

File 421422

May 26, 2023

Fernando Caiella
Development Partner
Renaissance Retirement Barrie
11-5045 Orbitor Drive, Suite 102
Mississauga, Ontario L4W 4Y4
fernando@coreadvisory.ca

Re: 505-533 Yonge Street, City of Barrie
Response to 1st Submission Comments – Traffic Impact Study

Dear Fernando:

Further to receipt of comments from the City of Barrie (dated June 2022), we have prepared this letter to address comments as they pertain to the Traffic Impact Study¹ (TIS) submitted in support of the 505-533 Yonge Street mixed-use development. For convenience, City comments are provided in italics.

CHANGES TO SITE PLAN

It is noted that changes have been made to the site plan since initial submission of the TIS. The most recent site plan is illustrated in Figure 1.

As indicated, the development now proposes 384 residential units and 1,020 m² of ground-floor commercial space. This reflects a slight decrease in the proposed uses as compared to the initial site plan (16 fewer residential units and 56 m² less commercial space).

CITY COMMENTS

City of Barrie – Business Performance and Environmental Sustainability

Comment: *A minimum of 400 residential parking spaces (1 space/unit) and 46 commercial parking spaces (1 space/24m²) are required in the MU2 Zone. This equals a total of 446 parking spaces, including 15 barrier-free spaces (i.e. 8 Type A & 7 Type B spaces). The application proposes 447 residential parking spaces, including 15 barrier-free spaces, along with 22 commercial parking spaces (1 space/48 m²).*

Planning staff will not support a commercial parking ratio of less than 1 space per 30 m² of GFA, which applies to a wide variety of commercial uses identified in Table 4.6 and Section 5.4.

¹ 505-533 Yonge Street Traffic Impact Study. Tatham Engineering Ltd. December 17, 2021.

Response: Based on the currently proposed development, a residential parking supply of at least 384 spaces (1 space/unit) and 34 commercial parking spaces (1 space/30 m² GFA) is required. Based on the site plan, a total of 419 residential parking spaces and 36 commercial parking spaces will be provided, satisfying this requirement.

In considering the parking requirements of the commercial uses, the provision rate of 1 space per 30 m² GFA is considered appropriate, recognizing that such a rate is applicable to a wide variety of retail, office, and commercial uses within the City. Furthermore, it is expected that a portion of the patrons of the commercial space will also be tenants within the development; as they will already have an on-site parking space available, they will not require a separate commercial parking space. This will serve to somewhat reduce the parking demand of the commercial uses, thus allowing for a lower commercial parking provision.

City of Barrie Transportation Planning

Comment: *In accordance with the Official Plan Section 5.4.2.2 Development of property adjacent to Arterial Roads should be encouraged to design access onto the site which would minimize the impact on the adjacent Arterial Road. Such designs may include shared access points, controlled directional access and the use of access points onto Collector or Local Roads. To this regard the applicant acknowledges that the northern access shall be restricted to a right turn in / right turn out only access and a warning clause shall be registered on title regarding the movement restriction.*

The proposed north access onto Yonge Street shall be restricted to a right turn in / right turn out and shall be designed in accordance with Transportation Association of Canada – Geometric Design Guidelines.

Response: Acknowledged. The north access point to Yonge Street has been re-assessed (see below) with a right-in/right-out configuration, with left-turning traffic re-assigned to the signalized intersection of Yonge Street with D'Ambrosio Drive/site access.

Comment: *The applicant shall be required to design the south access in alignment to D'Ambrosio Drive and the intersection shall be designed in accordance with Transportation Association of Canada – Geometric Design Guidelines. To this regard, the south access shall be widened to accommodate an eastbound left turn lane. The storage requirement for the left turn shall accommodate the 95th percentile queue length as identified in the Transportation Impact Study.*

Response: Given constraints at the south limits of the property and the potential impacts to the proposed building, shifting the south access further south and widening it to accommodate a left turn lane is not feasible; however, through discussions with City staff, a revised design was agreed upon that, to the extent possible, mitigates the City's concerns. The access was revised to accommodate the following:

- 9.0 metre width;
- 1.5 metre offset between the centre line of the site access and the centre line of D'Ambrosio Drive; and
- 10 metre x 5 metre daylighting triangles.

