



May 3rd, 2023

JDE Project 1302

City of Barrie

70 Collier Street,
Barrie, ON L4M 4T5

Attn: Justin MacDonald, Senior Transportation Operations Technologist

**RE: Functional Design Review - Traffic Update
1000 Mapleview Drive East - Block 210, City of Barrie**

This letter was prepared by **JD Northcote Engineering Inc.** [JD Engineering] for the account of **970 Mapleview Inc.** [Client].

1.0 BACKGROUND

LEA Consulting Ltd. prepared a functional design review for the proposed 970 Mapleview Drive residential subdivision located in the City of Barrie [City] (dated February 17, 2017) [FDR]. The above noted FDR assessed the traffic-related impact of the proposed development on the adjacent roadway and provided recommendations to accommodate this traffic in a safe and efficient manner. JD Engineering completed an update to the Functional Design Review [FDR Update] in November of 2020 to incorporate the adjacent 932 Mapleview Drive lands and to consider the latest development projections and access configurations, as Nottingham Road was restricted to a right-in right-out [RIRO] access only.

Since the 2020 FDR Update, the concept for 1000 Mapleview Drive East - Block 210 has been further refined (this block was previously referred to as Block 536 in the Redline Revised Draft Plan of Subdivision Overlay to Draft Approved Plan of Subdivision – provided in the **Appendix**). This traffic letter update has been prepared to incorporate the latest development projections for 1000 Mapleview Drive East – Block 210.

The proposed draft plan of subdivision and concept for Block 210 is provided in the **Appendix**.

2.0 CHANGE IN UNIT COUNT

The proposed 932 & 970 Mapleview Drive subdivision in the FDR Update includes 903¹ residential units with the following breakdown:

- 449 single-detached;
- 379 townhouse units;
- 67 mixed-use medium density units; and
- 8 future lots.

¹ Without a defined plan, all of the previously proposed mixed-use units were considered as residential units.



Blocks 536 & 537 were anticipated to include 67 mixed-use units. As illustrated in the **Appendix**, Block 210 has been refined to include the following:

Block 210

- 39 townhouse units; and
- 15 commercial units.

For the purpose of this analysis, we have also included an updated estimate for the number of future units in Block 537 to include 127 townhouse units. Block 537 is now referred to as 1004 Mapleview Drive East – Block 211. A subsequent Traffic Update submission will be completed for Block 211, when additional details related to this development are confirmed.

As a result of the refined block plan, the overall 932 & 970 Mapleview Drive subdivision is proposed to include 1,017 total units (1,002 residential units), with the following breakdown:

- 449 single-detached;
- 545 townhouse units;
- 15 commercial units; and
- 8 future lots.

An increase in 99 residential units results from the refined Block Plans.

3.0 TRAFFIC GENERATION FOR PROPOSED DEVELOPMENT ADDITIONAL UNITS

The traffic generation for the additional units of the proposed development has been based on the unit rates provided in the FDR which are based on a proxy site survey of the residential development located along Prince William Way between Mapleview Drive and Big Bay Point Road.

Consistent with the FDR, only residential trips associated with the mixed-use buildings were included in our analysis due to the uncertainty of the type of land use contained within the mixed-use buildings. Furthermore, it is anticipated that the majority of the retail trips to be internal trips, with a minimal impact on the external road network.

The estimated trip generation of the additional units of proposed development is illustrated below in **Table 1**.

Table 1 – Estimated Traffic Generation of Proposed Development Additional Units

Land Use	Size	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Residential	Unit Rate	0.14	0.34	0.48	0.41	0.25	0.66
	99 units	14	34	48	41	25	66

No transportation modal split has been applied to the above-noted traffic generation calculation.

4.0 TRAFFIC ASSIGNMENT FOR PROPOSED DEVELOPMENT ADDITIONAL UNITS

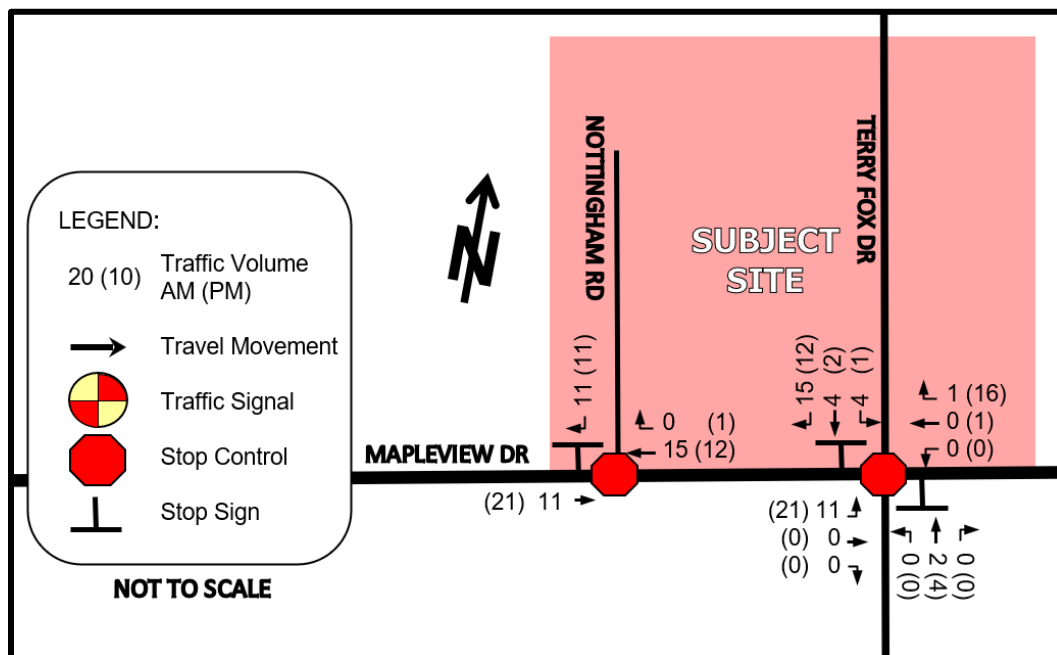
The distribution of traffic for the proposed development additional units is based on the proposed development traffic distribution calculated in the FDR. **Table 2** illustrates the calculation of the distribution of ingress and egress traffic for the proposed development.

