RICHVIEW SQUARE
TRAFFIC UPDATE REPORT 2
REZONING SUBMISSION

City of Toronto

Prepared For: Richview GP

October, 2019

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1.0 INTRODUCTION

BA Group has been retained by Montrin Richview GP Inc. to provide transportation advisory services in support of a rezoning submission for Richview Square in the City of Toronto. The site is generally situated on the northwest corner of Eglinton Avenue West and Wincott Drive. The site location is illustrated in **Figure 1**. A site context plan is provided in Figure 2. The site consists of two properties, the existing Richview Square Shopping Centre (250 Wincott Drive) and the vacant Build Toronto lands which front onto Eglinton Avenue West (4620 Eglinton Avenue West).

The Richview Square Shopping Centre is a neighbourhood commercial plaza with a GFA of approximately 70,200 sq.ft. The plaza contains a variety of stores and businesses, which include the Beer Store, a pharmacy, bank, Service Ontario and other smaller retail uses. Access to 250 Wincott Drive is provided through driveways onto Wincott Drive and Widdicombe Hill. A private connection to 4620 Eglinton Avenue West is provided, which in turn connects to Eglinton Avenue West via a private access.

The project would develop these two properties in a consolidated manner to provide a mixed-use development on site. A large portion of the existing Richview Square retail would remain (approximately 42,409 sq.ft or 3,940 sq.m.).

BA Group prepared two earlier transportation studies which reviewed various transportation aspects of the development plan as it has evolved through the development review process.

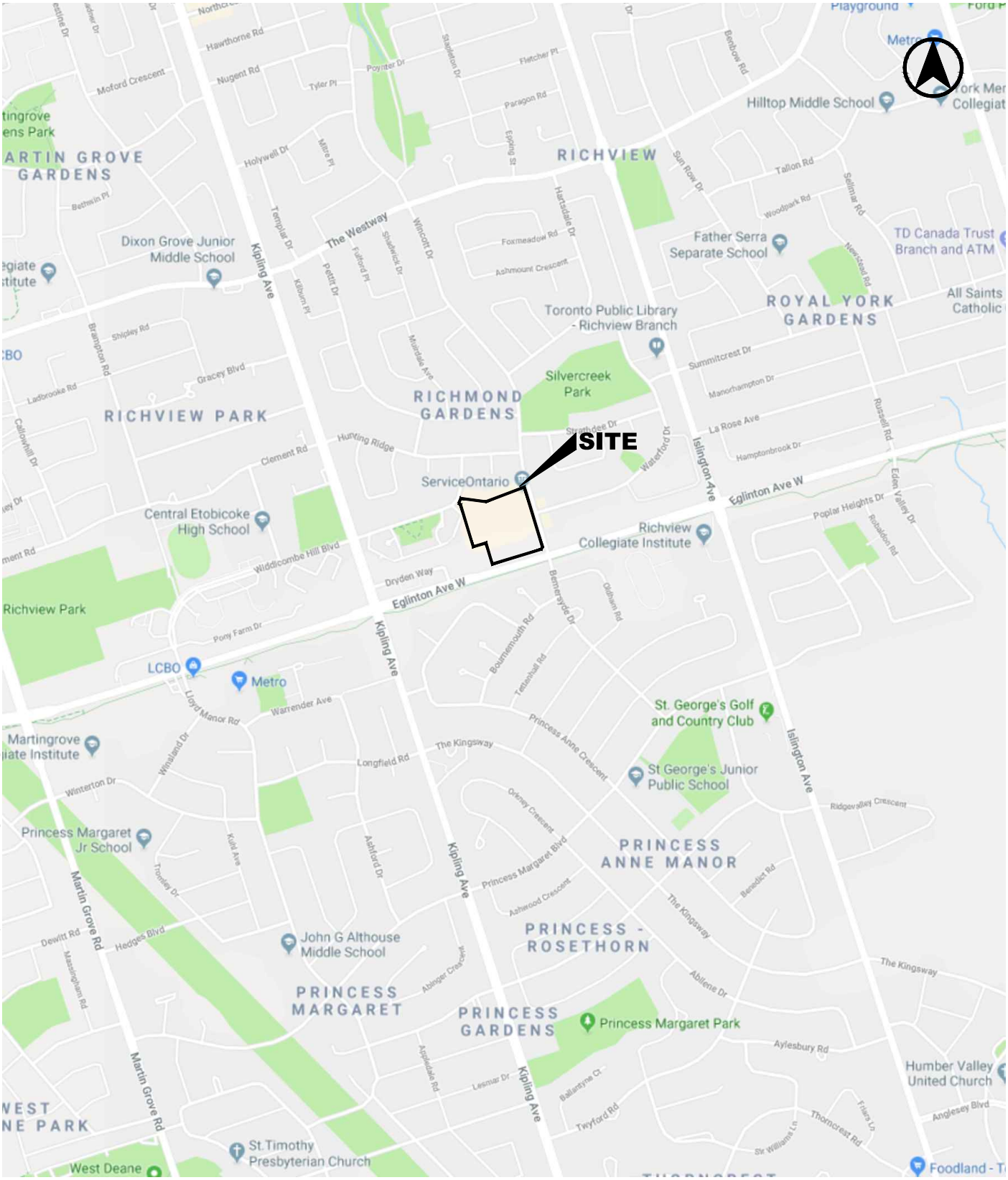
- The April 2018 Transportation Considerations Study which reported, at that time 671 units, and approximately 120,120 sq.ft (11,162 sq.m.) GFA retail space.
- The March, 2019 Transportation Impact Study Update Letter, which responded to staff comments and assessed a development plan with 773 units and 97,453 sq.ft (9,053 sq.m.) GFA retail space.

The current development plan considers a total of 605 units and 107,770 sq.ft (10,012 sq.m.) GFA retail space in addition to the existing retail 42,409 sq.ft (3,940 sq.m). The total site would have a total retail space of 150,179 sq.ft. (13,952 sq.m.). Scaled architectural plans are provided in **Appendix A.** The development would have four buildings in total:

- **Building A** – a northwesterly mixed use building
- **Building B** – a southwesterly mixed use building
- **Building C** – a southeasterly mixed use building
- **Building D** – the remaining portion of the existing main plaza building, located at the north end of the property.

Access is proposed through connections to three public streets: Eglinton Avenue West, Wincott Drive and Widdicombe Hill Boulevard. The current access scheme adopted is based on discussions with City of Toronto staff and considers the following driveways:

- a right-in/ right-out driveway onto Eglinton Avenue West
- a full moves signalized access onto Wincott Drive opposite Waterford
- a full moves unsignalized access onto Wincott Drive north of Waterford
- a full moves driveway onto Widdicombe Hill Boulevard.



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SITE LOCATION

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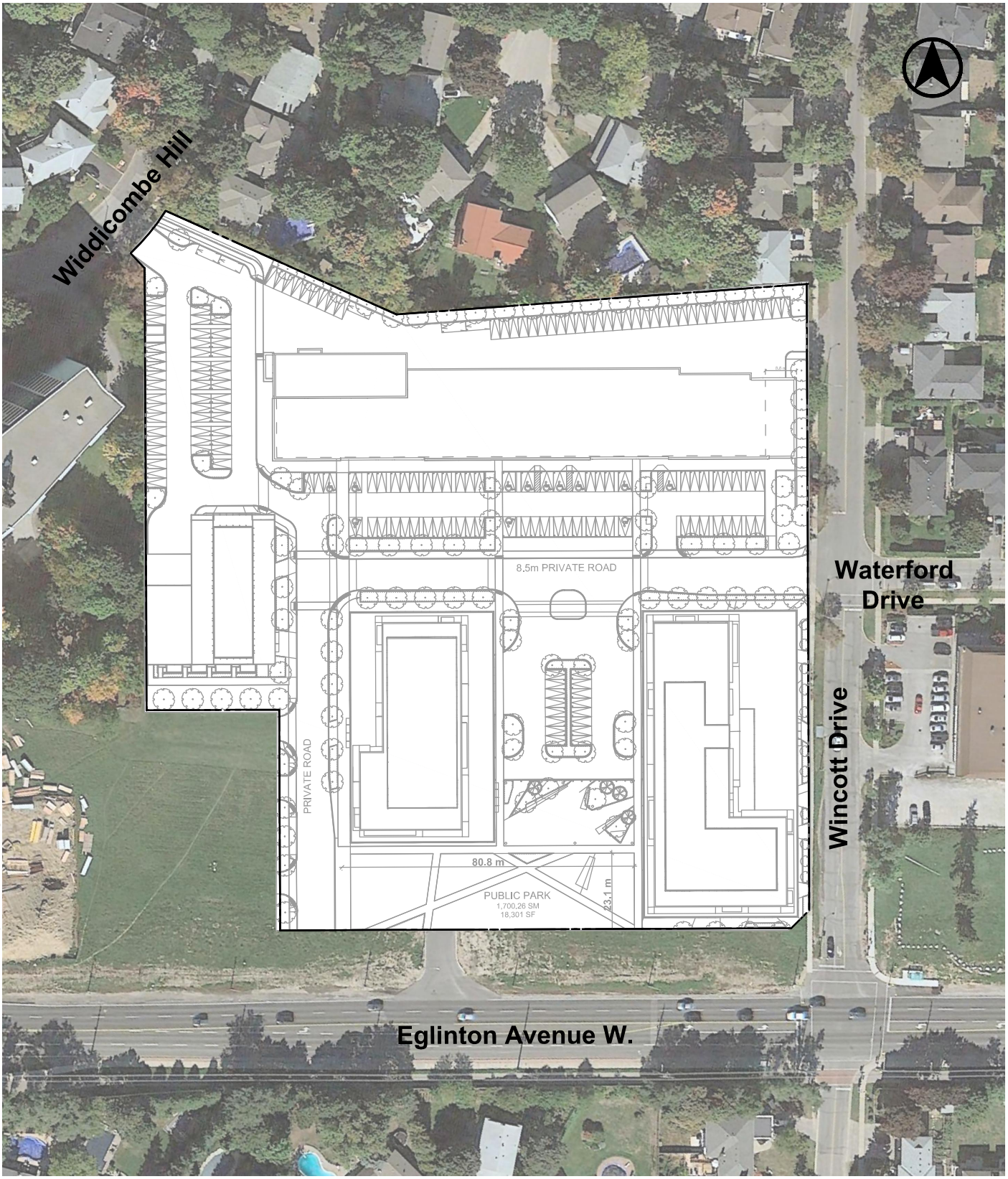
250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 1



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SITE CONTEXT

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250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 2

This report has been prepared to provide an updated review of various transportation elements of the current plan. It also provides responses to City comments provided by Development Engineering summarized in a memorandum dated May, 15, 2019. This memorandum is provided in **Appendix B** for reference.

2.0 DEVELOPMENT PLAN OVERVIEW

2.1 DEVELOPMENT PROGRAM UPDATE

The development plan for the project considers changes to the existing Richview Square plaza, and development of the Build Toronto lands located immediately to the south. The proposed development plan for the site involves the demolition of a portion of the existing retail plaza and the construction of three new mixed used buildings on the property. Consistent with earlier plans a variety of retail uses are proposed, including general CRU, including a fitness club, and a grocery store. The building uses are summarized below.

TABLE 1 DEVELOPMENT SUMMARY

Building	Residential (units)	General Retail (sq.m.)	Fitness (sq.m.)	Grocery Store (sq.m.)	Total Non-Res GFA (sq.m.)
Existing to Remain and Reconfigured					
Building 'D'		4,215.58			4,215.58
Proposed					
Building 'A'	174	272.55			272.55
Building 'B'	191	1,235.62	2,499.59		3,735.21
Building 'C'	240	2,280.66		3,324.00	5,604.66
Sub-Total	**605**	**3,788.83**	**2,449.59**	**3,324.00**	**9,612.42**
Total Site					
Total	**605**	**8,004.41**	**2,449.59**	**3324.00**	**13,828.00**

Notes:
1. Statistics provided in area tracking document dated Sept-23-2019 from CORE Architects.

The development would be built in two phases. Buildings 'B', and 'C' would be built as part of Phase 1. Buildings 'A' would be built as part of Phase 2.

The traffic analysis prepared as part of this report has been expanded to take into account phasing and multiple horizon years. Based on discussions with staff, the analysis considers Phase 1 conditions for a 2025 horizon year and full build-out of the site for 2030 (11-years beyond site build-out).

2.2 SITE ACCESS

The site would continue to have access onto Wincott Drive, Widdicombe Hill and Eglinton Avenue West.

In prior transportation assessments prepared by BA Group a number of access alternatives were explored. These options reviewed different traffic control devices and restrictions at the access points.

The current development plan has been refined based on our prior work and outlined as follows:

Wincott Drive Access
The northerly Wincott Drive driveway would remain as under existing conditions. This driveway generally facilitates existing loading operations for the Richview Square tenants, which will remain under future conditions.

The southerly Wincott Drive driveway is proposed to be signalized, forming a 4-way signalized intersection with Waterford Road. The configuration would be updated to include an eastbound left turn lane, and eastbound through-right turn lane and a northbound left turn lane.

Widdicombe Hill Access
The Widdicombe Hill Driveway will remain as under existing conditions.

Eglinton Avenue West Private Access
The Eglinton Avenue West private access will be shifted further to the western property limits. It is proposed to operate as a stop-controlled right-in/right-out intersection as part of this project. This access would be used to access Richview Square, as well as the Shannex Seniors development (4650 Eglinton Avenue West) to the immediate west and would be accessible to the public for vehicular and pedestrian use. The intersection would contain a southbound left turn lane, a southbound right turn lane, an eastbound left turn lane, and two through lanes in the eastbound and westbound directions, respectively.

The site plan is further illustrated in **Figure 3**.

2.3 FUNCTIONAL ROAD PLAN

2.4 WINCOTT DRIVE

As part of the application Wincott Drive would be updated to accommodate the proposed signalization at Waterford Drive and urbanized generally from Waterford Drive to Eglinton Avenue. A functional plan has been prepared illustrating the proposed changes and is provided in **Appendix C**.

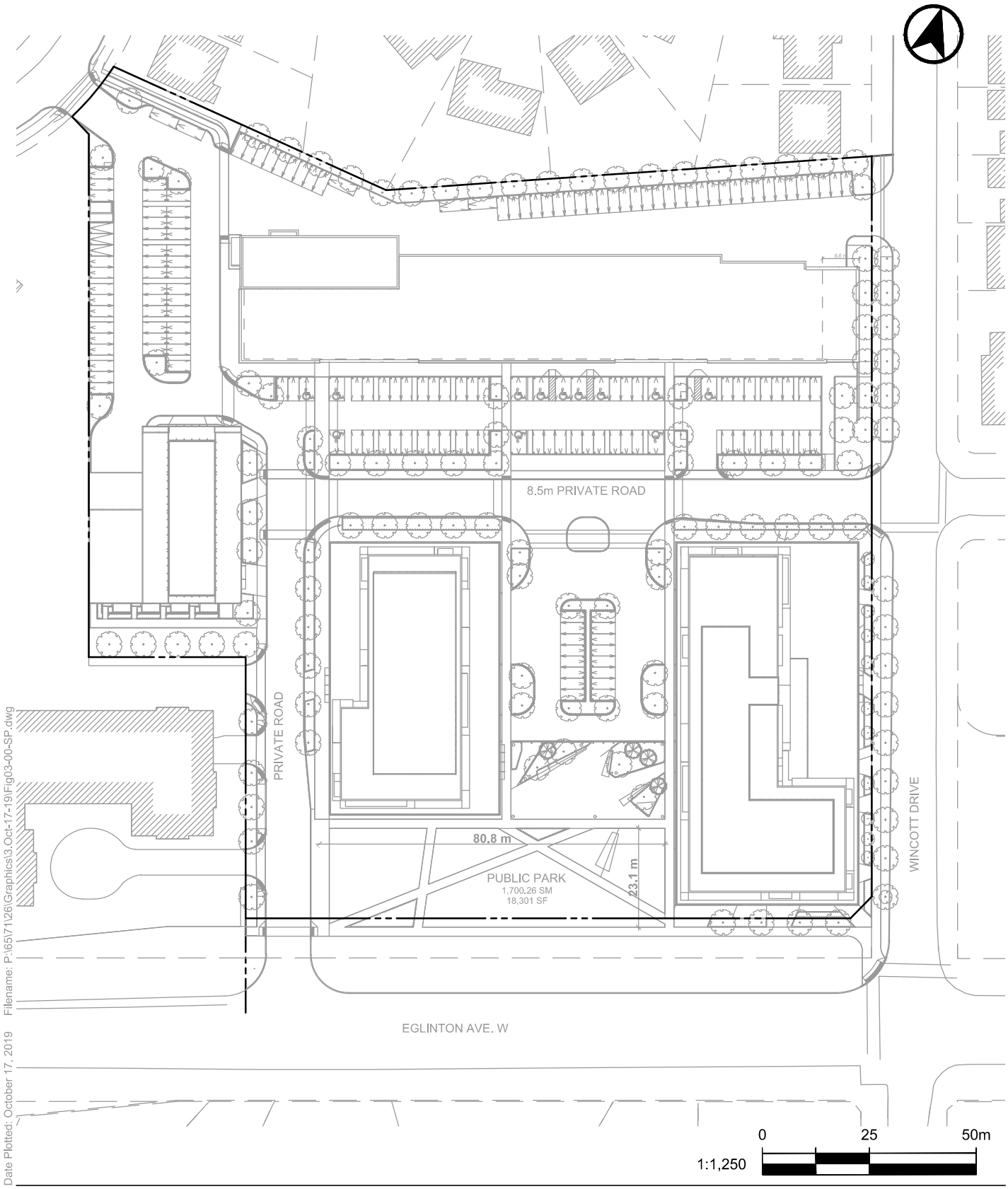
Key changes involve provision of:

- a northbound left turn lane from Wincott Drive into the site
- an expanded southbound left turn lane from Wincott Drive to Eglinton Avenue
- a traffic signal at the site driveway
- curbs along the east and west side of Wincott Drive, where no curbs exist today
- boulevards with improved sidewalk along the west side of Wincott Drive adjacent to the site.

2.5 EGLINTON SITE ACCESS

The Eglinton Avenue West site access that exists today would be shifted westwards to the western property limits. This would be used by the proposed development as well as the Shannex property to the west. The driveway today permits full moves (i.e there are no turning restrictions). As requested by City staff, this driveway would be limited to right-turns only. This concept is illustrated in **Appendix C**.

The right-in/right-out access would be restricted through the provision of a median onto Eglinton Avenue West.



SITE PLAN

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 3

3.0 RESPONSE TO COMMENTS

We have reviewed City of Toronto Engineering & Construction Services comments (dated May 15, 2019) for 250 Wincott Drive & 3620 Eglinton Avenue West Zoning By-law Amendment.

The following provides a summary of the comments related to the Traffic Impact Study and BA Group responses. References are made, where appropriate, to sections of this report.

Traffic Impact Study Related Comments

Comment 1.i)
The assessment of the Eglinton Avenue/Wincott Drive intersection must be revised to reflect the latest weekday City counts, unless acceptable documentation is provided that explains why the counts used in the TIS are significantly lower.

