
Stage 1	579	-	-	-	-	-
Stage 2	571	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	20.19	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	252	1062	-	
HCM Lane V/C Ratio	-	-	0.06	-	-	
HCM Ctrl Dly (s/v)	-	-	20.2	0	-	
HCM Lane LOS	-	-	C	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

HCM Un-signalized Intersection Capacity Analysis 8: Main Street & Proposed Site Access '2'

Future (2030) Total AM

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	22	778	781	10	12	46
Future Vol, veh/h	22	778	781	10	12	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	15	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	846	849	11	13	50
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	860	0	-	0	1325	430
Stage 1	-	-	-	-	854	-
Stage 2	-	-	-	-	471	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	777	-	-	-	147	573
Stage 1	-	-	-	-	377	-
Stage 2	-	-	-	-	595	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	777	-	-	-	143	573
Mov Cap-2 Maneuver	-	-	-	-	143	-
Stage 1	-	-	-	-	366	-
Stage 2	-	-	-	-	595	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.27	0		17.41		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	777	-	-	-	353	
HCM Lane V/C Ratio	0.031	-	-	-	0.179	
HCM Ctrl Dly (s/v)	9.8	-	-	-	17.4	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	

HCM Signalized Intersection Capacity Analysis

3: Stouffville Road/Main Street & Highway 48

Future (2030) Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	899	268	112	543	147	342	429	86	94	413	270
Future Volume (vph)	283	899	268	112	543	147	342	429	86	94	413	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		130.0	55.0		45.0	45.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Satd. Flow (prot)	1706	3579	1555	1722	3444	1601	1690	3445	0	1706	3149	0
Flt Permitted	0.354			0.133			0.262			0.380		
Satd. Flow (perm)	634	3579	1531	241	3444	1570	466	3445	0	681	3149	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			279			153		22			140	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		462.5			242.6			295.2			401.6	
Travel Time (s)		27.8			14.6			13.3			18.1	
Confl. Peds. (#/hr)	7		3	3		7	3		5	5		3
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	2%	5%	6%	6%	2%	8%	1%	13%	7%	10%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	295	936	279	117	566	153	356	537	0	98	711	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	33.0		7.0	33.0	
Minimum Split (s)	11.0	40.7	40.7	11.0	40.7	40.7	11.0	40.9		11.0	40.9	
Total Split (s)	11.0	47.7	47.7	11.0	47.7	47.7	11.0	43.9		11.0	43.9	
Total Split (%)	9.7%	42.0%	42.0%	9.7%	42.0%	42.0%	9.7%	38.6%		9.7%	38.6%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.9		3.0	5.9	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7	7.7	4.0	7.7	7.7	4.0	7.9		4.0	7.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Act Effect Green (s)	46.3	35.6	35.6	46.3	35.6	35.6	47.0	36.1		47.0	36.1	
Actuated g/C Ratio	0.42	0.33	0.33	0.42	0.33	0.33	0.43	0.33		0.43	0.33	
v/c Ratio	0.88	0.80	0.41	0.59	0.50	0.25	1.28	0.47		0.27	0.63	
Control Delay (s/veh)	51.0	39.6	5.0	30.1	31.3	5.1	176.4	30.0		19.9	27.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	51.0	39.6	5.0	30.1	31.3	5.1	176.4	30.0		19.9	27.9	
LOS	D	D	A	C	C	A	F	C		B	C	
Approach Delay (s/veh)		35.4			26.3			88.4			27.0	
Approach LOS		D			C			F			C	
Queue Length 50th (m)	42.1	96.7	0.0	14.7	53.3	0.0	~80.1	47.6		12.8	60.6	
Queue Length 95th (m)	#81.5	120.8	18.0	25.8	70.1	13.5	#152.7	65.2		24.1	84.0	
Internal Link Dist (m)		438.5			218.6			271.2			377.6	

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Future (2030) Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)	55.0		130.0	55.0		45.0	45.0			70.0		
Base Capacity (vph)	337	1311	737	197	1262	672	278	1151		358	1132	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.88	0.71	0.38	0.59	0.45	0.23	1.28	0.47		0.27	0.63	

Intersection Summary

Area Type: Other

Cycle Length: 113.6

Actuated Cycle Length: 109.4

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.28

Intersection Signal Delay (s/veh): 43.5

Intersection LOS: D

Intersection Capacity Utilization 99.4%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Stouffville Road/Main Street & Highway 48

 Ø1	 Ø2	 Ø3	 Ø4
11 s	43.9 s	11 s	47.7 s
 Ø5	 Ø6	 Ø7	 Ø8
11 s	43.9 s	11 s	47.7 s

HCM Un-signalized Intersection Capacity Analysis 6: Highway 48 & Proposed Site Access '1'

Future (2030) Total PM

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	1	833	26	1	768
Future Vol, veh/h	9	1	833	26	1	768
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	1	905	28	1	835
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1339	467	0	0	934	0
Stage 1	920	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	144	543	-	-	729	-
Stage 1	349	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	144	543	-	-	729	-
Mov Cap-2 Maneuver	144	-	-	-	-	-
Stage 1	349	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	29.94	0		0.03		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	155	5	-	
HCM Lane V/C Ratio	-	-	0.07	0.001	-	
HCM Ctrl Dly (s/v)	-	-	29.9	9.9	0	
HCM Lane LOS	-	-	D	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

HCM Un-signalized Intersection Capacity Analysis 8: Main Street & Proposed Site Access '2'

Future (2030) Total PM

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	1036	763	18	15	39
Future Vol, veh/h	43	1036	763	18	15	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	15	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	1126	829	20	16	42
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	849	0	-	0	1496	424
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	657	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	785	-	-	-	114	578
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	478	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	785	-	-	-	107	578
Mov Cap-2 Maneuver	-	-	-	-	107	-
Stage 1	-	-	-	-	361	-
Stage 2	-	-	-	-	478	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.39	0		22.87		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	785	-	-	-	260	
HCM Lane V/C Ratio	0.06	-	-	-	0.226	
HCM Ctrl Dly (s/v)	9.9	-	-	-	22.9	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0.2	-	-	-	0.8	

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Future (2035) Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	175	579	239	123	646	82	300	211	81	185	429	367
Future Volume (vph)	175	579	239	123	646	82	300	211	81	185	429	367
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		130.0	55.0		45.0	45.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Satd. Flow (prot)	1521	3510	1541	1755	3510	1585	1706	3321	0	1755	3166	0
Flt Permitted	0.231			0.286			0.219			0.565		
Satd. Flow (perm)	369	3510	1521	528	3510	1546	392	3321	0	1038	3166	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			252			124		51			199	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		462.5			242.6			295.2			401.6	
Travel Time (s)		27.8			14.6			13.3			18.1	
Confl. Peds. (#/hr)	9					9	11		8	8		11
Confl. Bikes (#/hr)			1			6						1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	6%	4%	4%	3%	7%	5%	4%	4%	8%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	609	252	129	680	86	316	307	0	195	838	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	33.0		7.0	33.0	
Minimum Split (s)	11.0	40.7	40.7	11.0	40.7	40.7	11.0	40.9		11.0	40.9	
Total Split (s)	11.0	47.7	47.7	11.0	47.7	47.7	11.0	43.9		11.0	43.9	
Total Split (%)	9.7%	42.0%	42.0%	9.7%	42.0%	42.0%	9.7%	38.6%		9.7%	38.6%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.9		3.0	5.9	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7	7.7	4.0	7.7	7.7	4.0	7.9		4.0	7.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Act Effect Green (s)	36.4	25.7	25.7	36.4	25.7	25.7	47.0	36.1		47.0	36.1	
Actuated g/C Ratio	0.37	0.26	0.26	0.37	0.26	0.26	0.47	0.36		0.47	0.36	
v/c Ratio	0.85	0.67	0.44	0.46	0.75	0.18	1.14	0.25		0.36	0.66	
Control Delay (s/veh)	57.2	36.8	6.0	24.4	39.4	2.7	120.0	19.9		17.3	23.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	57.2	36.8	6.0	24.4	39.4	2.7	120.0	19.9		17.3	23.4	
LOS	E	D	A	C	D	A	F	B		B	C	
Approach Delay (s/veh)		33.0			33.7			70.7			22.3	
Approach LOS		C			C			E			C	
Queue Length 50th (m)	27.2	57.1	0.0	16.0	65.4	0.0	~45.8	18.3		20.3	57.0	
Queue Length 95th (m)	#60.4	75.0	17.9	28.0	85.0	4.9	#119.8	32.4		39.6	89.8	
Internal Link Dist (m)		438.5			218.6			271.2			377.6	

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Future (2035) Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)	55.0		130.0	55.0		45.0	45.0			70.0		
Base Capacity (vph)	216	1415	763	279	1415	697	277	1237		541	1275	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.85	0.43	0.33	0.46	0.48	0.12	1.14	0.25		0.36	0.66	

Intersection Summary

Area Type: Other

Cycle Length: 113.6

Actuated Cycle Length: 99.5

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.14

Intersection Signal Delay (s/veh): 36.6

Intersection LOS: D

Intersection Capacity Utilization 93.8%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Stouffville Road/Main Street & Highway 48

	Ø1		Ø2		Ø3		Ø4
11 s		43.9 s		11 s		47.7 s	
	Ø5		Ø6		Ø7		Ø8
11 s		43.9 s		11 s		47.7 s	

HCM Un-signalized Intersection Capacity Analysis 6: Highway 48 & Proposed Site Access '1'

Future (2035) Total AM

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	1	460	8	0	968
Future Vol, veh/h	13	1	460	8	0	968
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	1	500	9	0	1052
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1030	254	0	0	509	0
Stage 1	504	-	-	-	-	-
Stage 2	526	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	229	745	-	-	1053	-
Stage 1	572	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	229	745	-	-	1053	-
Mov Cap-2 Maneuver	229	-	-	-	-	-
Stage 1	572	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	20.94	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	241	1053	-	
HCM Lane V/C Ratio	-	-	0.063	-	-	
HCM Ctrl Dly (s/v)	-	-	20.9	0	-	
HCM Lane LOS	-	-	C	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

HCM Un-signalized Intersection Capacity Analysis 8: Main Street & Proposed Site Access '2'

Future (2035) Total AM

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	22	823	805	10	12	46
Future Vol, veh/h	22	823	805	10	12	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	15	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	895	875	11	13	50
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	886	0	-	0	1376	443
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	495	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	760	-	-	-	136	562
Stage 1	-	-	-	-	366	-
Stage 2	-	-	-	-	578	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	760	-	-	-	132	562
Mov Cap-2 Maneuver	-	-	-	-	132	-
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	578	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.26	0		18.18		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	760	-	-	-	336	
HCM Lane V/C Ratio	0.031	-	-	-	0.188	
HCM Ctrl Dly (s/v)	9.9	-	-	-	18.2	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7	