Table 2 – Proposed Development Traffic Distribution

Travel Direction (to / from)	AM Peak Hour		PM Peak Hour	
	Ingress	Egress	Ingress	Egress
East via Mapleview Drive	6%	11%	40%	3%
West via Mapleview Drive	79%	77%	51%	90%
South via Terry Fox Drive	15%	12%	9%	7%
TOTAL	100%	100%	100%	100%

Using the traffic distribution pattern noted above, the proposed development additional units traffic assignment was calculated for the AM and PM peak hour and is illustrated in **Figure 1**.

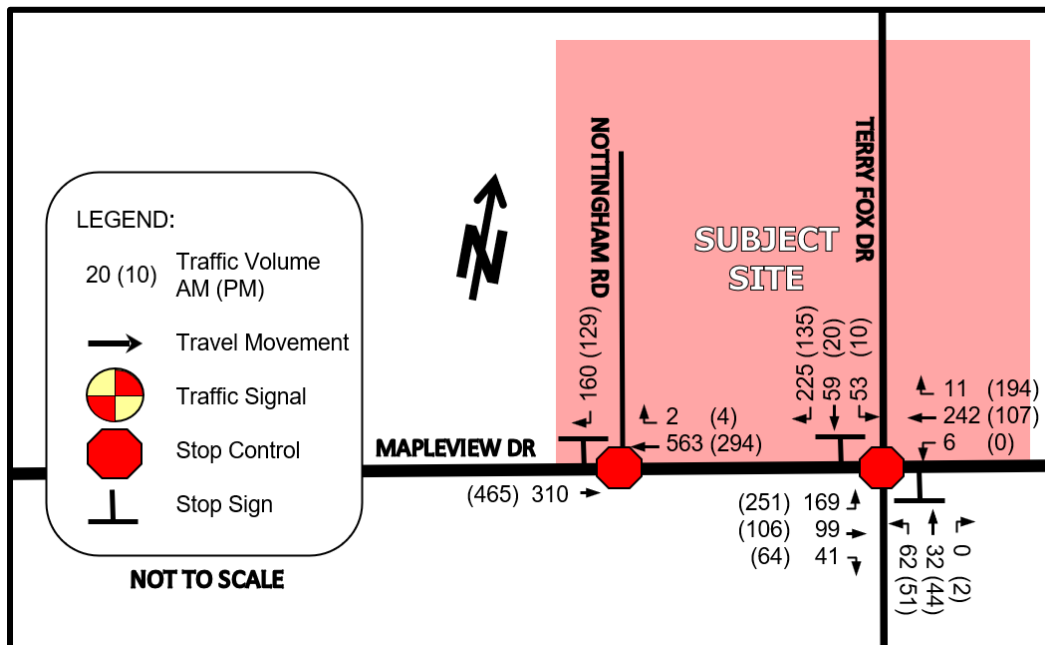
Figure 1 – Proposed Development Additional Units Traffic Assignment



5.0 UPDATED TOTAL (2031) TRAFFIC VOLUMES

For the updated total (2031) horizon year traffic volumes, the proposed development traffic from the additional units was added to the total (2031) traffic volumes within the study area illustrated in Figure 4, Section 6.0 of the FDR Update. The resulting updated total (2031) horizon year traffic volumes for the AM and PM peak hour are illustrated in **Figure 2**.

Figure 2 – Updated Total (2031) Traffic Volumes (1,002 Residential Units)



6.0 TOTAL (2031) INTERSECTION OPERATION

The results of the LOS analysis under the updated total (2031) traffic volumes during the AM and PM peak hour can be found below in **Table 3**. Detailed output of the Synchro analysis can be found in the **Appendix**.

Table 32 – Total (2031) LOS

Location (N-S Street / E-W Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95 th % Queue (m)		V/C	Delay (s)	LOS	95 th % Queue (m)	
				Model	Storage				Model	Storage
Nottingham Road / Maplevue Drive (unsignalized)	-	2.5	A	-	-	-	1.6	A	-	-
SB	0.35	16.3	C	13	-	0.19	11.2	B	6	-
Terry Fox Drive / Maplevue Drive (unsignalized)	-	10.7	B	-	-	-	6.4	A	-	-
EBL	0.14	8.3	A	4	-	0.22	8.7	A	7	-
NBL	0.52	59.0	F	20	-	0.21	22.7	C	6	-
NBTR	0.09	14.9	B	2	-	0.17	19.3	C	5	-
SBL	0.14	15.3	C	4	-	0.04	18.4	C	1	-
SBTR	0.47	15.3	C	20	-	0.25	12.0	B	8	-

The results of the LOS analysis indicate all intersections are operating within the typical design limits noted in Section 4.1 of the FDR.

The exception occurs during the AM peak hour where the northbound left movement at the Terry Fox Drive / Mapleview Drive intersection is anticipated to operate with a delay of 59 seconds, corresponding to a LOS F. However, these operations are not considered a concern given that the delay only occurs during the AM peak hour with the approach continuing to operate well below capacity ($v/c = 0.52$) and only minor queuing occurring (a queue length of 20 metres translates to approximately 3 vehicles). It is further noted that the intersection volumes do not warrant the implementation of traffic signals based on Ontario Traffic Manual Book 12 criteria. Notwithstanding, it is recommended that the need for traffic signal installation be reviewed through continued monitoring of traffic volumes at the intersection, as construction progresses within the Hewitt Secondary Plan Lands.

No infrastructure improvements are recommended within the study area.