The revised access design has been incorporated into the site plan.



TRAFFIC OPERATIONS – RE-ASSESSMENT

Trip Generation

Given the changes to the site plan, trip generation of the site was recalculated using the same trip rates (as per ITE *Trip Generation Manual, 10th Edition*) and methodologies employed in the TIS. Trip rates are summarized in Table 1, with trip estimates provided in Table 2. The trip generation of the site as detailed in the TIS is also summarize in Table 2, considering the formerly proposed development size.

Table 1: Trip Rates

LAND USE	VARIABLE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		In	Out	Total	In	Out	Total
multifamily housing – mid-rise (ITE 221)	per unit	0.07	0.24	0.31	0.22	0.14	0.36
multifamily housing – high-rise (ITE 222)	per unit	0.07	0.24	0.31	0.22	0.14	0.36
shopping centre	1000 ft ² GLA	0.58	0.36	0.94	1.83	1.98	3.81

Table 2: Trip Estimates

LAND USE	SIZE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		In	Out	Total	In	Out	Total
Buildings 1 & 2 (mid-rise)	209 units	20	56	76	56	36	92
Building 3 (high-rise)	175 units	13	41	54	38	25	63
ground-floor retail	10,979 ft ²	6	4	10	20	22	42
total (new site plan)		39	101	140	115	82	197
former site plan		41	105	146	120	86	206
net difference		-2	-4	-6	-5	-4	-9

As indicated, the site is expected to generate 140 trips during the AM peak hour and 197 trips during the PM peak hour. Given the slight decrease in unit count and commercial space, the trips to be generated by the site have also decreased slightly when compared to the previous site plan.



Trip Distribution

Trips have been distributed through the network considering the same overall distribution applied in the TIS. Trips which originally made a left turn at the north access point have been reassigned to the south access point, reflective of the change of the north access point to a right-in, right-out configuration. Trip assignment is illustrated in Figure 2.

Intersection Operations

Operations at the site access points on Yonge Street have been re-assessed under 2036 total traffic volumes (illustrated in Figure 3) considering the changes to the access assignment and revised trip estimates. The assessment has utilized the same methodology and procedures employed in the TIS. Results of the operational assessment are summarized in Table 3 with detailed worksheets provided in Appendix A.

Table 3: Intersection Operations – 2036 Total

INTERSECTION, MOVEMENT & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Yonge Street & D'Ambrasio Drive/ South Access	EB L	signal	39	D	0.31	39	D	0.27
	EB TR	signal	36	D	0.04	37	D	0.04
	WB LTR	signal	41	D	0.51	40	D	0.44
	NB L	signal	3	A	0.04	5	A	0.15
	NB TR	signal	4	A	0.39	4	A	0.42
	SB L	signal	5	A	0.05	7	A	0.15
	SB TR	signal	6	A	0.30	9	A	0.58
overall		signal	8	A	0.43	9	A	0.56
Yonge Street & North Access	WB R	stop	11	B	0.05	11	B	0.04

As indicated, each site access is expected to provide excellent overall operations (LOS B or better) through the 2036 horizon despite the re-assignment of traffic volumes to accommodate the right-in/right-out configuration at the north access.



SUMMARY

This letter has reviewed the comments pertaining to the Traffic Impact Study submitted for the proposed development at 505-533 Yonge Street and provided detailed responses where required. In addition, a reassessment of the site access points was completed to determine the impact from the restriction of the north access point to a right-in/right-out configuration. Based on the review, the site access points will operate acceptably through the 2036 horizon with consideration of the right-in/right-out configuration at the north access.

Should you have any questions or further comments, please do not hesitate to contact us.

