



To: Jacob Katz, President - Litera Group
From: Alan Xaykongsas and Amar Lad – TYLin
Date: June 21, 2023, revised February 28, 2024
Address: 140 Ann St., Suite 202
London, ON N6A 1R2
Re: **The Beaverbrook Community, London, Ontario**
323 Oxford Street West, 92 Proudfoot Lane, 825 Proudfoot Lane
Transportation Impact Study (TIS) Addendum Letter

MEMORANDUM

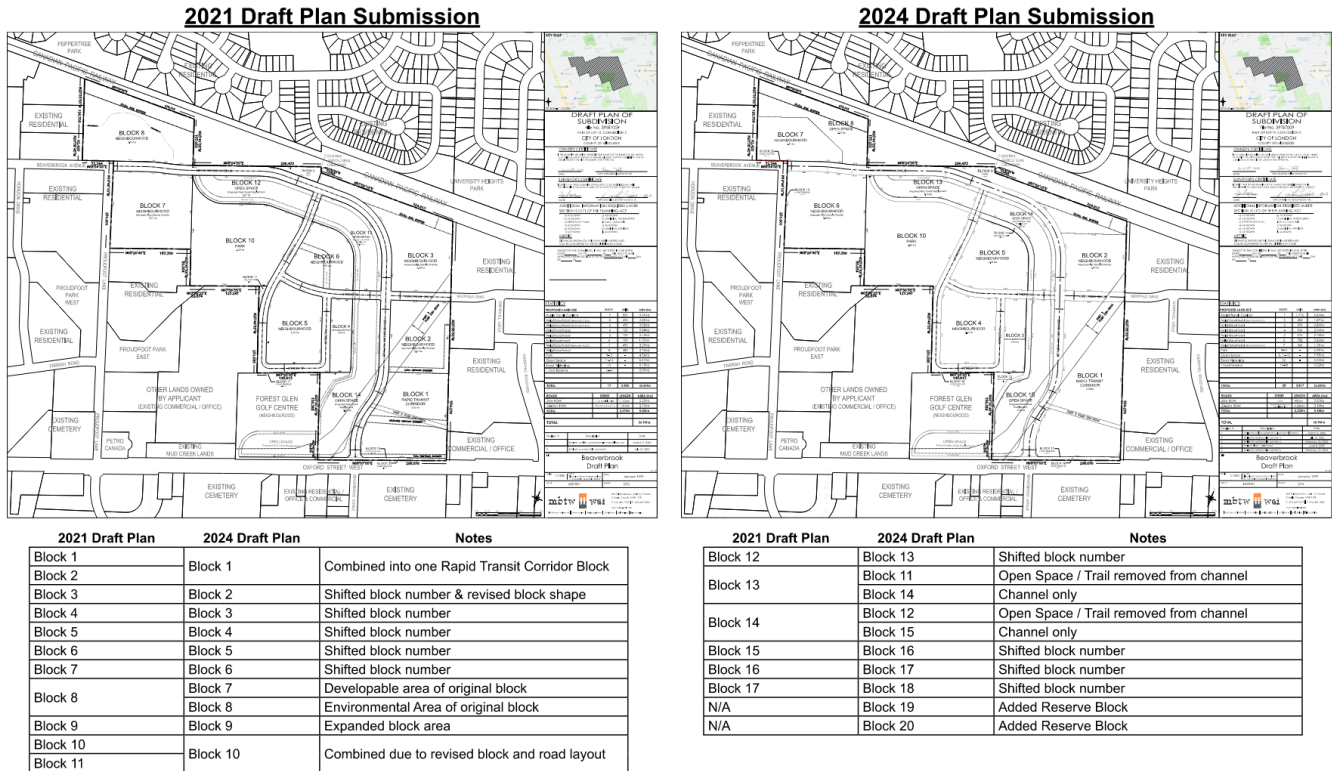
Introduction

TYLin (formerly, the Municipal Infrastructure Group Ltd. (TMIG), a T.Y. Lin International Company) was retained by Sam Katz Holdings Limited to prepare a Transportation Impact Study in support of a Draft Plan of Subdivision for a proposed residential subdivision to be located on 3 parcels of land; 323 Oxford Street West, 92 Proudfoot Lane, & 825 Proudfoot Lane, owned by Sam Katz Holdings Limited and situated north of Oxford Street West, generally opposite Beaverbrook Avenue in the City of London. The proposed development will contain a mix of residential densities, parklands, and open space blocks around the Mud Creek channel. The site is currently a predominantly greenfield area.

The 2023/2024 Beaverbrook Community resubmission comprises a coordinated set of revisions in response to comments received from the City of London and various agencies throughout 2022, as well as multiple working meetings and site walks with City staff and the UTRCA, and some design considerations led by the applicant.

As seen in **Figure 1**, the major changes to the Draft Plan include the road alignment of Street A and Street B, various road dimensions and geometries, revisions to the size and dimensions of the Neighbourhood Park (Block 10), and the separation of the original Block 8 into a developable and environmental block (Block 7 and Block 8, respectively). Revisions to the Draft Plan were also driven by three design considerations. The first design consideration includes combining original Block 1 and 2 into one rapid transit corridor development block. The second includes the separation of the multi-use pathway adjacent to the channel into a dedicated Open Space / Trail Block or within the Park Block. The third includes squaring off the original Block 3 (now Block 2) to add a northern portion to Park Block 9. In addition, the revised Draft Plan includes an increase in the unit count to represent higher density targets which are primarily focused on the rapid transit corridor development (Block 1) and blocks covered by the remnant High Density Overlay. The Draft Plan comparison can be found in further detail in **Attachment 1**.

Figure 1 2021 to 2024 Draft Plan Comparison



2021 to 2024 Draft Plan Comparison

The Beaverbrook Community • London, Ontario

February 2024

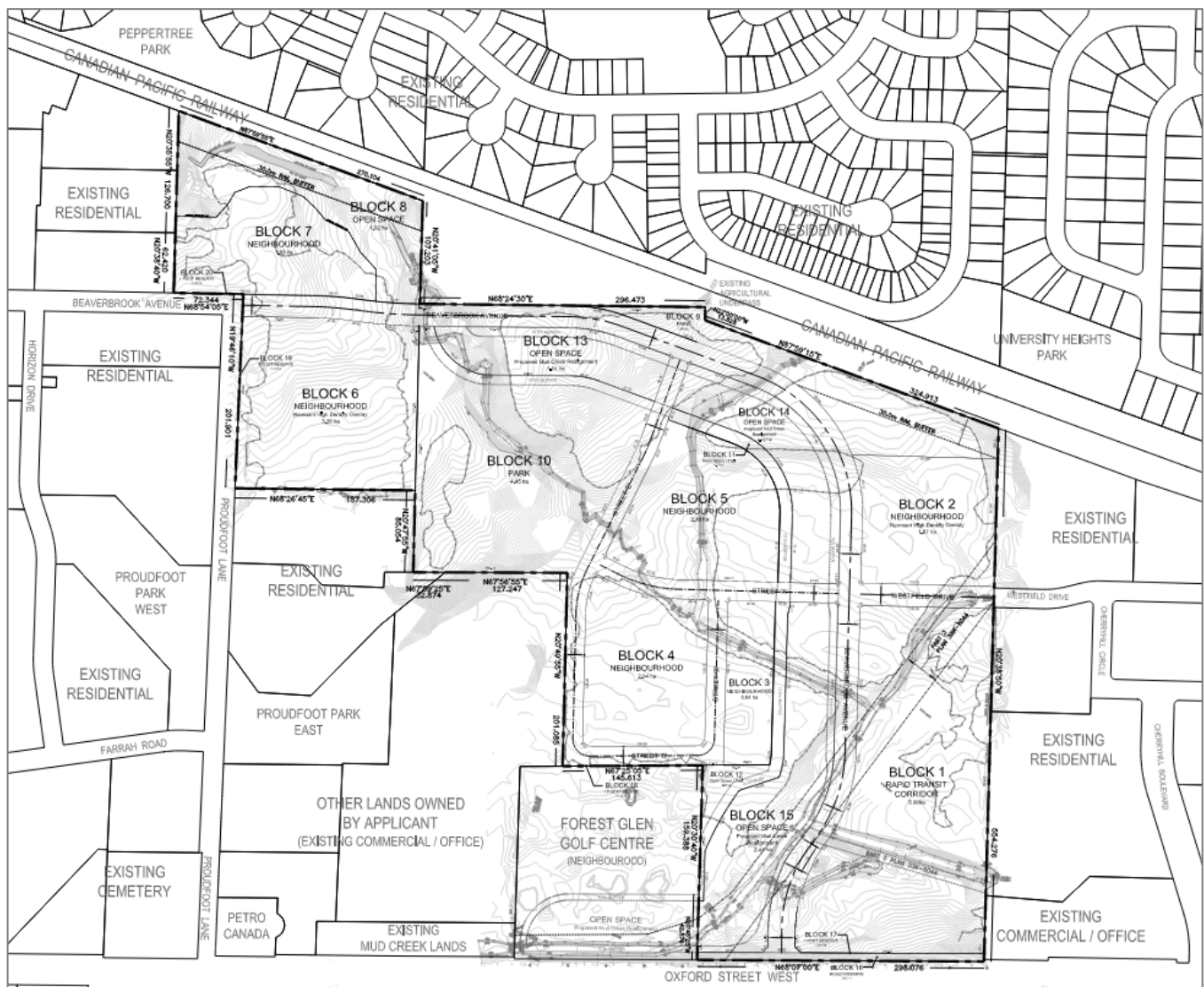
mbtw wai

The Transportation Impact Study (TIS) Addendum Letter is part of the 2023/2024 Beaverbrook Community resubmission package and provides an addendum to the TIS submitted in July 2021 in response to updates made to the Draft Plan and site statistics. In the July 2021 TIS, the development proposed a total of 3,462 residential units (that included a 25% bonus density for a conservative assessment) – this addendum analyzes the effects of 355 additional dwelling units on the study area road network (totaling 3,817 units). Traffic analysis was done under the future total 2035 conditions which correlates to the full build-out of the residential development. All traffic assumptions made in the July 2021 TIS remain valid. Based on the analysis enclosed in this letter, the trips generated by **the additional 355 units can be accommodated** with negligible impact across the study area traffic network.

Development Context

The latest Draft Plan, found in **Attachment 2**, includes 7 medium and high-density residential blocks (including a rapid transit corridor block and 6 neighbourhood blocks) consisting of 3,817 units, 6.09 hectares of parklands, and 7.80 hectares of open space blocks. **Figure 2** shows the updated proposed Draft Plan showing the proposed residential blocks, neighbouring lands, and future site access.