7.0 SIGHT DISTANCE REVIEW

A review of the available sight distance for the proposed Block 210 site access driveways onto Riply Lane was completed as part of this analysis.

Based on our review, the southbound left turn movements at both driveways may have restricted sight lines to the west along Riply Lane, making it difficult for a motorist to anticipate an approaching vehicle and conduct the movement safely.

Consequently, it is recommended that both Block 210 site access driveways onto Riply Lane be restricted to a right-out only configuration while maintaining the necessary 6.0 metre entrance width for the maneuvering of emergency vehicles. Based on the layout of the road network within the subdivision, as shown in the Draft Plan, it is anticipated that the Richmond Road access would be the preferred access for ingress traffic. Consequently, the driveway restriction would not have a significant impact on local traffic distribution.

8.0 ACCESS

8.1 SUBDIVISION ACCESS

The proposed lane configuration identified in the FDR Update at Nottingham Road / Mapleview Drive and Terry Fox Drive / Mapleview Drive will provide the necessary capacity to service the proposed development and no changes to the functional design are required to accommodate the additional traffic.

Nottingham Road at Mapleview Drive will operate efficiently as a RIRO access, with one-way stop control for the southbound movements. No lane improvements are recommended on Mapleview Drive at Nottingham Road. A single northbound and southbound lane on Nottingham Road at Mapleview Drive will provide the necessary capacity to service the proposed development.

Terry Fox Drive at Mapleview Drive will operate efficiently as a full-movement access, with two-way stop control for the northbound and southbound movements. An eastbound left turn lane with a storage and taper length of 30 metres and 70 metres respectively is proposed on

Maplevue Drive at Terry Fox Drive and a southbound left turn lane with a storage and taper length of 20 metres and 60 metres respectively is proposed on Terry Fox Drive at Maplevue Drive. A single northbound, a southbound through-right turn lane and a southbound auxiliary left turn lane on Terry Fox Drive at Maplevue Drive will provide the necessary capacity to service the proposed development.

8.2 BLOCK 210 ACCESS

The site plan concept for Block 210 includes one private lane connection to Richmond Road and two private lane connections to Riply Lane.

Side street stop control should be provided at the proposed access connections to the adjacent public roadways, with free flow conditions on the public roadways. The proposed access onto Richmond Road will provide a single ingress lane and a single egress lane. The proposed accesses onto Riply Lane are recommended to provide a single egress-only lane. No lane improvements are required on the adjacent roadways (Richmond Road and Riply Lane).

The proposed spacing between the Block 210 access onto Richmond Road, Terry Fox Drive to the east and Tamworth Street to the west (46 metres and 32 metres, measured edge of driveway to edge of a road) meets the suggested minimum corner clearance requirements for intersections as identified in the TAC Guidelines – Figure 8.8.2 (Suggested Minimum Corner Clearances to Accesses or Public Lanes at Major Intersections) – 15 metres for an unsignalized condition on a local road.

The proposed spacing of the Block 210 north access connection onto Riply Lane and Richmond Road to the north (23 metres, measured edge of driveway to edge of a road) meets the suggested minimum corner clearance requirements for intersections as identified in the TAC Guidelines – Figure 8.8.2 (Suggested Minimum Corner Clearances to Accesses or Public Lanes at Major Intersections) – 15 metres for an unsignalized condition on a local road.

The proposed spacing between the Block 210 north and south access to Riply Lane (2.3 metres, measured between curb returns) falls marginally short of the suggested minimum corner clearance requirements for a driveway as identified in the TAC Guidelines – Figure 8.9.2 (Driveway Spacing Guidelines – Locals and Collectors) – 3.0 metres for commercial driveways. However, in context with the recommended egress-only configurations of both driveways, such spacing is considered adequate.

9.0 SUMMARY

This section summarizes the conclusions and recommendations from this letter.

- 1) The additional traffic generated by the additional proposed units in Block 210 is expected to have a negligible impact on the total (2031) traffic operations in the study area.
- 2) The proposed configuration of the Nottingham Road / Maplevue Drive and Terry Fox Drive / Maplevue Drive will be sufficient to accommodate traffic generated by the additional units.
- 3) The proposed location and spacing of the accesses to Block 210 meets all required guidelines.

- 4) It is recommended that both Block 210 site access driveways onto Riply Lane be restricted to a right-out only configuration while maintaining the necessary 6.0 metre entrance width for the maneuvering of emergency vehicles.
- 5) There are no further changes to the conclusions and the recommendations in the FDR Update as a result of the refined concept for Block 210.

We trust you will find this submission acceptable. Should you have any questions or concerns or require any additional information in this regard, please contact the undersigned.

Yours truly,
JD Northcote Engineering Inc.