Response: This item has been addressed through email correspondence to the satisfaction of City of Toronto Transportation staff. Based on a review of historical traffic counts, it was deemed that the most recent 2013 City of Toronto traffic count was irregularly high. The use of BA Group 2016 traffic count data is representative of more typical traffic volumes.

Comment 1.ii)
The study must be revised to ensure consistency regarding the description of future horizon years for the study traffic analysis.

Response: Noted. The report has been revised throughout.

Comment 1.iii)
The consultant must ensure that the recommended growth rates for traffic analysis are consistent with the derived growth rate values based on historical data. A conservative assumption of the future background traffic will not be an appropriate benchmark in assessing the site traffic impact on the road network.

Response: Growth rate assumptions have been confirmed with City of Toronto Transportation staff. Updated growth rate assumptions have been considered in this updated analysis.

Comment 1.iv)
The consultant must elaborate what the reduction of traffic from the road network in Figure 6 represents. See Section D for details.

Response: The traffic volumes section of this report in Section 7 provides a detailed overview of these volumes.

Comment 1.v)
The consultant must ensure that the inbound and outbound vehicle trips shown in figures match the numbers in the trip generation table.

Response: Noted.

Comment 1.vi)
The consultant must ensure that the FT traffic forecasts shown in Figures 30 to 39 match the combined numbers from the redistributed existing traffic volumes, future background traffic volumes, new site traffic volumes and retail pass-by trips.

Response: Noted.

Comment 1.vii)
The all-red time for the north/south phases at the Eglinton Avenue/Wincott Drive intersection is input as 2 seconds instead of 3 seconds as per the City signal timing plans for the AM peak analyses. The analysis must be revised accordingly.

Response: the analysis has been revised accordingly.

Comment 1.viii)
All Synchro outputs must be provided and labelled correctly. See Section D for details.

Response: Noted.

Comment 1.ix)
The applicant must demonstrate to the City's satisfaction that the proposed signalized intersection on Eglinton can be accommodated with the approved LRT design and will not introduce additional delays to the LRT operations, as well as address any potential queuing issues. Otherwise, the Eglinton Avenue driveway must be designed a right-in/right-out only unsignalized driveway. A functional plan must be submitted for the proposed relocation of site driveway under the traffic control that is to be determined.

Response: The current design considers a right-in/right-out driveway onto Eglinton Avenue West and therefore would not add additional delays to a potential surface LRT.

Comment 1.x)
The applicant must address any potential queuing issues related to the proposed signalization of Wincott Drive/Waterford Drive intersection. A functional plan must be submitted for the proposed signalization and changes required on Wincott Drive.

Response: A queueing analysis for Wincott Drive between Waterford Drive and Eglinton Avenue West has been prepared in Section 7.5. A supporting functional road plan has been prepared which illustrates proposed changes to Wincott Drive as illustrated in Section 2.3.

Comment 1.xi)

The applicant is required to recommend mitigation measures to maintain the Eglinton Avenue/Kipling Avenue intersection level of service to 'E' in the future conditions. The applicant will be required to pay for all costs associated with the mitigation measures.

Response: Please refer to Section 7.0 regarding road network operations.

4.0 PARKING UPDATE

City of Toronto staff identified within prior correspondence that the site would be subject to parking supply rates identified within Zoning By-law 569-2013 for Policy Area 4. Application of these rates are outlined within **Table 2**. Application of these rates would result in a total requirement of 740 parking spaces (521 resident and 219 non-resident).

TABLE 2 CITY OF TORONTO ZONING BY-LAW 569-2013 (PA4) PARKING REQUIREMENTS

Land Use	GFA / Units	Minimum		Site Provisions
		Rate	Requirement (spaces)	
Resident				
1-Bedroom	355 units	0.80 per unit	284 spaces	
2-Bedroom	182 units	0.90 per unit	163 spaces	
3-Bedroom	68 units	1.10 per unit	74 spaces	
Sub-Total	**605 units**		**521 spaces**	**523 spaces**
Non-Resident				
Visitor	605 units	0.15 per unit	91 spaces	91
Retail	8004.41 sq.m	1.00 per 100 sq.m	81 spaces	248
Fitness Club	2,449.6 sq.m	0.50 per 100 sq.m	13 spaces	37
Grocery	3,324.0 sq.m	1.00 per 100 sq.m	34 spaces	150
Total Non-Resident			**219 spaces**	**435 spaces**
TOTAL			**740 spaces**	**958 spaces**

Notes:

1. Based on site statistics dated March, 2019.
2. Under By-law 569-2013 Section 200.15.10 (1) (C), if the number of required parking spaces is more than 100, a minimum of 4 parking spaces plus 1 parking space for every 50 parking spaces or part thereof in excess of 100 parking spaces, must comply with the minimum dimensions for an accessible parking space.
3. Number of vehicle parking spaces rounded down as per By-law 569-2013 Section 200.5.1.10 (9).

A total of 958 parking spaces (523 resident and 435 non-resident) are provided on site. Non-resident spaces would be shared between visitor parking and various retail uses. These provisions would exceed the minimum parking supply requirements identified within Zoning by-law 569-2013 Policy Area 4.

5.0 LOADING UPDATE

The site is subject to the City of Toronto Zoning By-law 569-2013 for general loading requirements. The updated loading requirements for the site based on the current development programme have been calculated for the new buildings on a building by building basis and are summarized in **Table 3**.

Notably, the by-law permits the sharing of loading spaces between residential and other uses within a Commercial Residential (CR) zone which has been taking into consideration.
The loading supply requirements would be met on site. Notably, the loading arrangements for the existing Richview Square retail that are to remain would operate in the same manner as today, and would continue to be acceptable.

Vehicle manoeuvring diagrams demonstrating the functionality of each loading area is provided in **Appendix D**.

TABLE 3 CITY OF TORONTO BY-LAW 569-2013 LOADING REQUIREMENTS

Building / Use	Type 'A'	Type 'B'	Type 'C'	Type 'G'	Total
Building 'A'					
By-Law Requirements					
Residential Uses (174 units)	-	-		1	1
Retail (272.55 m^2)	-	-	-	-	-
Building 'A' Provision				**1**	**1**
Building 'B'					
By-Law Requirements					
Residential Uses (191 units)	-	-		1	1
Retail (3,735.21 m^2)[4]	-	2	-	-	2
Total	-	2	-	1	3
Total with Sharing	-	1	-	1	2
Building 'B' Provision	**-**	**1**	**-**	**1**	**2**
Building 'C'					
By-Law Requirements					
Residential Uses (240 units)	-	-	-	1	1
Retail (2,280.66 m^2)	-	2	-	-	2
Grocery Store (3,324 m^2)	1	1	-	-	2
Total	1	3	-	1	5
Total with Sharing	1	2		1	4
Building 'C' Provision	**1**	**2**	**-**	**1**	**4**

Notes:

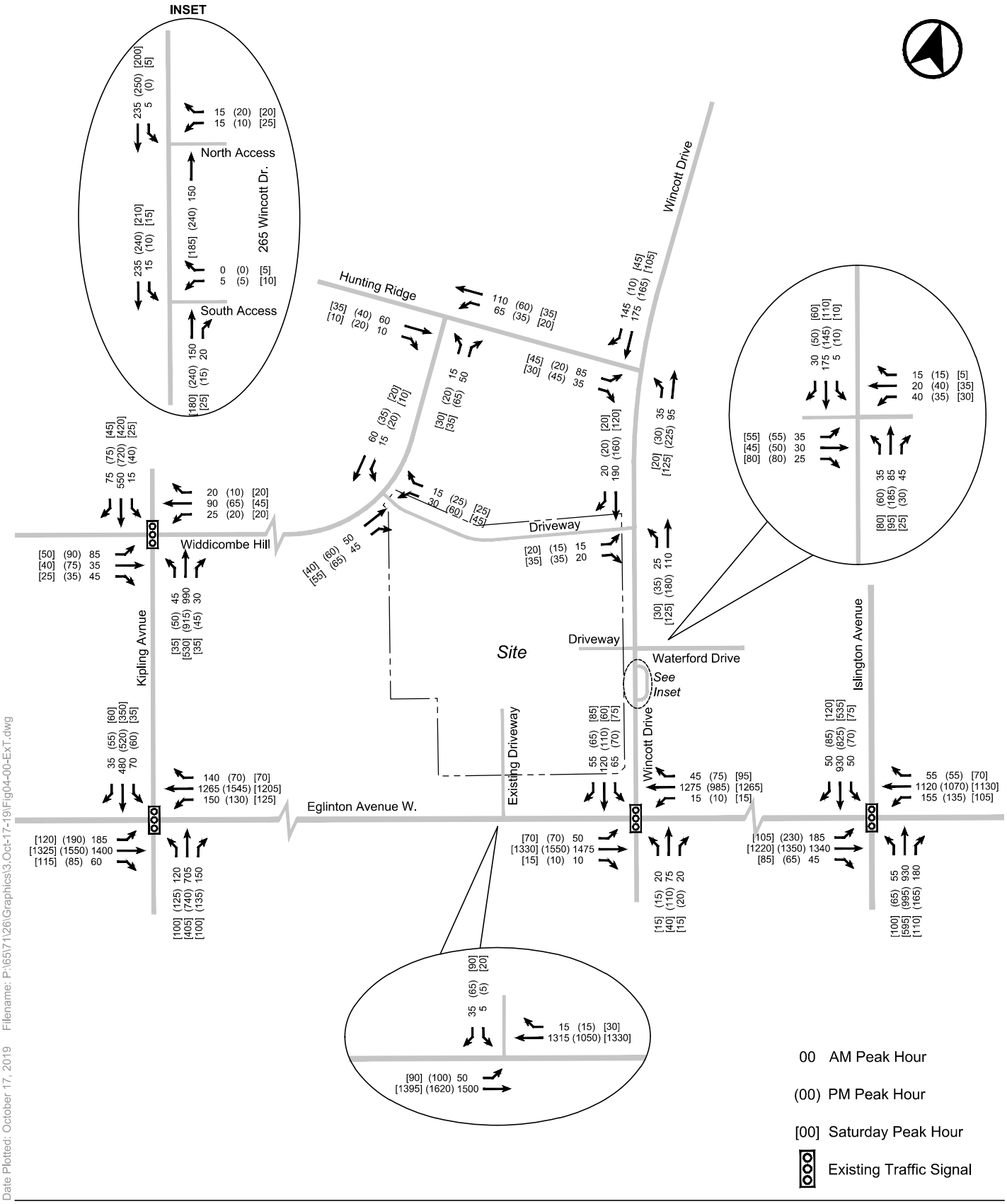
1. Chapter 40.10.90.1 of Zoning By-law 569-2013 identifies if a mixed use building has a minimum of 30 dwelling units, the requirement for a Type "A" loading space or a Type "B" loading space is satisfied by the provision of a Type "G" loading space, referred to in regulation 220.5.1.10(8).
2. Loading Space Minimum Dimensions:
   Type A - length of 17.0 metres; width of 3.5 metres; vertical clearance of 4.4 metres;
   Type B - length of 11.0 metres; width of 3.5 metres; vertical clearance of 4.0 metres;
   Type C - length of 6.0 metres; width of 3.5 metres; vertical clearance of 3.0 metres
   Type G - length of 13.0 metres; width of 4.0 metres; vertical clearance of 6.1 metres.
3. Based upon statistics provided by site plan prepared by CORE Architects. Loading requirements were based upon Gross Leasable Retail Area only.
4. Retail area includes fitness centre.

6.0 TRAFFIC VOLUMES

6.1 EXISTING TRAFFIC VOLUMES

Baseline vehicular traffic and pedestrian volumes were established at key intersections within the study area for the weekday morning, weekday afternoon and Saturday peak periods using traffic count information obtained from a combination of surveys undertaken by the City of Toronto, and Spectrum Traffic Data Inc. on behalf of BA Group. The date and source of traffic count data used for existing traffic analysis is summarized in **Table 4**.

The existing turning movement counts were reviewed in detail to ensure a general consistency in the traffic volumes on links between intersections. Where necessary, minor volume adjustments were made to balance traffic volumes between intersections to provide a balanced and representative traffic volume base for the purposes of the traffic operations analyses undertaken as part of this analysis. Existing baseline area traffic volumes are illustrated in **Figure 4**.



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EXISTING TRAFFIC VOLUMES

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 4

TABLE 4 EXISTING TRAFFIC VOLUMES

Intersection	Date	Source
Signalized Intersections		
Kipling Avenue / Widdicombe Hill	Thursday June 2, 2016 Saturday June 11, 2016	Spectrum Traffic Data Inc.
Eglinton Avenue West / Kipling Avenue	Tuesday September 15, 2015 Saturday June 11, 2016	City of Toronto / Spectrum Traffic Data Inc.
Eglinton Avenue West/ Wincott Drive – Bemersyde Drive	Thursday June 2, 2016 Saturday June 11, 2016	Spectrum Traffic Data Inc.
Eglinton Avenue West / Islington Avenue	Tuesday April 29, 2014 Saturday June 11, 2016	City of Toronto / Spectrum Traffic Data Inc.
Unsignalized Intersections		
Widdicombe Hill / Site Driveway	Thursday June 2, 2016 Saturday June 11, 2016	BA Group
Eglinton Avenue West / Private Access	Thursday June 2, 2016 Saturday June 11, 2016	BA Group
Wincott Drive / South Site Driveway – Waterford Drive	Tuesday March 20, 2018 Saturday February 3, 2018	Spectrum Traffic Data Inc.
Wincott Drive / North Site Driveway	Tuesday February 27, 2018 Saturday February 25, 2018	BA Group
Widdicombe Hill / Hunting Ridge	Thursday June 2, 2016 Saturday June 11, 2016	BA Group
Wincott Drive / Hunting Ridge	Thursday June 2, 2016 Saturday June 11, 2016	BA Group
Wincott Drive / 265 Wincott Drive Plaza South Access	Tuesday February 27, 2018 Saturday February 25, 2018	BA Group
Wincott Drive / 265 Wincott Drive Plaza North Access	Tuesday February 27, 2018 Saturday February 25, 2018	BA Group

6.2 FUTURE BACKGROUND TRAFFIC VOLUMES

6.2.1 Background Development Growth Traffic

A series of background development traffic allowances were made for specific proposed developments in the area. Traffic allowances associated with these developments were generally established based upon traffic impact studies prepared as part of the approval processes for these sites.

Area developments that are considered for the 6-year (2025) and 11-year (2030) analysis horizons are summarized **Table 5** together with a description of the development programme. Overall, the background sites represent development in the order of 1,980 residential units and 2,040 m2 of retail space.

TABLE 5 AREA BACKGROUND DEVELOPMENTS

Location/Name	Development Description
4650 Eglinton Avenue West – Parkland Eglinton	283 Senior Adult Residential Units
4750 Eglinton Avenue West Proposed Residential Development [1]	71 Residential Townhouse Units
4800 Eglinton Avenue West Proposed Residential Development	126 Residential Dwelling Units
4000 Eglinton Avenue West Proposed Mixed-Use Development	1,500 Residential Dwelling Units 2,040 m^2 GFA Retail[2]
Total	**1,980 residential units** **2,040 m^2 GFA Retail**

Notes:
1. The 4750 Eglinton Avenue West Proposed Residential development is presently built and occupied. However, at the time of baseline traffic count surveys summarized in Table 7 (June 2016), the development was still under construction.
2. An OMB rendering has reduced the total residential unit count to 1,360. Traffic conditions have been conservatively assessed assuming the original proposal of 1,500 residential units.

6.2.2 Corridor Growth

Historic traffic volume data for the Eglinton Avenue West / Kipling Avenue intersection (1993 to 2016) and the Eglinton Avenue West / Islington Avenue intersection (1993 to 2016) were reviewed to determine if there has been any recent trend of sustained growth in traffic volumes along the three corridors. Corridor growth analysis sheets are included in **Appendix E**.

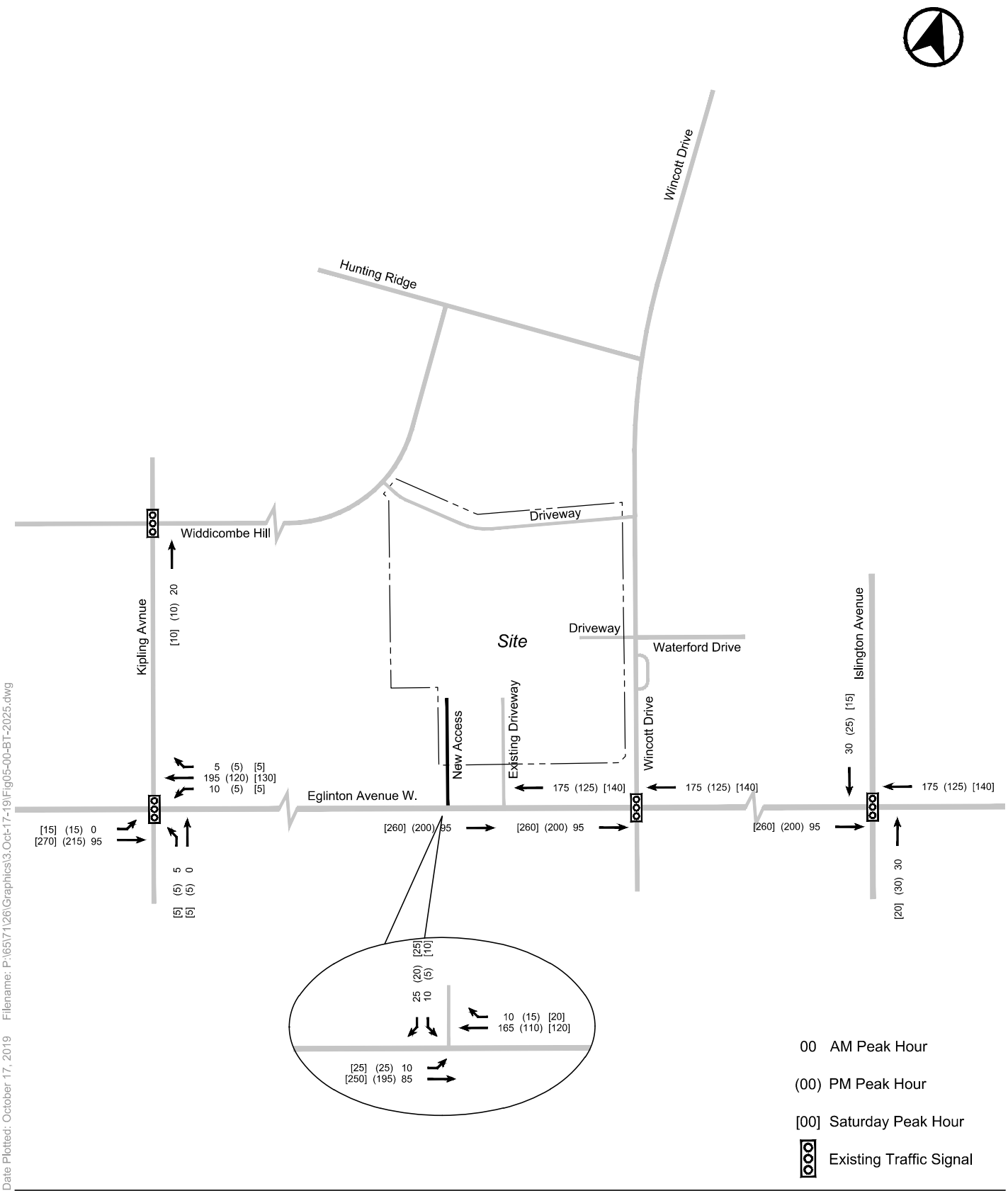
Analysis results indicate that there has been mild positive growth in traffic on Eglinton Avenue West in the east-west direction during the morning peak hour and negative growth during the afternoon peak hour. On this basis, BA Group has conservatively applied an annual 0.5% growth rate to east-west through traffic volumes on Eglinton Avenue West during the morning and afternoon peak hours.