HCM Signalized Intersection Capacity Analysis

3: Stouffville Road/Main Street & Highway 48

Future (2035) Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	294	932	279	118	560	154	353	451	90	98	434	279
Future Volume (vph)	294	932	279	118	560	154	353	451	90	98	434	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		130.0	55.0		45.0	45.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Satd. Flow (prot)	1706	3579	1555	1722	3444	1601	1690	3445	0	1706	3149	0
Flt Permitted	0.344			0.122			0.240			0.358		
Satd. Flow (perm)	616	3579	1531	221	3444	1570	427	3445	0	641	3149	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			291			160		21			135	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		462.5			242.6			295.2			401.6	
Travel Time (s)		27.8			14.6			13.3			18.1	
Confl. Peds. (#/hr)	7		3	3		7	3		5	5		3
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	2%	5%	6%	6%	2%	8%	1%	13%	7%	10%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	306	971	291	123	583	160	368	564	0	102	743	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	33.0		7.0	33.0	
Minimum Split (s)	11.0	40.7	40.7	11.0	40.7	40.7	11.0	40.9		11.0	40.9	
Total Split (s)	11.0	47.7	47.7	11.0	47.7	47.7	11.0	43.9		11.0	43.9	
Total Split (%)	9.7%	42.0%	42.0%	9.7%	42.0%	42.0%	9.7%	38.6%		9.7%	38.6%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.9		3.0	5.9	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7	7.7	4.0	7.7	7.7	4.0	7.9		4.0	7.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Act Effect Green (s)	47.3	36.6	36.6	47.3	36.6	36.6	47.0	36.1		47.0	36.1	
Actuated g/C Ratio	0.43	0.33	0.33	0.43	0.33	0.33	0.43	0.33		0.43	0.33	
v/c Ratio	0.92	0.82	0.41	0.65	0.51	0.26	1.40	0.49		0.30	0.66	
Control Delay (s/veh)	58.4	40.2	4.9	34.2	31.2	5.0	228.7	31.0		20.5	29.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	58.4	40.2	4.9	34.2	31.2	5.0	228.7	31.0		20.5	29.6	
LOS	E	D	A	C	C	A	F	C		C	C	
Approach Delay (s/veh)		37.2			26.8			109.1			28.5	
Approach LOS		D			C			F			C	
Queue Length 50th (m)	44.1	101.7	0.0	15.5	55.2	0.0	~93.2	51.7		13.7	66.9	
Queue Length 95th (m)	#89.7	126.6	18.1	#30.7	72.4	13.7	#165.3	69.0		24.8	90.2	
Internal Link Dist (m)		438.5			218.6			271.2			377.6	

HCM Signalized Intersection Capacity Analysis 3: Stouffville Road/Main Street & Highway 48

Future (2035) Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)	55.0		130.0	55.0		45.0	45.0			70.0		
Base Capacity (vph)	333	1300	741	190	1251	672	262	1140		340	1120	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.92	0.75	0.39	0.65	0.47	0.24	1.40	0.49		0.30	0.66	

Intersection Summary

Area Type: Other

Cycle Length: 113.6

Actuated Cycle Length: 110.3

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.40

Intersection Signal Delay (s/veh): 49.2

Intersection LOS: D

Intersection Capacity Utilization 101.0%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Stouffville Road/Main Street & Highway 48

 Ø1	 Ø2	 Ø3	 Ø4
11 s	43.9 s	11 s	47.7 s
 Ø5	 Ø6	 Ø7	 Ø8
11 s	43.9 s	11 s	47.7 s

HCM Un-signalized Intersection Capacity Analysis 6: Highway 48 & Proposed Site Access '1'

Future (2035) Total PM

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	1	873	26	1	802
Future Vol, veh/h	9	1	873	26	1	802
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	1	949	28	1	872
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1401	489	0	0	977	0
Stage 1	963	-	-	-	-	-
Stage 2	438	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	131	525	-	-	702	-
Stage 1	331	-	-	-	-	-
Stage 2	618	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	131	525	-	-	702	-
Mov Cap-2 Maneuver	131	-	-	-	-	-
Stage 1	331	-	-	-	-	-
Stage 2	617	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	32.55	0		0.03		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	141		4	-	
HCM Lane V/C Ratio	-	0.077		0.002	-	
HCM Ctrl Dly (s/v)	-	32.6		10.1	0	
HCM Lane LOS	-	D		B	A	
HCM 95th %tile Q(veh)	-	0.2		0	-	

HCM Un-signalized Intersection Capacity Analysis 8: Main Street & Proposed Site Access '2'

Future (2035) Total PM

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	1077	793	18	15	39
Future Vol, veh/h	43	1077	793	18	15	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	15	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	1171	862	20	16	42
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	882	0	-	0	1551	441
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	679	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	763	-	-	-	104	564
Stage 1	-	-	-	-	370	-
Stage 2	-	-	-	-	465	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	763	-	-	-	98	564
Mov Cap-2 Maneuver	-	-	-	-	98	-
Stage 1	-	-	-	-	347	-
Stage 2	-	-	-	-	465	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.38	0		24.46		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	763	-	-	-	243	
HCM Lane V/C Ratio	0.061	-	-	-	0.242	
HCM Ctrl Dly (s/v)	10	-	-	-	24.5	
HCM Lane LOS	B	-	-	-	C	
HCM 95th %tile Q(veh)	0.2	-	-	-	0.9	

HCM Signalized Intersection Capacity Analysis

Future (2030) Total AM - with Improvements

3: Stouffville Road/Main Street & Highway 48

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	550	233	119	628	80	291	206	76	174	414	356
Future Volume (vph)	172	550	233	119	628	80	291	206	76	174	414	356
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		130.0	55.0		45.0	115.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Satd. Flow (prot)	1521	3510	1541	1755	3510	1585	1706	3328	0	1755	3167	0
Flt Permitted	0.212			0.342			0.182			0.570		
Satd. Flow (perm)	338	3510	1521	632	3510	1545	326	3328	0	1047	3167	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			245			128			52			202
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		462.5			242.6			295.2			401.6	
Travel Time (s)		27.8			14.6			13.3			18.1	
Confl. Peds. (#/hr)	9					9	11		8	8		11
Confl. Bikes (#/hr)			1			6						1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	6%	4%	4%	3%	7%	5%	4%	4%	8%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	181	579	245	125	661	84	306	297	0	183	811	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	33.0		7.0	33.0	
Minimum Split (s)	11.0	40.7	40.7	11.0	40.7	40.7	11.0	40.9		11.0	40.9	
Total Split (s)	13.2	43.0	43.0	11.0	40.8	40.8	15.0	45.0		11.0	41.0	
Total Split (%)	12.0%	39.1%	39.1%	10.0%	37.1%	37.1%	13.6%	40.9%		10.0%	37.3%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.9		3.0	5.9	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7	7.7	4.0	7.7	7.7	4.0	7.9		4.0	7.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Act Effect Green (s)	40.5	27.5	27.5	36.1	25.3	25.3	52.1	37.2		44.1	33.2	
Actuated g/C Ratio	0.40	0.27	0.27	0.35	0.25	0.25	0.51	0.36		0.43	0.32	
v/c Ratio	0.75	0.61	0.42	0.42	0.76	0.18	0.97	0.24		0.37	0.70	
Control Delay (s/veh)	41.8	35.6	5.9	23.5	41.8	2.3	66.1	20.0		18.5	26.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	41.8	35.6	5.9	23.5	41.8	2.3	66.1	20.0		18.5	26.7	
LOS	D	D	A	C	D	A	E	C		B	C	
Approach Delay (s/veh)		29.5			35.4			43.4			25.2	
Approach LOS		C			D			D			C	
Queue Length 50th (m)	27.2	54.6	0.0	15.9	66.2	0.0	37.3	18.2		20.0	59.8	
Queue Length 95th (m)	#47.6	72.0	17.7	27.6	86.0	3.9	#102.8	31.4		37.6	91.0	
Internal Link Dist (m)		438.5			218.6			271.2			377.6	

HCM Signalized Intersection Capacity Analysis Future (2030) Total AM - with Improvements

3: Stouffville Road/Main Street & Highway 48

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)	100.0		130.0	55.0		45.0	115.0			70.0		
Base Capacity (vph)	240	1212	685	299	1137	587	314	1241		499	1162	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.75	0.48	0.36	0.42	0.58	0.14	0.97	0.24		0.37	0.70	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 102.4

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.97

Intersection Signal Delay (s/veh): 32.1

Intersection LOS: C

Intersection Capacity Utilization 92.8%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Stouffville Road/Main Street & Highway 48

 Ø1	 Ø2	 Ø3	 Ø4
11 s	45 s	11 s	43 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	41 s	13.2 s	40.8 s

HCM Signalized Intersection Capacity Analysis Future (2030) Total PM - with Improvements

3: Stouffville Road/Main Street & Highway 48

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	899	268	112	543	147	342	429	86	94	413	270
Future Volume (vph)	283	899	268	112	543	147	342	429	86	94	413	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		130.0	55.0		45.0	115.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Satd. Flow (prot)	1706	3579	1555	1722	3444	1601	1690	3445	0	1706	3149	0
Flt Permitted	0.303			0.125			0.206			0.452		
Satd. Flow (perm)	542	3579	1531	226	3444	1570	366	3445	0	810	3149	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			279			160		23			133	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		462.5			242.6			295.2			401.6	
Travel Time (s)		27.8			14.6			13.3			18.1	
Confl. Peds. (#/hr)	7		3	3		7	3		5	5		3
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	2%	5%	6%	6%	2%	8%	1%	13%	7%	10%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	295	936	279	117	566	153	356	537	0	98	711	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	33.0		7.0	33.0	
Minimum Split (s)	11.0	40.7	40.7	11.0	40.7	40.7	11.0	40.9		11.0	40.9	
Total Split (s)	13.0	42.7	42.7	11.0	40.7	40.7	20.0	50.3		11.0	41.3	
Total Split (%)	11.3%	37.1%	37.1%	9.6%	35.4%	35.4%	17.4%	43.7%		9.6%	35.9%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.9		3.0	5.9	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7	7.7	4.0	7.7	7.7	4.0	7.9		4.0	7.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Act Effect Green (s)	46.7	33.9	33.9	42.7	31.9	31.9	57.3	42.4		44.3	33.4	
Actuated g/C Ratio	0.41	0.30	0.30	0.37	0.28	0.28	0.50	0.37		0.39	0.29	
v/c Ratio	0.94	0.88	0.43	0.66	0.59	0.28	0.96	0.41		0.27	0.70	
Control Delay (s/veh)	66.4	48.7	5.7	40.5	38.1	5.7	60.3	26.7		18.1	33.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	66.4	48.7	5.7	40.5	38.1	5.7	60.3	26.7		18.1	33.2	
LOS	E	D	A	D	D	A	E	C		B	C	
Approach Delay (s/veh)		44.2			32.5			40.1			31.4	
Approach LOS		D			C			D			C	
Queue Length 50th (m)	47.2	105.9	0.0	16.5	59.9	0.0	52.4	45.2		12.0	66.5	
Queue Length 95th (m)	#99.1	#133.2	19.4	#33.9	78.7	13.8	#113.6	60.3		21.8	89.5	
Internal Link Dist (m)		438.5			218.6			271.2			377.6	