Figure 2 Updated Draft Plan





Based on the proposed subdivision plan, vehicular access to the area will be provided by the proposed northward extension of Beaverbrook Avenue from Oxford Street West to Proudfoot Lane, a westerly extension of Westfield Drive to Beaverbrook Avenue. The proposed "Street A", "Street B", private condominium streets will act as public and private local roads through the site, connecting residential blocks to the collector road. A pedestrian walkway (to be evaluated further) is proposed to connect residents from Beaverbrook Avenue to Walmer Gardens, north of the Canadian Pacific Railway Line.

Based on pre-consultation with the City of London, a 1.0% annual growth rate was agreed to and applied to Oxford Street West, Beaverbrook Avenue, Proudfoot Lane, and Wonderland Road North to 2030, and 0.5% from 2030-2035. In addition, a 0.5% annual growth rate was agreed upon and applied to Cherryhill Boulevard and Platt's Lane to 2035.

Site Generated Traffic

The updated Draft Plan of subdivision is comprised of 3,817 units across seven blocks for the full build-out condition. This results in a net increase of 355 units from the July 2021 TIS. Site traffic generated by the proposed residential subdivision was estimated by applying the trip rates found under Land Use Code (LUC) 221 & LUC 222 in the ITE Trip Generation Manual, 10th Edition, for weekday a.m. and p.m. peak hours, for mid-rise and high-rise blocks, respectively. This is consistent with the methodology utilized in the July 2021 TIS. It is noted that only the full build-out 2035 horizon was analyzed and therefore, the trip generation was not divided into separate phases. The overall non-automobile modal split of 35% was used for the 2035 planning horizon to stay consistent with the July 2021 TIS.

Table 1 summarizes the estimated total trip generation of the subject site.

Table 1 *Passenger Car Peak Hour Trips*

Horizon	Blocks	Land Use	Parameters	Peak Hour Trip Generation					
				Weekday AM			Weekday PM		
				In	Out	Total	In	Out	Total
Full Build-Out (2035)	4, 5, 6	Multifamily Housing (Mid-rise)	Fitted Curve Equation	$\ln(T) = 0.98 \ln(X) - 0.98$			$\ln(T) = 0.96 \ln(X) - 0.63$		
		LUC 221	Trip Distribution	26%	74%	100%	61%	39%	100%
		1,090	Net Trips	65	188	253	190	121	311
	1, 2, 3, 7	Multifamily Housing (High-rise)	Fitted Curve Equation	$T = 0.28 X + 12.86$			$T = 0.34 X + 8.56$		
		LUC 222	Trip Distribution	24%	76%	100%	61%	39%	100%
		2,727 units	Net Trips	132	417	549	388	249	637
	1-7	3,817 units	Total Site Trips	197	605	802	578	370	948
	<i>Trips from July 2021 TIS (3,462 units)</i>			176	542	718	514	329	843
	Increase in Trips from July 2021 TIS (+355 units)			+21	+63	+84	+64	+41	+105

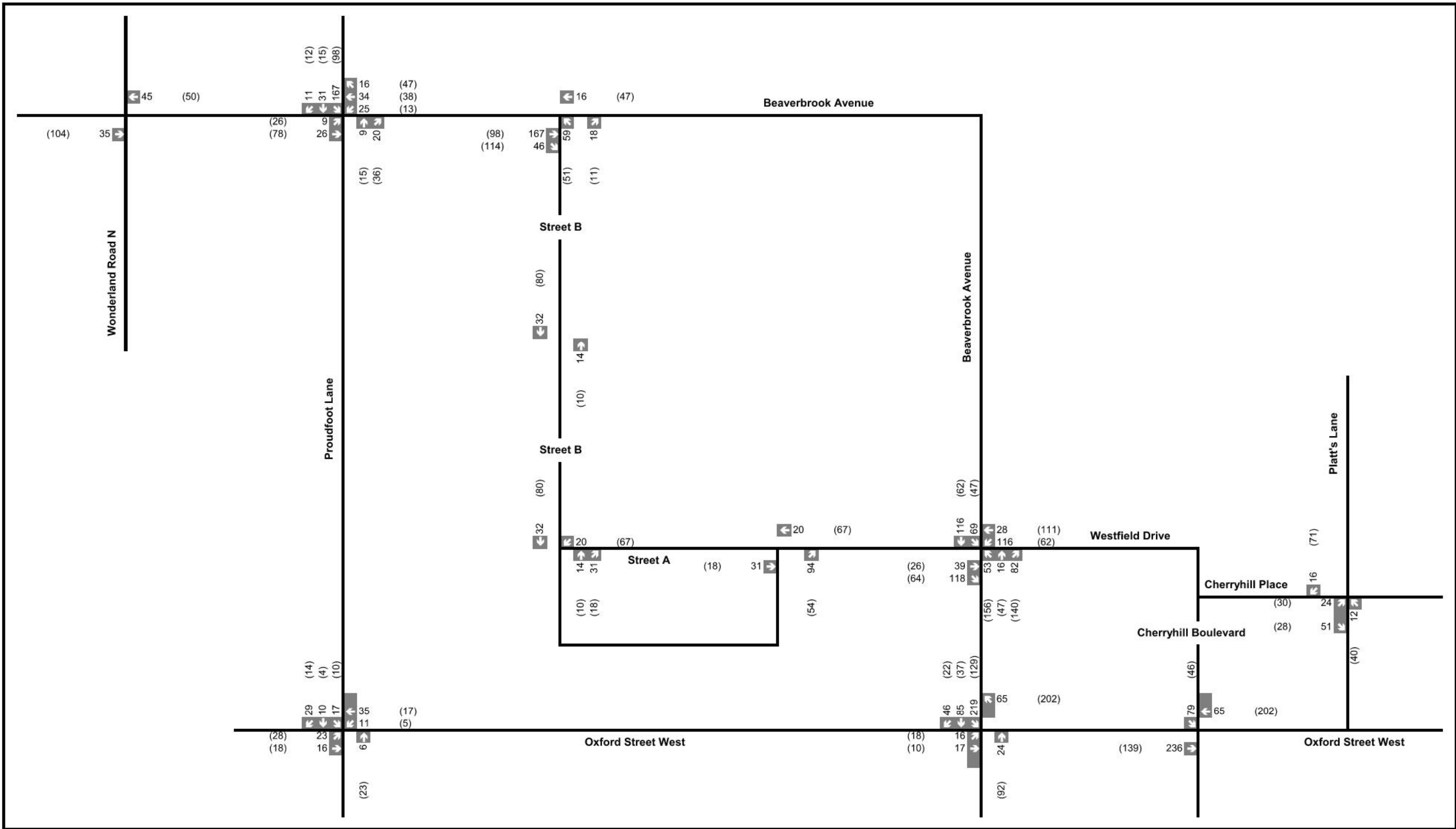
As outlined in **Table 1** during the 2035 planning horizon, the full build-out of the Draft Plan is expected to generate a total of 802 two-way vehicle trips during the a.m. peak hour, consisting of 197 inbound trips and 605 outbound trips. During the p.m. peak hour, it is expected to generate 948 two-way vehicle trips consisting of 578 inbound trips and 370 outbound trips. There is a total a.m. and p.m. increase in trips of 84 and 105 trips, respectively from the July 2021 TIS.

The site distribution and assignment were kept consistent with the July 2021 TIS. The distribution of site traffic was derived based on reasonable assumptions for the site’s location in the City of London and refined in accordance with patterns observed in existing traffic data and the trip distribution methodology followed in background developments. The site traffic was assigned to the road network, accordingly, broken down by trips generated from each of the eight residential blocks within the subject site. **Table 2** summarizes the proportion of site trips distributed to the study area by direction of approach and departure for both the a.m. and p.m. peak hours.

Table 2 *Site Trip Generation*

Trip Orientation (To / From)	Distribution (%) AM		Distribution (%) PM	
	Inbound	Outbound	Inbound	Outbound
North	20%	10%	30%	20%
East	30%	50%	30%	50%
South	30%	35%	40%	25%
West	20%	5%	0%	5%
Total	100%	100%	100%	100%

Figure 3 illustrates the updated estimated passenger vehicle site trips generated by the proposed development that were assigned to the study road network for the ultimate 2035 horizon.

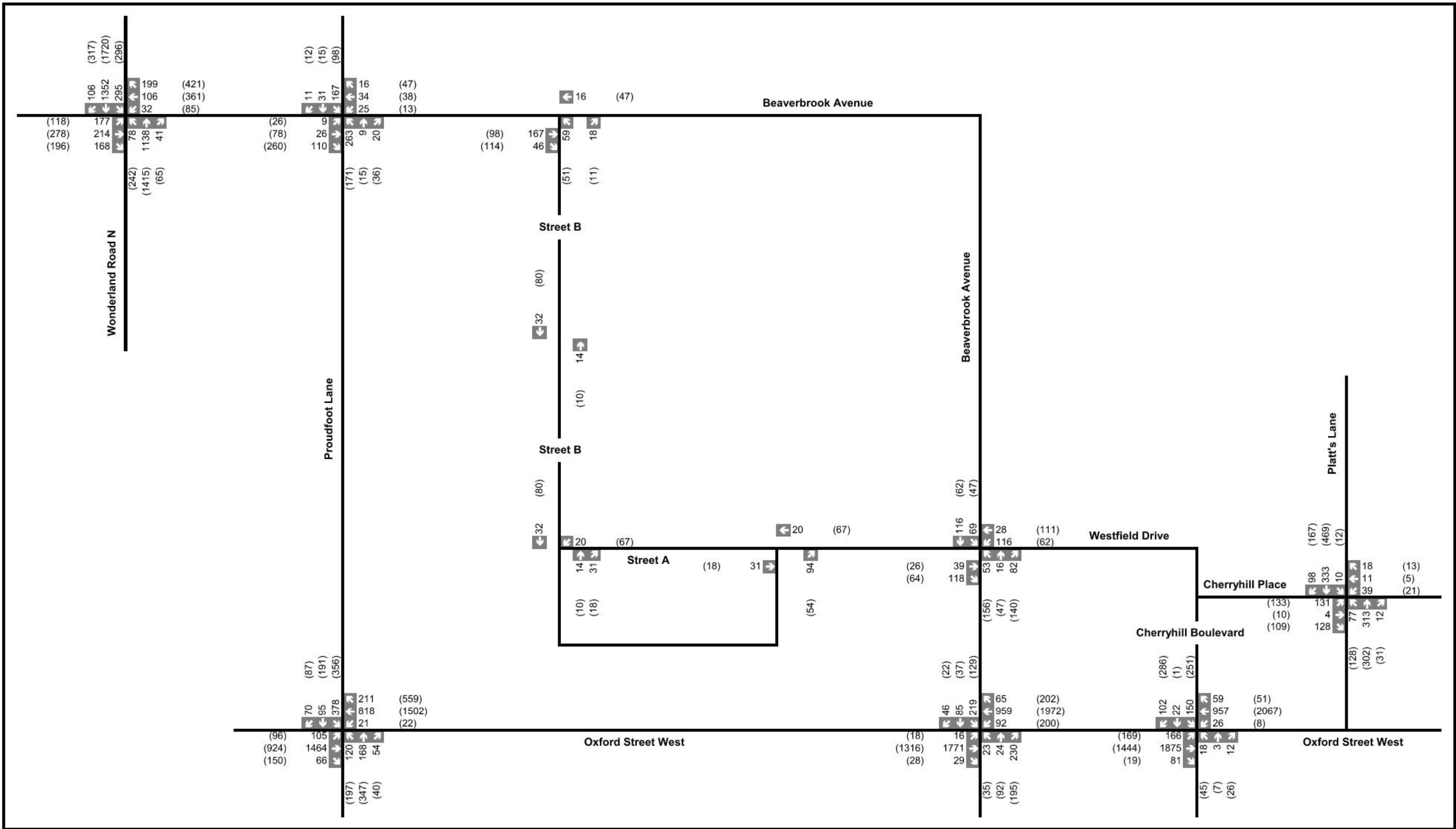




Total Traffic Volumes

The future total traffic volumes were derived by combining the projected future background traffic volumes with the projected site trip assignment.