Yours truly,

Tatham Engineering Limited



Matthew Buttrum B.Eng., EIT
Engineering Intern
MJB/DP: mjb



David Perks M.Sc., PTP
Transportation Planner, Group Leader

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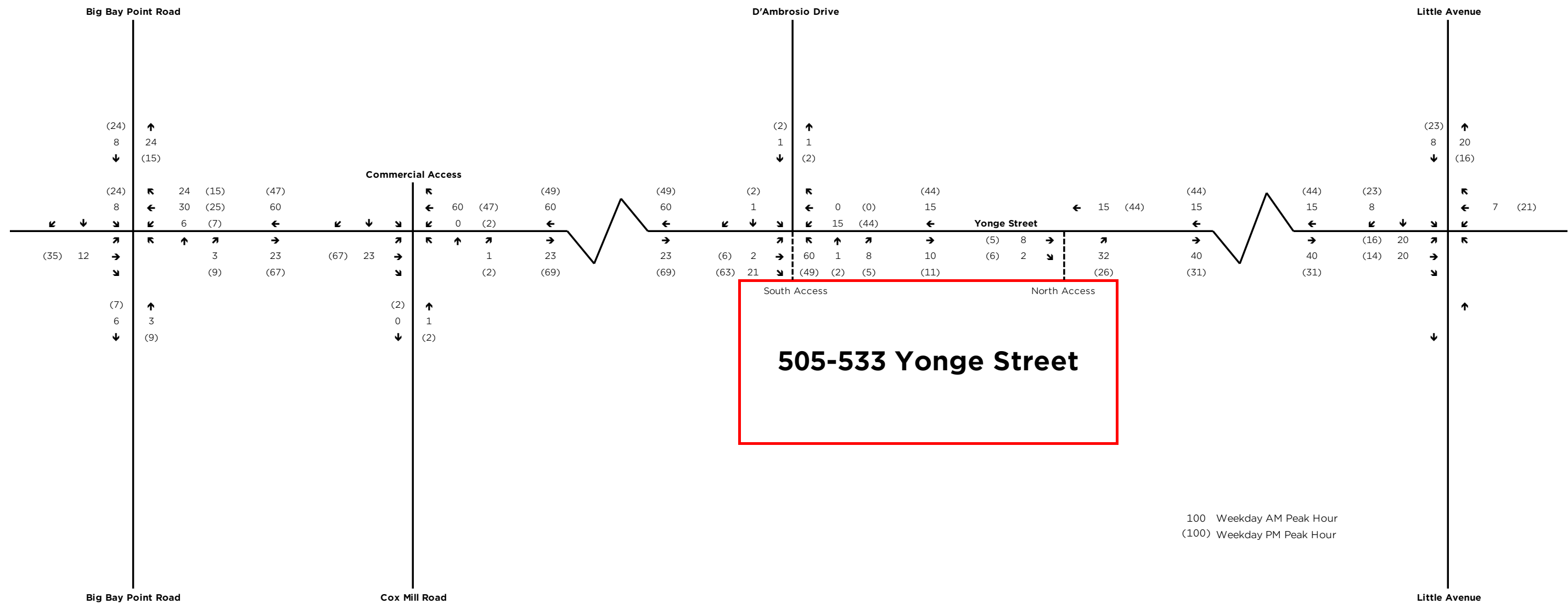


Figure 1: Site Plan - Revised

Project Information		
Renaissance Residences Barrie		
505 to 533 Yonge St., Barrie, ON		
For		
Core Advisory Group		
Drawing Title		
Site Plan		
Date	Project No	Drawing No
Drawn by KT	20033	A10
Scale As indicated		