HCM Signalized Intersection Capacity Analysis Future (2030) Total PM - with Improvements 3: Stouffville Road/Main Street & Highway 48

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)	100.0		130.0	55.0		45.0	115.0			70.0		
Base Capacity (vph)	313	1099	664	176	997	568	369	1296		369	1016	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.94	0.85	0.42	0.66	0.57	0.27	0.96	0.41		0.27	0.70	

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 114

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.96

Intersection Signal Delay (s/veh): 38.3

Intersection LOS: D

Intersection Capacity Utilization 99.4%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Stouffville Road/Main Street & Highway 48



HCM Signalized Intersection Capacity Analysis

Future (2035) Total AM - with Improvements

3: Stouffville Road/Main Street & Highway 48

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	579	239	123	646	82	300	211	81	185	429	367
Future Volume (vph)	175	579	239	123	646	82	300	211	81	185	429	367
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		130.0	55.0		45.0	130.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Satd. Flow (prot)	1521	3510	1541	1755	3510	1585	1706	3321	0	1755	3167	0
Flt Permitted	0.219			0.280			0.181			0.565		
Satd. Flow (perm)	350	3510	1521	517	3510	1545	324	3321	0	1038	3167	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			252			128			56			206
Link Speed (k/h)		60			60			80				80
Link Distance (m)		462.5			242.6			295.2				401.6
Travel Time (s)		27.8			14.6			13.3				18.1
Confl. Peds. (#/hr)	9						9	11		8	8	11
Confl. Bikes (#/hr)			1				6					1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	6%	4%	4%	3%	7%	5%	4%	4%	8%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	609	252	129	680	86	316	307	0	195	838	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	33.0		7.0	33.0	
Minimum Split (s)	11.0	40.7	40.7	11.0	40.7	40.7	11.0	40.9		11.0	40.9	
Total Split (s)	11.2	41.0	41.0	11.0	40.8	40.8	15.0	47.0		11.0	43.0	
Total Split (%)	10.2%	37.3%	37.3%	10.0%	37.1%	37.1%	13.6%	42.7%		10.0%	39.1%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.9		3.0	5.9	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7	7.7	4.0	7.7	7.7	4.0	7.9		4.0	7.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Act Effect Green (s)	37.1	26.2	26.2	36.7	26.0	26.0	54.1	39.2		46.1	35.2	
Actuated g/C Ratio	0.36	0.25	0.25	0.36	0.25	0.25	0.52	0.38		0.45	0.34	
v/c Ratio	0.89	0.68	0.44	0.48	0.77	0.18	0.99	0.24		0.38	0.69	
Control Delay (s/veh)	65.2	38.7	6.3	26.5	41.9	2.5	70.2	19.0		17.9	25.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	65.2	38.7	6.3	26.5	41.9	2.5	70.2	19.0		17.9	25.7	
LOS	E	D	A	C	D	A	E	B		B	C	
Approach Delay (s/veh)		35.5			35.9			45.0			24.3	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	28.7	59.7	0.0	17.0	68.5	0.0	37.6	18.3		20.8	61.4	
Queue Length 95th (m)	#66.4	78.2	18.4	29.4	88.7	4.4	#105.6	31.3		38.3	92.2	
Internal Link Dist (m)		438.5			218.6			271.2			377.6	

HCM Signalized Intersection Capacity Analysis Future (2035) Total AM - with Improvements 3: Stouffville Road/Main Street & Highway 48

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)	110.0		130.0	55.0		45.0	130.0			70.0		
Base Capacity (vph)	207	1136	662	268	1129	583	318	1297		513	1216	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.89	0.54	0.38	0.48	0.60	0.15	0.99	0.24		0.38	0.69	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 103.1

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.99

Intersection Signal Delay (s/veh): 34.0

Intersection LOS: C

Intersection Capacity Utilization 93.8%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Stouffville Road/Main Street & Highway 48

 Ø1	 Ø2	 Ø3	 Ø4
11 s	47 s	11 s	41 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	43 s	11.2 s	40.8 s

HCM Signalized Intersection Capacity Analysis Future (2035) Total PM - with Improvements

3: Stouffville Road/Main Street & Highway 48

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	294	932	279	118	560	154	353	451	90	98	434	279
Future Volume (vph)	294	932	279	118	560	154	353	451	90	98	434	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		130.0	55.0		45.0	130.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Satd. Flow (prot)	1706	3579	1555	1722	3444	1601	1690	3445	0	1706	3149	0
Flt Permitted	0.291			0.124			0.183			0.440		
Satd. Flow (perm)	521	3579	1531	225	3444	1570	325	3445	0	788	3149	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			291			160			23			128
Link Speed (k/h)		60			60			80				80
Link Distance (m)		462.5			242.6			295.2				401.6
Travel Time (s)		27.8			14.6			13.3				18.1
Confl. Peds. (#/hr)	7		3	3		7	3		5	5		3
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	2%	5%	6%	6%	2%	8%	1%	13%	7%	10%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	306	971	291	123	583	160	368	564	0	102	743	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	33.0		7.0	33.0	
Minimum Split (s)	11.0	40.7	40.7	11.0	40.7	40.7	11.0	40.9		11.0	40.9	
Total Split (s)	13.0	42.7	42.7	11.0	40.7	40.7	20.4	50.3		11.0	40.9	
Total Split (%)	11.3%	37.1%	37.1%	9.6%	35.4%	35.4%	17.7%	43.7%		9.6%	35.6%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.9		3.0	5.9	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7	7.7	4.0	7.7	7.7	4.0	7.9		4.0	7.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Act Effect Green (s)	47.0	34.3	34.3	43.0	32.3	32.3	57.3	42.4		43.9	33.0	
Actuated g/C Ratio	0.41	0.30	0.30	0.38	0.28	0.28	0.50	0.37		0.38	0.29	
v/c Ratio	1.00	0.91	0.44	0.70	0.60	0.29	1.03	0.44		0.28	0.74	
Control Delay (s/veh)	80.2	51.3	5.7	43.4	38.4	6.2	78.7	27.2		18.5	35.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	80.2	51.3	5.7	43.4	38.4	6.2	78.7	27.2		18.5	35.6	
LOS	F	D	A	D	D	A	E	C		B	D	
Approach Delay (s/veh)		48.5			33.2			47.5			33.5	
Approach LOS		D			C			D			C	
Queue Length 50th (m)	49.3	111.3	0.0	17.4	62.1	0.0	~64.9	48.0		12.5	72.2	
Queue Length 95th (m)	#108.1	#147.2	19.7	#37.9	81.2	15.2	#127.4	63.7		22.6	96.5	
Internal Link Dist (m)		438.5			218.6			271.2			377.6	

HCM Signalized Intersection Capacity Analysis Future (2035) Total PM - with Improvements 3: Stouffville Road/Main Street & Highway 48

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)	110.0		130.0	55.0		45.0	130.0			70.0		
Base Capacity (vph)	307	1096	670	176	995	567	358	1292		358	1000	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.00	0.89	0.43	0.70	0.59	0.28	1.03	0.44		0.28	0.74	

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 114.3

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.03

Intersection Signal Delay (s/veh): 42.1

Intersection LOS: D

Intersection Capacity Utilization 101.0%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Stouffville Road/Main Street & Highway 48



APPENDIX G

RELEVANT EXCERPTS FROM THE TRANSPORTATION MOBILITY PLAN GUIDELINES FOR DEVELOPMENT APPLICATIONS

Where there are more than one intersection within the study area, the most critical intersection approach should be identified and LOS indicated for each intersection. All of these criteria should be completed and included in the Transportation Mobility Plan Study.

Transit LOS Target: C or better for Access to Transit Stops and Transit Headways. LOS, D or better for Intersection Approach.

Table 4 summarizes the level of service criteria for the transit mode.

Table 4 - Transit Level of Service Criteria

Level of Service	Access to Transit Stops	Transit Headways	Intersection Approach (transit or curb lanes)	
			Delay (seconds/veh)	v/c
A	90% within ≤200 m	≤5 minutes	≤10	0 to 0.60
B	90% within ≤500m and 70% within ≤200	>5-10 minutes	>10-20	0.61 to 0.70
C	90% within ≤500m and 50% within ≤200m	>10-15 minutes	>20-35	0.71 to 0.80
D	100% within ≤600m	>15-20 minutes	>35-55	0.81 to 0.90
E	100% within ≤800m	>20-30 minutes	>55-80	0.91 to 1.00
F	100% >800m	>30 minutes	>80	>1.00

Definitions

Access: Development's potential transit riders' straight line walking distance to transit stops

Stops: Bus stops, rapid transit stations, subway stations, GO Train/Bus stations, Mobility On-Request stops

Transit headway: Time interval between transit vehicles for a transit corridor

Intersection approach: Critical lane group or curb lane with transit vehicles approaching an intersection

Transit or curb lanes: General purpose lane or curb lane where buses operate

Rapidway: Dedicated lanes, typically in the centre of a roadway, for bus only use

Table 5 illustrates the example of transit level of service.

Table 5 - Transit Level of Service Summary

Transit Stop Location	Direction	Access to Transit Stops	Transit Headways	Intersection Approach (transit or curb lanes)
		LOS	LOS	LOS
Main Street/ Street A	Eastbound	C	D	D
	Westbound	C	D	D
	Northbound	C	C	C
	Southbound	C	C	C
Main Street/ Street B	Eastbound	B	D	D
	Northbound	B	C	C
	Southbound	B	C	C

All detailed analyses or supporting information related to the level of service calculations or observations for transit mode should be included in the appendices.

Pedestrian LOS Target: C or better for these LOS Categories.

Table 6 summarizes the level of service criteria for pedestrian mode.