Figure 4 illustrates the future total traffic volumes for the 2035 planning horizon during the weekday a.m. and weekday p.m. peak hours.





Future Total 2035 Traffic Capacity Analysis

The capacity analysis identifies how well the intersections and access driveways are operating and how they are expected to operate in the future. The analysis contained in this report utilized the Highway Capacity Manual (HCM) 2000 techniques within the Synchro Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement.

The analysis includes identification of all intersections and for all movements; v/c ratios, and LOS indicators. 'Critical' intersections and movements include:

- ▶ Overall intersection operations, through movements or shared through/turning movements with a LOS F or v/c ratio increased to 0.90 or above; and
- ▶ V/C ratios for exclusive movements that will exceed 1.00 or LOS F

As per the July 2021 TIS, it is noted that the cycle length for the intersection of Wonderland Road North and Beaverbrook Avenue was increased to 145 seconds in the p.m. peak hour. All other intersection improvements are maintained from Future Background 2035 such as: a protected phase was added for the eastbound left movement and the signal timings were optimized for both peak hours. Additionally, a protected phase was added for the eastbound left and northbound left movements at the intersection of Oxford Street West and Proudfoot Lane under the future background 2035 conditions and was maintained under the future total 2035 conditions, and signal timings were optimized for both peak hours.

Furthermore, the signalization of the intersection of Oxford Street West and Beaverbrook Avenue was maintained from the Future Background 2026 scenario. This is also consistent with the July 2021 TIS.

Table 3 summarizes the Synchro/HCM capacity results for the study intersections during the weekday a.m. and weekday p.m. peak hours under future total 2035 traffic conditions. Detailed Synchro reports can be found in **Attachment 3**.

Table 3 Future Total 2035 Capacity Analysis

Scenario	Movement of Interest	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Wonderland Road at Beaverbrook Avenue	<i>Overall</i>	0.87	33	C	1.03	59	E
	EBL	0.82	69	E	0.99	131	F
	EBT	0.58	47	D	0.56	46	D
	EBT	0.24	42	D	0.13	39	D
	WBL	0.21	49	D	0.44	51	D
	WBT	0.42	51	D	0.91	80	F
	WBR	0.15	48	D	0.76	64	E
	NBL	0.48	20	B	1.01	110	F
	NBT	0.78	34	C	0.89	45	D
	NBR	0.03	19	B	0.05	23	C
	SBL	0.83	48	D	0.96	90	F
	SBT	0.71	21	C	1.00	60	E
	SBR	0.10	12	B	0.38	25	C
Proudfoot Lane at Beaverbrook Avenue	EBLTR	0.23	10	A	0.47	12	B
	WBLTR	0.13	9	A	0.14	9	A
	NBLTR	0.45	12	B	0.33	11	B
	SBLTR	0.33	11	B	0.19	10	A
Proudfoot Lane at Oxford Street West	<i>Overall</i>	1.03	40	<i>D</i>	1.02	43	<i>D</i>
	EBL	0.39	16	B	0.84	70	E
	EBTR	0.89	31	C	0.66	26	C
	WBL	0.47	54	D	0.15	24	C
	WBT	0.55	28	C	0.98	46	D
	WBR	0.18	2	A	0.57	4	A
	NBL	0.49	45	D	0.56	39	D
	NBT	0.71	62	E	0.97	91	F
	NBR	0.04	48	D	0.03	43	D
SBL	1.10	116	F	1.02	93	F	

Scenario	Movement of Interest	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Beaverbrook Avenue at Oxford Street West	<i>Overall</i>	0.98	27	C	0.90	21	C
	EBL	0.06	10	A	0.32	19	B
	EBTR	0.96	21	C	0.69	14	B
	WBL	0.97	155	F	0.72	31	C
	WBTR	0.50	7	A	0.89	16	B
	NBLT	0.22	48	D	0.66	63	E
	NBR	0.71	62	E	0.13	51	D
	SBL	0.84	67	E	0.66	57	E
	SBT	0.21	41	D	0.10	44	D
	SBR	0.03	39	D	0.01	43	D
Oxford Street West at Cherryhill Boulevard	<i>Overall</i>	0.83	14	B	0.97	39	D
	EBL	0.51	8	A	0.90	104	F
	EBTR	0.84	8	A	0.60	4	A
	WBL	0.44	32	C	0.04	10	B
	WBTR	0.52	13	B	1.02	49	D
	NBL	0.45	70	E	0.66	83	F
	NBTR	0.11	63	E	0.15	62	E
	SBL	0.58	60	E	0.69	66	E
	SBT	0.56	59	E	0.69	66	E
	SBR	0.08	46	D	0.85	72	E
Platt's Lane at Cherryhill Place (unsignalized)	EBLTR	1.07	115	F	1.41	263	F
	WBLTR	0.42	40	E	0.28	41	E
	NBL	0.08	9	A	0.15	10	A
	NBTR	0.21	0	A	0.20	0	A
	SBL	0.01	8	A	0.01	9	A
	SBTR	0.28	0	A	0.37	0	A

Scenario	Movement of Interest	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Beaverbrook Avenue at Street A/Westfield Drive (unsignalized)	EBLTR	0.24	12	B	0.14	12	B
	WBLTR	0.48	26	D	0.51	26	D
	WBLTR	0.04	3	A	0.10	4	A
	SBLTR	0.05	3	A	0.03	4	A
Street B at Beaverbrook Avenue (unsignalized)	EBTR	0.14	0	A	0.12	0	A
	WBLT	0.00	0	A	0.00	0	A
	NBLR	0.11	10	B	0.08	10	A
Street B at Street A (unsignalized)	WBLR	0.02	9	A	0.07	9	A
	NBLR	0.03	0	A	0.02	0	A
	SBLT	0.00	0	A	0.00	0	A

As seen in **Table 3**, the results of the Synchro analysis with the updated site statistics are consistent with that in the July 2021 TIS. Under 2035 future total conditions, most intersections are operating within capacity, with acceptable Levels of Service and reasonable delays for most movements.

The signalized intersection of Wonderland Road North and Beaverbrook Avenue is operating with an overall v/c of 1.03 and LOS 'E' in the p.m. peak hour, due to several movements approaching capacity and operating with LOS of 'E' or 'F'. Notably, the northbound left is operating with a v/c of 1.01 and LOS 'F', the southbound left at a v/c of 0.96 and LOS 'F', and the southbound through at a v/c of 1.00 and LOS 'E'. These movements continue to be limited due to the compounded corridor growth over 15 years and are not impacted by the introduction of site traffic, **as demonstrated in future background conditions** shown in the July 2021 TIS.

The unsignalized four-way intersection of Beaverbrook Avenue and Proudfoot Lane is operating with LOS 'B' or better, minimal delays, and considerable reserve capacity for all movements. Traffic signal and stop-control warrants were conducted, as detailed in **Section 8** of the July 2021 TIS, and an all-way stop control was warranted for this intersection.

The signalized intersection of Proudfoot Lane at Oxford Street West is operating at an overall LOS 'D' during weekday a.m. and p.m. peak hours, due to v/c of 1.03 and 1.02, respectively. In the a.m. peak hour, this is due to the southbound left operating with a v/c of 1.10 and LOS 'F' due to delays of 116 seconds. In the p.m. peak hour, the northbound through and southbound left are operating with v/c of 0.97 and 1.02, respectively, with LOS 'F' and delays of 91 and 93 seconds. These movements continue to be limited due to the compounded corridor growth over 15 years and are not impacted by the introduction of site



traffic, as demonstrated in **future background conditions** (as seen in the July 2021 TIS). All other movements are operating with sufficient reserve capacity and minimal delays.

The signalized intersection of Beaverbrook Avenue and Oxford Street West is operating at an overall LOS 'C' during weekday a.m. and p.m. peak hours. In the a.m. peak hour, the overall v/c of 0.98 is triggered by the westbound left movement's v/c of 0.97 and LOS 'F' due to delays of 155 seconds. Signal coordination along Oxford Street West, leading to better platooning of vehicles travelling eastbound and westbound, may help manage delays along the corridor and improve the flow of left turning vehicles. Other movements such as the northbound through/left, northbound right and southbound left are operating with LOS 'E' similarly due to challenges crossing with large east-west through **volumes resulting from 15 years of background corridor growth.**

The signalized intersection of Oxford Street West and Cherryhill Boulevard is generally operating with some delay, acceptable LOS, and sufficient reserve capacity during both peak hours. In the p.m. peak hour, the overall v/c of 0.97 and LOS 'D' is triggered by the eastbound left operating with a v/c of 0.90 and LOS 'F' due to turning delays of 104 seconds, and a westbound through/right operating with a v/c of 1.02 and delays of 49 seconds. Northbound and southbound movements are operating with LOS 'E' and 'F' in both peak hours due to existing cycle length limitations and splits geared towards east-west movements to **accommodate background corridor growth.**

The unsignalized intersection of Platt's Lane and Cherryhill Place is generally operating with minimal delay, acceptable LOS, and sufficient reserve capacity during both peak hours. However, the eastbound left/through/right movement is operating with v/c of 1.07 and 1.41 (compared to 1.04 and 1.34 in the July 2021 TIS), with delays of 115 and 263 seconds in the a.m. and p.m. peak hours, respectively, resulting in an LOS 'F', **primarily caused by background corridor growth.** It is understood that growth along this street would be caused by the proposed development, rather than added on top of the same, during the study horizon. The application of compounded growth of 0.5% on Cherryhill Place across the 15-year period of this study, despite the closed geography of the street should be reconsidered by the City.