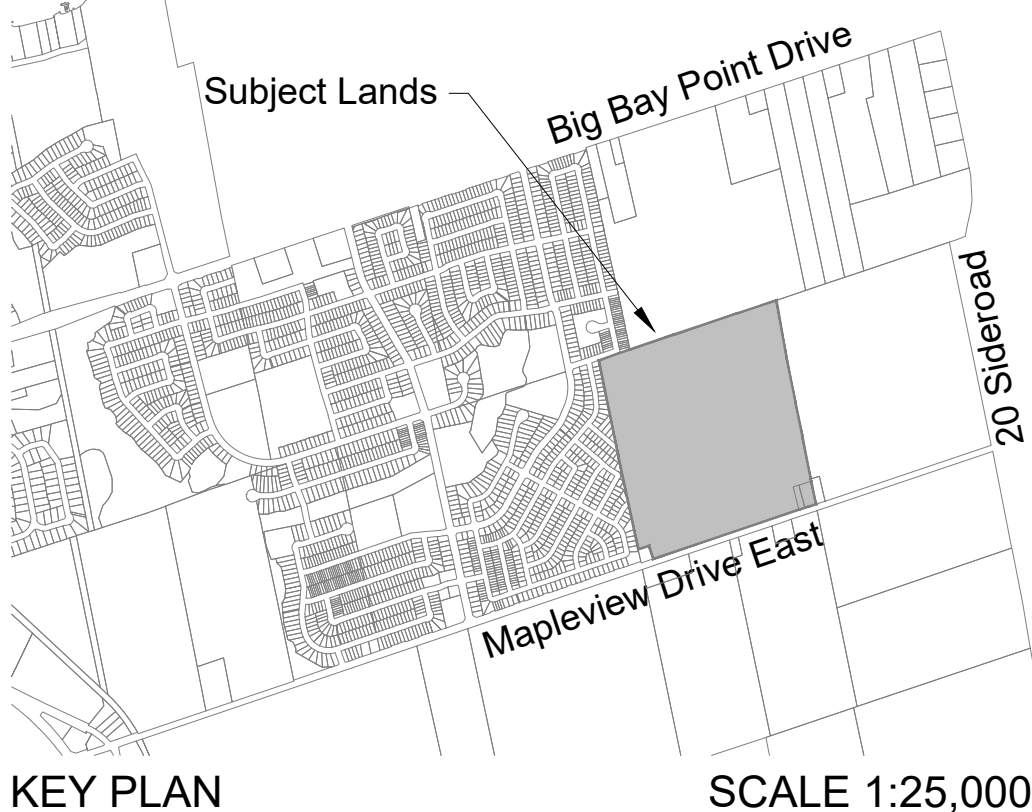
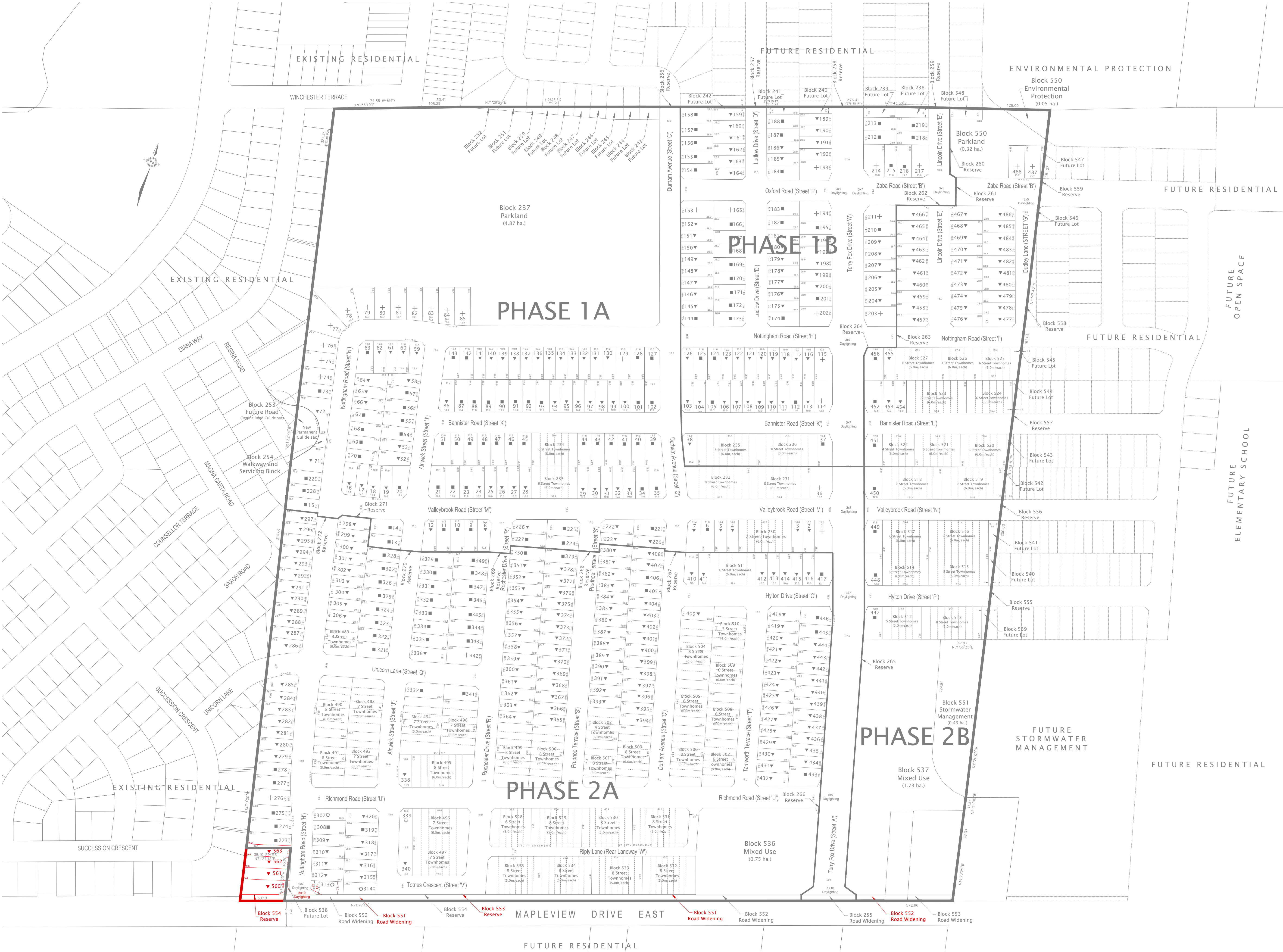
Rochelle Fortier, P.Eng.



Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. JD Engineering accept no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this project.

Appendix

Draft Plan of Subdivision and Conceptual Site Plan



Redline Revised Draft Plan of Subdivision Overlay to
Draft Approved Plan of Subdivision
Part of Lot 19, Concession 12, City of Barrie 2020

OWNER'S CERTIFICATE
I, THE UNDERSIGNED, BEING THE REGISTERED OWNER OF THE
SUBJECT LANDS, HEREBY AUTHORIZE THE JONES CONSULTING
GROUP LTD., AND 970 MAPLEVIEW INC. TO PREPARE THIS
DRAFT PLAN OF SUBDIVISION AND TO SUBMIT SAME TO
THE CITY OF BARRIE FOR APPROVAL.