In addition, analysis results indicate that there has been mild positive growth in traffic on Islington Avenue in the north-south direction during the morning and afternoon peak hours. On this basis, BA Group has conservatively applied an annual 0.5% growth rate to north-south through traffic volumes on Islington Avenue during the morning and afternoon peak hours. These growth rates have been confirmed with City of Toronto staff.

Growth has been applied on a linear basis at both the 6-year (2025) and 11-year (2030) horizon years.

6.2.3 Background Traffic Volumes

Considering traffic volume allowances made for area background developments and general corridor growth, **Figure 5** and **Figure 6** illustrate the total background traffic volumes considered in this analysis for the 6-year (2025) and 11-year (2030) horizon years, respectively.



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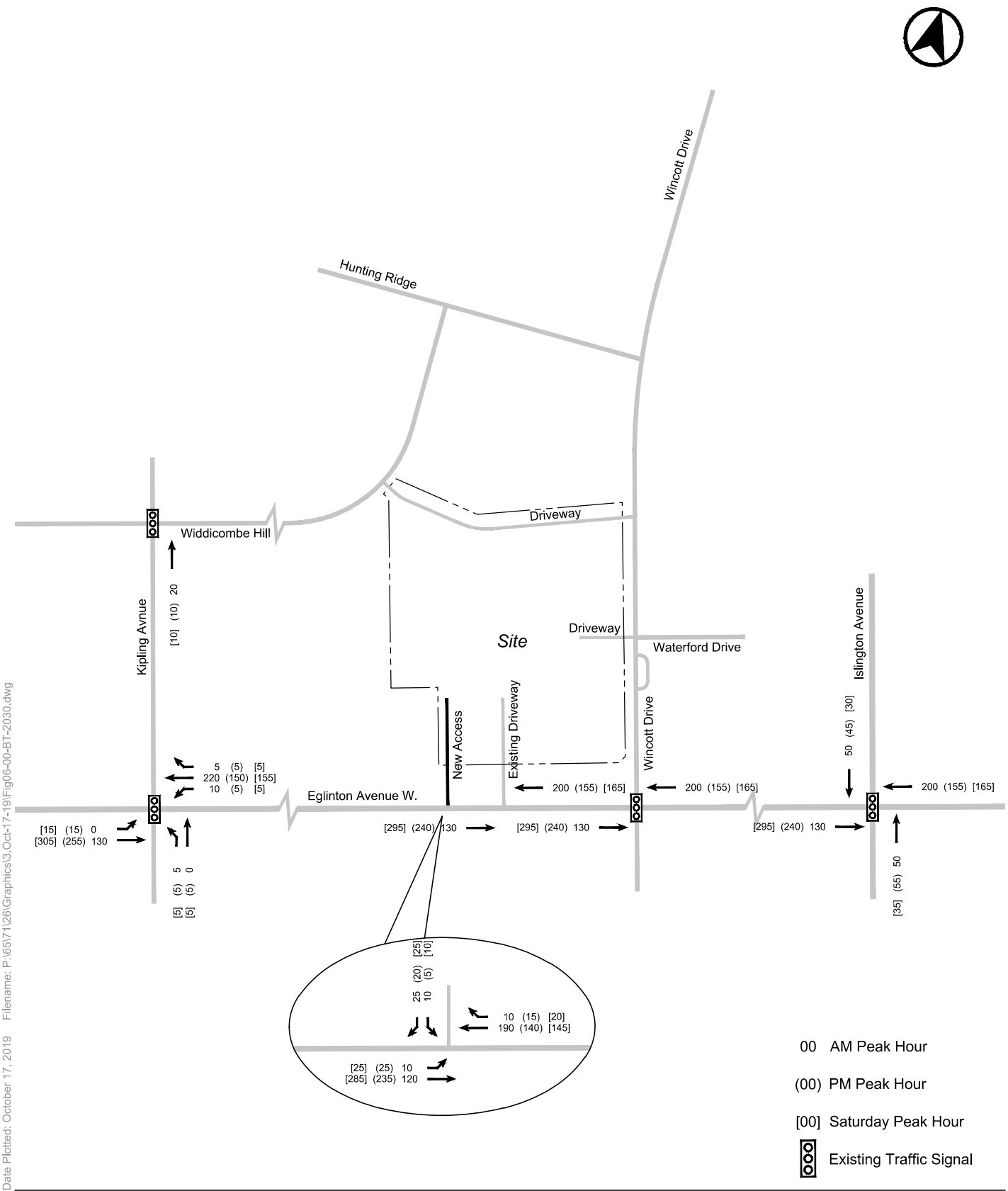
2025 BACKGROUND TRAFFIC VOLUMES

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 5



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2030 BACKGROUND TRAFFIC VOLUMES

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 6

6.2.4 Redistribution of Traffic Volumes to New Eglinton Driveway

As discussed in Section 3.1 of our April 2018 Transportation Considerations Study, site access is currently provided in part via a private access onto Eglinton Avenue West. Considering the proposed residential and retirement community developments to be developed to the immediate west of the site area, it is proposed to construct a new stop-controlled right-in/right-out (RIRO) intersection on Eglinton Avenue West to the west of the existing stop-controlled site access. The new RIRO access will provide direct access to these proposed new developments, and will also replace the existing stop-controlled driveway as a convenient access to the proposed Richview Square redevelopment.

Considering the new access configuration, **Figure 7** illustrates the redistribution of the following traffic volumes onto the proposed new RIRO driveway:

- Existing retail traffic volumes utilizing the existing stop-controlled driveway to access the Richview Square plaza; and,
- Background traffic volumes associated with the proposed 4650 Eglinton Avenue background development originally routed assuming a full movement access.

6.2.5 Future Background Traffic Volumes

Adding total background traffic volumes (**Figure 5** and **Figure 6**) to existing traffic volumes (**Figure 4**), and subtracting redistributed traffic volumes (**Figure 7**) yields the total future background traffic volumes anticipated at the 5-year planning horizon. These volumes are illustrated for the 6-year (2025) and 11-year (2030) horizon years in **Figure 8** and **Figure 9**, respectively.

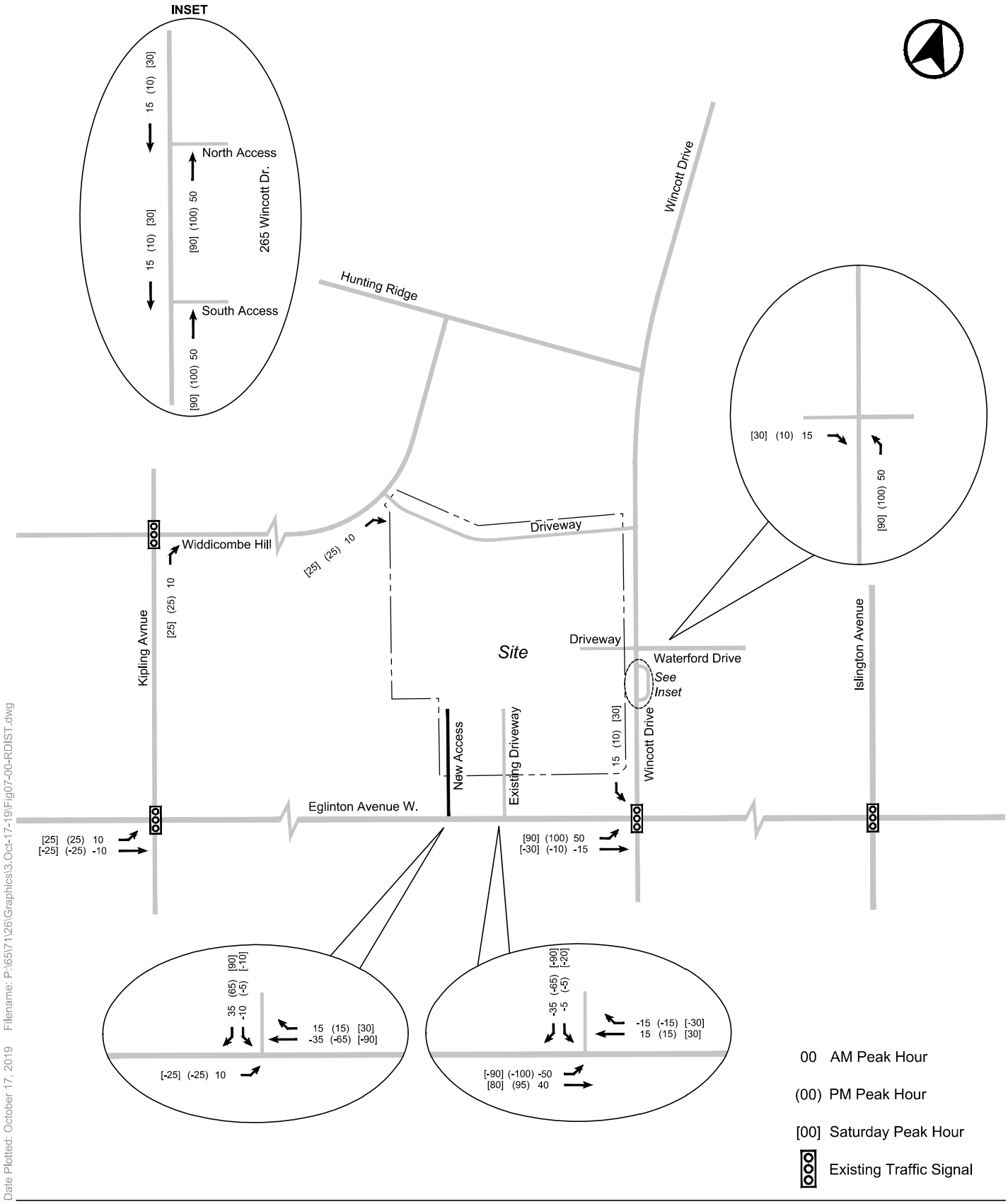
6.3 SITE TRAFFIC VOLUMES

6.3.1 Trip Generation

6.3.1.1 Residential Trip Generation

Residential trip generation rates were developed on the basis of a series of proxy trip generation surveys conducted by BA Group in the past at analogues residential condominium developments located nearby the site location on Richview Road in Etobicoke. Given the similar transportation context, these rates likely provide an accurate reflection of vehicular trip generation potential for the proposed Richview Square redevelopment. **Table 6** summarizes selected vehicle trip generation rates and residential peak hour vehicle trips generated for both the 6-year (2025) and 11-year (2030) horizon years. Proxy surveys are attached in **Appendix E** of our April 2018 Transportation Considerations Study.

As can be seen from the table, application of the selected rates at the 6-year (2025) horizon year yields a vehicular traffic generation estimate of approximately 120, 145, and 150 two-way vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively. At the 11-year (2030) horizon year, peak hour traffic generation is forecast at approximately 170, 205, and 210 two-way vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively.



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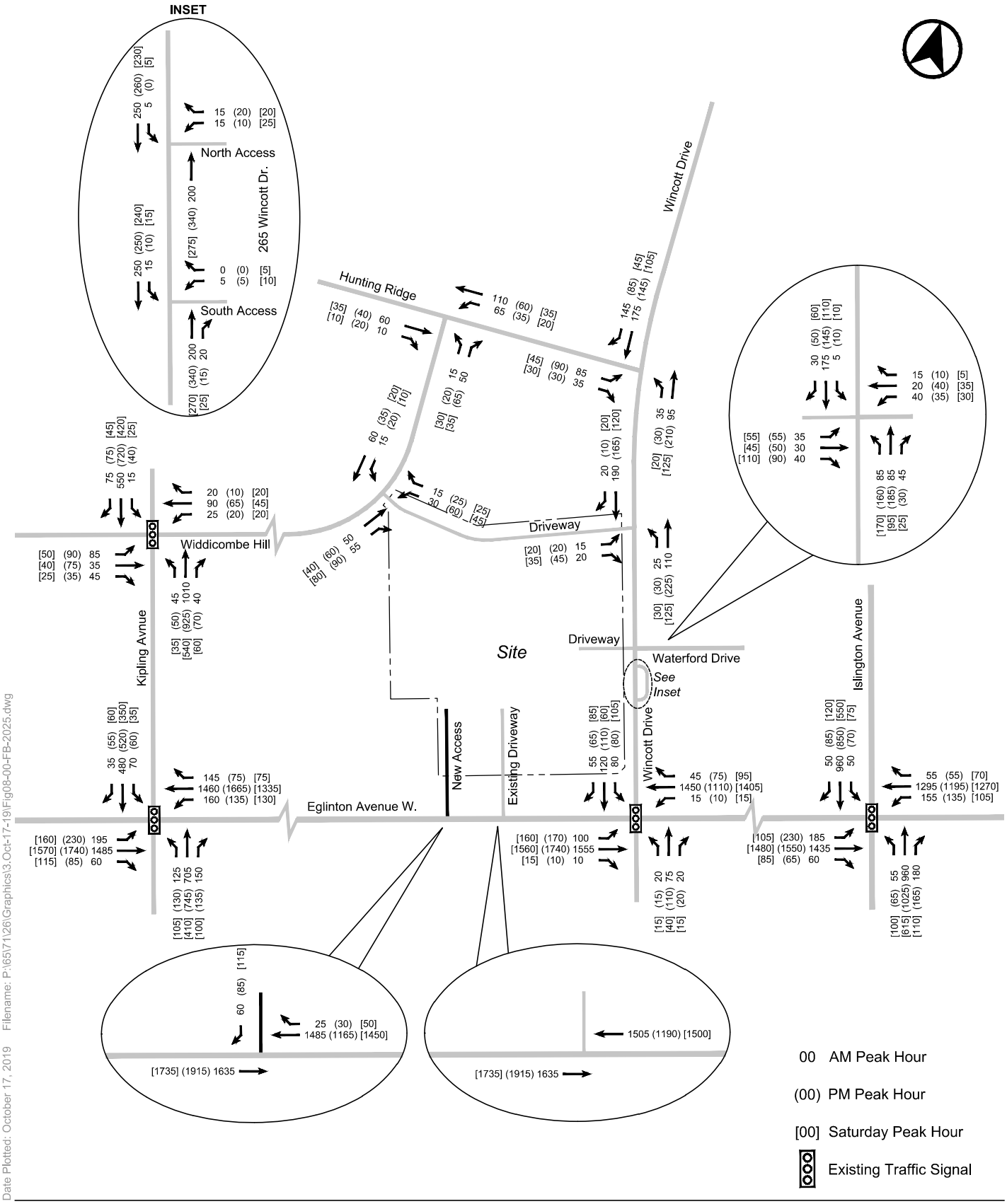
REDISTRIBUTION OF EXISTING TRAFFIC VOLUMES TO NEW EGLINTON DRIVEWAY

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 7



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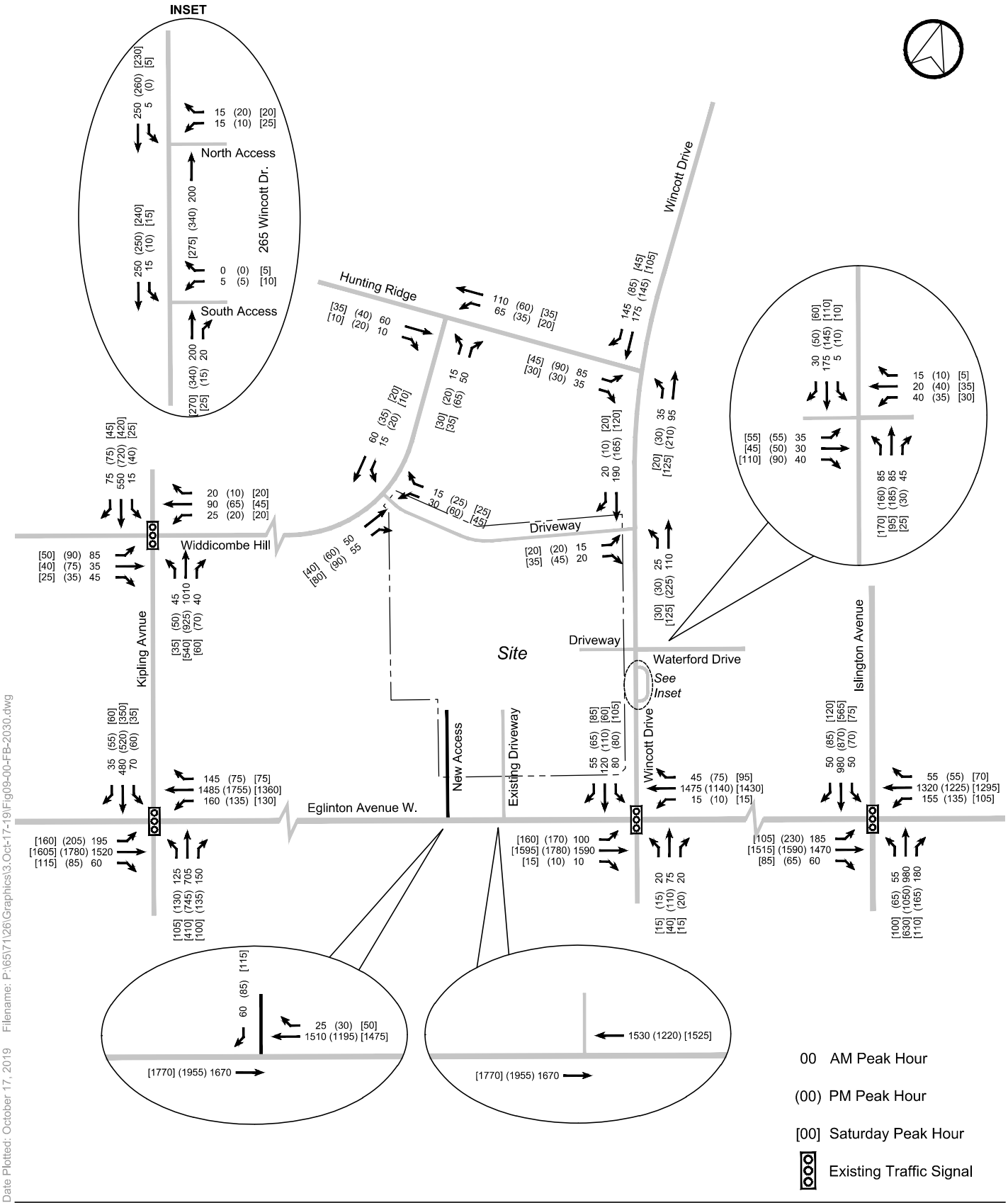
2025 FUTURE BACKGROUND TRAFFIC VOLUMES

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 8



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2030 FUTURE BACKGROUND TRAFFIC VOLUMES

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 9

TABLE 6 RESIDENTIAL TRAFFIC GENERATION

Proxy Trip Generation Locations	Morning Peak Hour			Afternoon Peak Hour			Saturday Peak Hour		
	In	Out	2-Way	In	Out	2-Way	In	Out	2-Way
Archived BA Group Rates	0.10	0.25	0.35	0.24	0.14	0.38	-	-	-
Existing Residential Condominium Development on Richview Road[1]	0.08	0.20	0.28	0.20	0.14	0.34	-	-	-
Existing Residential Condominium Development 2-9 Eva Road[1]	0.06	0.22	0.28	0.19	0.11	0.31	-	-	-
Selected Residential Trip Rates	**0.08**	**0.20**	**0.28**	**0.20**	**0.14**	**0.34**	**0.17**	**0.17**	**0.34[2]**
2025 Total Residential Trips (431 Residential Units)[3]	**35**	**85**	**120**	**85**	**60**	**145**	**75**	**75**	**150**
2030 Total Residential Trips (605 Residential Units)[3]	**50**	**120**	**170**	**120**	**85**	**205**	**105**	**105**	**210**

Notes:
1. Surveyed Trip Generation rates.
2. 2-way peak hour rates for the Saturday Midday peak hour were assumed to be equal to those observed during the weekday afternoon peak hour. In/out movements were assumed to function at 50:50 splits.
3. Trips rounded to the nearest 5.