All unsignalized internal stop-controlled intersections are operating with LOS 'A' or LOS 'B' for all movements, minimal delay, and considerable reserve capacity.

In comparison with the results from the July 2021 TIS, the Synchro analysis shows that the addition of 355 units does not significantly impact the v/c ratios, delays, and LOS across the study area intersections. Overall, all intersections operate within capacity and with minimal delays for most movements under 2035 future total conditions.



Conclusions and Recommendations

Following the traffic analysis completed in this addendum, TYLin provides the following summary and recommendations based on the updated site statistics for the proposed development:

- ▶ As per the latest site plan, there are a total of 3,817 units across seven blocks proposed for the full build-out of the development by the ultimate 2035 horizon year. This is an increase 355 dwelling units from the July 2021 TIS.
- ▶ With the updated site statistics, the development is estimated to generate a total 802 two-way vehicle trips during the a.m. peak hour, consisting of 197 inbound trips and 605 outbound trips. During the p.m. peak hour, it is expected to generate 948 two-way vehicle trips consisting of 578 inbound trips and 370 outbound trips.
- ▶ Under future 2035 traffic conditions, the study area intersections are expected to predominantly operate with good operational characteristics and sufficient reserve capacity during both weekday a.m. and p.m. peak hours with no significant issues brought about by the proposed development to report. **Any poor LOS or delay for select turning movements under future conditions is a result of poor operations under existing conditions or extensive background corridor growth and not due to the addition of site generated traffic**, as detailed within the July 2021 TIS. All internal intersections within the subdivision are also anticipated to operate with good functionality and acceptable levels of service (LOS) and v/c ratios.
- ▶ It is noted that in comparison with the future total results from the July 2021 TIS, the addition of new units in the proposed development does not significantly change the capacity of the study intersections.
- ▶ Accordingly, it is TYLin's opinion that traffic from the proposed development can be accommodated by the boundary road network and can accommodate the proposed development traffic demands.
- ▶ All conclusions made in the July 2021 TIS still remain valid.



Attachments

Attachment 1 – 2021 and 2024 Draft Plan Comparison

Attachment 2 – Draft Plan (2024-02-13)

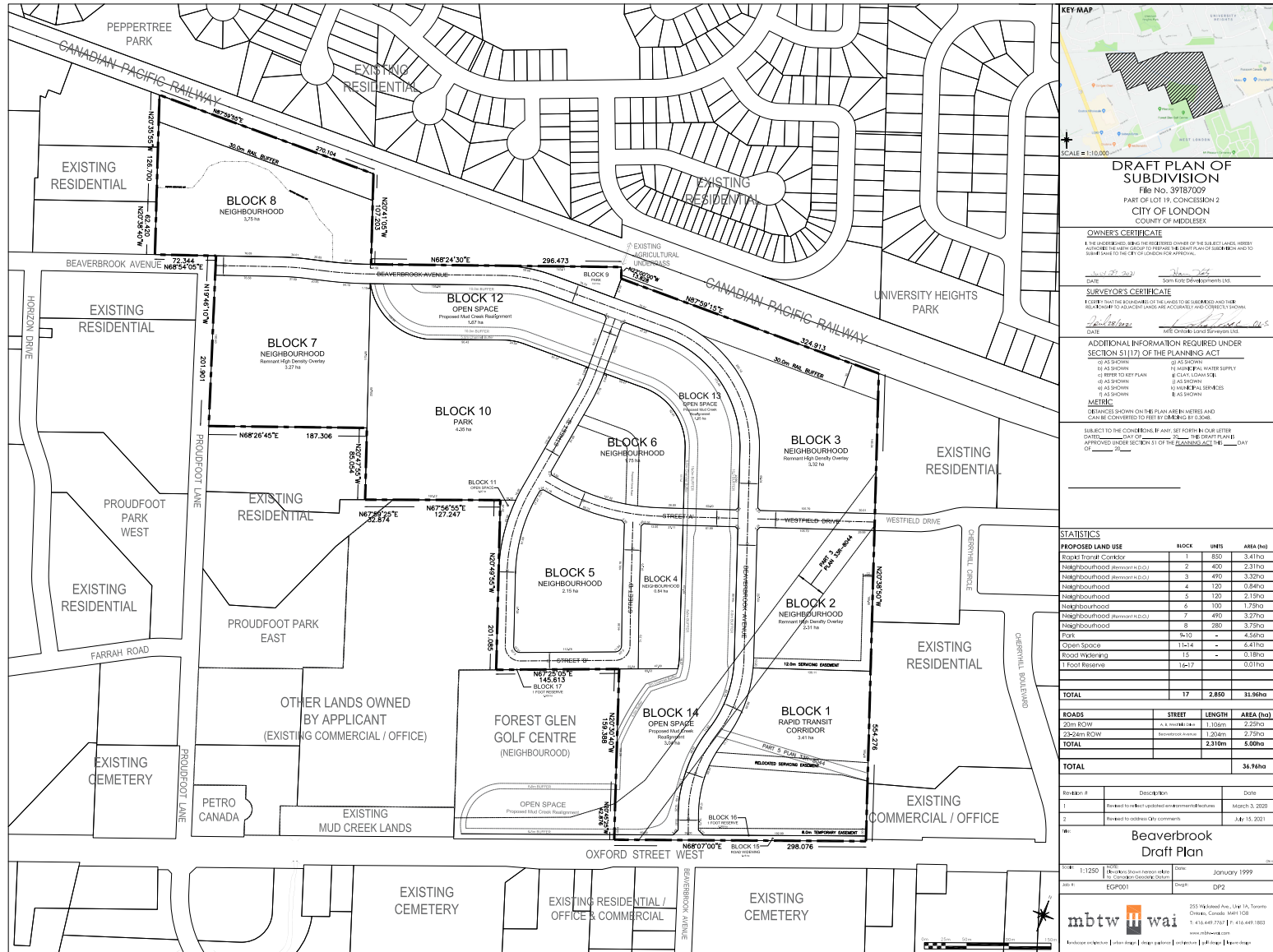
Attachment 3 – Future Total 2035 Synchro Reports



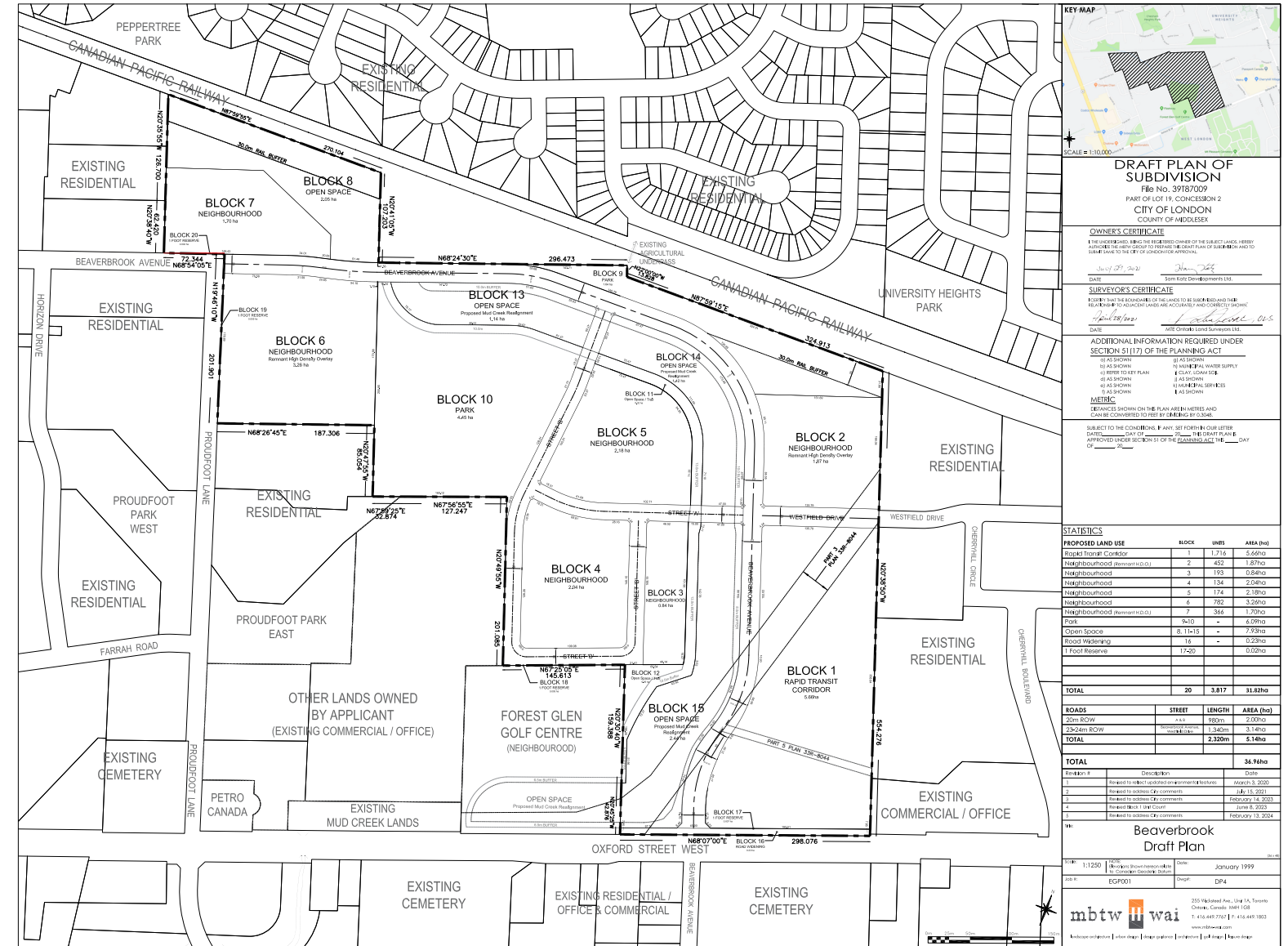
ATTACHMENT 1

2021 and 2024 Draft Plan Comparison

2021 Draft Plan Submission



2024 Draft Plan Submission



2021 Draft Plan

2024 Draft Plan

Notes

Block 1	Block 1	Combined into one Rapid Transit Corridor Block
Block 2	Block 2	Shifted block number & revised block shape
Block 3	Block 3	Shifted block number
Block 4	Block 4	Shifted block number
Block 5	Block 5	Shifted block number
Block 6	Block 6	Shifted block number
Block 7	Block 7	Shifted block number
Block 8	Block 8	Developable area of original block
Block 9	Block 9	Expanded block area
Block 10	Block 10	Combined due to revised block and road layout
Block 11		