Table 6 - Pedestrian Level of Service Criteria

Level of Service	Segment	Intersection
A	≥2.0 metre sidewalk with minimum 3.5 metre buffer including planting and edge zone; or ≥3.0 metre multi-use path	• ≥2.0 metre sidewalk with minimum 3.5 metre buffer including planting and edge zone; or ≥3.0 metre multi-use path • Pedestrian signal head with sufficient pedestrian clearance time • Clearly delineated crosswalk
B	≥1.5 metre sidewalk with minimum 1.0 metre buffer including edge zone; or <3.0 metre multi-use path	• ≥1.5 metre sidewalk with minimum 1.0 metre buffer including edge zone; or <3.0 metre multi-use path • Pedestrian signal head with sufficient pedestrian clearance time • Clearly delineated crosswalk
C	≥1.5 metre curb-faced sidewalk (no buffer)	• ≥1.5 metre curb-faced sidewalk (no buffer) • Pedestrian signal head with sufficient pedestrian clearance time • Clearly delineated crosswalk
D	<1.5 metre sidewalk	• <1.5 metre sidewalk • Pedestrian signal head sufficient pedestrian clearance time • No clearly delineated crosswalk
E	Paved shoulder or no sidewalk provision	• Paved shoulder or no sidewalk provision • No pedestrian signal head • No clearly delineated crosswalk
F	No sidewalk provision	• No sidewalk provision • No pedestrian signal head • Not clearly delineated crosswalk

Definitions

Buffer: Green or landscaped space separating the sidewalk and pavement street curb.

Curb-faced: Sidewalk is located adjacent to the pavement and street curb.

Delineated crosswalk: Painted or special pavement to accommodate pedestrians.

Bicycle LOS Target: C or better for these LOS Categories.

Table 8 summarizes the level of service criteria for bicycle modes.

Table 8 - Bicycle Level of Service Criteria

Level of Service	Segment	Intersection
A	Separated cycling facilities (e.g. cycle tracks, multi-use path)	Separated cycling facilities Bicycle box or clearly delineated bicycle treatment or bicycle signal head
B	≥ 1.8 metre dedicated cycling facilities (e.g. bicycle lanes with and without buffer)	> 1.8 metre dedicated cycling facilities (e.g. bicycle lanes with and without buffer), Bicycle box, clearly delineated bicycle treatment or bicycle signal head
C	< 1.8 metre dedicated cycling facilities with no buffer	< 1.8 metre dedicated cycling facilities with no buffer, Bicycle box, clearly delineated bicycle treatment or bicycle signal head
D	≤ 1.5 metre bicycle lane with no buffer	≤ 1.5 metre bicycle lane and no buffer Bicycle treatment
E	Shared facilities (e.g. signed routes, sharrows or paved shoulder with minimum 1.2 metre in constrained area)	Shared facilities (e.g. signed routes, sharrows or paved shoulder with minimum 1.2 metre in constrained area) No clearly delineated bicycle treatment
F	No bicycle provision	No bicycle provision

Table 13 – Transportation Demand Management Checklist

TDM Measures	For Residential Developments		For Non-Residential Developments	
	Requirement	Responsibility	Requirement	Responsibility
Outreach programs	Yes	York Region to consider	Case-by-case	Applicant
Pedestrian connections	Yes	Applicant	Yes	Applicant
Cycling connections	Yes	Applicant	Yes	Applicant
Ped/cycling connections to transit facilities	Yes	Applicant	Yes	Applicant
Internal ped/cycling circulation	Yes	Applicant	Yes	Applicant
Active transportation network/fine-grid	Yes	Applicant	Yes	Applicant
Bicycle parking/shelter	Only applies to condos	Applicant	Yes	Applicant
Bicycle repair station	Where appropriate	Applicant	Where appropriate	Applicant
Bicycle parking	As per local bylaw	Applicant	As per local bylaw	Applicant
Benches/receptacles	Case-by-case	Applicant/ Municipality	Case-by-case	Applicant
Illumination of ped/cycling connections	Case-by-case	Applicant/ Municipality	Case-by-case	Applicant
Carpool parking	No	-	Case-by-case	Applicant
Car share management	Only applies to condos	Applicant	Case-by-case	Applicant
Shared-parking between land uses	Case-by-case	Applicant	Case-by-case	Applicant
Parking reduction	Where appropriate	Applicant/ Municipality	Where appropriate	Applicant
Trip end facilities (i.e. showers)	No	-	Where appropriate	Applicant
Membership with Smart Commute	No	Applicant	Where appropriate	Applicant
Survey/monitoring/report	Yes	York Region to consider	Yes	Applicant
Transit incentives (PRESTO) and information	Yes	York Region/ municipality/applicant	Case-by-case	Applicant
Site plan/drawings showing internal/external pedestrian and cycling connections	Yes	Applicant	Yes	Applicant
Site plan/drawings showing connectivity to Regional Road/ adjacent streets/development/ transit	Yes	Applicant	Yes	Applicant

APPENDIX H

RELEVANT EXCERPTS FROM BACKGROUND STUDIES

TRANSPORTATION MOBILITY PLAN UPDATE

**HIGHWAY 48 & STOUFFVILLE ROAD -
RINGWOOD**

**TOWN OF WHITCHURCH-STOUFFVILLE
REGION OF YORK**

PREPARED FOR:

FLATO DEVELOPMENTS INC.

PREPARED BY:

**C.F. CROZIER & ASSOCIATES INC.
1 FIRST STREET, SUITE 200
COLLINGWOOD, ON L9Y 1A1**

**ORIGINAL: MAY 2023
UPDATE: SEPTEMBER 2023**

CFCA FILE NO. 1060-6225

The material in this report reflects best judgment in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. C.F. Crozier & Associates Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.



2. Introduction

2.1 Background

C.F. Crozier & Associates Inc. (Crozier) was retained by Flato Developments Inc. (Flato) to complete a Transportation Mobility Plan (TMP) in review of the Official Plan Application and Zoning By-law Amendment for a proposed commercial development located at 5211-5241 Stouffville Road (the 'Site') in the Town of Whitchurch-Stouffville (the 'Town') within the Region of York (the 'Region').

An updated submission of the TMP was made in July 2023. This submission revises the July submission to reflect an updated Site Plan and address comments provided by the Town and Region. A Comment Response Memo has been prepared to address comments received on the July 2023 submission and is included in **Appendix A**.

2.2 Purpose and Scope

The purpose of this study is to assess the impacts of the proposed development on the boundary road network and to make recommendations to support the proposed plan for the Site, in accordance with York Region's Transportation Mobility Plan Guidelines. This study reviews the following from a transportation engineering perspective:

- Existing, future background, and future total traffic operations at the study intersections.
- Forecasted trip generation of the proposed development.
- Recommended mitigations and roadway improvements.
- Transportation Demand Management opportunities.
- Site Plan refinement considerations

2.3 Development Proposal

The development includes proposed two commercial buildings. Buildings A and B are proposed to have restaurants with drive-through facilities, and Building B will also contain two individual commercial units.

Table 1 summarizes the anticipated unit/gross floor area (GFA) for each building. As outlined in the Town's buildings GFA is not inclusive of the mechanical rooms.

Table 1: Development Proposal

Building	Land Use	Gross Floor Area
Building A	Restaurant with Drive-Through Facility	122.9 m ² (1,323 ft ²)
Building B	Coffee Shop with Drive-Through Facility	204.3 m ² (2,199 ft ²)
	Commercial	118.2 m ² (1,272 ft ²)

Access to the development lands is proposed through a full-moves access to Stouffville Road approximately 127 m (stop bar to access centreline) from Highway 48. The plan proposes 33 parking stalls including three accessible stalls and an additional eight spaces within the MTO setback, to total 41 parking spaces on site. Five bicycle parking spaces are also proposed. Building A has a dual entry drive-thru lane which provides 12 stacking spaces. Building B has a single-entry drive-thru lane which provides 12 stacking spaces. There is one waste collection and loading space on the east side of Building B, between the drive-through and Ministry of Transportation, Ontario (MTO) setback. The site plan also includes a gated emergency exit on the eastern limits of the property, adjacent to the MTO 14 metre setback. **Appendix B** contains the Site Plan (Turner Fleischer Inc., September 19, 2023).

85 metres. In the p.m. peak hour, the eastbound left and eastbound through movements are expected to operate with critical capacities greater than 1.00.

By optimizing the signal timings to a cycle length of 120 s all critical volume-to-capacity ratios are reduced to less than 1.00 and the northbound left queue is forecasted to be 87.3m. It is noted that the painted centre median, while not designated as part of the northbound left turn lane, is available for queuing up to approximately 130 m. Review of signal timings and extension of the northbound auxiliary left turn lane storage is recommended as background developments are occupied.

4.6 Future Background Multi-Modal Operations

As previously stated, improvements to pedestrian and cycling facilities outlined in the York Region 2022 Transportation Master Plan are expected beyond 2035, therefore the pedestrian and cycling LOS are forecasted to remain the same.

Comments provided by York Region staff noted that York Regional Transit's draft 2024 Transit Initiatives propose Route 9 to be restructured. Service will be discontinued along sections of Highway 48 and Main Street. The closest stop after the restructuring will be at the intersection of Baker Hill Boulevard and Main Street, approximately 520 m from the intersection of Highway 48 and Stouffville Road. **Table 15** outlines the future background transit operations LOS should the drafted change to Route 9 proceed in 2024.

Table 15: Future Background Transit Level of Service

Intersection	Access to Transit Stops	Transit Headways	Intersection Approach AM (PM)
Baker Hill Boulevard & Main Street	E	F	N/A

5. Site Generated Traffic

The proposed development will result in additional vehicles on the boundary road network that previously did not exist. The proposed development will also result in additional turning movements at the site entrances. Based on the proposed location of the site access and the forecasted volumes on Stouffville Road, site generated traffic will be assessed under two scenarios.

The trip generation will remain unchanged, but the primary analysis considers a full-moves access, and the sensitivity analysis considers a right-in/right-out access. The purpose of the sensitivity analysis to determine the impact of a restricted access on queuing and delays to site traffic.

5.1 Trip Generation

The trip generation of the proposed development was forecasted using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition for the following land uses:

- LUC 822: Strip Retail Plaza (<40K)
- LUC 934: Fast-Food Restaurant with Drive-Through Window
- LUC 937: Coffee/Donut Shop with Drive-Through Window

While internal synergy between the commercial and restaurant uses on the site may exist, the number of shared trips is expected to be small and has not changed the peak hour trips forecasted. The type of development and location of the site is expected to generate both primary and pass-by trips. Primary trips add additional volumes to the road network and as the Site is the ultimate

destination. Pass-by trip are generated by existing vehicles on the road network, which stop at the Site prior when travelling to the primary destination.