6.3.1.2 Ground Floor Retail Trip Generation

Trip generation rates for the retail uses to be located on the ground level of the proposed development were based upon equations developed in the Trip Generation Manual (10th Edition), published by the Institute of Transportation Engineers (ITE). **Table 7** summarizes retail peak hour vehicle trips generated for both the 6-year (2025) and 11-year (2030) horizon years.

As can be seen from the table, application of the trend line equations at the 6-year (2025) horizon year yields a retail traffic generation estimate of approximately 165, 160, and 185 two-way vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively. At the 11-year (2030) horizon year, peak hour traffic generation is forecast at approximately 175, 175, and 195 two-way vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively.

Considering the existing retail trips to be retained following redevelopment, at the 6-year (2025) horizon, the site is expected to generate on the order of approximately 430, 640, and 640 two-way retail vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively. At the 11-year (2030) horizon year, the site is expected to generate on the order of approximately 440, 655, and 650 two-way retail vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively.

It is noteworthy to mention that observed trip rates determined on the basis of traffic surveys revealed existing retail trip generation significantly greater than estimates provided by selected ITE rates as illustrated in **Table 7**. This is due to the fact that a relatively large proportion of the existing retail GFA is oriented towards “high turnover” type retail, thereby increasing travel to/from the existing retail plaza. Considering the type of retail proposed in the redevelopment proposal, it is our judgment that ITE trip rates will better reflect travel characteristics to/from the proposed new retail areas.

TABLE 7 GROUND FLOOR RETAIL TRAFFIC GENERATION

Proxy Trip Generation Locations	Morning Peak Hour			Afternoon Peak Hour			Saturday Peak Hour		
	In	Out	2-Way	In	Out	2-Way	In	Out	2-Way
Existing Trips									
Existing Retail Trips	255	200	455	420	405	825	395	390	785
Existing Retail trips Removed[2]	-105	-85	-190	-175	-170	-345	-165	-165	-330
Existing Retail Trips Retained	150	115	265	245	235	480	230	225	455
New Trips - 2025 Horizon Year									
LUC 820 – Shopping Centre Equation (X = 1,000 sq.ft.)	T = 2.76(X) + 77.28			Ln(T) = 0.72Ln(X) + 3.02			Ln(T) = 0.79Ln(X) + 2.79		
	0.54	0.46	1.00	0.50	0.50	1.00	0.52	0.48	1.00
Ground Floor Retail Trips (39,067 ft² GFA)[1]	**100**	**85**	**185**	**145**	**140**	**285**	**155**	**140**	**295**
Pass-By Rate[3]	0%	0%	0%	34%	34%	34%	26%	26%	26%
Pass-By Trips	0	0	0	50	50	100	40	35	75
New Trips - 2025 Horizon Year									
LUC 820 – Shopping Centre Equation (X = 1,000 sq.ft.)	T = 2.76(X) + 77.28			Ln(T) = 0.72Ln(X) + 3.02			Ln(T) = 0.79Ln(X) + 2.79		
	0.54	0.46	1.00	0.50	0.50	1.00	0.52	0.48	1.00
Ground Floor Retail Trips (41,968 ft² GFA)[1]	**105**	**90**	**195**	**150**	**150**	**300**	**160**	**150**	**310**
Pass-By Rate[3]	0%	0%	0%	34%	34%	34%	26%	26%	26%
Pass-By Trips	0	0	0	50	50	100	40	40	80
Total Trips									
2025 New Primary Ground Floor Retail Trips	**100**	**85**	**185**	**95**	**90**	**185**	**115**	**105**	**220**
2025 Total Site Retail Trips	**250**	**200**	**450**	**340**	**325**	**665**	**345**	**330**	**675**
2030 New Primary Ground Floor Retail Trips	**105**	**90**	**195**	**100**	**100**	**200**	**120**	**110**	**230**
2030 Total Site Retail Trips	**255**	**205**	**460**	**345**	**335**	**680**	**350**	**335**	**685**

Notes:

1. Based upon statistics provided by site plan prepared by CORE Architects. Trip generation was based upon Gross Leasable Retail Area only.
2. Fraction of existing trips to be removed was determined based upon the portion of existing retail area (ft^2) to be removed (approximately 42%).
3. Retail Pass-By trips were determined in the basis of reduction rates published in the ITE Trips Generation Handbook (9^{th} Edition) for LUC 820 (Shopping Centre).
4. Trips rounded to the nearest 5.

6.3.1.3 Fitness Club Trip Generation

Fitness Club trip generation rates were developed on the basis of a series of proxy trip generation surveys conducted by BA Group in the past at analogues "franchise gyms". A review of rates developed in the ITE Trip Generation Manual (10th Edition) are also presented for comparison. Given the similar character and size of the surveyed fitness clubs, these rates likely provide an accurate reflection of vehicular trip generation potential at the proposed Richview Square redevelopment. Notwithstanding a significantly higher observed trip rate during the morning peak hour at a single proxy site (19 Frank Nighbor Place), the highest observed trip rate was conservatively applied to remaining peak hours. **Table 8** summarizes selected vehicle trip generation rates and residential peak hour vehicle trips generated for both the 6-year (2025) and 11-year (2030) horizon years. Proxy surveys are attached in **Appendix E** of our April 2018 Transportation Considerations Study.

TABLE 8 FITNESS CLUB TRAFFIC GENERATION

Proxy Trip Generation Locations	Morning Peak Hour			Afternoon Peak Hour			Saturday Peak Hour		
	In	Out	2-Way	In	Out	2-Way	In	Out	2-Way
Movati Athletic Club – 19 Frank Nighbor Place (60,832 ft^2)	3.62	1.78	5.39	2.07	1.86	3.93	1.04	1.87	2.91
Movati Athletic Fitness – 15 Crestway Drive (75,000 ft^2)	0.84	0.92	1.76	1.88	1.29	3.17	1.48	2.43	3.91
Lifetime Athletic Fitness Club – 3055 Pepper Mill Court (162,271 ft^2)	0.80	0.51	1.31	1.66	0.83	2.49	1.01	1.70	2.71
LUC 492 (Health/Fitness Club)	0.64	0.92	1.76	2.07	1.86	3.93	1.48	2.43	3.91
Selected Fitness Club Trip Rates	0.84	0.92	1.76	2.07	1.86	3.93	1.48	2.43	3.91
2025 & 2030 Total Fitness Club Trips (26,905 ft^2 GFA)[1]	**25**	**25**	**50**	**55**	**50**	**105**	**40**	**65**	**105**

As can be seen from the table, application of the selected rates yields a vehicular traffic generation estimate of approximately 50,105, and 105 two-way vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively.

6.3.1.4 Grocery Store Trip Generation

Trip generation rates for the proposed grocery store were based upon equations developed in the Trip Generation Manual (10th Edition), published by the Institute of Transportation Engineers (ITE). **Table 9** summarizes grocery store peak hour vehicle trips generated for both the 6-year (2025) and 11-year (2030) horizon years. As can be seen from the table, application of the trend line equations yields a grocery store trip generation estimate of approximately 250, 210, and 325 new two-way vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively. These trips were further classified as primary and pass-by trips as summarized in the table.

TABLE 9 GROCERY STORE TRAFFIC GENERATION

Proxy Trip Generation Locations	Morning Peak Hour			Afternoon Peak Hour			Saturday Peak Hour		
	In	Out	2-Way	In	Out	2-Way	In	Out	2-Way
LUC 850 – Shopping Centre Equation (X = 1,000 sq.ft.)	T = 5.49(X) + 52.83			Ln(T) = 4.12(X) + 178.83			Ln(T) = 0.69Ln(X) + 3.61		
	0.52	0.48	1.00	0.52	0.48	1.00	0.51	0.49	1.00
Grocery Store Floor Retail Trips (35,779 ft² GFA)[1]	**130**	**120**	**250**	**170**	**155**	**325**	**220**	**215**	**435**
Pass-By Rate[2]	0%	0%	0%	35%	35%	35%	25%	25%	25%
Pass-By Trips	0	0	0	60	55	115	55	55	110
2025 & 2030 New Primary Grocery Store Trips	**130**	**120**	**250**	**110**	**100**	**210**	**165**	**160**	**325**

Notes:
1. Based upon statistics provided by site plan prepared by CORE Architects.. Trip generation was based upon Gross Leasable Retail Area only.
2. Pass-By trips were determined in the basis of reduction rates published in the ITE Trips Generation Handbook (9th Edition) for LUC 850 (Grocery Store).
3. Trips rounded to the nearest 5.

6.3.1.5 Interaction Reduction

Internal site trips during the peak hours have been estimated by applying 10% reduction rate to all net new non-residential site trips as summarized in **Table 10**.These forecasts were compared to "internal capture" trip calculations outlined in Chapter 7 of the ITE Trip Generation Handbook, Volume 4. As can be seen in the table, levels of trip internalization forecast using the ITE Trip Generation Handbook generally results in greater trip reductions. However, given that a significant proportion of the proposed new retail GFA is non-ancillary (i.e. destination retail such as the grocery store and fitness centre), fewer interaction trips will result between proposed retail and residential uses.

TABLE 10 INTERACTION REDUCTION

Land Use	Morning Peak Hour			Afternoon Peak Hour			Saturday Peak Hour		
	In	Out	2-Way	In	Out	2-Way	In	Out	2-Way
2025 Ground Floor Retail	100	85	185	145	140	285	155	140	295
2030 Ground Floor Retail	105	90	195	150	150	300	160	150	310
Grocery Store	130	120	250	170	155	325	220	215	435
Gym	25	25	50	55	50	105	40	65	105
Total	245	220	465	350	325	675	390	400	790
2025 Interaction Reduction[1]	**-25**	**-25**	**-50**	**-35**	**-35**	**-70**	**-40**	**-40**	**-80**
2030 Interaction Reduction1	**-25**	**-25**	**-50**	**-40**	**-35**	**-75**	**-40**	**-45**	**-85**
ITE Trip Generation Handbook									
Interaction Reduction	**-20**	**-35**	**-55**	**-40**	**-50**	**-90**	**-30**	**-45**	**-75**

Notes:
1. 10% reduction rate applied to sum of net new non-residential site trips

As can be seen from the table, 50, 70, and 80 internalized site trips are forecast at the 6-year (2025) horizon year during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively. In addition, 50, 75, and 85 internalized site trips are forecast at the 11-year (2030) horizon year during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively.

6.3.1.6 Total Site Trip Generation

Considering the aforementioned, **Table 11** and **Table 12** summarize vehicular trip generation estimates for the proposed development at the 6-year (2025) and 11-year (2030) horizon years, respectively. It is noteworthy to mention the reduction in external (i.e. site generated trips) trips owing to interaction between the proposed residential and retail land uses. These trips between the three uses are not considered to be 'external' to the site, but rather, will be made primarily by walking between the uses within the site. As can be seen in the tables, internal trips are considered to reduce the residential traffic share owing to fewer residential trips in/out to external retail uses.

TABLE 11 2025 SITE TRIP GENERATION SUMMARY

	Morning Peak Hour			Afternoon Peak Hour			Saturday Peak Hour		
	In	Out	2-Way	In	Out	2-Way	In	Out	2-Way
Primary Non-Residential Trips									
Existing Retail Trips Retained	150	115	265	245	235	480	230	225	455
Primary New Retail Trips	100	85	185	95	90	185	115	105	220
Primary Grocery Store Trips	130	120	250	110	100	210	165	160	325
Primary Fitness Club Trips	25	25	50	55	50	105	40	65	105
Total Primary Trips	**405**	**345**	**750**	**505**	**475**	**980**	**550**	**555**	**1105**
Pass-By Trips									
Ground Floor Retail Pass-By	0	0	0	-50	-50	-100	-40	-35	-75
Grocery Store Pass-By	0	0	0	-60	-55	-115	-55	-55	-110
Gross Total Pass-By Trips	**0**	**0**	**0**	**-110**	**-105**	**-215**	**-95**	**-90**	**-185**
Residential Trips									
Total Residential Trips	35	85	120	85	60	145	75	75	150
Interaction Reduction	-25	-25	-50	-35	-35	-70	-40	-40	-80
Gross Total Residential Trips	**10**	**60**	**70**	**50**	**25**	**75**	**35**	**35**	**70**
Summary									
Gross Total New Trips	**265**	**290**	**555**	**310**	**265**	**575**	**355**	**365**	**720**
Gross Total Site Trips	**415**	**405**	**820**	**445**	**395**	**840**	**490**	**500**	**990**

Notes:
1. Trips Rounded to the nearest 5.

TABLE 12 2030 SITE TRIP GENERATION SUMMARY

	Morning Peak Hour			Afternoon Peak Hour			Saturday Peak Hour		
	In	Out	2-Way	In	Out	2-Way	In	Out	2-Way
Primary Non-Residential Trips									
Existing Retail Trips Retained	150	115	265	245	235	480	230	225	455
Primary New Retail Trips	105	90	195	100	100	200	120	110	230
Primary Grocery Store Trips	130	120	250	110	100	210	165	160	325
Primary Fitness Club Trips	25	25	50	55	50	105	40	65	105
Total Primary Trips	**410**	**350**	**760**	**510**	**485**	**995**	**555**	**560**	**1115**
Pass-By Trips									
Ground Floor Retail Pass-By	0	0	0	-50	-50	-100	-40	-40	-80
Grocery Store Pass-By	0	0	0	-60	-55	-115	-55	-55	-110
Gross Total Pass-By Trips	**0**	**0**	**0**	**-110**	**-105**	**-215**	**-95**	**-95**	**-190**
Residential Trips									
Total Residential Trips	50	120	170	120	85	205	105	105	210
Interaction Reduction	-25	-25	-50	-40	-35	-75	-40	-45	-85
Gross Total Residential Trips	**25**	**95**	**120**	**80**	**50**	**130**	**65**	**60**	**125**
Summary									
Gross Total New Trips	**285**	**330**	**615**	**345**	**300**	**645**	**390**	**395**	**785**
Gross Total Site Trips	**435**	**445**	**880**	**480**	**430**	**910**	**525**	**525**	**1050**

Notes:
1. Trips Rounded to the nearest 5.

At the 6-year (2025) horizon year, the proposed development is expected to generate approximately 555, 575, and 720 new two-way vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively. Considering the existing retail vehicle trips, and retail pass-by trips associated with the proposed new retail uses, the site is expected to generate approximately 820, 840, and 990 new two-way vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively.

11-year (2030) horizon year, the proposed development is expected to generate approximately 615, 645, and 785 new two-way vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively. Considering the existing retail vehicle trips, and retail pass-by trips associated with the proposed new retail uses, the site is expected to generate approximately 880, 910, and 1,050 new two-way vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively.

6.3.1.7 Removal of Existing Site Traffic Volumes

Given that the build-out of the proposed development will require the removal of a portion of the existing retail plaza, **Figure 10** illustrates the fraction of existing site retail volumes that have been removed. Retail trips have been distributed according to retail travel patterns discussed in Section 7.3.2 of our April 2018 Transportation Considerations Study.

6.3.2 Trip Distribution

Site traffic distribution patterns were modelled for a Base Access condition which provides access onto Wincott Drive, Widdicombe Hill Boulevard and Eglinton Avenue West. This access arrangement is schematically illustrated in **Figure 11** and further described in **Section 2.3**. As can be seen, the proposed new access on Eglinton Avenue West operates as a stop-controlled right-in/right-out (RIRO) intersection

Both residential and retail trip distribution patterns applied in the analysis are discussed in detail in Section 7.3.2 of our April 2018 Transportation Considerations Study.
Considering the 6-year (2025) horizon year, peak hour traffic volumes are summarized as follows:

- 2025 Residential site traffic volumes for “baseline” conditions (i.e. assuming the existing road network) are illustrated in **Figure 12;**
- 2025 Retail site traffic volumes for “baseline” conditions are illustrated in **Figure 13;**
- 2025 Retail Pass-By traffic volumes for “baseline” conditions are illustrated in **Figure 14;**
- 2025 Total site traffic volumes for “baseline” conditions are illustrated in **Figure 15;**

Considering the 11-year (2030) horizon year, peak hour traffic volumes are summarized as follows:

- 2030 Residential site traffic volumes for “baseline” conditions (i.e. assuming the existing road network) are illustrated in **Figure 16;**
- 2030 Retail site traffic volumes for “baseline” conditions are illustrated in **Figure 17;**
- 2030 Retail Pass-By traffic volumes for “baseline” conditions are illustrated in **Figure 18;**
- 2030 Total site traffic volumes for “baseline” conditions are illustrated in **Figure 19;**

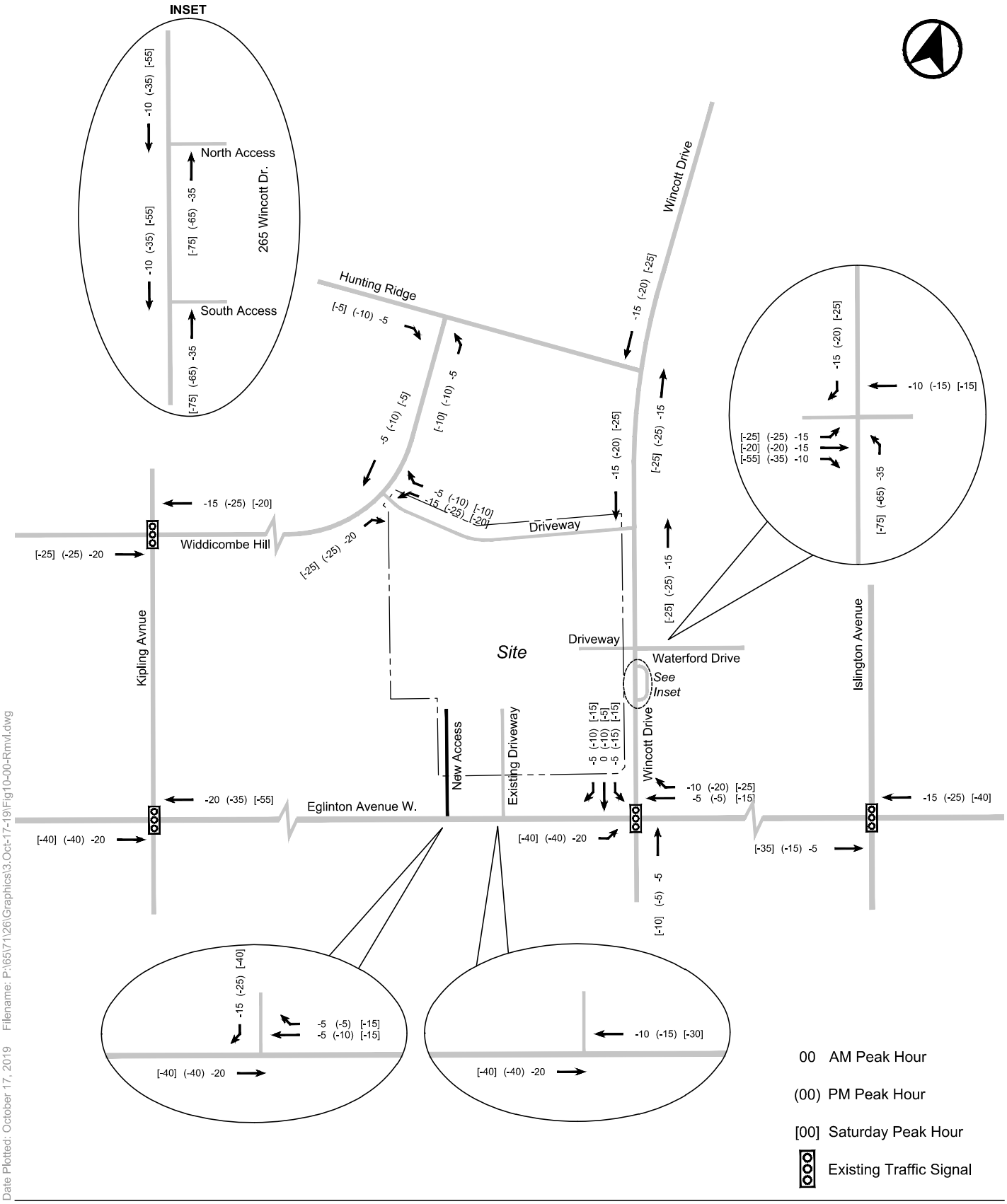
A sensitivity condition was also prepared for an alternative access option which considers restricting eastbound and westbound through traffic at Waterford Drive. Total site traffic volumes for the sensitivity condition are attached in **Appendix E**.