2021 Draft Plan

2024 Draft Plan

Notes

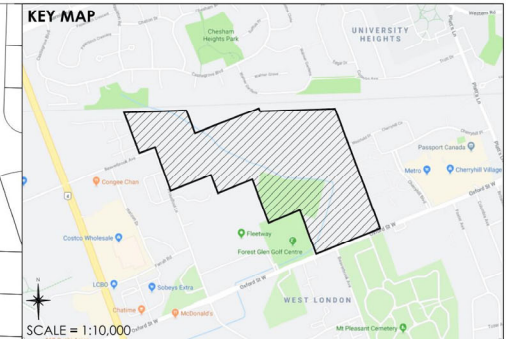
Block 12	Block 13	Shifted block number
Block 13	Block 11	Open Space / Trail removed from channel
	Block 14	Channel only
Block 14	Block 12	Open Space / Trail removed from channel
	Block 15	Channel only
Block 15	Block 16	Shifted block number
Block 16	Block 17	Shifted block number
Block 17	Block 18	Shifted block number
N/A	Block 19	Added Reserve Block
N/A	Block 20	Added Reserve Block

2021 to 2024 Draft Plan Comparison



ATTACHMENT 2

Draft Plan (2023-02-28)



DRAFT PLAN OF SUBDIVISION
 File No. 39T87009
 PART OF LOT 19, CONCESSION 2
 CITY OF LONDON
 COUNTY OF MIDDLESEX

OWNER'S CERTIFICATE
 I, THE UNDERSIGNED, BEING THE REGISTERED OWNER OF THE SUBJECT LANDS, HEREBY AUTHORIZE THE MBTW GROUP TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND TO SUBMIT SAME TO THE CITY OF LONDON FOR APPROVAL.

DATE: July 27, 2021
 Signature: Sam Katz
 Name: Sam Katz Developments Ltd.

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: April 28, 2022
 Signature: MTE Ontario Land Surveyors Ltd.
 Name: MTE Ontario Land Surveyors Ltd.

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

a) AS SHOWN	g) AS SHOWN
b) AS SHOWN	h) MUNICIPAL WATER SUPPLY
c) REFER TO KEY PLAN	i) CLAY, LOAM SOIL
d) AS SHOWN	j) AS SHOWN
e) AS SHOWN	k) MUNICIPAL SERVICES
f) AS SHOWN	l) AS SHOWN

METRIC
 DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

SUBJECT TO THE CONDITIONS, IF ANY, SET FORTH IN OUR LETTER DATED _____ 20____ THIS DRAFT PLAN IS APPROVED UNDER SECTION 51 OF THE PLANNING ACT THIS _____ DAY OF _____ 20____.

STATISTICS

PROPOSED LAND USE	BLOCK	UNITS	AREA (ha)
Rapid Transit Corridor	1	1,716	5.66ha
Neighbourhood (Remnant H.D.O.)	2	452	1.87ha
Neighbourhood	3	193	0.84ha
Neighbourhood	4	134	2.04ha
Neighbourhood	5	174	2.18ha
Neighbourhood	6	782	3.26ha
Neighbourhood (Remnant H.D.O.)	7	366	1.70ha
Park	9-10	-	6.09ha
Open Space	8, 11-15	-	7.93ha
Road Widening	16	-	0.23ha
1 Foot Reserve	17-20	-	0.02ha
TOTAL	20	3,817	31.82ha

ROADS	STREET	LENGTH	AREA (ha)
20m ROW	A & B	980m	2.00ha
23-24m ROW	Beaverbrook Avenue, Westfield Drive	1,340m	3.14ha
TOTAL		2,320m	5.14ha

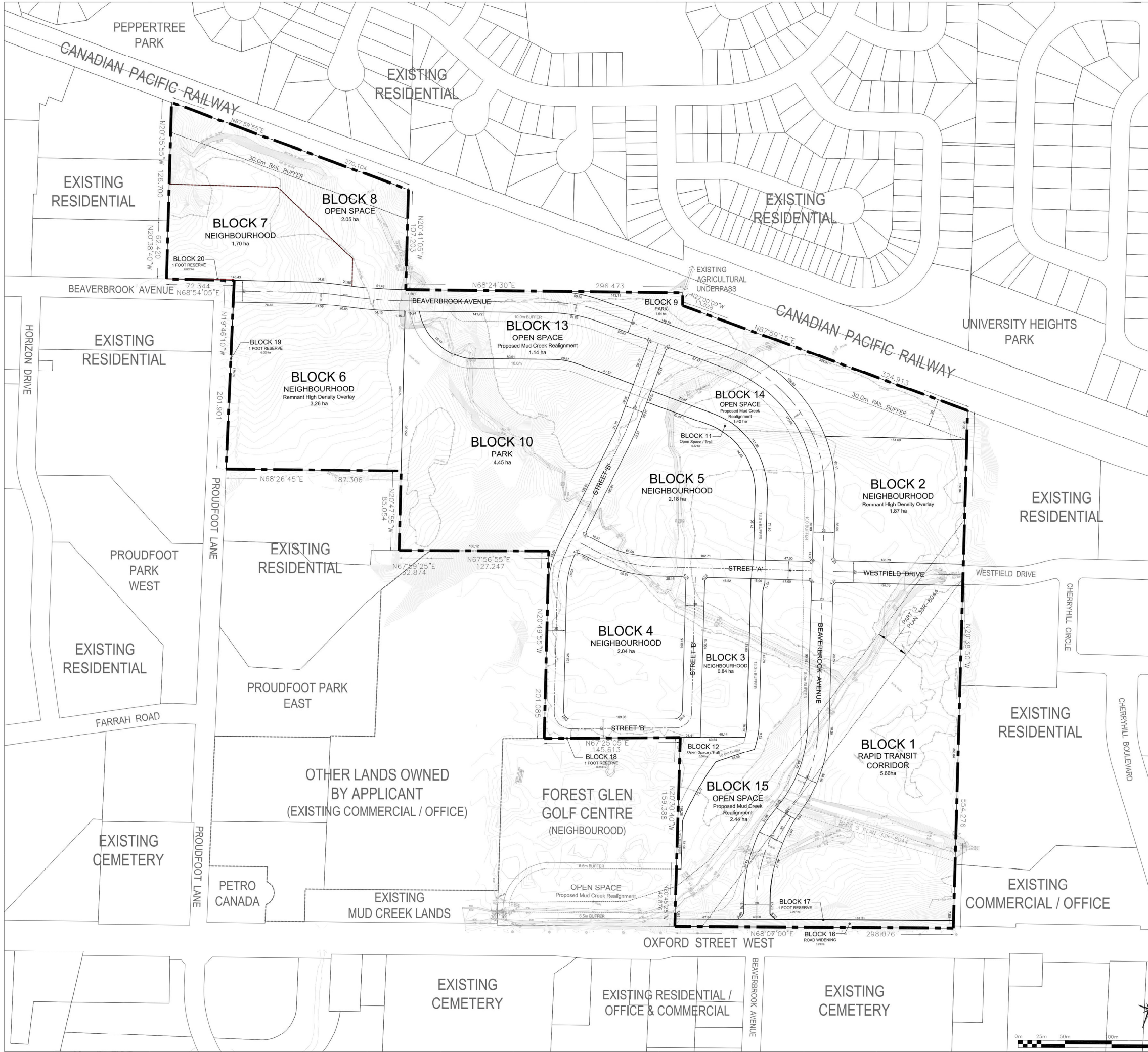
TOTAL 36.96ha

Revision #	Description	Date
1	Revised to reflect updated environmental features	March 3, 2020
2	Revised to address City comments	July 15, 2021
3	Revised to address City comments	February 14, 2023
4	Revised Block 1 Unit Count	June 8, 2023
5	Revised to address City comments	February 13, 2024

Title: **Beaverbrook Draft Plan**

Scale: 1:1250
 Date: January 1999
 Job #: EGP001
 Dwg#: DP4

mbtw wai
 255 Wicksteed Ave., Unit 1A, Toronto, Ontario, Canada M4H 1G8
 T: 416.449.7767 | F: 416.449.1803
 www.mbtw-wai.com
 landscape architecture | urban design | design guidance | architecture | golf design | leisure design





ATTACHMENT 3

Future Total 2035 Synchro Reports

HCM Unsignalized Intersection Capacity Analysis
2: Proudfoot Lane & Beaverbrook Avenue

Future Total 2035 AM Peak Hour
06-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	26	110	25	34	16	263	9	20	167	31	11
Future Volume (vph)	9	26	110	25	34	16	263	9	20	167	31	11
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)	10	28	120	27	37	17	286	10	22	182	34	12
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	158	81	318	228								
Volume Left (vph)	10	27	286	182								
Volume Right (vph)	120	17	22	12								
Hadj (s)	-0.29	-0.03	0.23	0.16								
Departure Headway (s)	5.2	5.6	5.1	5.2								
Degree Utilization, x	0.23	0.13	0.45	0.33								
Capacity (veh/h)	626	566	674	654								
Control Delay (s)	9.7	9.4	12.3	10.7								
Approach Delay (s)	9.7	9.4	12.3	10.7								
Approach LOS	A	A	B	B								
Intersection Summary												
Delay	11.0											
Level of Service	B											
Intersection Capacity Utilization	37.1%			ICU Level of Service			A					
Analysis Period (min)	15											

Timings
3: Proudfoot Lane & Oxford Street West

Future Total 2035 AM Peak Hour
06-13-2023

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	105	1464	21	818	211	120	168	54	378	95
Future Volume (vph)	105	1464	21	818	211	120	168	54	378	95
Turn Type	pm+pt	NA	Perm	NA	custom	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		6	3	7	4		3	8
Permitted Phases	2		6		2	4		4	8	
Detector Phase	5	2	6	6	3	7	4	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	7.0	7.0	7.0	5.0	5.0	7.0	7.0	5.0	7.0
Minimum Split (s)	9.0	23.6	23.6	23.6	9.5	9.0	31.4	31.4	9.5	31.4
Total Split (s)	9.0	73.4	64.4	64.4	25.2	13.0	31.4	31.4	25.2	43.6
Total Split (%)	6.9%	56.5%	49.5%	49.5%	19.4%	10.0%	24.2%	24.2%	19.4%	33.5%
Yellow Time (s)	3.0	3.7	3.7	3.7	3.0	3.0	3.3	3.3	3.0	3.3
All-Red Time (s)	1.0	1.9	1.9	1.9	1.0	1.0	3.1	3.1	1.0	3.1
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	5.6	5.6	5.6	4.0	4.0	6.4	6.4	4.0	6.4
Lead/Lag	Lead		Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	75.8	74.2	62.6	62.6	97.0	29.9	18.6	18.6	46.2	30.9
Actuated g/C Ratio	0.58	0.57	0.48	0.48	0.75	0.23	0.14	0.14	0.36	0.24
v/c Ratio	0.38	0.89	0.47	0.55	0.21	0.45	0.71	0.19	1.07	0.46
Control Delay	17.4	32.3	65.0	28.6	0.9	35.6	68.2	1.4	100.6	38.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	32.3	65.0	28.6	0.9	35.6	68.2	1.4	100.6	38.4
LOS	B	C	E	C	A	D	E	A	F	D
Approach Delay	31.4		23.8		46.2			81.8		
Approach LOS	C		C		D			F		
Intersection Summary										
Cycle Length: 130										
Actuated Cycle Length: 130										
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green										
Natural Cycle: 120										
Control Type: Actuated-Coordinated										
Maximum v/c Ratio: 1.07										
Intersection Signal Delay: 38.2					Intersection LOS: D					
Intersection Capacity Utilization 98.7%					ICU Level of Service F					
Analysis Period (min) 15										
Splits and Phases: 3: Proudfoot Lane & Oxford Street West										