APARTMENT DWELLING SECOND DENSITY - 2 (RA2-2) ZONE		
PROVISIONS	REQUIRED	PROVIDED
LOT AREA	1300m ²	26,815.2m ²
DEVELOPABLE AREA	-	16,457.7m ²
LOT FRONTAGE (min.)	30m	167.6m
FRONT YARD SETBACK (min.)	3m	3m
SIDE YARD SETBACK (min.)	5m	5.5m
REAR YARD SETBACK (min.)	7m	65m
LANDSCAPED OPEN SPACE (min.)	35%	58%
DWELLING UNIT FLOOR AREA (min.)	35.0m ² / dwelling unit + 10.0m ² / bedroom	55.0m ² / dwelling unit + 12.0m ² / bedroom
LOT COVERAGE (max.)	35%	17% Lot Area 28% Developable Area
GROSS FLOOR AREA (max. % of lot area)	200%	181% Lot Area 290% Developable Area
HEIGHT OF MAIN BUILDING (max.)	45m	40.8m
COMMERCIAL USES WITHIN APARTMENT DWELLINGS	Max. 25% of the ground floor area	23% - all buildings 47% - Building 1
PARKING: RESIDENTIAL BUILDINGS CONTAINING MORE THAN 3 DWELLING UNITS	1.5 spaces per dwelling unit (384 units x 1.5 = 576 spaces) B.F. Space: 1 Type "A" and "B"	419 spaces incl. 14 B.F. spaces (8 Type "A" & 4 Type "B")
PARKING: COMMERCIAL (PERSONAL SERVICE STORE (S.2.6))	1 space per 30m ² of gross floor area (1061m ² /30 = 36 spaces) B.F. Space: 1 Type "A" Space & 1 Type "B" Space	36 spaces incl. 2 B.F. spaces (1 Type "A" & 1 Type "B")
PARKING FOR UNDERGROUND STRUCTURE	The minimum setback from the street line to the nearest part of a parking structure underground shall be 1.8m, except where the minimum yard setback for the applicable zone is less than 1.8m	3m
PARKING FOR APARTMENT DWELLINGS - MAX. LOT COVERAGE (S.4.4.1)	35%	25%
LANDSCAPED BUFFER AREAS (PARKING AREAS)	A parking area which provides for more than 4 parking spaces adjoining a residentially zoned lot requires a continuous landscaped buffer area with a minimum width of 3m shall be provided along the abutting lot line and a continuous light border fence with a minimum height of 2m is to be constructed along the lot line. The landscaped buffer area shall be planted with appropriate vegetation to effectively screen the parking area.	Complies
LANDSCAPED BUFFER AREAS (APARTMENT DWELLINGS)	A continuous landscaped buffer area shall be provided along the side and rear lot lines of any lot which is occupied by an Apartment Dwelling. The landscaped buffer area shall be 3m in width along the side and rear lot lines.	Min. 3m