6.4 FUTURE TOTAL TRAFFIC VOLUMES

Future total traffic volumes were established by adding redistributed existing traffic volumes, future background traffic volumes, new site traffic volumes, and retail pass-by trips

Future total traffic volumes are illustrated in **Figure 20** and **Figure 21** for the 6-year (2025) horizon year and the 11-year (2030) horizon year, respectively.

In addition, future total traffic volumes for the sensitivity condition are attached in **Appendix F**.



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REMOVAL OF EXISTING TRAFFIC VOLUMES

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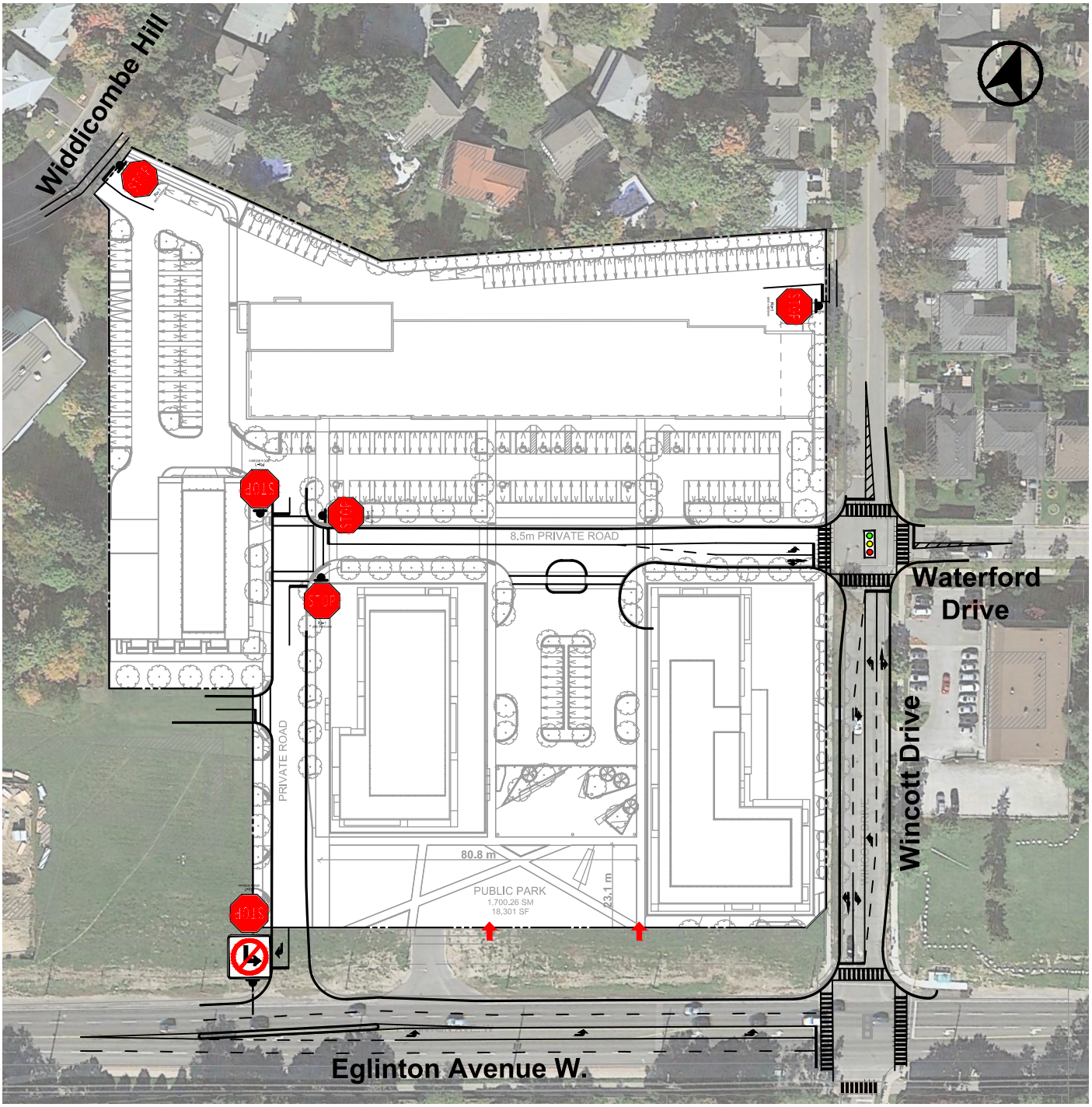
250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 10



EXISTING SIGNALIZED INTERSECTION

EXISTING STOP CONTROL INTERSECTION TO BE REMOVED

POST SIGN TO BE REMOVED

PEDESTRIAN ACCESS ONLY

PROPOSED SIGNALIZED INTERSECTION

PROPOSED STOP CONTROL INTERSECTION

PROPOSED POST SIGN

PROPOSED NO THROUGH MOVEMENT PERMITTED

PROPOSED NO LEFT-TURN MOVEMENT PERMITTED

0 25 50m

1:1,500

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BASELINE CONDITIONS

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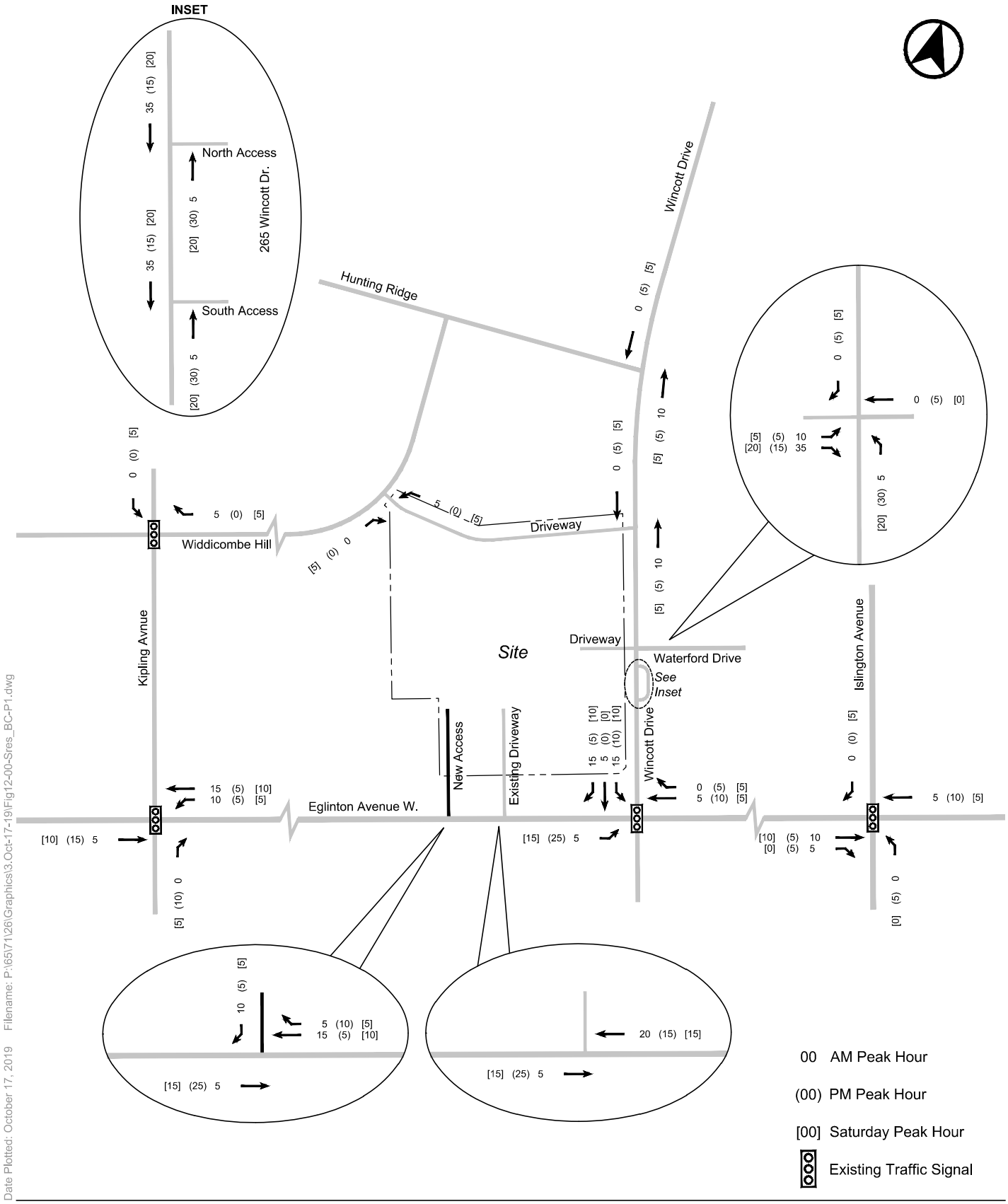
250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 11



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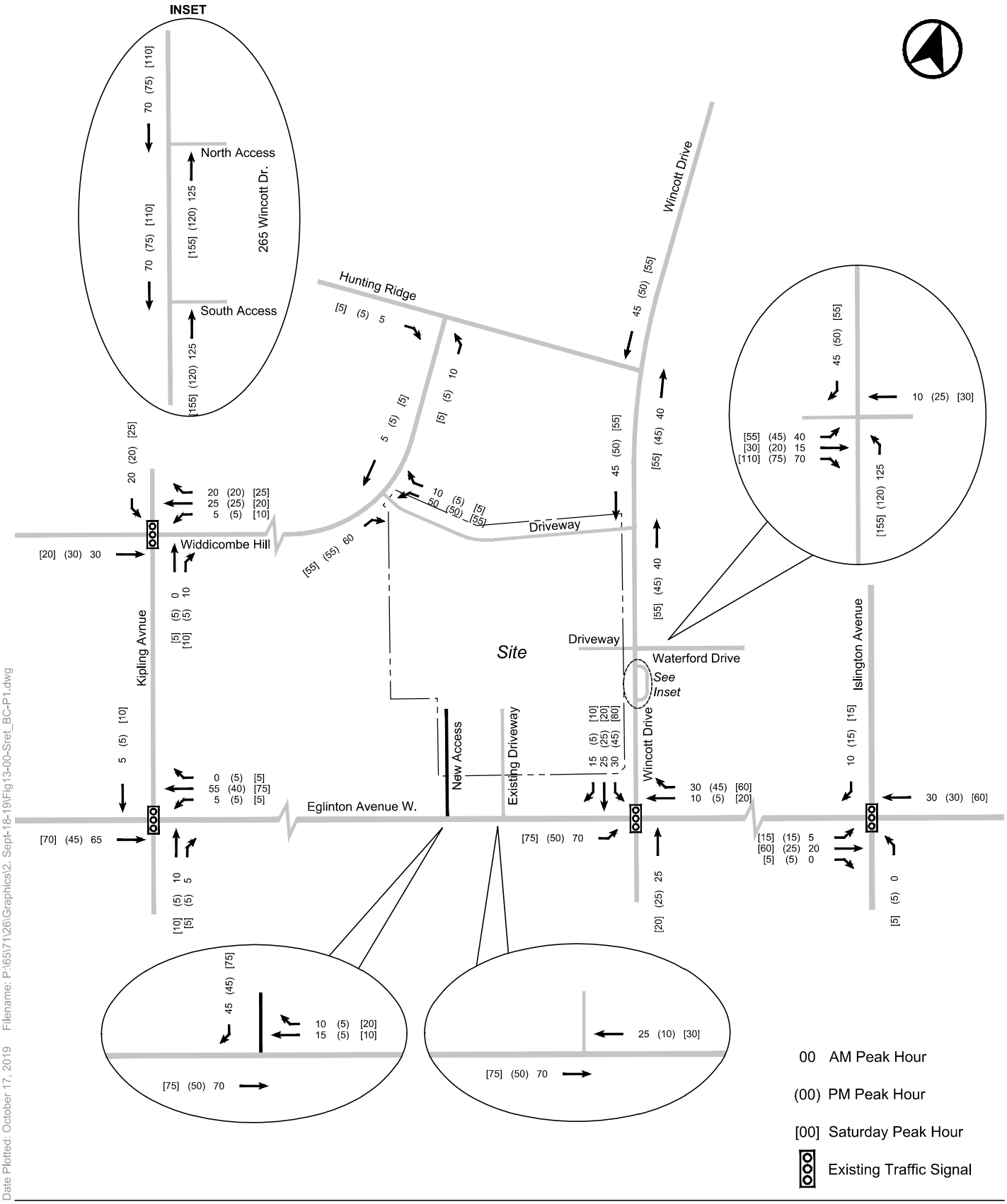
2025 SITE RESIDENTIAL TRAFFIC VOLUMES - BASELINE CONDITIONS

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 12



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2025 SITE RETAIL TRAFFIC VOLUMES - BASELINE CONDITIONS

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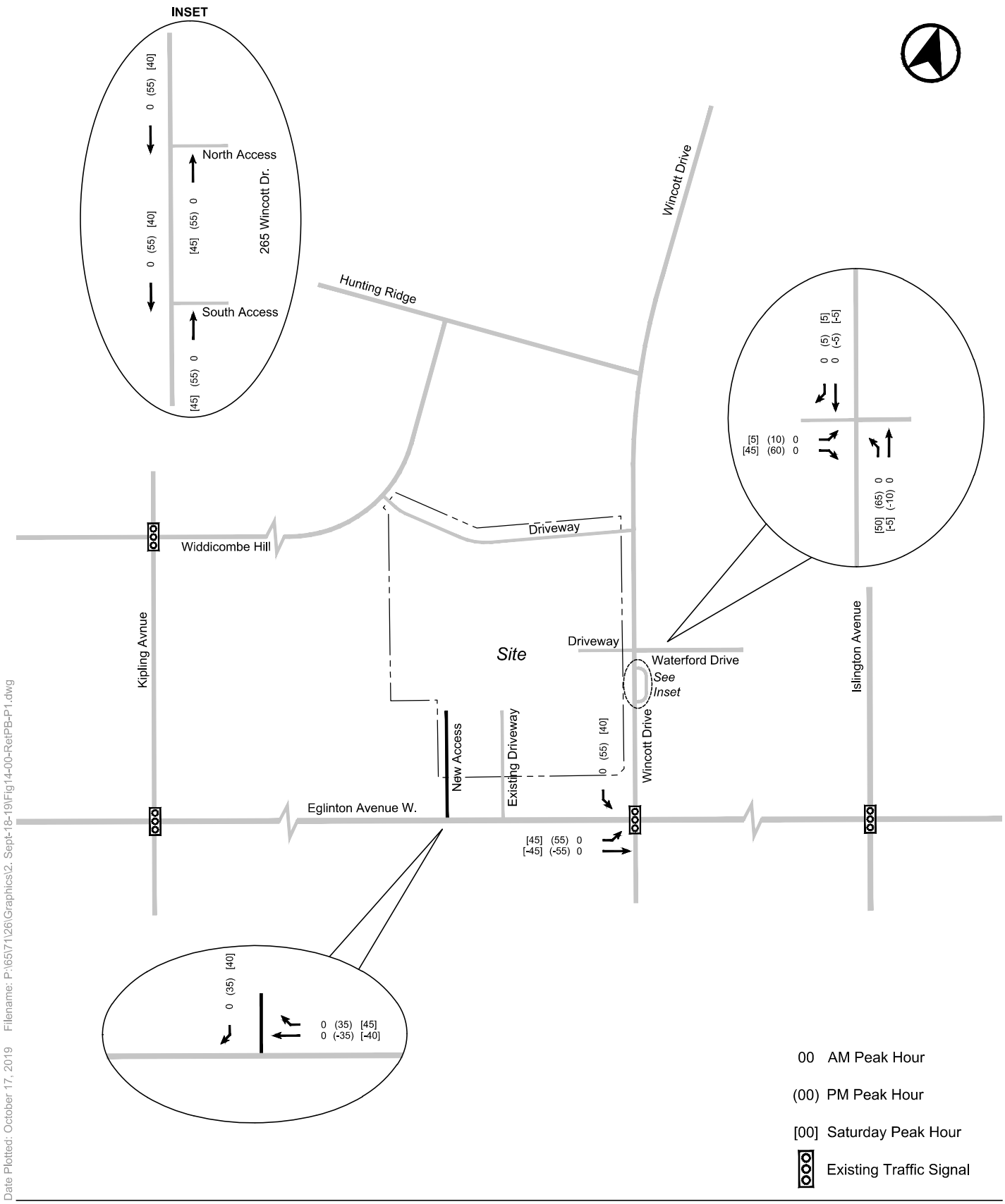
250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 13