HCM Signalized Intersection Capacity Analysis
4: Beaverbrook Avenue & Oxford Street West

Future Total 2035 AM Peak Hour
06-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1771	29	92	959	65	23	24	230	219	85	46
Future Volume (vph)	16	1771	29	92	959	65	23	24	230	219	85	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.3	3.3	3.0	3.5	3.5	3.3	3.3	3.3	3.7	3.7	3.7
Total Lost time (s)	7.1	7.1	4.0	7.1	4.0	5.8	5.8	4.0	5.8	5.8	5.8	5.8
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fipb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fipb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	0.95	1.00	0.95	1.00	0.98	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1789	3382	1465	3317	1739	1446	1789	1883	1601	1601	1601	1601
Fit Permitted	0.24	1.00	0.05	1.00	0.83	1.00	0.61	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	455	3382	75	3317	1481	1446	1142	1883	1601	1601	1601	1601
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)	17	1925	32	100	1042	71	25	26	250	238	92	50
RTOR Reduction (vph)	0	1	0	0	3	0	0	0	86	0	0	39
Lane Group Flow (vph)	17	1956	0	100	1110	0	0	51	164	238	92	11
Conf. Peds. (#/hr)			7	7								
Heavy Vehicles (%)	2%	2%	6%	15%	6%	2%	0%	2%	8%	2%	2%	2%
Bus Blockages (#/hr)	0	4	0	0	4	0	0	5	0	0	0	0
Turn Type	Perm	NA	pm+pl	NA	Perm	NA	Perm	pm+pt	NA	Perm	NA	Perm
Protected Phases	2		1	6		8		8		4		4
Permitted Phases		2		6		8		8		4		4
Actuated Green, G (s)	78.4	78.4		87.4	87.4		20.7	20.7	29.7	29.7		29.7
Effective Green, g (s)	78.4	78.4		87.4	87.4		20.7	20.7	29.7	29.7		29.7
Actuated g/C Ratio	0.60	0.60		0.67	0.67		0.16	0.16	0.23	0.23		0.23
Clearance Time (s)	7.1	7.1		4.0	7.1		5.8	5.8	4.0	5.8		5.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	274	2039		103	2230		235	230	285	430		365
v/s Ratio Prot		0.58		c0.04	0.33				c0.03	0.05		
v/s Ratio Perm	0.04			c0.61			0.03	0.11	c0.16			0.01
v/c Ratio	0.06	0.96		0.97	0.50		0.22	0.71	0.84	0.21		0.03
Uniform Delay, d1	10.6	24.3		37.1	10.5		47.6	51.8	48.3	40.7		39.0
Progression Factor	0.92	0.61		2.18	0.59		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	0.2	6.3		74.3	0.7		0.5	10.0	18.8	0.3		0.0
Delay (s)	10.0	21.1		155.1	6.9		48.1	61.9	66.9	40.9		39.0
Level of Service	A	C		F	A		D	E	E	D		D
Approach Delay (s)		21.0			19.1			59.5		56.9		
Approach LOS		C			B			E		E		
Intersection Summary												
HCM 2000 Control Delay		27.0		HCM 2000 Level of Service					C			
HCM 2000 Volume to Capacity ratio		0.98										
Actuated Cycle Length (s)		130.0		Sum of lost time (s)					20.9			
Intersection Capacity Utilization		90.6%		ICU Level of Service					E			
Analysis Period (min)		15										
c Critical Lane Group												

Timings
5: Oxford Street West & Cherryhill Boulevard

Future Total 2035 AM Peak Hour
06-13-2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	166	1875	26	957	18	3	150	22	102
Future Volume (vph)	166	1875	26	957	18	3	150	22	102
Turn Type	pm+pt	NA	Perm	NA	Split	NA	Split	NA	pm+ov
Protected Phases	5	2		6	7	7	4	4	5
Permitted Phases		2		6					4
Detector Phase	5	2		6	7	7	4	4	5
Switch Phase									
Minimum Initial (s)	5.0	7.0	7.0	7.0	5.0	5.0	7.0	7.0	5.0
Minimum Split (s)	9.0	41.1	41.1	41.1	9.0	9.0	22.5	22.5	9.0
Total Split (s)	14.0	98.0	84.0	84.0	9.0	9.0	23.0	23.0	14.0
Total Split (%)	10.8%	75.4%	64.6%	64.6%	6.9%	6.9%	17.7%	17.7%	10.8%
Yellow Time (s)	3.0	3.5	3.5	3.5	3.0	3.0	3.5	3.5	3.0
All-Red Time (s)	1.0	3.6	3.6	3.6	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.1	7.1	7.1	4.0	4.0	4.5	4.5	4.0
Lead/Lag	Lead		Lag	Lag			Lead	Lag	Lead
Lead-Lag Optimize?	Yes		Yes	Yes			Yes	Lag	Yes
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	101.9	98.8	86.2	86.2	5.8	5.8	13.6	13.6	22.8
Actuated g/C Ratio	0.78	0.76	0.66	0.66	0.04	0.04	0.10	0.10	0.18
v/c Ratio	0.49	0.83	0.44	0.52	0.27	0.24	0.57	0.56	0.34
Control Delay	7.0	8.8	42.0	13.7	69.4	39.9	68.5	67.0	8.6
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	8.9	42.0	13.7	69.4	39.9	68.5	67.0	8.6
LOS	A	A	D	B	E	D	E	E	A
Approach Delay		8.8		14.4		56.3		45.7	
Approach LOS		A		B		E		D	
Intersection Summary									
Cycle Length: 130									
Actuated Cycle Length: 130									
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green									
Natural Cycle: 105									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 0.83									
Intersection Signal Delay: 13.6					Intersection LOS: B				
Intersection Capacity Utilization 87.4%					ICU Level of Service E				
Analysis Period (min) 15									
Splits and Phases: 5: Oxford Street West & Cherryhill Boulevard									

HCM Unsignalized Intersection Capacity Analysis
101: Beaverbrook Avenue & Street A/Westfield Drive

Future Total 2035 AM Peak Hour
06-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	0	39	118	116	28	0	53	16	82	69	116	0
Future Volume (Veh/h)	0	39	118	116	28	0	53	16	82	69	116	0
Sign Control		Stop			Stop			Free			Free	
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)	0	42	128	126	30	0	58	17	89	75	126	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (m)							319					
pX, platoon unblocked												
vC, conflicting volume	468	498	126	602	454	62	126			106		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
yCu, unblocked vol	468	498	126	602	454	62	126			106		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	90	86	59	93	100	96			95		
cM capacity (veh/h)	448	432	924	306	458	1004	1460			1485		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	170	156	164	201								
Volume Left	0	126	58	75								
Volume Right	128	0	89	0								
cSH	721	327	1460	1485								
Volume to Capacity	0.24	0.48	0.04	0.05								
Queue Length 95th (m)	6.9	18.7	0.9	1.2								
Control Delay (s)	11.5	25.7	2.9	3.1								
Lane LOS	B	D	A	A								
Approach Delay (s)	11.5	25.7	2.9	3.1								
Approach LOS	B	D										
Intersection Summary												
Average Delay			10.2									
Intersection Capacity Utilization			39.8%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
102: Street B & Beaverbrook Avenue

Future Total 2035 AM Peak Hour
06-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (veh/h)	167	46	0	16	59	18
Future Volume (Veh/h)	167	46	0	16	59	18
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)	182	50	0	17	64	20
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				232	224	207
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
yCu, unblocked vol				232	224	207
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	92	98
cM capacity (veh/h)				1336	764	833
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	232	17	84			
Volume Left	0	0	64			
Volume Right	50	0	20			
cSH	1700	1336	780			
Volume to Capacity	0.14	0.00	0.11			
Queue Length 95th (m)	0.0	0.0	2.7			
Control Delay (s)	0.0	0.0	10.2			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.2			
Approach LOS			B			
Intersection Summary						
Average Delay			2.6			
Intersection Capacity Utilization			22.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
103: Street B & Street A

Future Total 2035 AM Peak Hour
06-13-2023

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	T
Traffic Volume (veh/h)	20	0	14	31	0	32
Future Volume (Veh/h)	20	0	14	31	0	32
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)	22	0	15	34	0	35
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	67	32			49	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
yCu, unblocked vol	67	32			49	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	938	1042			1558	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	22	49	35			
Volume Left	22	0	0			
Volume Right	0	34	0			
cSH	938	1700	1558			
Volume to Capacity	0.02	0.03	0.00			
Queue Length 95th (m)	0.5	0.0	0.0			
Control Delay (s)	8.9	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	8.9	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		1.9				
Intersection Capacity Utilization		12.3%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
104: Street B/Proposed Condo Road & Street A

Future Total 2035 AM Peak Hour
06-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		T			T			T			T	T
Traffic Volume (veh/h)	0	31	0	45	20	16	0	0	94	32	0	0
Future Volume (Veh/h)	0	31	0	45	20	16	0	0	94	32	0	0
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)	0	34	0	49	22	17	0	0	102	35	0	0
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	39			34			162	171	34	264	162	30
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
yCu, unblocked vol	39			34			162	171	34	264	162	30
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			100	100	90	94	100	100
cM capacity (veh/h)	1571			1578			783	700	1039	606	707	1044
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	34	88	102	35								
Volume Left	0	49	0	35								
Volume Right	0	17	102	0								
cSH	1571	1578	1039	606								
Volume to Capacity	0.00	0.03	0.10	0.06								
Queue Length 95th (m)	0.0	0.7	2.5	1.4								
Control Delay (s)	0.0	4.2	8.8	11.3								
Lane LOS		A	A	B								
Approach Delay (s)	0.0	4.2	8.8	11.3								
Approach LOS			A	B								
Intersection Summary												
Average Delay			6.4									
Intersection Capacity Utilization			24.8%		ICU Level of Service	A						
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
105: Street B & Proposed Condo Road