DATE DANNY SALVATORE
970 MAPLEVIEW INC.

DATE SEYMOUR SAIOWITZ
970 MAPLEVIEW INC.

DATE PIER DE ROSA, OLS, OLIP
J.D. BARNES LIMITED
ONTARIO LAND SURVEYORS

SURVEYOR'S CERTIFICATE
I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE
SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS
ARE ACCURATELY AND CORRECTLY SHOWN.

DATE RUDY MAK, O.L.S.
ONTARIO LAND SURVEYORS

- ADDITIONAL INFORMATION REQUIRED UNDER
SECTION 51(17) OF THE PLANNING ACT
- | | |
|-------------------------|--|
| a) SHOWN ON DRAFT PLAN | g) SHOWN ON DRAFT PLAN |
| b) SHOWN ON DRAFT PLAN | h) MUNICIPAL PIPED WATER TO BE PROVIDED |
| c) SHOWN ON KEY PLAN | i) SANDY CLAY LOAM |
| d) RESIDENTIAL, SWM, EP | j) SHOWN ON DRAFT PLAN |
| MIXED USE, OPEN SPACE | k) ALL MUNICIPAL SERVICES TO BE PROVIDED |
| e) SHOWN ON DRAFT PLAN | l) SHOWN ON DRAFT PLAN |

STATISTICS				
RESIDENTIAL LOT BREAKDOWN				
13.7m Singles +	30 units	30 units	47 units	
11.6m Singles	134 units	135 units	208 units	
10.0m Singles	281 units	276 units	244 units	
9.6m Singles	4 units	4 units	8 units	
Semi Detached Units	n/a	n/a	n/a	
SUB TOTAL				
Street Townhomes (6.0m)	5.74 ha. 317 units	317 units	184 units	
Street Townhomes (5.0m)	1.15 ha. 62 units	62 units	62 units	
Mixed Use	2.48 ha. 67 units	67 units	67 units	
Future Lots and Road	0.38 ha. 8 units	8 units	8 units	
Environmental Protection	0.05 ha.			
Open Space & Parkland	5.19 ha.			
Stormwater Management & Servicing Block	0.44 ha.			
Reserves & Widening	0.34 ha.			
Roads	11.64 ha.			
TOTAL				
	41.71 ha. 903 units	899 units	828 units	

0 10 50 100m
SCALE 1 : 1500 (A1)
970 MAPLEVIEW INC.
Redline Revised Draft Plan of Subdivision Overlay to
Draft Approved Plan of Subdivision

Raymond J. Duhaime
REGISTERED PROFESSIONAL PLANNER
R.P.P.

Date Issued: MARCH. 20, 2019

Checked By: RD

Project No.: LAW-12157

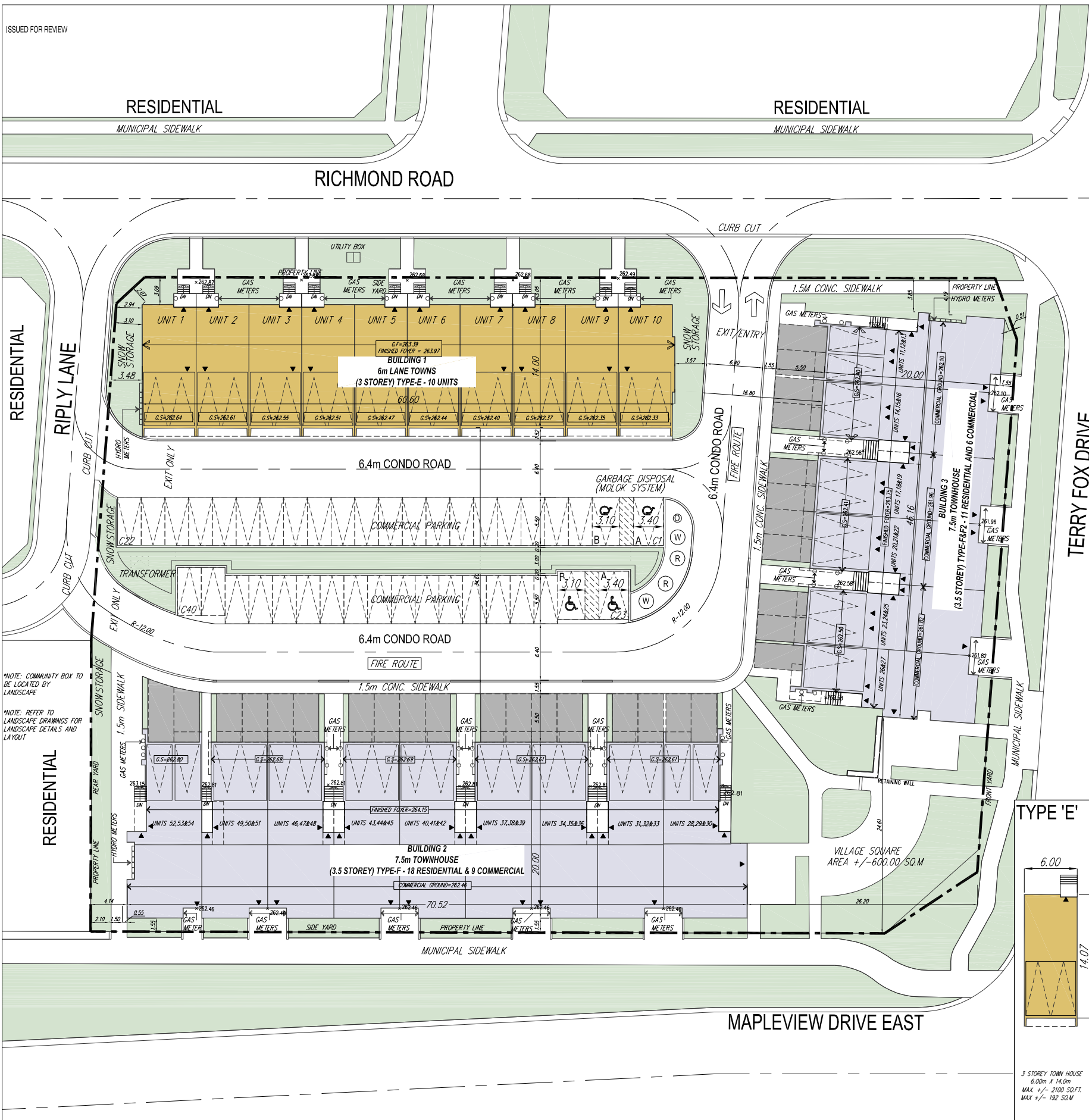
Drawn By: m.c.r.