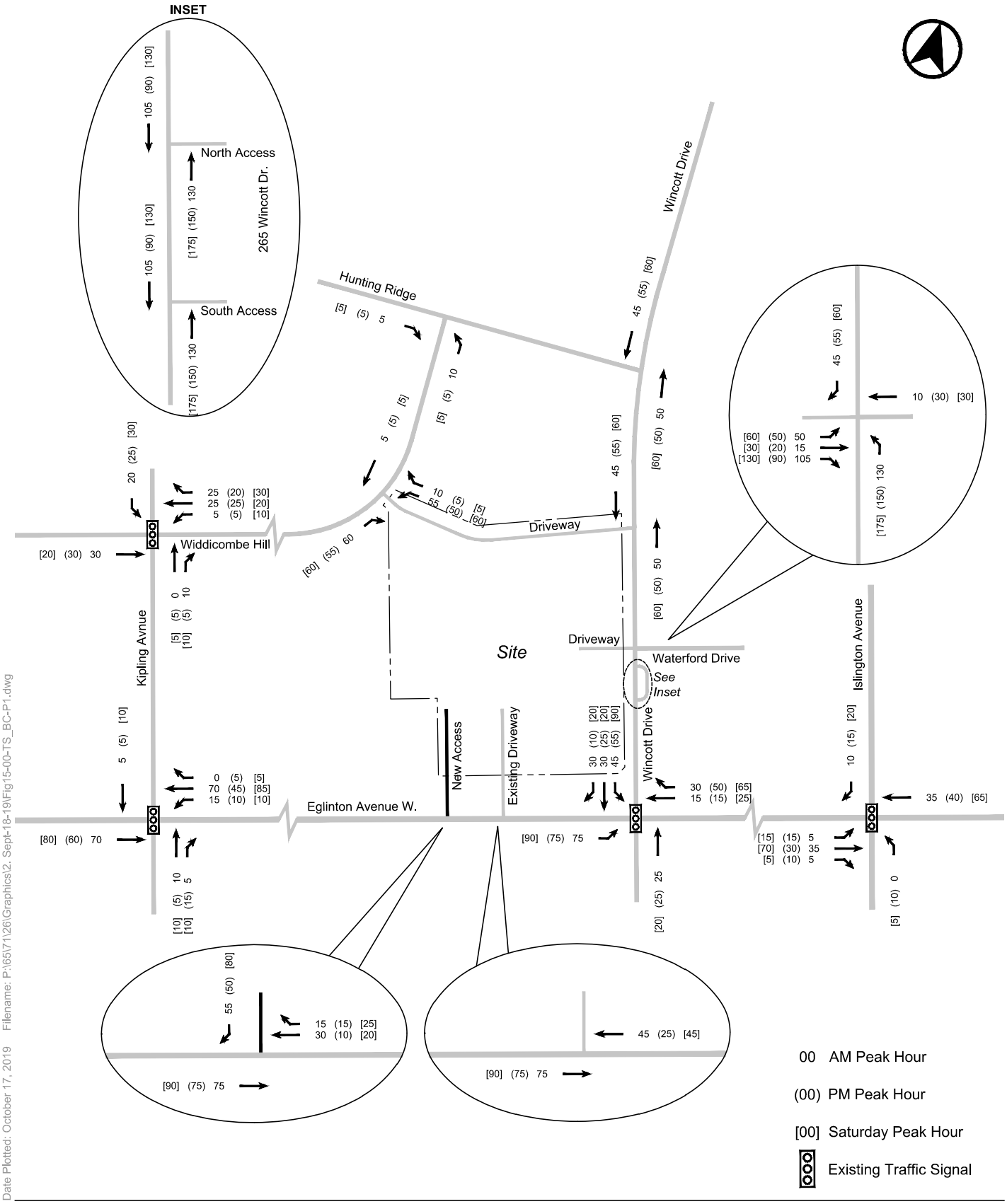
Date Plotted: October 17, 2019 Filename: P:\65\71\26\Graphics\2. Sept-18-19\Fig14-00-RetPB-P1.dwg

2025 RETAIL PASS-BY TRAFFIC VOLUMES

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 14



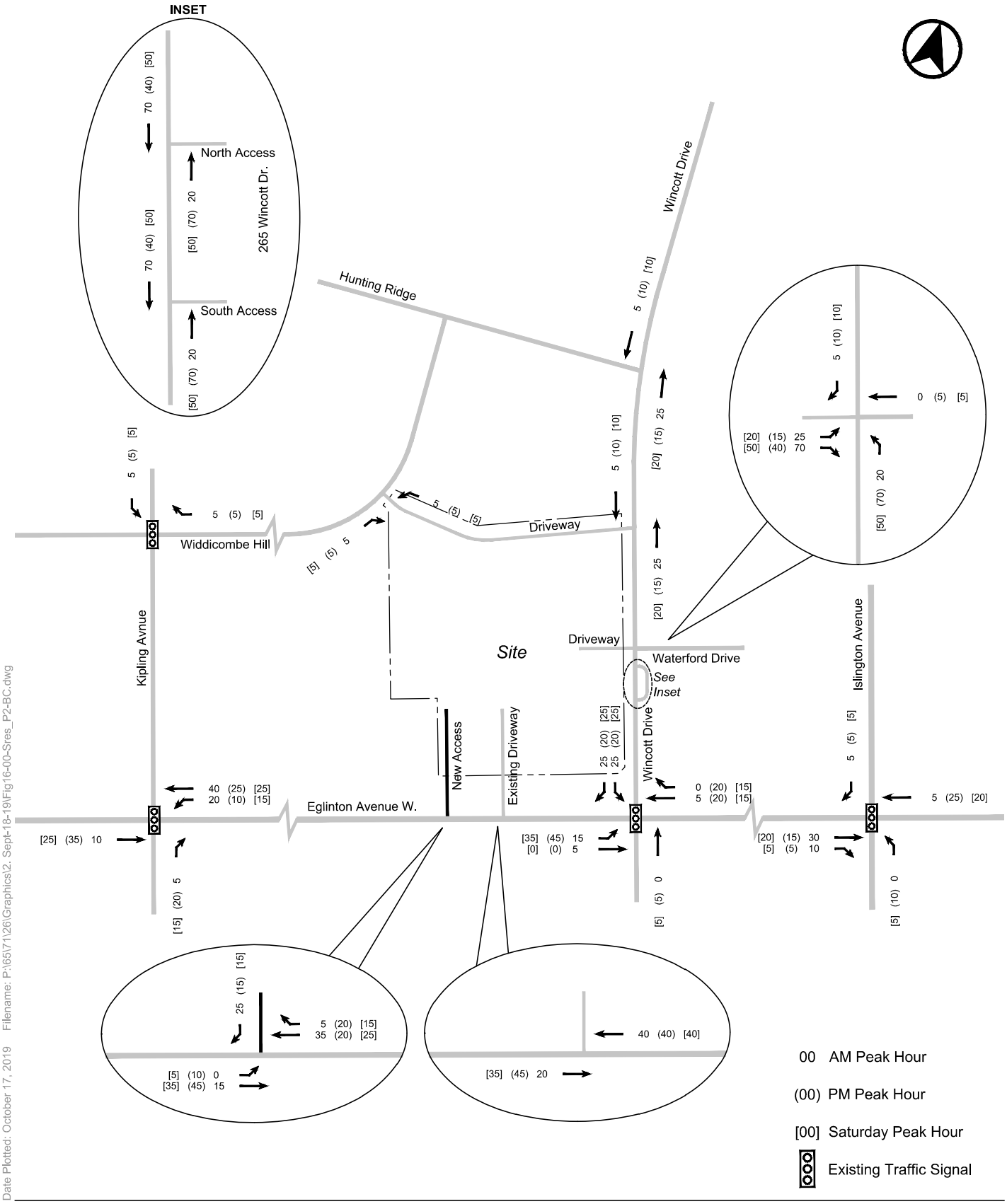
Date Plotted: October 17, 2019 Filename: P:\65\71\26\Graphics\2. Sept-18-19\Fig15-00-TS_BC-P1.dwg

2025 TOTAL SITE TRAFFIC VOLUMES - BASELINE CONDITIONS

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 15



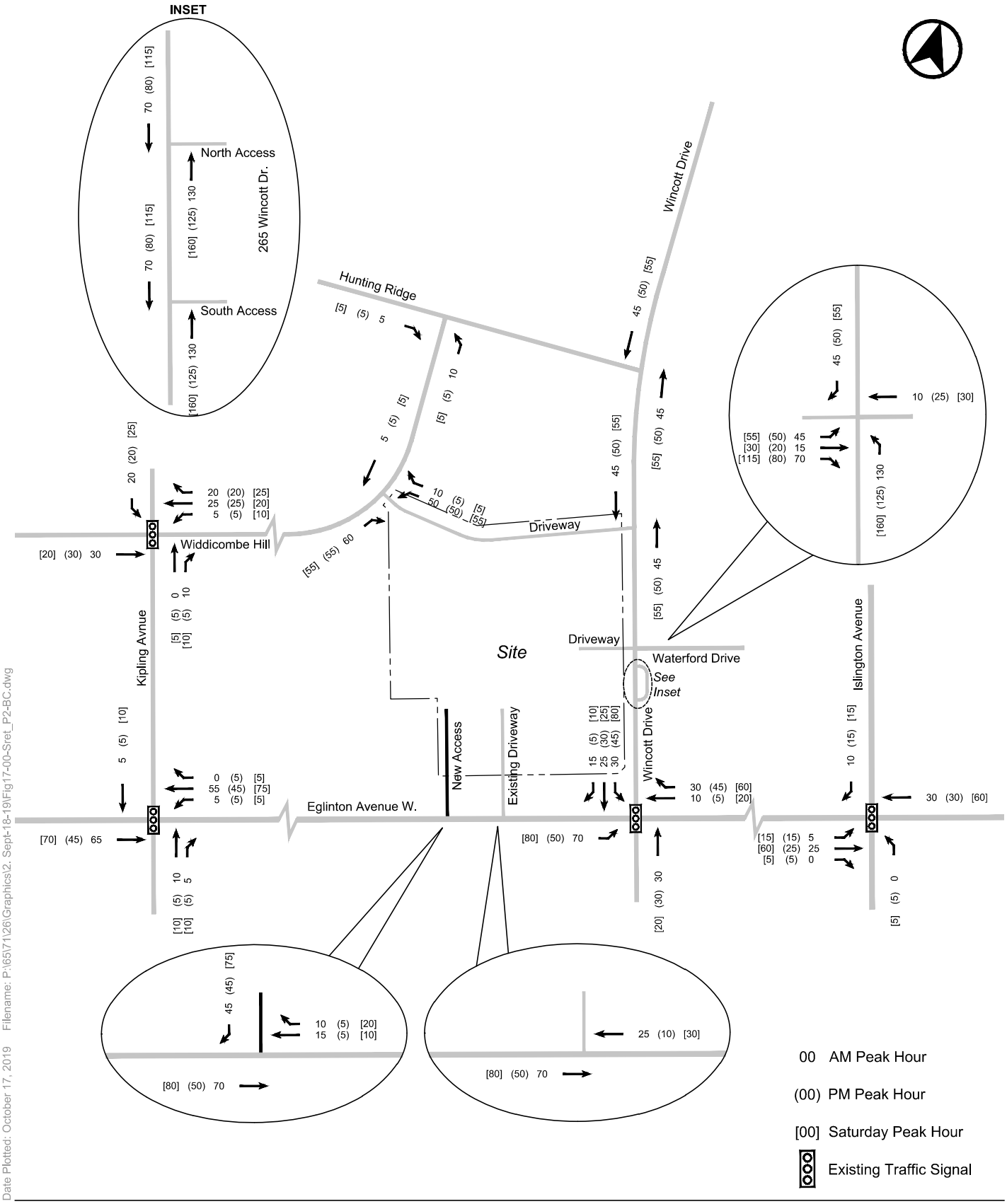
Date Plotted: October 17, 2019 Filename: P:\65\71\26\Graphics\2. Sept-18-19\Fig16-00-Sres_P2-BC.dwg

2030 - SITE RESIDENTIAL TRAFFIC VOLUMES - BASELINE CONDITIONS

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 16



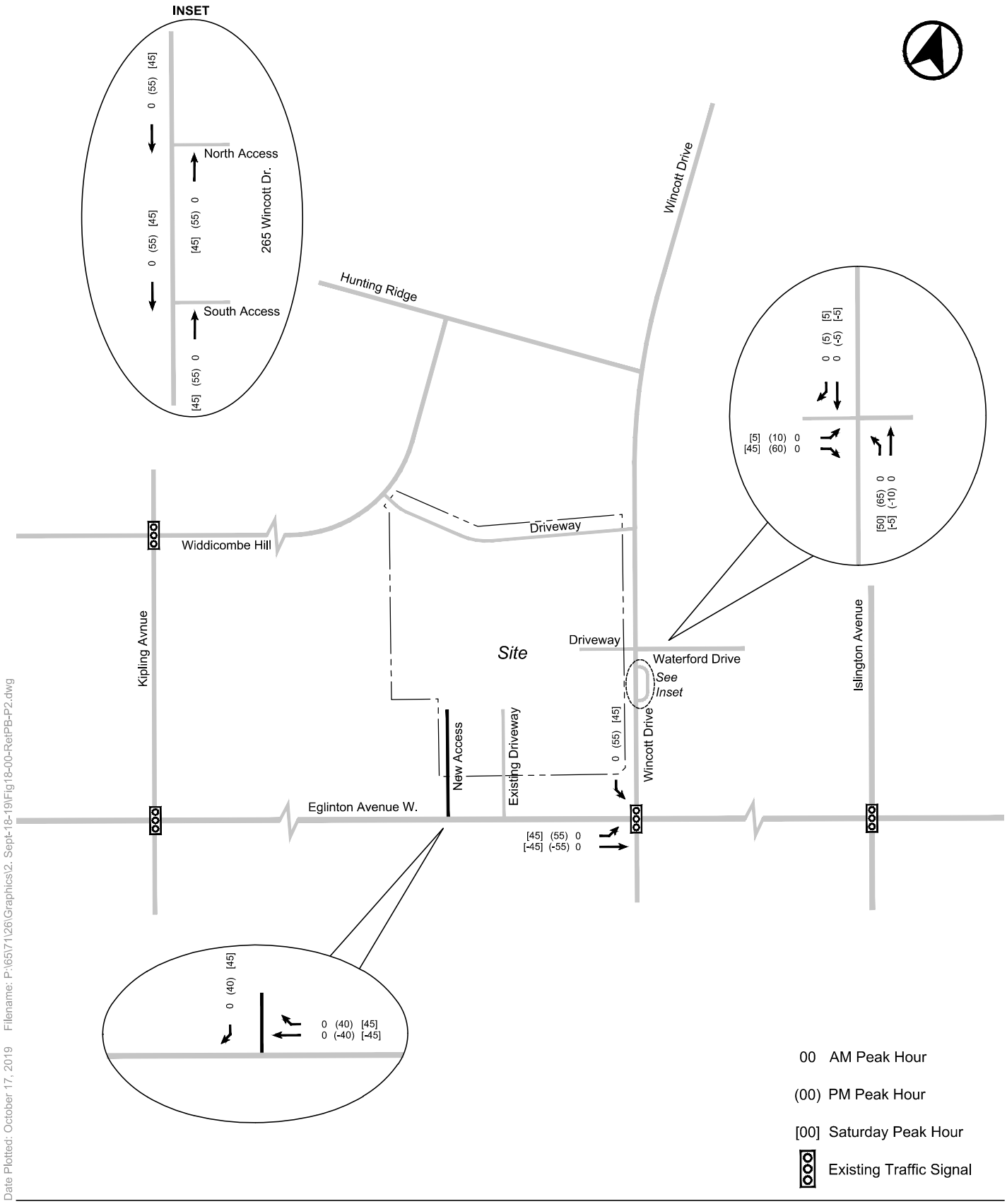
Date Plotted: October 17, 2019 Filename: P:\65\71\26\Graphics\2. Sept-18-19\Fig17-00-Sret_P2-BC.dwg

2030 SITE RETAIL TRAFFIC VOLUMES - BASELINE CONDITIONS

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 17



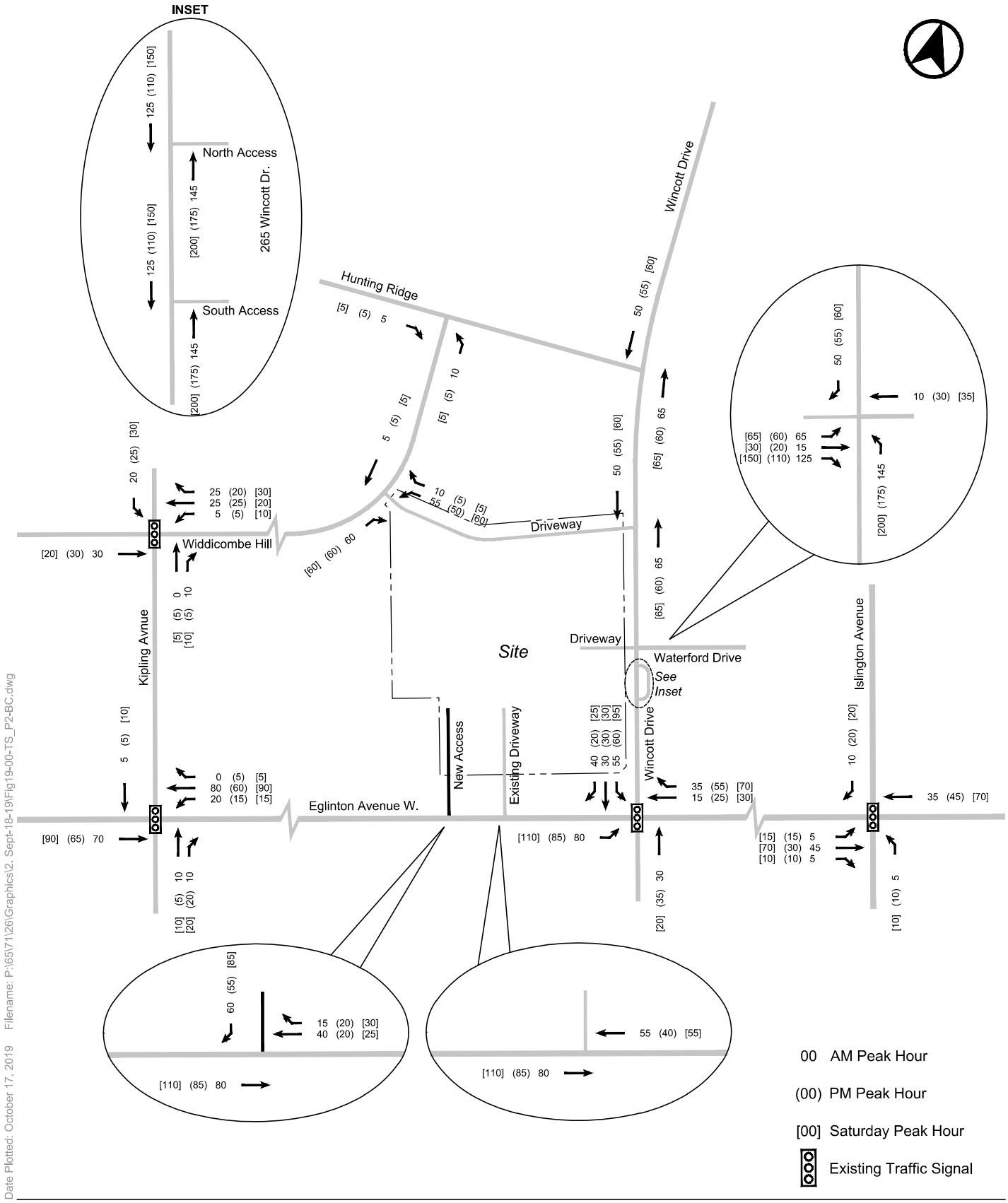
Date Plotted: October 17, 2019 Filename: P:\65\71\26\Graphics\2. Sept-18-19\Fig18-00-RetPB-P2.dwg