Future Total 2035 AM Peak Hour
06-13-2023

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	0	77	14	0	14	32
Future Volume (Veh/h)	0	77	14	0	14	32
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	84	15	0	15	35
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	80	15			15	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
yCu, unblocked vol	80	15			15	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	92			99	
cM capacity (veh/h)	914	1065			1603	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	84	15	50			
Volume Left	0	0	15			
Volume Right	84	0	0			
cSH	1065	1700	1603			
Volume to Capacity	0.08	0.01	0.01			
Queue Length 95th (m)	1.9	0.0	0.2			
Control Delay (s)	8.7	0.0	2.2			
Lane LOS	A		A			
Approach Delay (s)	8.7	0.0	2.2			
Approach LOS	A					
Intersection Summary						
Average Delay		5.6				
Intersection Capacity Utilization		19.5%		ICU Level of Service	A	
Analysis Period (min)		15				


HCM Unsignalized Intersection Capacity Analysis
201: Cherryhill Circle & Westfield Drive

Future Total 2035 AM Peak Hour
06-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
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	0	0	0	0	0
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				0	0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
yCu, unblocked vol				0	0	0
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	100
cM capacity (veh/h)				1623	1023	1085
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			0.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
202: Cherryhill Boulevard & Cherryhill Circle

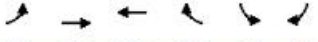
Future Total 2035 AM Peak Hour
06-13-2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
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	0	0	0	0	0
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			0		0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
yCu, unblocked vol			0		0	0
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	100
cM capacity (veh/h)			1623		1023	1085
Direction, Lane #	EB 1	WB 1	NB 1	NB 2		
Volume Total	0	0	0	0		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.00	0.00	0.00	0.00		
Queue Length 95th (m)	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS			A	A		
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			0.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
203: Cherryhill Circle & Cherryhill Place

Future Total 2035 AM Peak Hour
06-13-2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
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	0	0	0	0	0
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		0			0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
yCu, unblocked vol		0			0	0
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	100
cM capacity (veh/h)		1623			1023	1085
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			0.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
2: Proudfoot Lane & Beaverbrook Avenue

Future Total 2035 PM Peak Hour
06-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	26	78	260	13	38	47	171	15	36	98	15	12
Future Volume (vph)	26	78	260	13	38	47	171	15	36	98	15	12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	26	78	260	13	38	47	171	15	36	98	15	12
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	364	98	222	125								
Volume Left (vph)	26	13	171	98								
Volume Right (vph)	260	47	36	12								
Hadj (s)	-0.34	-0.23	0.16	0.13								
Departure Headway (s)	4.7	5.2	5.4	5.6								
Degree Utilization, x	0.47	0.14	0.33	0.19								
Capacity (veh/h)	727	624	607	584								
Control Delay (s)	11.8	9.0	11.1	9.9								
Approach Delay (s)	11.8	9.0	11.1	9.9								
Approach LOS	B	A	B	A								
Intersection Summary												
Delay	11.0											
Level of Service	B											
Intersection Capacity Utilization	45.3%			ICU Level of Service			A					
Analysis Period (min)	15											

Timings
3: Proudfoot Lane & Oxford Street West

Future Total 2035 PM Peak Hour
06-13-2023

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	96	924	22	1502	559	197	347	40	356	191
Future Volume (vph)	96	924	22	1502	559	197	347	40	356	191
Turn Type	pm+pt	NA	Perm	NA	custom	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		6	3	7	4		3	8
Permitted Phases	2		6	2	4		4		8	
Detector Phase	5	2	6	6	3	7	4	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	7.0	7.0	7.0	5.0	5.0	7.0	7.0	5.0	7.0
Minimum Split (s)	9.0	23.6	23.6	23.6	9.0	9.0	31.4	31.4	9.0	31.4
Total Split (s)	9.0	71.6	62.6	62.6	27.0	18.0	31.4	31.4	27.0	40.4
Total Split (%)	6.9%	55.1%	48.2%	48.2%	20.8%	13.8%	24.2%	24.2%	20.8%	31.1%
Yellow Time (s)	3.0	3.7	3.7	3.7	3.0	3.0	3.3	3.3	3.0	3.3
All-Red Time (s)	1.0	1.9	1.9	1.9	1.0	1.0	3.1	3.1	1.0	3.1
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	5.6	5.6	5.6	4.0	4.0	6.4	6.4	4.0	6.4
Lead/Lag	Lead		Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	67.6	66.0	57.0	57.0	90.6	40.6	25.0	25.0	54.4	34.8
Actuated g/C Ratio	0.52	0.51	0.44	0.44	0.70	0.31	0.19	0.19	0.42	0.27
v/c Ratio	0.83	0.66	0.15	0.98	0.57	0.53	0.97	0.11	1.01	0.60
Control Delay	67.9	25.6	25.5	46.3	3.6	32.1	92.6	0.6	87.5	45.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.9	25.6	25.5	46.3	3.6	32.1	92.6	0.6	87.5	45.6
LOS	E	C	C	D	A	C	F	A	F	D
Approach Delay	29.1		34.6		65.9			69.1		
Approach LOS	C		C		E			E		
Intersection Summary										
Cycle Length: 130										
Actuated Cycle Length: 130										
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green										
Natural Cycle: 120										
Control Type: Actuated-Coordinated										
Maximum v/c Ratio: 1.01										
Intersection Signal Delay: 42.1					Intersection LOS: D					
Intersection Capacity Utilization 103.2%					ICU Level of Service G					
Analysis Period (min) 15										
Splits and Phases: 3: Proudfoot Lane & Oxford Street West										

HCM Signalized Intersection Capacity Analysis
 4: Beaverbrook Avenue & Oxford Street West

Future Total 2035 PM Peak Hour
 06-13-2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↕	↔	↔	↕	↔
Traffic Volume (vph)	18	1316	28	200	1972	202	35	92	195	129	37	22
Future Volume (vph)	18	1316	28	200	1972	202	35	92	195	129	37	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.3	3.3	3.0	3.5	3.5	3.3	3.3	3.3	3.7	3.7	3.7
Total Lost time (s)	7.1	7.1	4.0	7.1	7.1	4.0	5.8	5.8	4.0	5.8	5.8	4.0
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fipb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fipb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	0.95	1.00	0.95	1.00	0.99	1.00	0.99	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1789	3349	1560	3424	1750	1473	1789	1883	1601	1601	1601	1601
Fit Permitted	0.05	1.00	0.12	1.00	0.89	1.00	0.44	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	100	3349	197	3424	1586	1473	828	1883	1601	1601	1601	1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	1316	28	200	1972	202	35	92	195	129	37	22
RTOR Reduction (vph)	0	1	0	0	5	0	0	171	0	0	0	18
Lane Group Flow (vph)	18	1343	0	200	2169	0	0	127	24	129	37	4
Conf. Peds. (#/hr)			12	12								
Heavy Vehicles (%)	2%	3%	0%	8%	2%	2%	0%	2%	6%	2%	2%	2%
Bus Blockages (#/hr)	0	4	0	0	4	0	0	5	0	0	0	0
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	pm+pt	NA	Perm	NA	Perm
Protected Phases	2		1	6			8		8	4		4
Permitted Phases	2		6			8		8	4			4
Actuated Green, G (s)	75.2	75.2	92.4	92.4	15.7	15.7	24.7	24.7	24.7	24.7		24.7
Effective Green, g (s)	75.2	75.2	92.4	92.4	15.7	15.7	24.7	24.7	24.7	24.7		24.7
Actuated g/C Ratio	0.58	0.58	0.71	0.71	0.12	0.12	0.19	0.19	0.19	0.19		0.19
Clearance Time (s)	7.1	7.1	4.0	7.1	5.8	5.8	4.0	5.8	5.8	4.0		5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	57	1937	278	2433	191	177	194	357	304			
v/s Ratio Prot		0.40	0.07	c0.63				c0.03	0.02			
v/s Ratio Perm	0.18		0.44		0.08	0.02	c0.10			0.00		
v/c Ratio	0.32	0.69	0.72	0.89	0.66	0.13	0.66	0.10	0.01			
Uniform Delay, d1	14.1	19.3	16.7	14.8	54.6	51.1	48.8	43.5	42.8			
Progression Factor	0.68	0.67	1.72	0.96	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	9.7	1.4	2.4	1.5	8.4	0.3	8.3	0.1	0.0			
Delay (s)	19.3	14.3	31.0	15.8	63.1	51.4	57.1	43.6	42.8			
Level of Service	B	B	C	B	E	D	E	D	D			D
Approach Delay (s)	14.4		17.1		56.0			52.8				
Approach LOS	B		B		E			D				

Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.9
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Timings
 5: Oxford Street West & Cherryhill Boulevard

Future Total 2035 PM Peak Hour
 06-13-2023




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↕	↔	↕	↔	↕	↔
Traffic Volume (vph)	169	1444	8	2067	45	7	251	1	286
Future Volume (vph)	169	1444	8	2067	45	7	251	1	286
Turn Type	pm+pt	NA	Perm	NA	Split	NA	Split	NA	pm+ov
Protected Phases	5	2		6	7	7	4	4	5
Permitted Phases	2		6						4
Detector Phase	5	2	6	6	7	7	4	4	5
Switch Phase									
Minimum Initial (s)	5.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.0	41.1	41.1	41.1	9.0	9.0	22.5	22.5	9.0
Total Split (s)	14.0	98.4	84.4	84.4	9.0	9.0	22.6	22.6	14.0
Total Split (%)	10.8%	75.7%	64.9%	64.9%	6.9%	6.9%	17.4%	17.4%	10.8%
Yellow Time (s)	3.0	3.5	3.5	3.5	3.0	3.0	3.5	3.5	3.0
All-Red Time (s)	1.0	3.6	3.6	3.6	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.1	7.1	7.1	4.0	4.0	4.5	4.5	4.0
Lead/Lag	Lead		Lag	Lag					Lead
Lead-Lag Optimize?	Yes		Yes	Yes					Yes
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effect Green (s)	98.3	95.2	80.9	80.9	6.4	6.4	14.8	14.8	25.6
Actuated g/C Ratio	0.76	0.73	0.62	0.62	0.05	0.05	0.11	0.11	0.20
v/c Ratio	0.89	0.60	0.04	1.01	0.54	0.36	0.69	0.69	0.86
Control Delay	80.6	4.4	11.9	47.2	83.6	38.1	74.5	74.3	55.6
Queue Delay	0.0	0.0	0.0	10.6	0.0	0.0	0.0	0.0	0.2
Total Delay	80.6	4.4	11.9	57.8	83.6	38.1	74.5	74.3	55.8
LOS	F	A	B	E	F	D	E	E	E
Approach Delay		12.3		57.6		64.3		64.5	
Approach LOS		B		E		E		E	