Pass-by trips were established based on the Pass-By Tables included in the Appendix of the 11th Edition Manual. LUC 822 does not have an associated pass-by rate in the 11th Edition. As such LUC 821 for developments with a GFA between 40,000 and 150,000 ft² was utilized. LUC 821 has a pass-by rate of 0% in the a.m. peak hour and 40% in the p.m. peak hour. LUC 934 has a pass-by rate of 50% in the a.m. peak hour and 55% in the p.m. peak hour. LUC 937 does not have an associated pass-by rate in the 11th Edition. The pass-by rates associated with a coffee shop without in-store dining appeared high for the forecasted use. Therefore, the pass-by percentages for LUC 934 were applied.

Relevant excerpts from the ITE Trip Generation Manual have been included in **Appendix J. Table 16** summarizes the primary and pass-by trip generation for the site.

Table 16: Trip Generation

Land Use Code	GFA	Trip Type	Peak Hour	In	Out	Total
822: Strip Retail Plaza (<40k)	1,272 ft ²	Primary	AM	4	3	7
			PM	5	5	10
		Pass-By	AM	0	0	0
			PM	4	4	8
934: Fast-Food Restaurant with Drive-Through	1,323 ft ²	Primary	AM	15	14	29
			PM	10	9	20
		Pass-By	AM	15	15	30
			PM	13	12	24
937: Coffee/Donut Shop with Drive-Through	2,200 ft ²	Primary	AM	48	46	94
			PM	19	19	39
		Pass-By	AM	48	47	95
			PM	24	24	47
Total		Primary	AM	67	63	130
			PM	34	33	69
		Pass-By	AM	63	62	125
			PM	40	39	77

The Site is expected to generate 130 and 69 primary a.m. and p.m. peak hour trips, respectively as well as 125 and 77 pass-by a.m. and p.m. peak hour trips, respectively.

5.2 Trip Distribution & Assignments

Trips generated by the development were distributed to and from the boundary road network based on Transportation Tomorrow Survey (TTS) data and expected catchment area. TTS data reviewed the purpose of destination to be for commercial and the origins were narrowed down to the seven GTA zones surrounding the site, as the surrounding community will be the target for trips to the Site. It is noted that no trips were identified from the west from the TTS data, however the split of existing volumes to the east and the west is similar. TTS Data can be referenced in **Appendix K**.

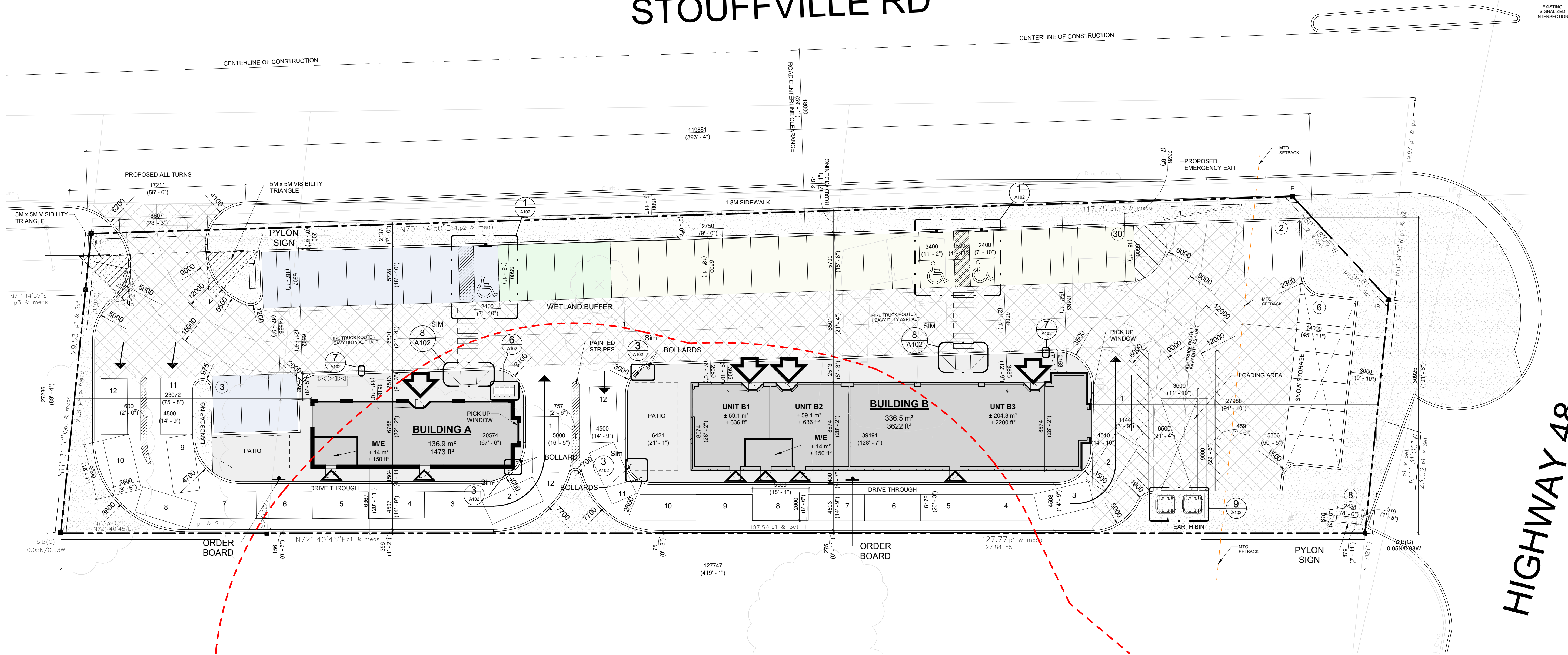
The breakdown of trip distribution is as follows:

- 10% to/from the west
- 10% to/from the south
- 50% to/from the east
- 30% to/from the north



KEY PLAN
1:2000

STOUFFVILLE RD



1 SITE PLAN
A101 1:200

TURNER
FLEISCHER

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Toronto, ON M5B 2T8
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This drawing, as an instrument of service, is provided by and is the property of Turner Fleischer Architects Inc. The contractor must verify and accept responsibility for all dimensions and conditions on site and must notify Turner Fleischer Architects Inc. of any variations from the supplied information. This drawing is not to be scaled. The architect is not responsible for the accuracy of survey, structural, mechanical, electrical, etc. information shown on this drawing. Refer to the appropriate consultant drawings before proceeding with the work. Contractor must conform to all applicable codes and requirements of all relevant governing jurisdiction. The contractor working from drawings not specifically marked 'For Construction' must assume full responsibility and bear the costs for any variations or damages resulting from the work.

The site plan prepared by Turner Fleischer is subject to a legal survey showing the boundaries of the lands together with the current location of any existing buildings, features or encroachments prepared by a licensed professional land surveyor.

ZONING REQUIREMENTS

ZONE: GENERAL
COMMERCIAL/DEVELOPMENT
RESERVE

ZONING PROVISIONS	REQUIRED	PROVIDED
MIN. LOT FRONTAGE	3.0M	115.0M
MIN. LOT AREA	0.3HA	0.39HA
MIN. FRONT YARD	14.0M	22.2M
MIN. EXTERIOR SIDE	0M	16.0M
MIN. INTERIOR SIDE	6.0M	22.0M
MIN. REAR YARD	4.5M	5.7M
MAX. LOT COVERAGE	41%	5.7%
MAX. BUILDING HEIGHT	11M	5.1M

LANDSCAPE BUFFER		
MIN. FRONT YARD (HWY 48)	3M	3M
MIN. INTERIOR SIDE	0.5M	1.1M
MIN. EXT. SIDE (STOUFFVILLE RD)	0.5M	0M
MIN. REAR YARD	0.5M	0.0M

PARKING		
PARKING SIZE	5.5MX2.75M	5.5MX2.75M
BUILDING A (1,325SF)	11 - (11/100SM)	11
BUILDING B1+B2 (1,122SF)	4 - (3/100SM)	4
BUILDING B3 (2,205SF)	18 - (11/100SM)	18
TOTAL PARKING	33	33 CARS

LOADING

LOADING SPACE SIZE	9X3.6	9X3.6
LOADING SPACE	0	1

TOTAL ACCESSIBLE PARKING

PROPOSED BICYCLE SPACE	-	5
DRIVE-THRU STACKING	12	12
DRIVE-THRU STACKING SIZE	5.5X2.6M	5.5X2.6M

STATISTICS

PROPOSED SITE AREA	0.97 ACRES	82,729.8 F.
ROAD WIDENING AREA		
TOTAL BUILDING A AREA		±1,323 S.F.
M/E ROOM		±150 S.F.
TOTAL BUILDING B AREA		±3,472 S.F.
M/E ROOM		±150 S.F.
TOTAL GROSS FLOOR AREA		±4,795 S.F.
PARKING PROVIDED	33 CARS	(8,677,000SF)
MTD SETBACK (NOT INCLUDED)	8	
COVERAGE	13.7%	

LEGEND

ENTRANCE	LOADING AREA
EXIT	BUILDING A PARKING
SIGNAGE	BUILDING B1+B2 PARKING
FIRE & TRUCK ROUTE (HEAVY DUTY ASPHALT)	BUILDING B3 PARKING
CONCRETE	
LANDSCAPING	
WETLAND BUFFER	
MTD SETBACK	

2	2023-09-19	ISSUED FOR SPA	ASK
1	2023-06-30	ISSUED FOR SPA	ASK
#	DATE	DESCRIPTION	BY

FLATO
DEVELOPMENTS INC.