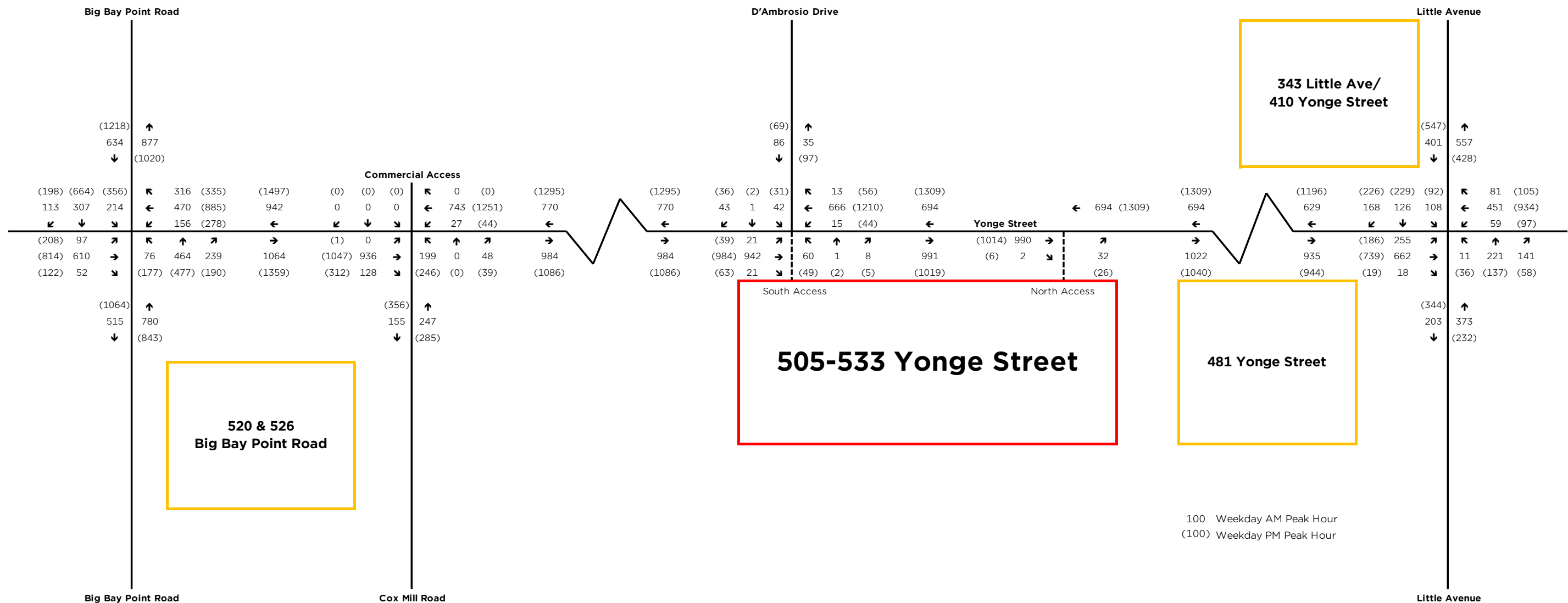
* Indicates currently not used



505-533 YONGE STREET - RESPONSE TO CITY COMMENTS

Figure 2: Site Traffic - Revised Assignment





505-533 YONGE STREET - RESPONSE TO CITY COMMENTS
Figure 3: Traffic Volumes – 2036 Total



APPENDIX A: OPERATIONS WORKSHEETS



HCM Signalized Intersection Capacity Analysis

2: Yonge Street & D'Ambrosio Drive/South Access

2036 Total Traffic
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	1	43	60	1	8	21	942	21	15	666	13
Future Volume (vph)	42	1	43	60	1	8	21	942	21	15	666	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		4.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.85			0.98		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1589			1756		1770	3528		1770	3529	
Flt Permitted	0.78	1.00			0.72		0.34	1.00		0.27	1.00	
Satd. Flow (perm)	1454	1589			1320		632	3528		509	3529	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	1	47	65	1	9	23	1024	23	16	724	14
RTOR Reduction (vph)	0	42	0	0	6	0	0	1	0	0	1	0
Lane Group Flow (vph)	46	6	0	0	69	0	23	1046	0	16	737	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	9.0	9.0			9.0		67.5	67.5		60.8	60.8	
Effective Green, g (s)	9.0	9.0			9.0		67.5	67.5		60.8	60.8	
Actuated g/C Ratio	0.10	0.10			0.10		0.76	0.76		0.69	0.69	
Clearance Time (s)	6.0	6.0			6.0		4.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	147	161			134		516	2690		349	2424	
v/s Ratio Prot		0.00					0.00	c0.30			0.21	
v/s Ratio Perm	0.03				c0.05		0.03			0.03		
v/c Ratio	0.31	0.04			0.51		0.04	0.39		0.05	0.30	
Uniform Delay, d1	36.9	35.8			37.7		2.7	3.5		4.5	5.5	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.1			3.3		0.0	0.4		0.2	0.3	
Delay (s)	38.1	35.9			41.0		2.7	4.0		4.7	5.8	
Level of Service	D	D			D		A	A		A	A	
Approach Delay (s)		37.0			41.0			3.9			5.8	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay	7.6			HCM 2000 Level of Service			A					
HCM 2000 Volume to Capacity ratio	0.43											
Actuated Cycle Length (s)	88.5			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	57.2%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