Drawing Name: LAW-12157-TF-RR-DP-3b.dwg

JONES
CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Maplevue Drive East, Unit 1, Barrie, Ontario L4N 0Y5
Phone: 705-734-2538 Fax: 705-734-1056
www.jonesconsulting.com

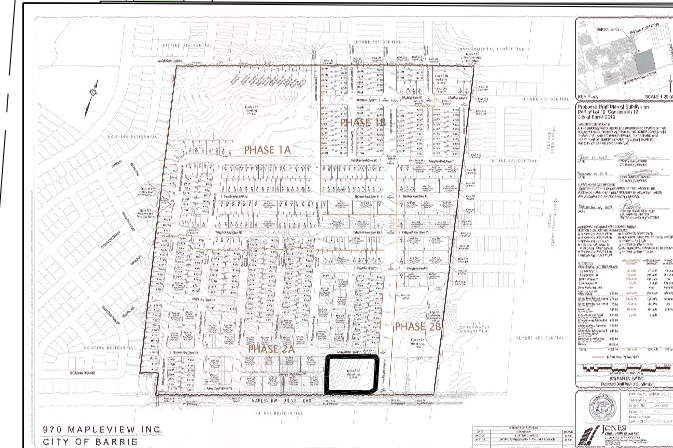
SCHEDULE OF REVISIONS		
DATE	DESCRIPTION	DRAWN
19.03.20	LOTING CHANGES	m.c.r.
19.11.28	LOTING CHANGES AND PHASE LIMIT REVISION	m.c.r.
19.12.19	REVISE LOCAL TO MAJ. COLLECTOR DAYLIGHTING	m.c.r.
20.05.14	REVISE LOCAL TO ARTERIAL DAYLIGHTING	m.c.r.
20.07.22	ADDITION OF 932 MAPLEVIEW DRIVE EAST/RELOTING/UPDATE STATS	m.c.r.

970 MAPLEVIEW INC.
CITY OF BARRIE

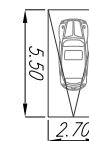


*NOTE: COMMUNITY BOX TO BE LOCATED BY LANDSCAPE

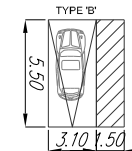
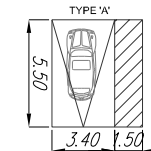
*NOTE: REFER TO LANDSCAPE DRAWINGS FOR LANDSCAPE DETAILS AND LAYOUT



KEY MAP

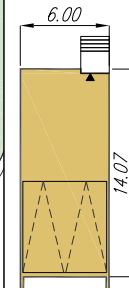
PHASE 2A
BLOCK 536 MIXED USETYPICAL PARKING SIZE
AT GROUND LEVEL

TYPICAL ACCESSIBLE PARKING SIZE



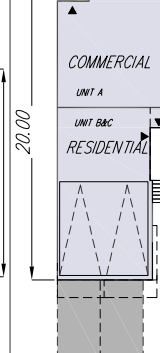
COMPLY TO CITY OF BARRIE, PARKING STANDARDS BY-LAW 2009-14.1

TYPE 'E'



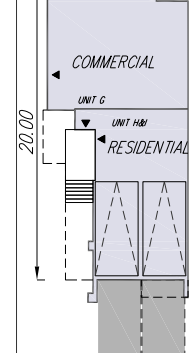
3 STOREY TOWN HOUSE
6.00m X 14.07m
MAX +/- 2100 SQ.FT.
MAX +/- 192 SQ.M

TYPE 'F'



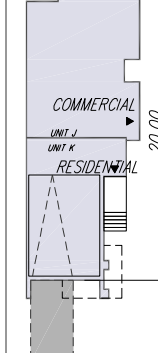
3 STOREY TOWN HOUSE / MIXED USE
1 COMMERCIAL / 2 RESIDENTIAL UNITS
7.50m X 20.00m
UNIT A COMMERCIAL +/- 645 SQ.FT.
UNIT B RESIDENTIAL +/- 1295 SQ.FT.
UNIT C RESIDENTIAL +/- 1710 SQ.FT.
TOTAL +/- 3650 SQ.FT.

TYPE 'F_UPG.'



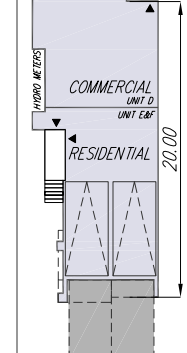
3 STOREY TOWN HOUSE / MIXED USE
1 COMMERCIAL / 2 RESIDENTIAL UNITS
9.52m X 20.00m
UNIT G COMMERCIAL +/- 832 SQ.FT.
UNIT H RESIDENTIAL +/- 1335 SQ.FT.
UNIT I RESIDENTIAL +/- 1885 SQ.FT.
TOTAL +/- 4050 SQ.FT.

TYPE 'F2.'