PROJECT
PROPOSED RETAIL DEV. AT HWY 48 +
STOUFFVILLE RD
STOUFFVILLE, ONTARIO

DRAWING
SPA23.002 SITE PLAN

PROJECT NO.	22.163
PROJECT DATE	2023-09-20
DRAWN BY	ASK
CHECKED BY	NFL
SCALE	As indicated

DRAWING NO.	A101	REV.	2
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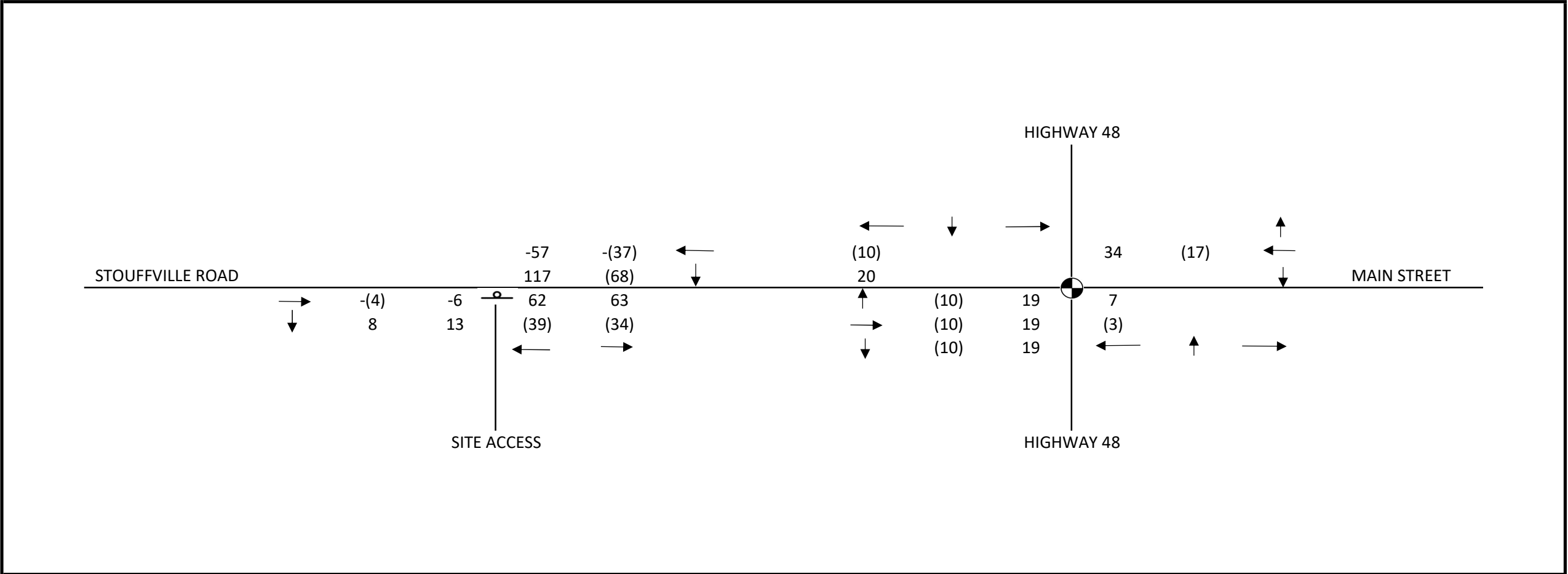
Trip purpose of destination - purp_dest In M,
and
2006 GTA zone of destination - gta06_dest In 2709
and
2006 GTA zone of origin - gta06_orig In 2709, 2708, 2711, 2710, 2707, 2437, 2438

Trip 2016

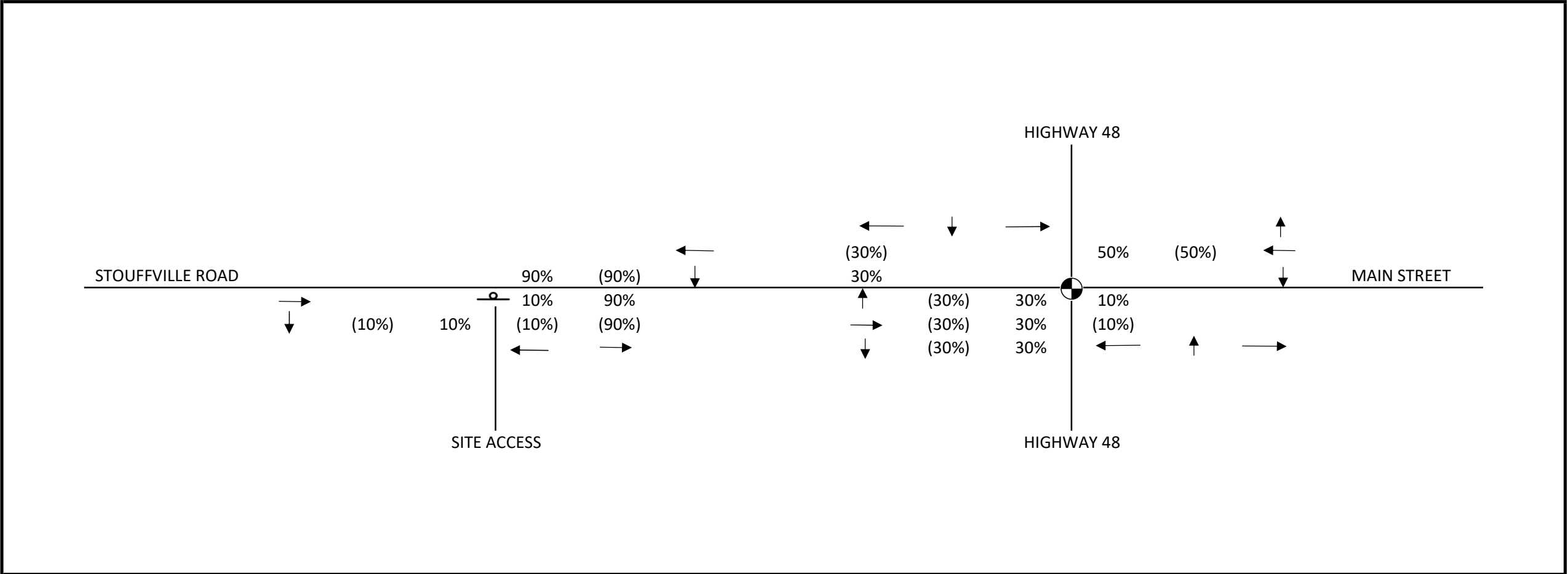
ROW : gta06_orig

COLUMN : gta06_dest

gta06_orig	gta06_dest	total		
2437	2709	3	North	375
2438	2709	72	South	75
2708	2709	375	East	653
2709	2709	209	West	0
2710	2709	396		
2711	2709	48		



LEGEND  SIGNAL CONTROL  STOP CONTROL  AM(PM) PEAK HOUR VOLUMES  MOVEMENT	HIGHWAY 48 & STOUFFVILLE ROAD		DRAWN KH		 CROZIER CONSULTING ENGINEERS ADMIRAL BUILDING 1 FIRST STREET, SUITE 200 COLLINGWOOD, ON, L9Y 1A1 705-446-3510 T 705-446-3520 F WWW.CFCROZIER.CA INFO@CFCROZIER.CA		
			CHECK KH				
	TRIP ASSIGNMENT		DATE 2023.05.01		PROJECT NO.		DRAWING NO.
			SCALE NTS		1060-6225		
						FIG. 21	



LEGEND  SIGNAL CONTROL  STOP CONTROL ###(###%) AM(PM) PEAK HOUR DISTRIBUTION  MOVEMENT	HIGHWAY 48 & STOUFFVILLE ROAD		DRAWN KH		 CROZIER CONSULTING ENGINEERS ADMIRAL BUILDING 1 FIRST STREET, SUITE 200 COLLINGWOOD, ON, L9Y 1A1 705-446-3510 T 705-446-3520 F WWW.CFCROZIER.CA INFO@CFCROZIER.CA		
			CHECK KH				
	TRIP DISTRIBUTION (PRIMARY)		DATE 2023.05.01		PROJECT NO.		
			SCALE NTS		DRAWING NO.		
				1060-6225		FIG. 19	

Transportation Impact Study

PROPOSED MIXED-USE DEVELOPMENT

5061 Stouffville Road
Town of Whitchurch-Stouffville

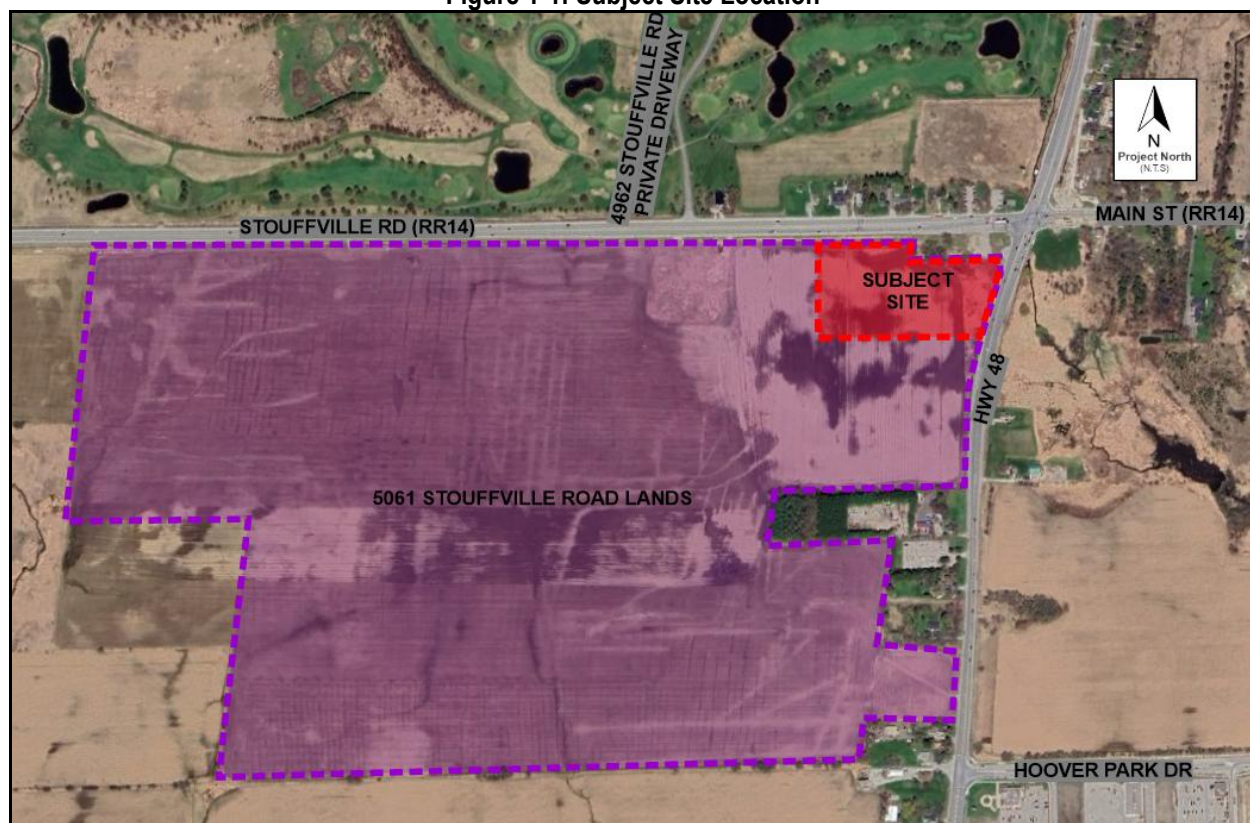
May 2, 2025
Project Number: NT-23-038

Prepared by: Nextrans Consulting Engineers
Prepared for: Times 4750 Inc.