Intersection Summary
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 41.7
 Intersection LOS: D
 Intersection Capacity Utilization 96.5%
 ICU Level of Service F
 Analysis Period (min) 15



HCM Signalized Intersection Capacity Analysis
5: Oxford Street West & Cherryhill Boulevard


Future Total 2035 PM Peak Hour
06-13-2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↕	↔	↔	↔↕	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	169	1444	19	8	2067	51	45	7	26	251	1	286
Future Volume (vph)	169	1444	19	8	2067	51	45	7	26	251	1	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.8	3.3	3.3	3.1	3.3	3.5	3.4	3.5	3.5	3.2	3.3	3.6
Total Lost time (s)	4.0	7.1		7.1	7.1		4.0	4.0		4.5	4.5	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		0.95	0.95	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.83		1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00		1.00	0.88		1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	1677	3348		1696	3376		1713	1373		1591	1614	1413
Fit Permitted	0.05	1.00		0.17	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (perm)	84	3348		301	3376		1713	1373		1591	1614	1413
Peak-hour factor, PHF	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Adj. Flow (vph)	169	1444		19	2067		51	45		26	251	1
RTOR Reduction (vph)	0	1		0	1		0	25		0	0	55
Lane Group Flow (vph)	169	1462		8	2117		45	8		125	127	231
Conf. Peds. (#/hr)	19			21	21		19	37		28	28	37
Heavy Vehicles (%)	10%	3%		11%	0%		2%	3%		0%	3%	0%
Bus Blockages (#/hr)	0	4		0	0		4	0		0	0	5
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6		7	7		4	4	5
Permitted Phases	2			6								4
Actuated Green, G (s)	94.4	94.4		80.1	80.1		5.2	5.2		14.8	14.8	25.1
Effective Green, g (s)	94.4	94.4		80.1	80.1		5.2	5.2		14.8	14.8	25.1
Actuated g/C Ratio	0.73	0.73		0.62	0.62		0.04	0.04		0.11	0.11	0.19
Clearance Time (s)	4.0	7.1		7.1	7.1		4.0	4.0		4.5	4.5	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	187	2431		185	2080		68	54		181	183	272
v/s Ratio Prot	c0.07	0.44			c0.63		c0.03	0.01		0.08	0.08	c0.07
v/s Ratio Perm	0.58			0.03								0.10
v/c Ratio	0.90	0.60		0.04	1.02		0.66	0.15		0.69	0.69	0.85
Uniform Delay, d1	45.3	8.7		9.8	25.0		61.5	60.3		55.4	55.4	50.6
Progression Factor	1.57	0.39		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	32.5	0.8		0.4	24.3		21.6	1.3		10.8	10.8	21.2
Delay (s)	103.8	4.2		10.3	49.2		83.1	61.5		66.2	66.3	71.8
Level of Service	F	A		B	D		F	E		E	E	E
Approach Delay (s)		14.5			49.1			74.0				69.2
Approach LOS		B			D			E				E
Intersection Summary												
HCM 2000 Control Delay	39.1			HCM 2000 Level of Service			D					
HCM 2000 Volume to Capacity ratio	0.97											
Actuated Cycle Length (s)	130.0				Sum of lost time (s)				19.6			
Intersection Capacity Utilization	98.5%				ICU Level of Service				F			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
6: Platt's Lane & Cherryhill Place

Future Total 2035 PM Peak Hour
06-13-2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	133	10	109	21	5	13	128	302	31	12	469	167
Future Volume (Veh/h)	133	10	109	21	5	13	128	302	31	12	469	167
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	133	10	109	21	5	13	128	302	31	12	469	167
Pedestrians	35			19			23			20		
Lane Width (m)	3.7			3.7			3.1			3.5		
Walking Speed (m/s)	1.1			1.1			1.1			1.1		
Percent Blockage	3			2			2			2		
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1205	1220	610	1222	1288	356	671				352	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1205	1220	610	1222	1288	356	671				352	
IC, single (s)	7.2	6.5	6.3	7.1	6.5	6.2	4.2				4.7	
IC, 2 stage (s)												
IF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3				2.7	
p0 queue free %	0	93	76	77	96	98	85				99	
cM capacity (veh/h)	121	145	459	93	132	668	858				933	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	252	39	128	333	12	636						
Volume Left	133	21	128	0	12	0						
Volume Right	109	13	0	31	0	167						
eSH	179	138	858	1700	933	1700						
Volume to Capacity	1.41	0.28	0.15	0.20	0.01	0.37						
Queue Length 95th (m)	116.4	8.3	4.0	0.0	0.3	0.0						
Control Delay (s)	263.0	41.1	9.9	0.0	8.9	0.0						
Lane LOS	F	E	A	A	A							
Approach Delay (s)	263.0	41.1	2.8		0.2							
Approach LOS	F	E										
Intersection Summary												
Average Delay	49.5											
Intersection Capacity Utilization	71.5%						ICU Level of Service			C		
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
101: Beaverbrook Avenue & Street A/Westfield Drive

Future Total 2035 PM Peak Hour
06-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	0	26	64	62	111	0	156	47	140	47	62	0
Future Volume (Veh/h)	0	26	64	62	111	0	156	47	140	47	62	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	26	64	62	111	0	156	47	140	47	62	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (m)							319					
pX, platoon unblocked												
vC, conflicting volume	640	655	62	662	585	117	62			187		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
yCu, unblocked vol	640	655	62	662	585	117	62			187		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	92	94	79	70	100	90			97		
cM capacity (veh/h)	269	335	1003	297	367	935	1541			1387		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	90	173	343	109								
Volume Left	0	62	156	47								
Volume Right	64	0	140	0								
cSH	636	339	1541	1387								
Volume to Capacity	0.14	0.51	0.10	0.03								
Queue Length 95th (m)	3.7	21.0	2.6	0.8								
Control Delay (s)	11.6	26.2	3.9	3.5								
Lane LOS	B	D	A	A								
Approach Delay (s)	11.6	26.2	3.9	3.5								
Approach LOS	B	D										
Intersection Summary												
Average Delay			10.2									
Intersection Capacity Utilization			48.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
102: Street B & Beaverbrook Avenue

Future Total 2035 PM Peak Hour
06-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (veh/h)	98	114	0	47	51	11
Future Volume (Veh/h)	98	114	0	47	51	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	98	114	0	47	51	11
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				212	202	155
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
yCu, unblocked vol				212	202	155
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	94	99
cM capacity (veh/h)				1358	787	891
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	212	47	62			
Volume Left	0	0	51			
Volume Right	114	0	11			
cSH	1700	1358	803			
Volume to Capacity	0.12	0.00	0.08			
Queue Length 95th (m)	0.0	0.0	1.9			
Control Delay (s)	0.0	0.0	9.9			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	9.9			
Approach LOS			A			
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			22.3%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
103: Street A & Street B

Future Total 2035 PM Peak Hour
06-13-2023

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	T
Traffic Volume (veh/h)	67	0	10	18	0	80
Future Volume (Veh/h)	67	0	10	18	0	80
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	67	0	10	18	0	80
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	99	19			28	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
yCu, unblocked vol	99	19			28	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	100			100	
cM capacity (veh/h)	900	1059			1585	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	67	28	80			
Volume Left	67	0	0			
Volume Right	0	18	0			
cSH	900	1700	1585			
Volume to Capacity	0.07	0.02	0.00			
Queue Length 95th (m)	1.8	0.0	0.0			
Control Delay (s)	9.3	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.3	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		3.6				
Intersection Capacity Utilization		14.6%	ICU Level of Service	A		
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
104: Street B/Proposed Condo Road & Street A

Future Total 2035 PM Peak Hour
06-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		T			T			T			T	T
Traffic Volume (veh/h)	0	18	0	147	67	53	0	0	54	18	0	0
Future Volume (Veh/h)	0	18	0	147	67	53	0	0	54	18	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	18	0	147	67	53	0	0	54	18	0	0
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	120			18			406	432	18	460	406	94
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
yCu, unblocked vol	120			18			406	432	18	460	406	94
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			91			100	100	95	96	100	100
cM capacity (veh/h)	1468			1599			517	469	1061	452	485	963
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	18	267	54	18								
Volume Left	0	147	0	18								
Volume Right	0	53	54	0								
cSH	1468	1599	1061	452								
Volume to Capacity	0.00	0.09	0.05	0.04								
Queue Length 95th (m)	0.0	2.3	1.2	0.9								
Control Delay (s)	0.0	4.5	8.6	13.3								
Lane LOS		A	A	B								
Approach Delay (s)	0.0	4.5	8.6	13.3								
Approach LOS			A	B								
Intersection Summary												
Average Delay			5.3									
Intersection Capacity Utilization			35.9%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
105: Street B & Proposed Condo Road

Future Total 2035 PM Peak Hour
06-13-2023

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	0	62	10	0	34	80
Future Volume (Veh/h)	0	62	10	0	34	80
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	62	10	0	34	80
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	158	10			10	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
yCu, unblocked vol	158	10			10	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			98	
cM capacity (veh/h)	816	1071			1610	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	62	10	114			
Volume Left	0	0	34			
Volume Right	62	0	0			
cSH	1071	1700	1610			
Volume to Capacity	0.06	0.01	0.02			
Queue Length 95th (m)	1.4	0.0	0.5			
Control Delay (s)	8.6	0.0	2.3			
Lane LOS	A		A			
Approach Delay (s)	8.6	0.0	2.3			
Approach LOS	A					
Intersection Summary						
Average Delay		4.3				
Intersection Capacity Utilization		23.3%	ICU Level of Service	A		
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
201: Cherryhill Circle & Westfield Drive

Future Total 2035 PM Peak Hour
06-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	0	0	0
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				0	0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
yCu, unblocked vol				0	0	0
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	100
cM capacity (veh/h)				1623	1023	1085
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		0.0%	ICU Level of Service	A		
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
202: Cherryhill Boulevard & Cherryhill Circle

Future Total 2035 PM Peak Hour
06-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	0	0	0
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			0	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
yCu, unblocked vol			0	0	0	
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	100	
cM capacity (veh/h)			1623	1023	1085	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2		
Volume Total	0	0	0	0		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.00	0.00	0.00	0.00		
Queue Length 95th (m)	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS					A	
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS					A	
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
203: Cherryhill Circle & Cherryhill Place

Future Total 2035 PM Peak Hour
06-13-2023

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	0	0	0
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			0	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
yCu, unblocked vol			0	0	0	
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	100	
cM capacity (veh/h)			1623	1023	1085	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS				A		
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS				A		
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			