3 STOREY TOWN HOUSE / MIXED USE
1 COMMERCIAL / 2 RESIDENTIAL UNITS
7.65m X 20.00m
UNIT J COMMERCIAL +/- 810 SQ.FT.
UNIT K RESIDENTIAL +/- 2200 SQ.FT.
TOTAL +/- 3010 SQ.FT.

TYPE 'F_END'



3 STOREY TOWN HOUSE / MIXED USE
1 COMMERCIAL / 2 RESIDENTIAL UNITS
8.50m X 20.00m
UNIT D COMMERCIAL +/- 700 SQ.FT.
UNIT E RESIDENTIAL +/- 1300 SQ.FT.
UNIT F RESIDENTIAL +/- 1755 SQ.FT.
TOTAL +/- 3755 SQ.FT.

SITE STATISTICS

STANDARDS REFLECT PARENT BY-LAW REQUIREMENTS UNLESS OTHERWISE SPECIFIED. NUMBERS IN SQUARE BRACKETS INDICATES 20% BUILT-UP AREA ASSOCIATED WITH SPECIFIED STANDARD.

PARENT BY-LAW:
SITE SPECIFIC BY-LAW:
PROPOSED ZONING DESIGNATION:
1.0 SITE STANDARDS

SITE AREA	7,561 sq.m. (1.87 ac) (0.76 ha)			
PROPOSED DENSITY	54 units / 0.76 ha = 71.05 units per hectare (ha)			
PROPOSED FAR	±7035 sq.m. / 7561 sq.m. = ±0.93			
GROSS FLOOR AREA (GFA)	PROPOSED			
	BUILDING 1 RESIDENTIAL	BUILDING 2 MIXED USE	BUILDING 3 MIXED USE	TOTAL
COMMERCIAL	-	±560 sq.m.	±380 sq.m.	±±940 sq.m.
RESIDENTIAL	±1950 sq.m.	±2540 sq.m.	±1605 sq.m.	±±6095 sq.m.
	TOTAL GFA = ±7035 sq.m.			

2.0 LOT STANDARDS

ZONING STANDARD	REQUIRED MINIMUM (SEE BARRIE COMPLIANCE TO METRE (AS REQUIRED))	BUILDING 1	BUILDING 2	BUILDING 3
MAXIMUM NUMBER OF DWELLING UNITS		10 UNITS	27 UNITS	17 UNITS
LOT FRONTAGE			+/- 72.65 m	
MINIMUM FLOOR AREA				
MAXIMUM BUILDING HEIGHT	12 STOREYS	3 STOREYS	3 STOREYS	3 STOREYS
MAXIMUM COVERAGE	N/A	SEE ABOVE		
		TOTAL = +/-3289 sq.m. (+/-43.23 %)		
SETBACKS				
TOWNHOUSES				
FRONT YARD	0.00 m	38 m	18.20 m	0.81 m
NORTH EXTERIOR SIDE YARD	1.50 m	2.07 m	53 m	3.85 m
SOUTH EXTERIOR SIDE YARD	1.50 m	56 m	1.55 m	18 m
REAR YARD	1.50 m	2.94 m	4 m	79 m
INTERIOR SIDE YARD	N/A			
BUILDING COVERAGE				
	BUILDING 1 RESIDENTIAL	BUILDING 2 MIXED USE	BUILDING 3 MIXED USE	
	+/-460 sq.m. +/-0.23 ac +/-0.095 ha	+/-401 sq.m. +/-0.34 ac +/-0.14 ha	+/-416 sq.m. +/-0.22 ac +/-0.091 ha	
MINIMUM BUILDING SEPARATION		BLDG. 1 - BLDG. 3	BLDG. 1 - BLDG. 2	
		34.60 m	16.80 m	
MINIMUM LANDSCAPE STRIP @ WEST LOT LINE				
MINIMUM FRONT YARD LANDSCAPING				
MINIMUM LANDSCAPE OPEN SPACE				

3.0 ADDITIONAL PROVISIONS

ZONING STANDARD	COMPLIANCE
	YES NO

4.0 AMENITY AREAS

AMENITY AREAS (5.4.2.2) RESIDENTIAL USES	REQUIRED 12 SQ.M UNIT	BUILDING 1	BUILDING 2	BUILDING 3
TYPE F = +/- 13 SQ.M PER UNIT	-	-	X14 = 182 SQ.M	X8 = 104 SQ.M
TYPE F2 = +/- 23 SQ.M PER UNIT	-	-	X1 = 23 SQ.M	-
TYPE F END UNIT = +/- 15 SQ.M PER UNIT	-	-	X2 = 30 SQ.M	X2 = 30 SQ.M
TYPE F UPG = +/- 15 SQ.M PER UNIT	-	-	X2 = 30 SQ.M	-
TYPE E = +/- 11 SQ.M BALCONY PER UNIT	-	X10 = 110 SQ.M	-	-
TYPE E = +/- 10 SQ.M PATIO PER UNIT	-	X10 = 100 SQ.M	-	-
AMENITY AREA		+/- 210 SQ.M	+/- 242 SQ.M	+/- 157 SQ.M
TOTAL	468 SQ.M	+/- 609 SQ.M		