1.0 INTRODUCTION

Nextrans Consulting Engineers (“Nextrans”), a Division of NextEng Consulting Group Inc., has been retained by Times 4750 Inc. (the “client”) to undertake this Transportation Impact Study (TIS) in support of Official Plan Amendment and Zoning By-law Amendment Applications for a proposed mixed-use development located at the lands within the northeast part of the property of 5061 Stouffville Road (northeast part known as the “subject site”) in the Town of Whitchurch-Stouffville. The subject site location is provided in **Figure 1-1**.

Figure 1-1: Subject Site Location



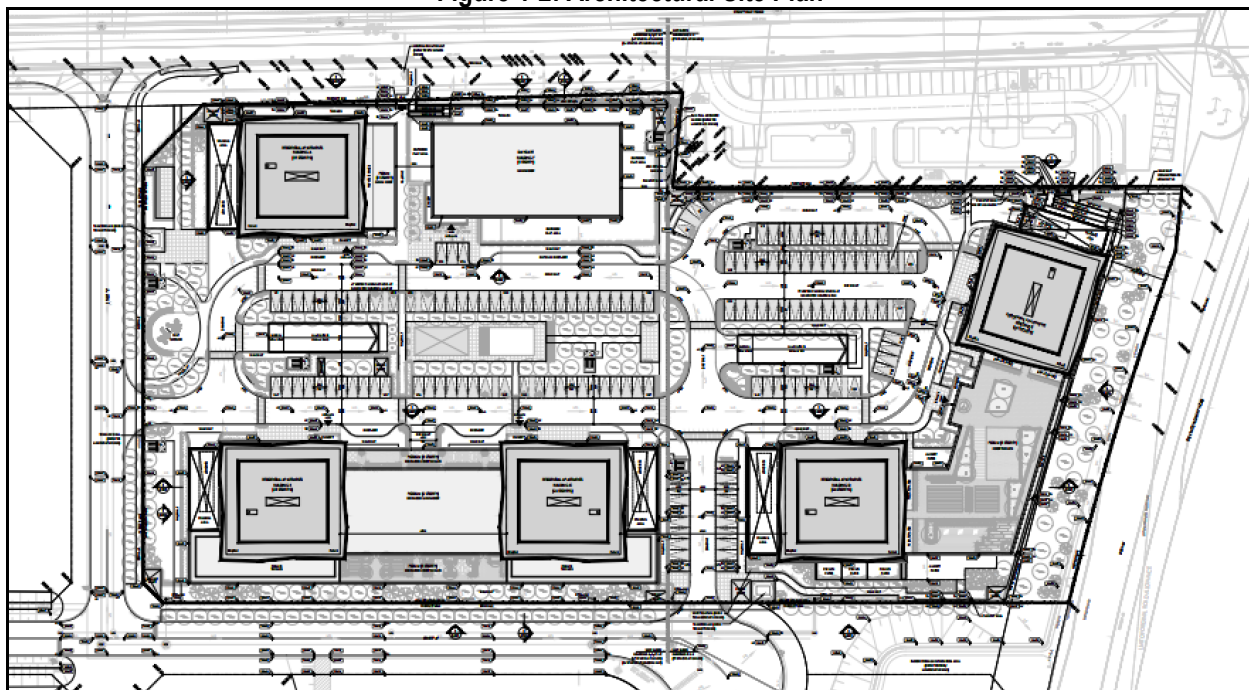
1.1. PROPOSED DEVELOPMENT

The subject site is vacant land. The development will introduce five (5) residential buildings (Buildings A to E) of 19 to 29 storeys with a total of 1,243 dwelling units and a one-storey day care building (Building F) with 1,116sqm (12,013sqft) of GFA. Two (2) new public streets will be provided adjacent to the subject site as part of the proposed development. **Table 1-1** summarizes the site statistics. **Figure 1-2** illustrates the architectural site plan. **Figure 1-3** illustrates the context plan including the proposed public streets. The reduced architectural plans are enclosed in **Appendix A**.

Table 1-1: Summary of Building Site Statistics

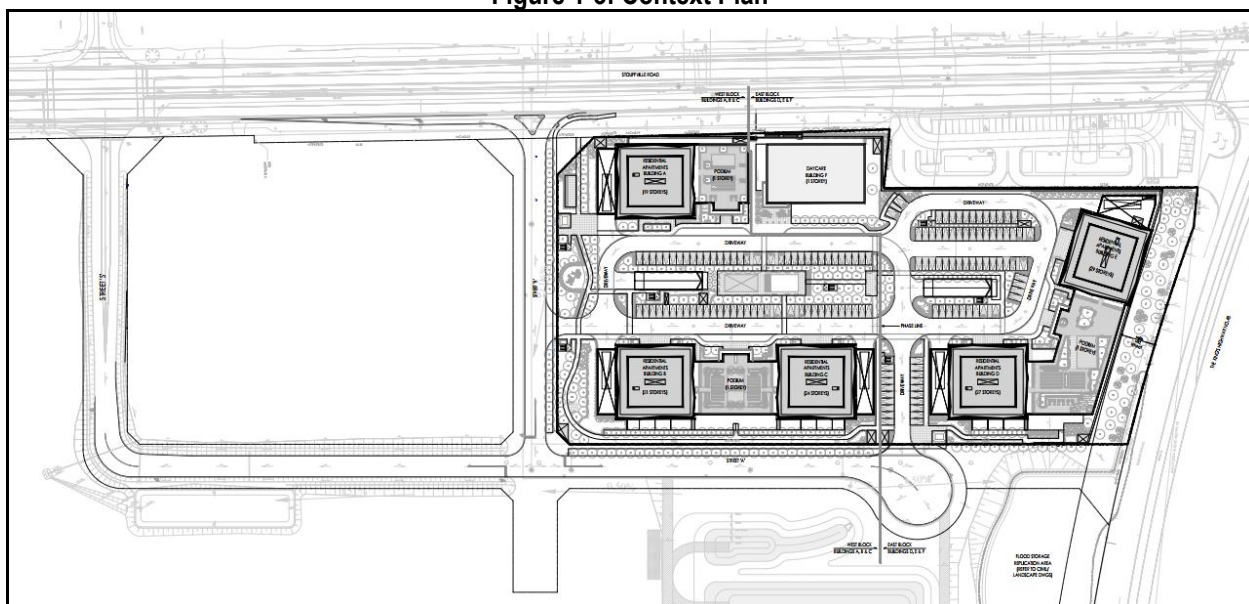
Building	Storeys	Dwelling Units	Commercial GFA	Loading Space	Vehicular Parking
A (Condo)	19	197	-	1 Large Loading Space	1,865 spaces (1,553 residential; 312 visitor including 20 shared visitor/ day care spaces)
B (Condo)	21	218	-	1 Large Loading Space	
C (Condo)	24	251	-	1 Large Loading Space	
D (Rental)	26	272	-	1 Large Loading Space	
E (Rental)	29	305	-	1 Large Loading Space	
F (Day Care)	1	-	1,116sqm (12,013sqft)	Shared with Building A	1,865 spaces
Total	-	1,243	1,116sqm (12,013sqft)	5 Large Loading Spaces	

Figure 1-2: Architectural Site Plan



Source: Icke Brochu Architects Inc. (April 30, 2025)

Figure 1-3: Context Plan



Source: Icke Brochu Architects Inc. (January 2025)

Building A will provide a one-storey podium. Buildings B and C will be connected by a one-storey podium. Buildings D and E will be connected by a one-storey podium.

The proposed development will introduce two public streets adjacent to the subject site, including a generally east-west Street "A" and a north-south Street "B". Street A will connect to Stouffville Road as the south intersection leg opposite to the private driveway for 4962 Stouffville Road (Spring Lakes Golf Club). The Street A and Stouffville Road intersection is proposed as a full moves signalized intersection. Street B will connect to Stouffville Road and will be restricted to right-in/right-out movements. Vehicular access to the subject site will be provided by two full moves driveways along Street A and Street B, for access to Stouffville Road.

4.0 SITE TRAFFIC

The following section discusses the calculation, distribution, and assignment of trips generated by the subject site.

4.1. TRAVEL MODE SHARE

Table 4-1 summarizes the travel mode split data based on 2016 Transportation Tomorrow Survey (TTS) data for traffic zones 2708 and 2709 (see **Appendix E**).

Table 4-1: Travel Mode Share

Mode	Auto	HOV	Transit	Walk and Cycle	Total
Mode Share	75%	14%	3%	7%	100%

The travel mode share data is consistent with the mode share for the Town based on the Town of Whitchurch-Stouffville Transportation Master Plan dated March 2018 (see excerpt in **Appendix C**), in which the Town is heavily dependent on automobiles for travel.

4.2. SITE TRIP GENERATION

The vehicular trip generation for proposed development was derived from the Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition for the weekday AM and PM peak hour of adjacent street for the following land use codes (LUC) using the average rate. **Table 4-2** summarizes the site auto trip generation.

- Residential (1,243 dwelling units): LUC 222 Multifamily Housing (High-Rise) Not Close to Rail Transit
- Day Care (10,333sqft): LUC 565 Day Care Center

Table 4-2: Vehicular Site Trip Generation

ITE Land Use	Units / GFA	Parameter	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
LUC 222 Multifamily Housing (High-Rise)	1,243 Units	Auto Trip Rate	0.09	0.18	0.27	0.18	0.14	0.32
		Auto Trips Generated	114	222	336	223	175	398
LUC 565 Day Care Center	960 sqm (10,333 sqft)	Auto Trip Rate	5.83	5.16	10.99	5.24	5.91	11.15
		Auto Trips Generated	70	62	132	63	71	134
Total			184	284	468	286	246	532

The proposed development will generate 468 two-way auto trips (184 in, 284 out) and 532 two-way auto trips (286 in, 246 out) in the weekday AM and PM peak hours, respectively.

4.3. NON-AUTO TRIP GENERATION

The non-auto (i.e. walk, bike, and transit) trip generation for proposed development was derived from the Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition using LUC 222 Multifamily Housing (High-Rise) Not Close to Rail Transit for the weekday AM and PM peak hour of adjacent street using the average rate. Non-auto trip generation data for LUC 565 Day Care Center is not available within ITE Trip Generation Manual 11th Edition. Given the nature of a day care center within a suburban area, it is also anticipated that trips generated by the proposed day care will be from an automobile.

The non-auto trip generation was divided further into trips generated for transit, as well as for walk and cycle (i.e. active transportation) based on the non-auto modal split derived for the area surrounding the subject site from 2016 TTS data. Modal split data is enclosed in **Appendix E**.