2030 RETAIL PASS-BY TRAFFIC VOLUMES

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 18



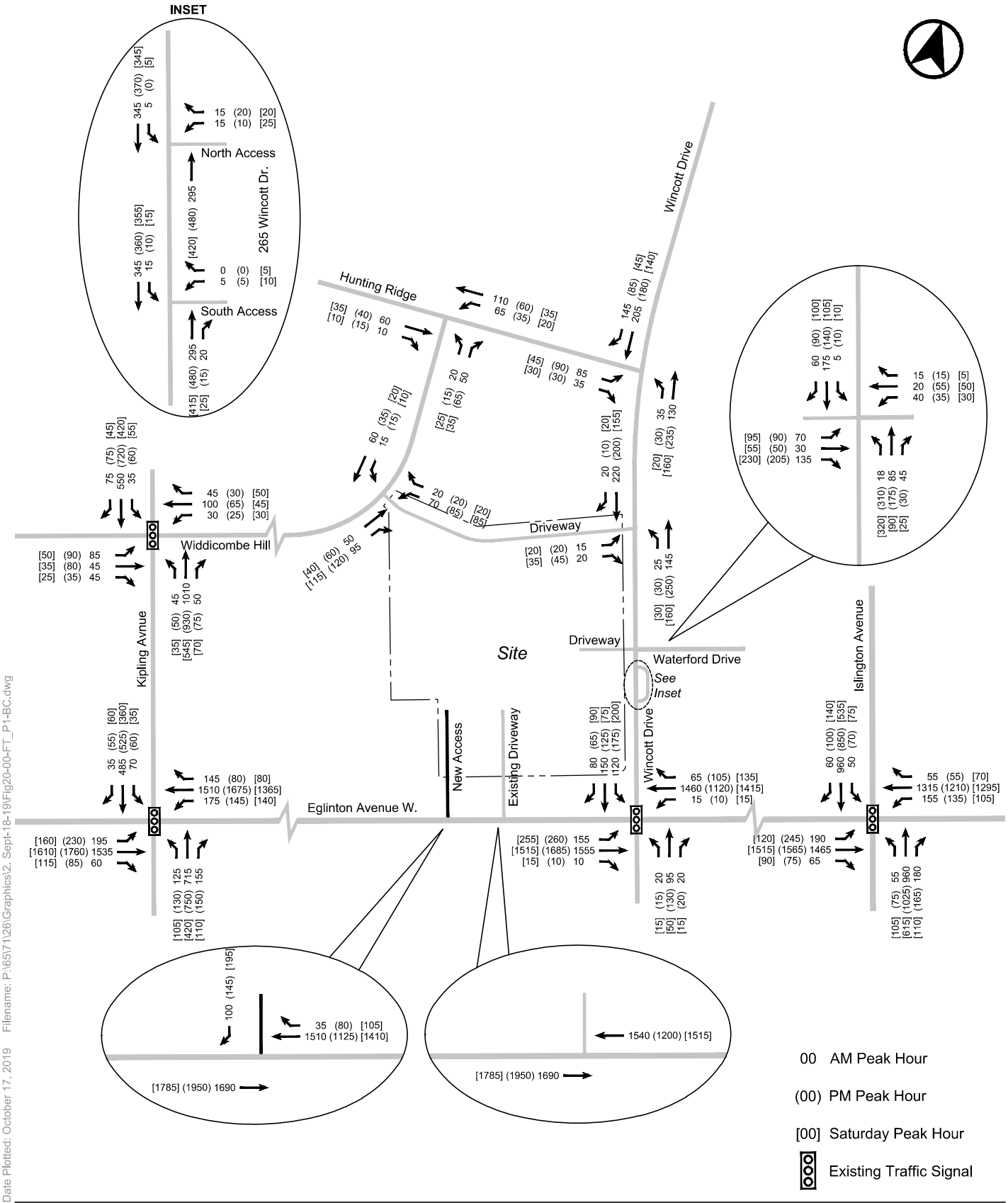
Date Plotted: October 17, 2019 Filename: P:\65\71\26\Graphics\2. Sept-18-19\Fig19-00-TS_P2-BC.dwg

2030 TOTAL SITE TRAFFIC VOLUMES - BASELINE CONDITIONS

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 19



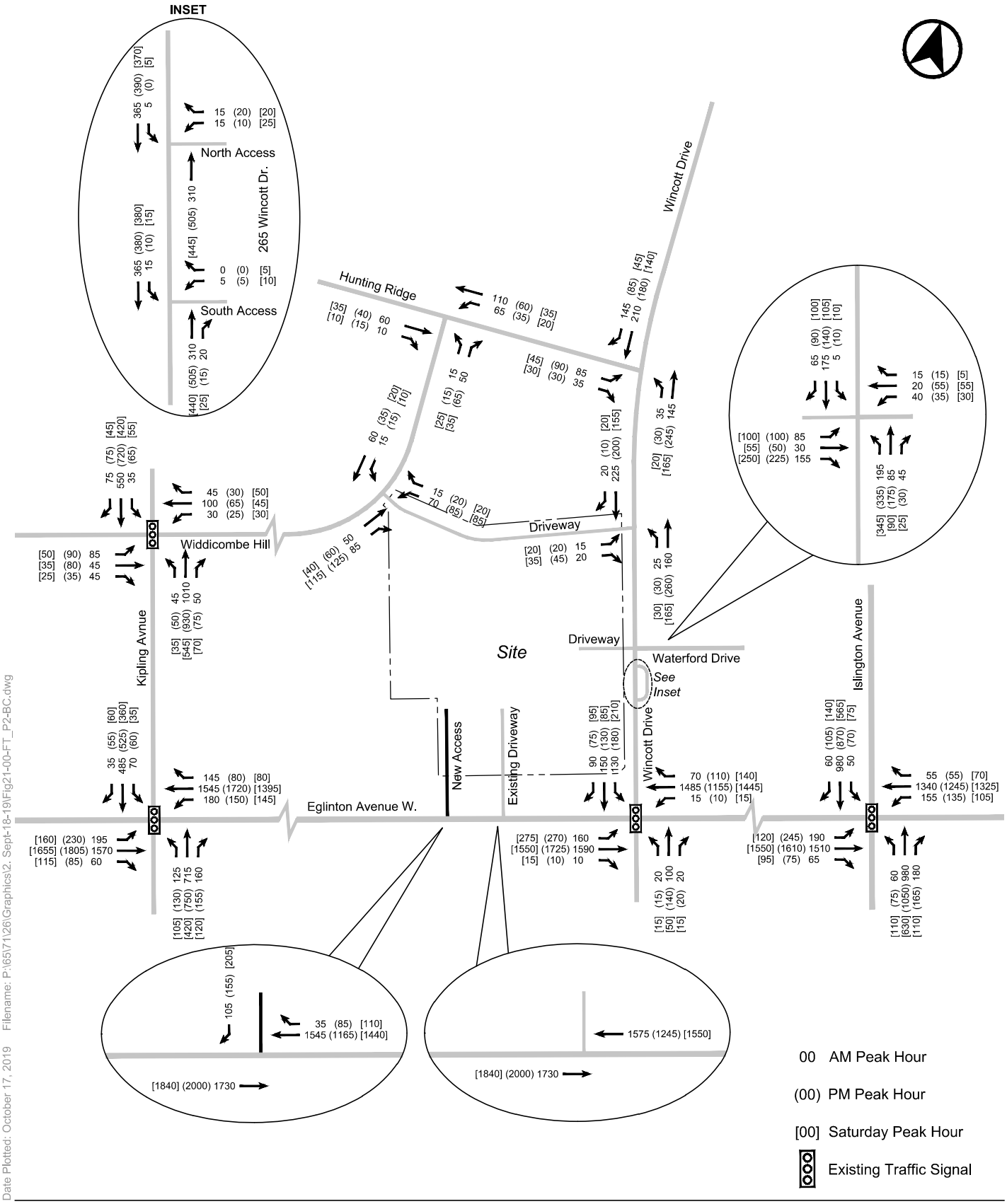
Date Plotted: October 17, 2019 Filename: P:\65\71\26\Graphics\2. Sept-18-19\Fig20-00-FT_P1-BC.dwg

2025 FUTURE TOTAL TRAFFIC VOLUMES - BASELINE CONDITIONS

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 20



Date Plotted: October 17, 2019 Filename: P:\65\71\26\Graphics\2. Sept-18-19\Fig21-00-FT_P2-BC.dwg

2030 FUTURE TOTAL TRAFFIC VOLUMES - BASELINE CONDITIONS

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure 21

7.0 CAPACITY ANALYSIS REVIEW

7.1 STUDY AREA

Traffic volume forecasts, intersection and driveway operations, and new site traffic related impacts have been reviewed at the following area intersections as part of this study:

Signalized Intersections

- Kipling Avenue / Widdicombe Hill
- Eglinton Avenue West / Kipling Avenue
- Eglinton Avenue West / Wincott Drive
- Eglinton Avenue West / Islington Avenue

Unsignalized Intersections

- Eglinton Avenue West / Private Access
- Wincott Drive / South Site Access Driveway – Waterford Drive
- Wincott Drive / North Site Access Drive
- Widdicombe Hill / Northwest Site Access
- Widdicombe Hill / Hunting Ridge
- Wincott Drive / Hunting Ridge
- Wincott Drive / 265 Wincott Drive Plaza South Access
- Wincott Drive / 265 Wincott Drive Plaza North Access

7.2 ANALYSIS ASSUMPTIONS

7.2.1 Intersection Capacity Analysis Methodology

Synchro Version 9.1 and the Highway Capacity Manual (HCM) methodology were used to analyze the study area intersections and site access points.

A base saturation flow of 1,900 vehicles per hour per lane was assumed and a lost time adjustment of -1.0 seconds (i.e. a total lost time per phase equal to the amber plus all-red time, minus 1 second) was utilized. Peak hour factors and heavy vehicle percentages were calculated based on existing traffic volume data extracted from the traffic counts utilized in this study.

For signalized intersections, the volume-to-capacity ratio (v/c) is an indicator of the capacity utilization for the key movements in the intersection. A v/c of 1.00 indicates that a traffic movement through an intersection is operating at or near maximum capacity.

For unsignalized intersections, level of service (LOS) characterizes operational conditions for key movements in terms of average delay experienced by vehicles attempting to complete a manoeuvre through the intersection. LOS ‘A’ represents a good level of service with short delays, while LOS ‘F’ represents a poor level of service with extended delays. Detailed analysis sheets are included in **Appendix G**.

7.2.2 Signal Timings

Existing signal timing plans were obtained for all signalized intersections within the study area from the City of Toronto. Signal timing plans are attached in **Appendix H**. Where necessary, signal timing plans have been optimized as illustrated in **Appendix H**.

7.3 STUDY PERIODS

Traffic operations analyses have been undertaken during the weekday morning, afternoon and Saturday midday peak hours under the following traffic conditions:

- Existing traffic conditions;
- Future background traffic conditions at the 6-year horizon (2025) with the existing road network assumed; and,
- Future total traffic conditions at both the 6-year horizon (2025) and the 11-year horizon (2030) horizon years.

7.4 ANALYSIS SUMMARY

7.4.1 Signalized Intersection Capacity Analysis Results

7.4.1.1 Eglinton Avenue West / Islington Avenue

The Eglinton Avenue West / Islington Avenue intersection is a signalized intersection that operates with a total signal time of 120 seconds during the morning and afternoon peak hours, and 96 seconds during the Saturday midday peak hour. The intersection operates as a “SCOOT” intersection which provides the signal the ability to significantly adjust time devoted various movements based upon vehicle demands. For all analysis scenarios, total cycle times were held constant, though individual phase splits were adjusted within the specified latitudes provided by the “SCOOT” capability. Overall capacity analysis results are summarized in **Table 13**.

Under existing conditions, the Eglinton Avenue W / Islington Avenue intersection operates at overall volume-to-capacity (v/c) ratios of 0.96, 0.96, and 0.70 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively.

Under 2025 future background conditions, the intersection operates at overall volume-to-capacity (v/c) ratios of 0.99, 1.02, and 0.81 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. It is observed that eastbound through-right turn movement operates above its theoretical capacities during the weekday afternoon peak hour as detailed in **Table 13**.

TABLE 13 CAPACITY ANALYSIS RESULTS – EGLINTON AVENUE WEST / ISLINGTON AVENUE

Key Movements	Existing		Future Background		2025 Future Total – Baseline		2025 Future Total – Sensitivity		2030 Future Total – Baseline		2030 Future Total – Sensitivity	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
EBL	0.91 (0.88) [0.64]	E (E) [C]	0.98 (0.94) [0.47]	F (E) [B]	0.98 (0.95) [0.55]	E (F) [D]	0.98 (1.03) [0.68]	E (F) [D]	1.03 (0.95) [0.58]	F (F) [D]	1.11 (1.03) [0.71]	F (F) [D]
EBTR	1.00 (0.97) [0.66]	D (D) [B]	0.94 (1.10) [0.83]	C (F) [C]	0.99 (1.10) [0.85]	D (E) [B]	0.99 (1.10) [0.85]	D (E) [B]	1.02 (1.13) [0.88]	E (F) [B]	1.02 (1.13) [0.88]	E (F) [B]
WBL	0.91 (0.72) [0.76]	E (D) [D]	1.00 (0.85) [0.61]	F (E) [C]	0.88 (0.85) [0.63]	E (E) [C]	0.89 (0.85) [0.63]	E (E) [C]	0.93 (0.85) [0.64]	E (E) [C]	0.93 (0.85) [0.64]	E (E) [C]
WBTR	0.95 (0.87) [0.61]	D (D) [B]	0.96 (0.98) [0.71]	D (E) [C]	0.98 (0.99) [0.74]	D (E) [C]	1.00 (0.99) [0.74]	E (E) [C]	1.00 (1.02) [0.76]	E (E) [C]	1.00 (1.02) [0.77]	E (E) [C]
NBL	0.23 (0.40) [0.56]	C (C) [C]	0.37 (0.41) [0.84]	C (C) [E]	0.37 (0.49) [0.85]	C (C) [F]	0.37 (0.49) [0.85]	C (C) [F]	0.41 (0.49) [0.89]	C (C) [F]	0.41 (0.49) [0.89]	C (C) [F]
NBT	0.68 (0.79) [0.59]	C (D) [C]	0.78 (0.98) [0.71]	D (E) [D]	0.78 (1.01) [0.70]	D (E) [D]	0.78 (1.01) [0.70]	D (E) [D]	0.79 (1.03) [0.71]	D (E) [D]	0.79 (1.03) [0.71]	D (E) [D]
NBR	0.25 (0.19) [0.20]	C (C) [C]	0.27 (0.16) [0.17]	C (C) [C]	0.27 (0.16) [0.17]	C (C) [C]	0.27 (0.16) [0.17]	C (C) [C]	0.27 (0.16) [0.17]	C (C) [C]	0.27 (0.16) [0.17]	C (C) [C]
SBL	0.44 (0.96) [0.48]	D (F) [C]	0.67 (0.45) [0.77]	E (C) [E]	0.66 (0.45) [0.75]	D (C) [E]	0.66 (0.45) [0.75]	D (C) [E]	0.67 (0.45) [0.75]	E (C) [E]	0.67 (0.45) [0.75]	E (C) [E]
SBT	0.96 (0.87) [0.53]	E (D) [C]	0.97 (0.82) [0.64]	E (D) [D]	0.97 (0.85) [0.63]	E (D) [D]	0.97 (0.85) [0.63]	E (D) [D]	0.97 (0.87) [0.64]	E (D) [D]	0.97 (0.87) [0.64]	E (D) [D]
SBR	0.04 (0.06) [0.21]	C (C) [C]	0.04 (0.06) [0.16]	C (C) [C]	0.04 (0.07) [0.18]	C (C) [C]	0.05 (0.09) [0.22]	C (C) [C]	0.04 (0.07) [0.19]	C (C) [C]	0.05 (0.09) [0.22]	C (C) [C]
Overall	0.96 (0.96) [0.70]	D (D) [C]	**0.99 (1.02) [0.81]**	**D (E) [C]**	**0.98 (1.04) [0.84]**	**D (E) [C]**	**0.99 (1.05) [0.85]**	**D (E) [C]**	**1.00 (1.06) [0.87]**	**D (E) [C]**	**1.05 (1.07) [0.88]**	**E (E) [C]**

Notes:
1. XXX (XXX) [XXX] – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour) [Saturday Midday Peak Hour].

At the 6-year (2025) horizon year, both the baseline and sensitivity scenarios where assessed. In each scenario, the intersection operates at overall volume-to-capacity (v/c) ratios of 0.98-0.99, 1.04-1.05, and 0.84-0.85 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively.

In relation to future background conditions, site related traffic volumes are observed to have a relatively modest impact to overall intersection operating conditions of up to -1%, 3%, and 4% during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. It is noted that the eastbound through-right turn movement, northbound through movements, and eastbound left turn movements operate above their theoretical capacities during the weekday afternoon peak hour. Overall intersection levels of service remain at LOS grade E or better during each peak hour.

At the 11-year (2030) horizon year, various future total scenarios were assessed. In each scenario, the intersection operates at overall volume-to-capacity (v/c) ratios of 1.00-1.05, 1.06-1.07, and 0.87-0.88 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. It is observed that several intersection movements operate above their theoretical capacities during each peak hour. These include the eastbound through-right turn and eastbound left turn movements during the weekday morning and afternoon peak hours, and the westbound through-right turn and northbound through movements during the weekday afternoon peak hour. Overall intersection levels of service remain at LOS grade E or better during each peak hour.

7.4.1.2 Eglinton Avenue West / Kipling Avenue

The Eglinton Avenue West / Kipling Avenue intersection is a signalized intersection that operates with a total signal time of 144 seconds, 128 seconds, and 120 seconds during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively. The intersection operates as a “SCOOT” intersection which provides the signal the ability to significantly adjust time devoted various movements based upon vehicle demands. For all analysis scenarios, total cycle times were held constant, though individual phase splits were adjusted within the specified latitudes provided by the “SCOOT” capability. Overall capacity analysis results are summarized in **Table 14**.

Under existing conditions, the Eglinton Avenue W / Kipling Avenue intersection operates at overall volume-to-capacity (v/c) ratios of 0.94, 0.95, and 0.79 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively.

Under future background conditions, the Eglinton Avenue W / Kipling Avenue intersection operates at overall volume-to-capacity (v/c) ratios of 1.03, 1.10, and 0.96 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. It is observed that several intersection movements operate above their theoretical capacities during the weekday morning, weekday afternoon, and Saturday midday peak hours as detailed in **Table 14**.