5: North Site Access & Yonge Street

2036 Total Traffic
AM Peak

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	32	990	2	0	694
Future Volume (Veh/h)	0	32	990	2	0	694
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	35	1076	2	0	754
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLT		TWLT	
Median storage (veh)			2		2	
Upstream signal (m)			179			
pX, platoon unblocked	0.90	0.90			0.90	
vC, conflicting volume	1454	539			1078	
vC1, stage 1 conf vol	1077					
vC2, stage 2 conf vol	377					
vCu, unblocked vol	1291	280			875	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	95			100	
cM capacity (veh/h)	308	649			694	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	35	717	361	377	377	
Volume Left	0	0	0	0	0	
Volume Right	35	0	2	0	0	
cSH	649	1700	1700	1700	1700	
Volume to Capacity	0.05	0.42	0.21	0.22	0.22	
Queue Length 95th (m)	1.4	0.0	0.0	0.0	0.0	
Control Delay (s)	10.9	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	10.9	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			37.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Yonge Street & D'Ambrosio Drive/South Access

2036 Total Traffic
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	2	36	49	2	5	39	984	63	44	1210	56
Future Volume (vph)	31	2	36	49	2	5	39	984	63	44	1210	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		4.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.86			0.99		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1597			1764		1770	3507		1770	3516	
Flt Permitted	0.72	1.00			0.72		0.14	1.00		0.25	1.00	
Satd. Flow (perm)	1337	1597			1329		266	3507		465	3516	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	2	39	53	2	5	42	1070	68	48	1315	61
RTOR Reduction (vph)	0	35	0	0	4	0	0	3	0	0	2	0
Lane Group Flow (vph)	34	6	0	0	56	0	42	1135	0	48	1374	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.5	8.5			8.5		67.7	67.7		59.5	59.5	
Effective Green, g (s)	8.5	8.5			8.5		67.7	67.7		59.5	59.5	
Actuated g/C Ratio	0.10	0.10			0.10		0.77	0.77		0.67	0.67	
Clearance Time (s)	6.0	6.0			6.0		4.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	128	153			128		275	2691		313	2371	
v/s Ratio Prot		0.00					0.01	c0.32			c0.39	
v/s Ratio Perm	0.03				c0.04		0.11			0.10		
v/c Ratio	0.27	0.04			0.44		0.15	0.42		0.15	0.58	
Uniform Delay, d1	37.0	36.1			37.6		4.4	3.5		5.2	7.7	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.1			2.4		0.3	0.5		1.0	1.0	
Delay (s)	38.1	36.2			40.0		4.6	4.0		6.2	8.7	
Level of Service	D	D			D		A	A		A	A	
Approach Delay (s)		37.1			40.0			4.0			8.6	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay	8.1			HCM 2000 Level of Service			A					
HCM 2000 Volume to Capacity ratio	0.56											
Actuated Cycle Length (s)	88.2			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	56.5%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

5: North Site Access & Yonge Street

2036 Total Traffic
PM Peak

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	26	1014	6	0	1309
Future Volume (Veh/h)	0	26	1014	6	0	1309
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	28	1102	7	0	1423
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLT		TWLT	
Median storage veh			2		2	
Upstream signal (m)			179			
pX, platoon unblocked	0.90	0.90			0.90	
vC, conflicting volume	1817	554			1109	
vC1, stage 1 conf vol	1106					
vC2, stage 2 conf vol	712					
vCu, unblocked vol	1680	271			890	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	266	651			679	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	28	735	374	712	712	
Volume Left	0	0	0	0	0	
Volume Right	28	0	7	0	0	
cSH	651	1700	1700	1700	1700	
Volume to Capacity	0.04	0.43	0.22	0.42	0.42	
Queue Length 95th (m)	1.1	0.0	0.0	0.0	0.0	
Control Delay (s)	10.8	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	10.8	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			39.5%	ICU Level of Service		A
Analysis Period (min)			15			