Table 4-3: Non-Auto Site Trip Generation

Land Use	Units / GFA	Parameter	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
Multifamily Housing (High-Rise) (LUC 222)	1,243 Units	Walk+Bike+Transit Trip Rate	0.08	0.02	0.10	0.05	0.05	0.10
		Transit Trips	30	8	38	18	20	38
		Walk+Bike Trips	68	18	86	40	46	86
		Total Walk+Bike+Transit Trips	98	26	124	58	66	124

The proposed development will generate 38 two-way transit trips (30 in, 8 out) in the AM peak hour and 38 two-way transit trips (18 in, 20 out) in the PM peak hour. For active transportation trips (walk and cycling), a total of 86 two-way trips (68 in, 18 out) in the AM peak hour and 86 two-way trips (40 in, 46 out) in the PM peak hour, will be generated by the proposed development. In total, the development will generate 123 two-way non-auto trips (98 in, 26 out) in the AM peak hour and 124 two-way non-auto trips (58 in, 66 out) in the PM peak hour.

4.4. TRIP DISTRIBUTION AND ASSIGNMENT

Table 4-4 summarizes the residential trip distribution. **Table 4-5** summarizes the day care trip distribution. Detailed TTS data is enclosed in **Appendix E**.

Table 4-4: Residential Directional Trip Distribution

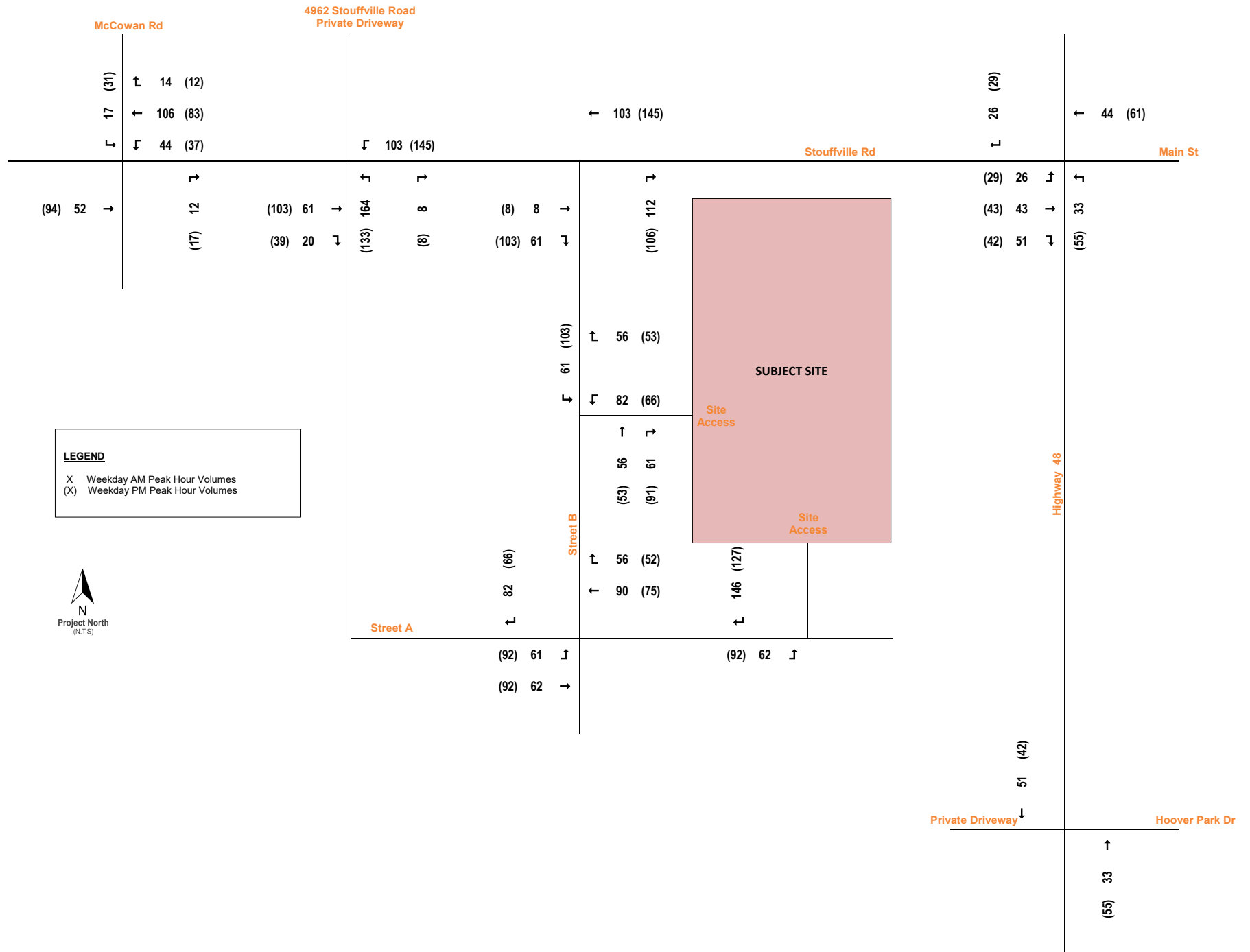
Corridor	Direction	Weekday AM Peak Hour		Weekday PM Peak Hour	
		In	Out	In	Out
Hwy 48	Northbound	15%	6%	15%	6%
	Southbound	8%	14%	8%	14%
McCowan Rd	Northbound	5%	5%	5%	5%
	Southbound	13%	16%	13%	16%
Stouffville Rd / Main St	Eastbound	36%	16%	36%	16%
	Westbound	24%	42%	24%	42%
TOTAL		100%	100%	100%	100%

Table 4-5: Day Care Directional Trip Distribution

Corridor	Direction	Weekday AM Peak Hour		Weekday PM Peak Hour	
		In	Out	In	Out
Hwy 48	Northbound	23%	19%	35%	26%
	Southbound	24%	30%	18%	24%
McCowan Rd	Northbound	9%	4%	10%	5%
	Southbound	3%	13%	3%	11%
Stouffville Rd / Main St	Eastbound	16%	12%	21%	21%
	Westbound	25%	21%	13%	14%
TOTAL		100%	100%	100%	100%

The residential trip distribution of the auto site traffic volumes for the weekday AM and PM peak hours was derived from travel patterns from 2016 TTS data based on traffic zones 2708 and 2709. The day care trip distribution was derived from the existing traffic volumes within the intersection study area based on the existing TMC data used in this study.

Using engineering judgement, extracted data was further reviewed to determine the trip assignment on roads within the study area, based on routes that drivers would likely take to access the subject development site and reflect the configuration of the site access, turning restrictions, and logical routing. The site-generated residential, day care, and total site traffic volumes are illustrated onto the intersection study area in **Figure 4-1**, **Figure 4-2**, and **Figure 4-3**, respectively.



APPENDIX I

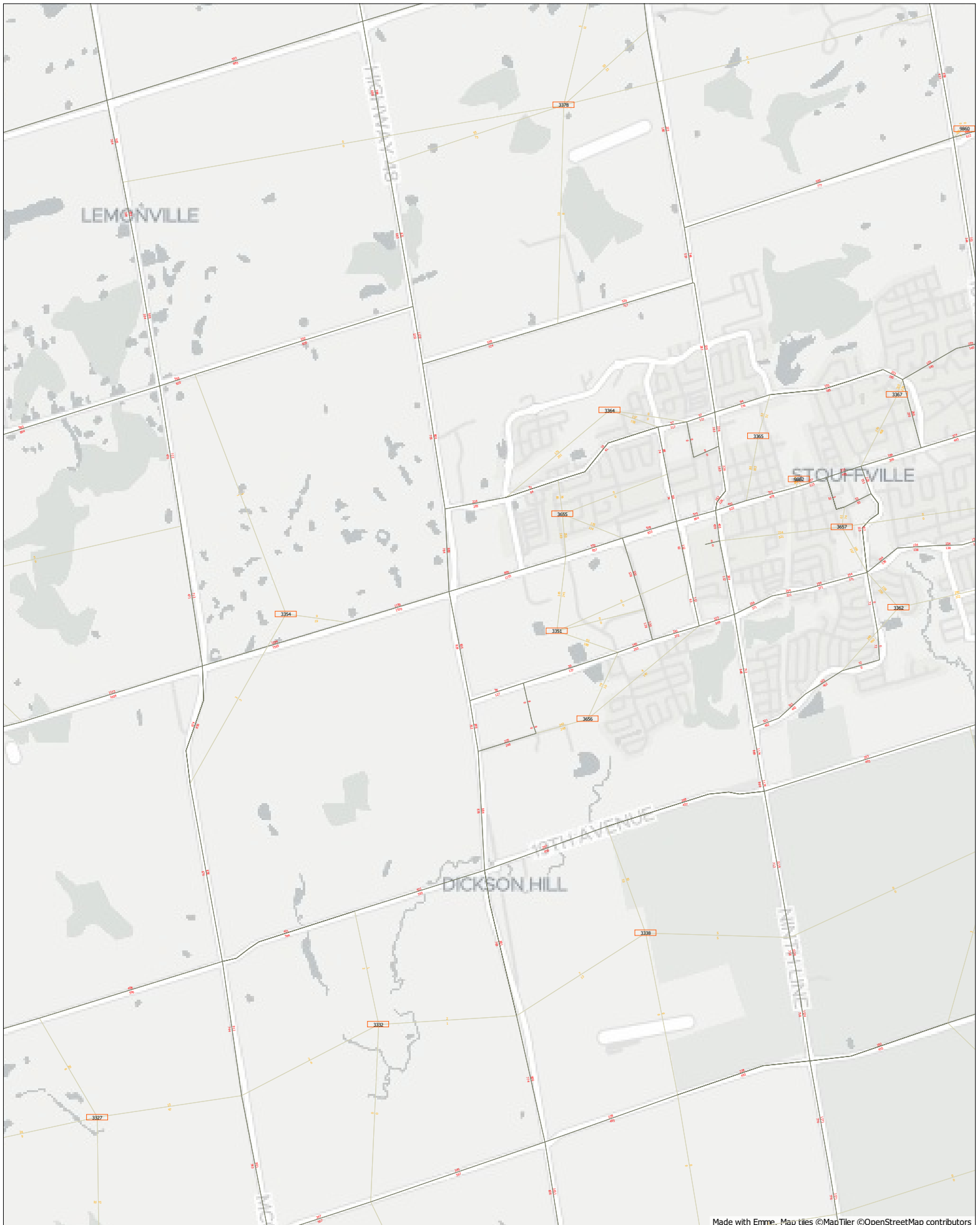
TRAFFIC GROWTH RATES – RECEIVED FROM THE REGION OF YORK

2016 AM Peak Hour Auto Link Volumes



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2016 PM Peak Hour Auto Link Volumes



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2036 AM Peak Hour Auto Link Volumes



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