5.0 VEHICULAR PARKING REQUIREMENT

ZONING STANDARD	REQUIRED	AT GRADE	UNDERGROUND	TOTAL
VEHICULAR PARKING REQUIREMENTS				
RESIDENT PARKING				
MINIMUM NUMBER OF PARKING SPACES	1 / UNIT			
REQUIRED RESIDENT PARKING RANGE	39	78	0	78 RESIDENT
COMMERCIAL PARKING				
MINIMUM NUMBER OF PARKING SPACES	1 PER 24 SQ.M			
MAXIMUM NUMBER OF PARKING SPACES	N/A			
REQUIRED COMMERCIAL PARKING RANGE	40	40	0	40 COMM.
940 SQ.M/24 = 39.16 - 40				
MINIMUM PARKING SPACE WIDTH	2.90 m	2.90 m		
MINIMUM PARKING SPACE LENGTH	5.50 m	5.50 m		
ACCESSIBLE PARKING				
MINIMUM NUMBER OF ACCESSIBLE PARKING SPACES	4 SPACES	4	0	4 ACCESSIBLE
MIN. ACCESSIBLE PARKING SPACE WIDTH	3.40m TYPE A 3.10m TYPE B	COMPLIANCE	COMPLIANCE	
BICYCLE PARKING REQUIREMENTS				
RESIDENT BICYCLE PARKING				
MINIMUM NUMBER OF BICYCLE SPACES				
REQUIRED RESIDENT PARKING RANGE				
COMMERCIAL BICYCLE PARKING				
MINIMUM NUMBER OF PARKING SPACES	13			
REQUIRED PARKING RANGE	13	13		

6.0 SNOW STORAGE

AREA OF PARKING LOT	AS SHOWN
AREA OF SNOW STORAGE	AS SHOWN

Synchro Analysis Output – Total (2031) Traffic Volumes

HCM Unsignalized Intersection Capacity Analysis 6: Mapleview Dr & Nottingham Rd

2031 Total AM
970 Mapleview Drive



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱			↗
Traffic Volume (veh/h)	0	310	563	2	0	160
Future Volume (Veh/h)	0	310	563	2	0	160
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	337	612	2	0	174
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	614				950	613
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	614				950	613
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	65
cM capacity (veh/h)	965				289	492
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	337	614	174			
Volume Left	0	0	0			
Volume Right	0	2	174			
cSH	1700	1700	492			
Volume to Capacity	0.20	0.36	0.35			
Queue Length 95th (m)	0.0	0.0	12.6			
Control Delay (s)	0.0	0.0	16.3			
Lane LOS			C			
Approach Delay (s)	0.0	0.0	16.3			
Approach LOS			C			
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			46.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: Terry Fox Dr & Mapleview Dr

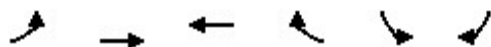
2031 Total AM
970 Mapleview Drive

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	99	41	6	242	11	62	32	0	53	59	225
Future Volume (Veh/h)	169	99	41	6	242	11	62	32	0	53	59	225
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	184	108	45	7	263	12	67	35	0	58	64	245
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	TWLTL			TWLTL								
Median storage veh	2			2								
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	275			153			1052	788	130	776	804	269
vC1, stage 1 conf vol							498	498		283	283	
vC2, stage 2 conf vol							554	289		494	521	
vCu, unblocked vol	275			153			1052	788	130	776	804	269
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	86			100			48	91	100	86	85	68
cM capacity (veh/h)	1288			1428			130	399	919	409	417	770
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	184	153	7	275	67	35	58	309				
Volume Left	184	0	7	0	67	0	58	0				
Volume Right	0	45	0	12	0	0	0	245				
cSH	1288	1700	1428	1700	130	399	409	655				
Volume to Capacity	0.14	0.09	0.00	0.16	0.52	0.09	0.14	0.47				
Queue Length 95th (m)	4.0	0.0	0.1	0.0	19.5	2.3	3.9	20.2				
Control Delay (s)	8.3	0.0	7.5	0.0	59.0	14.9	15.3	15.3				
Lane LOS	A		A		F	B	C	C				
Approach Delay (s)	4.5		0.2		43.9		15.3					
Approach LOS					E		C					
Intersection Summary												
Average Delay	10.7											
Intersection Capacity Utilization	56.5%			ICU Level of Service					B			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

6: Mapleview Dr & Nottingham Rd

2031 Total PM
970 Mapleview Drive



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Volume (veh/h)	0	465	294	4	0	129
Future Volume (Veh/h)	0	465	294	4	0	129
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	505	320	4	0	140
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	324				827	322
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	324				827	322
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	81
cM capacity (veh/h)	1236				341	719
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	505	324	140			
Volume Left	0	0	0			
Volume Right	0	4	140			
cSH	1700	1700	719			
Volume to Capacity	0.30	0.19	0.19			
Queue Length 95th (m)	0.0	0.0	5.7			
Control Delay (s)	0.0	0.0	11.2			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	11.2			
Approach LOS			B			
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			30.4%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: Terry Fox Dr & Mapleview Dr

2031 Total PM
970 Mapleview Drive

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	251	106	64	0	107	194	51	44	2	10	20	135
Future Volume (Veh/h)	251	106	64	0	107	194	51	44	2	10	20	135
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	273	115	70	0	116	211	55	48	2	11	22	147
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	TWLTL			TWLTL								
Median storage (veh)	2			2								
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	327			185			970	1023	150	908	952	222
vC1, stage 1 conf vol							696	696		222	222	
vC2, stage 2 conf vol							274	327		687	731	
vCu, unblocked vol	327			185			970	1023	150	908	952	222
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	78			100			79	84	100	96	93	82
cM capacity (veh/h)	1233			1390			258	293	896	283	319	818
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	273	185	0	327	55	50	11	169				
Volume Left	273	0	0	0	55	0	11	0				
Volume Right	0	70	0	211	0	2	0	147				
cSH	1233	1700	1700	1700	258	301	283	679				
Volume to Capacity	0.22	0.11	0.00	0.19	0.21	0.17	0.04	0.25				
Queue Length 95th (m)	6.8	0.0	0.0	0.0	6.3	4.7	1.0	7.8				
Control Delay (s)	8.7	0.0	0.0	0.0	22.7	19.3	18.3	12.0				
Lane LOS	A				C	C	C	B				
Approach Delay (s)	5.2		0.0		21.1		12.4					
Approach LOS					C		B					
Intersection Summary												
Average Delay	6.4											
Intersection Capacity Utilization	57.5%			ICU Level of Service			B					
Analysis Period (min)	15											