TABLE 14 CAPACITY ANALYSIS RESULTS – EGLINTON AVENUE WEST / KIPLING AVENUE

Key Movements	Existing		Future Background		2025 Future Total – Baseline		2025 Future Total – Sensitivity		2030 Future Total – Baseline		2030 Future Total – Sensitivity	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
EBL	0.90 (0.99) [0.68]	E (F) [C]	1.02 (1.09) [1.09]	F (F) [F]	1.02 (1.09) [1.10]	F (F) [F]	1.02 (1.09) [1.10]	F (F) [F]	1.09 (1.09) [1.10]	F (F) [F]	1.09 (1.09) [1.10]	F (F) [F]
EBTR	0.94 (0.99) [0.84]	D (D) [C]	0.97 (1.09) [0.98]	D (E) [D]	1.03 (1.10) [1.01]	E (F) [D]	1.03 (1.10) [1.01]	E (F) [D]	1.01 (1.10) [1.02]	E (F) [D]	1.01 (1.10) [1.02]	E (F) [D]
WBL	0.86 (0.88) [0.86]	E (E) [E]	0.97 (0.96) [0.89]	F (F) [E]	0.99 (1.03) [0.96]	F (F) [F]	0.99 (1.03) [0.96]	F (F) [F]	1.03 (1.07) [1.00]	F (F) [F]	1.03 (1.07) [1.00]	F (F) [F]
WBTR	0.93 (0.99) [0.74]	D (D) [C]	1.03 (1.08) [0.82]	E (F) [C]	1.07 (1.09) [0.84]	E (F) [B]	1.07 (1.09) [0.84]	E (F) [B]	1.04 (1.09) [0.84]	E (F) [B]	1.04 (1.09) [0.84]	E (F) [B]
NBL	0.65 (0.65) [0.60]	D (D) [D]	0.70 (0.69) [0.63]	E (D) [D]	0.69 (0.70) [0.65]	D (D) [D]	0.69 (0.70) [0.65]	D (D) [D]	0.71 (0.70) [0.65]	E (D) [D]	0.71 (0.70) [0.65]	E (D) [D]
NBT	0.78 (0.76) [0.54]	D (D) [D]	1.04 (0.77) [0.55]	F (D) [D]	1.03 (0.78) [0.56]	F (D) [D]	1.03 (0.78) [0.56]	F (D) [D]	1.06 (0.78) [0.56]	F (D) [D]	1.06 (0.78) [0.56]	F (D) [D]
NBR	0.29 (0.22) [0.15]	D (C) [D]	0.30 (0.17) [0.15]	D (C) [D]	0.31 (0.20) [0.16]	D (C) [D]	0.31 (0.20) [0.16]	D (C) [D]	0.34 (0.21) [0.18]	D (C) [D]	0.34 (0.21) [0.18]	D (C) [D]
SBL	0.93 (0.69) [0.24]	F (E) [C]	0.62 (0.72) [0.25]	E (E) [C]	0.62 (0.74) [0.25]	E (E) [C]	0.62 (0.74) [0.25]	E (E) [C]	0.62 (0.74) [0.25]	E (E) [C]	0.62 (0.74) [0.25]	E (E) [C]
SBT	0.70 (0.70) [0.47]	D (D) [C]	0.71 (0.71) [0.47]	D (D) [C]	0.70 (0.72) [0.48]	D (D) [C]	0.70 (0.72) [0.48]	D (D) [C]	0.72 (0.72) [0.48]	E (D) [C]	0.72 (0.72) [0.48]	E (D) [C]
SBR	0.03 (0.04) [0.04]	D (F) [C]	0.03 (0.04) [0.04]	D (D) [C]	0.03 (0.04) [0.04]	D (D) [B]	0.03 (0.04) [0.04]	D (D) [B]	0.03 (0.04) [0.04]	D (D) [B]	0.03 (0.04) [0.04]	D (D) [B]
Overall	**0.94 (0.95) [0.79]**	**D (D) [C]**	**1.03 (1.03) [0.96]**	**E (E) [D]**	**1.03 (1.03) [0.97]**	**E (E) [D]**	**1.03 (1.03) [0.97]**	**E (E) [D]**	**1.06 (1.04) [0.97]**	**E (E) [D]**	**1.06 (1.04) [0.97]**	**E (E) [D]**

Notes:
1. XXX (XXX) [XXX] – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour) [Saturday Midday Peak Hour].

At the 6-year (2025) horizon year, both the baseline and sensitivity scenarios where assessed. In each scenario, the intersection operates at overall volume-to-capacity (v/c) ratios of 1.03, 1.03, and 0.97 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. In relation to future background conditions, site related traffic volumes are observed to have a minimal impact during peak hours (1% or less). It is noted that several intersection movements operate above their theoretical capacities during each peak hour as detailed in **Table 14**. Overall intersection levels of service remain at LOS grade E or better during each peak hour.

At the 11-year (2030) horizon year, both the baseline and sensitivity scenarios where assessed. It is noteworthy to mention that at the 11-year (2030) horizon year, it is recommended that bus laybys be constructed on both the eastbound and westbound approaches of Eglinton Avenue West at the Kipling Avenue intersection. Given the implementation of this intersection improvement, the intersection operates at overall volume-to-capacity (v/c) ratios of 1.06, 1.04, and 0.97 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. In relation to future background conditions, site related traffic volumes are observed to have a moderate impact to overall intersection operating conditions of up to 3%, 1%, and 1% during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. It is noted that several intersection movements operate above their theoretical capacities during each peak hour as detailed in **Table 14**. Overall intersection levels of service remain at LOS grade E or better during each peak hour.

7.4.1.3 Kipling Avenue / Widdicombe Hill Boulevard

The Kipling Avenue / Widdicombe Hill Boulevard intersection is a signalized intersection that operates with a total signal time of 144 seconds, 128 seconds, and 120 seconds during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively. The intersection operates as a “SCOOT” intersection which provides the signal the ability to significantly adjust time devoted various movements based upon vehicle demands. For all analysis scenarios, total cycle times were held constant, though individual phase splits were adjusted within the specified latitudes provided by the “SCOOT” capability. Capacity analysis results are summarized in **Table 15**.

Under existing conditions, the Kipling Avenue / Widdicombe Hill Boulevard intersection operates at overall volume-to-capacity (v/c) ratios of 0.51, 0.45, and 0.29 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively.

Under future background conditions, the Kipling Avenue / Widdicombe Hill Boulevard intersection operates at overall volume-to-capacity (v/c) ratios of 0.52, 0.45, and 0.29 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively.

TABLE 15 CAPACITY ANALYSIS RESULTS – KIPLING AVENUE / WIDDICOMBE HILL BOULEVARD

Key Movements	Existing		Future Background		2025 Future Total – Baseline		2025 Future Total – Sensitivity		2030 Future Total – Baseline		2030 Future Total – Sensitivity	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
EBLTR	0.68 (0.62) [0.37]	E (D) [D]	0.68 (0.62) [0.37]	E (D) [D]	0.67 (0.65) [0.38]	E (D) [D]	0.67 (0.65) [0.38]	E (D) [D]	0.67 (0.65) [0.38]	E (D) [D]	0.67 (0.65) [0.38]	E (D) [D]
WBLTR	0.42 (0.27) [0.24]	D (D) [D]	0.42 (0.27) [0.24]	D (D) [D]	0.47 (0.33) [0.35]	D (D) [D]	0.47 (0.33) [0.35]	D (D) [D]	0.47 (0.33) [0.35]	D (D) [D]	0.47 (0.33) [0.35]	D (D) [D]
NBL	0.10 (0.12) [0.07]	A (B) [A]	0.10 (0.12) [0.07]	A (A) [A]	0.11 (0.12) [0.07]	A (A) [A]	0.11 (0.12) [0.07]	A (A) [A]	0.11 (0.12) [0.07]	A (A) [A]	0.11 (0.12) [0.07]	A (A) [A]
NBT	0.46 (0.40) [0.26]	A (B) [A]	0.46 (0.40) [0.26]	A (B) [A]	0.49 (0.40) [0.27]	A (B) [A]	0.49 (0.40) [0.27]	A (B) [A]	0.49 (0.40) [0.27]	A (B) [A]	0.49 (0.40) [0.27]	A (B) [A]
NBR	0.02 (0.03) [0.03]	A (B) [A]	0.03 (0.05) [0.05]	A (B) [A]	0.04 (0.06) [0.06]	A (B) [A]	0.04 (0.06) [0.06]	A (B) [A]	0.04 (0.06) [0.06]	A (B) [A]	0.04 (0.06) [0.06]	A (B) [A]
SBL	0.06 (0.12) [0.06]	A (A) [A]	0.07 (0.12) [0.06]	A (A) [A]	0.17 (0.18) [0.13]	B (A) [A]	0.17 (0.18) [0.13]	B (A) [A]	0.17 (0.20) [0.13]	B (A) [A]	0.17 (0.20) [0.13]	B (A) [A]
SBT	0.26 (0.31) [0.21]	A (A) [A]	0.26 (0.31) [0.21]	A (A) [A]	0.27 (0.32) [0.21]	A (A) [A]	0.27 (0.32) [0.21]	A (A) [A]	0.27 (0.32) [0.21]	A (A) [A]	0.27 (0.32) [0.21]	A (A) [A]
SBR	0.06 (0.06) [0.03]	A (A) [A]	0.06 (0.06) [0.03]	A (A) [A]	0.06 (0.06) [0.03]	A (A) [A]	0.06 (0.06) [0.03]	A (A) [A]	0.06 (0.06) [0.03]	A (A) [A]	0.06 (0.06) [0.03]	A (A) [A]
Overall	**0.51 (0.45) [0.29]**	**B (B) [B]**	**0.52 (0.45) [0.29]**	**B (B) [A]**	**0.53 (0.47) [0.29]**	**B (B) [B]**	**0.53 (0.47) [0.29]**	**B (B) [B]**	**0.53 (0.47) [0.29]**	**B (B) [B]**	**0.53 (0.47) [0.29]**	**B (B) [B]**

Notes:
1. XXX (XXX) [XXX] – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour) [Saturday Midday Peak Hour].

At the 6-year (2025) horizon year, both the baseline and sensitivity scenarios where assessed. In each scenario, the intersection operates at overall volume-to-capacity (v/c) ratios of 0.53, 0.47, and 0.29 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. In relation to future background conditions, site related traffic volumes are observed to have a negligible impact to overall intersection operating conditions of up to 1%, 2%, and 0% during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. The intersection continues to function at good overall level of services, with all movements operating below their theoretical capacities during each peak hour.

At the 11-year (2030) horizon year, both the baseline and sensitivity scenarios where assessed. In each scenario, the intersection operates at overall volume-to-capacity (v/c) ratios of 0.53, 0.47, and 0.29 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. In relation to future background conditions, site related traffic volumes are observed to have a negligible impact to overall intersection operating conditions of up to 1%, 2%, and 0% during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. The intersection continues to function at good overall level of services, with all movements operating below their theoretical capacities during each peak hour.

7.4.1.4 Eglinton Avenue West / Wincott Drive – Bemersyde Drive

The Eglinton Avenue West / Wincott Drive – Bemersyde Drive intersection is a signalized intersection that operates with a total signal time of 120 seconds during the morning and afternoon peak hours, and 96 seconds during the Saturday midday peak hour. The intersection operates as a “SCOOT” intersection which provides the signal the ability to significantly adjust time devoted various movements based upon vehicle demands. For all analysis scenarios, total cycle times were held constant, though individual phase splits were adjusted within the specified latitudes provided by the “SCOOT” capability. Capacity analysis results are summarized in **Table 16**.

Under existing conditions, the Eglinton Avenue West / Wincott Drive – Bemersyde Drive intersection operates at overall volume-to-capacity (v/c) ratios of 0.65, 0.64, and 0.54 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively.

Under future background conditions, the Eglinton Avenue West / Wincott Drive – Bemersyde Drive intersection operates at overall volume-to-capacity (v/c) ratios of 0.70, 0.72, and 0.67 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively.

At the 6-year (2025) horizon year, both the baseline and sensitivity scenarios where assessed. In each scenario, the intersection operates at overall volume-to-capacity (v/c) ratios of 0.75, 0.75, and 0.73 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. In relation to future background conditions, site related traffic volumes are observed to have a moderate impact to overall intersection operating conditions of up to 5%, 3%, and 6% during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. The intersection continues to function at good overall level of services, with all movements operating below their theoretical capacities during each peak hour.

TABLE 16 CAPACITY ANALYSIS RESULTS – EGLINTON AVENUE WEST / WINCOTT DRIVE – BEMERSYDE DRIVE

Key Movements	Existing		Future Background		2025 Future Total – Baseline		2025 Future Total – Sensitivity		2030 Future Total – Baseline		2030 Future Total – Sensitivity	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
EBL	0.32 (0.28) [0.58]	B (B) [C]	0.46 (0.35) [0.87]	C (B) [F]	0.77 (0.57) [0.55]	D (B) [C]	0.77 (0.57) [0.55]	D (C) [C]	-- (--) [--]	-- (--) [--]	0.74 (0.57) [0.56]	D (C) [C]
EBT	0.73 (0.72) [0.69]	B (B) [B]	0.80 (0.83) [0.84]	B (B) [C]	0.80 (0.83) [0.74]	C (B) [B]	0.80 (0.83) [0.74]	C (C) [A]	0.80 (0.83) [0.85]	C (C) [C]	0.80 (0.83) [0.74]	C (B) [B]
WBL	0.13 (0.09) [0.12]	B (B) [A]	0.17 (0.17) [0.21]	B (B) [B]	0.17 (0.17) [0.16]	A (B) [B]	0.17 (0.17) [0.16]	B (A) [B]	0.17 (0.17) [0.21]	B (B) [B]	0.17 (0.17) [0.16]	B (B) [B]
WBTR	0.64 (0.50) [0.70]	C (C) [B]	0.73 (0.57) [0.79]	C (C) [B]	0.75 (0.60) [0.83]	A (C) [C]	0.75 (0.60) [0.83]	C (A) [C]	0.75 (0.60) [0.82]	C (C) [B]	0.75 (0.60) [0.85]	C (C) [C]
NBLTR	0.30 (0.37) [0.13]	D (D) [C]	0.30 (0.37) [0.13]	D (D) [C]	0.35 (0.42) [0.21]	D (D) [D]	0.35 (0.42) [0.21]	D (D) [D]	0.35 (0.42) [0.16]	D (D) [C]	0.35 (0.42) [0.21]	D (D) [D]
SBL	0.26 (0.31) [0.21]	D (D) [C]	0.26 (0.31) [0.21]	D (D) [C]	0.45 (0.52) [0.45]	D (D) [D]	0.45 (0.52) [0.45]	D (D) [D]	0.45 (0.52) [0.34]	D (D) [C]	0.51 (0.62) [0.55]	D (D) [D]
SBTR	0.44 (0.41) [0.23]	D (D) [C]	0.44 (0.41) [0.26]	D (D) [C]	0.59 (0.47) [0.35]	D (D) [D]	0.59 (0.47) [0.35]	D (D) [D]	0.59 (0.47) [0.31]	D (D) [C]	0.59 (0.47) [0.35]	D (D) [D]
Overall	**0.65 (0.64) [0.54]**	**C (C) [B]**	**0.70 (0.72) [0.67]**	**C (C) [C]**	**0.75 (0.75) [0.73]**	**C (C) [B]**	**0.75 (0.75) [0.73]**	**C (B) [B]**	**0.75 (0.75) [0.68]**	**C (C) [C]**	**0.75 (0.78) [0.76]**	**C (C) [B]**

Notes:
1. XXX (XXX) [XXX] – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour) [Saturday Midday Peak Hour].

At the 11-year (2030) horizon year, both the baseline and sensitivity scenarios where assessed. In each scenario, the intersection operates at overall volume-to-capacity (v/c) ratios of 0.75, 0.78, and 0.76 during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. In relation to future background conditions, site related traffic volumes are observed to have a moderate impact to overall intersection operating conditions of up to 5%, 6%, and 9% during the weekday morning, weekday afternoon peak hour, and Saturday midday peak hours, respectively. The intersection continues to function at good overall level of services, with all movements operating below their theoretical capacities during each peak hour.

7.4.1.5 Wincott Drive / East Site Access – Waterford Drive

The Wincott Drive / Waterford Drive / East Site Access intersection is an existing site intersection currently operating as a stop-controlled intersection. The intersection is proposed to be signalized as part of Phase 1 of the Richview Square redevelopment at the 6-year (2025) horizon year. The future signalized intersection was assumed to operate with a total signal time of 90 seconds during each peak hour. It is also noteworthy to mention that an exclusive northbound left turn lane is also proposed as part of the signalization of the intersection. Capacity analysis results are summarized in **Table 17**.

TABLE 17 CAPACITY ANALYSIS RESULTS – WINCOTT DRIVE / SOUTH SITE ACCESS – WATERFORD DRIVE

Key Movements	Existing		Future Background		2025 Future Total – Baseline		2025 Future Total – Sensitivity		2030 Future Total – Baseline		2030 Future Total – Sensitivity	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
EBL	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	0.33 (0.38) [0.35]	C (C) [C]	0.32 (0.36) [0.33]	C (C) [C]	0.40 (0.40) [0.37]	C (C) [C]	0.39 (0.39) [0.35]	C (C) [C]
EBTR	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	0.23 (0.37) [0.39]	C (C) [C]	0.19 (0.27) [0.27]	C (C) [C]	0.25 (0.39) [0.41]	C (C) [C]	0.21 (0.29) [0.28]	C (C) [C]
WBLTR	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	0.39 (0.48) [0.40]	C (C) [C]	0.33 (0.38) [0.29]	C (C) [C]	0.43 (0.48) [0.45]	C (C) [C]	0.37 (0.40) [0.31]	C (C) [C]
NBL	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	0.33 (0.50) [0.45]	A (B) [A]	0.35 (0.54) [0.49]	A (B) [A]	0.36 (0.55) [0.49]	A (B) [A]	0.38 (0.58) [0.53]	A (B) [A]
NBTR	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	0.14 (0.19) [0.10]	A (A) [A]	0.14 (0.19) [0.10]	A (A) [A]	0.14 (0.19) [0.10]	A (A) [A]	0.14 (0.19) [0.10]	A (A) [A]
SBLTR	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	0.26 (0.23) [0.18]	A (A) [A]	0.26 (0.23) [0.18]	A (A) [A]	0.26 (0.23) [0.18]	A (A) [A]	0.27 (0.23) [0.18]	A (A) [A]
Overall	**-- (--) [--]**	**-- (--) [--]**	**-- (--) [--]**	**-- (--) [--]**	**0.34 (0.49) [0.44]**	**B (B) [B]**	**0.34 (0.50) [0.45]**	**B (B) [B]**	**0.37 (0.53) [0.48]**	**B (B) [B]**	**0.38 (0.54) [0.49]**	**B (B) [B]**

Notes:
1. XXX (XXX) [XXX] – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour) [Saturday Midday Peak Hour].

7.4.2 Unsignalized Intersection Capacity Analysis Results

Table 18 summarizes capacity results for all study area unsignalized intersections. As can be seen from the table, all movements operate at a level-of-service (LOS) grade of C or better.

TABLE 18 UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Movements	Existing		Future Background		2025 Future Total – Baseline		2025 Future Total – Sensitivity		2030 Future Total – Baseline		2030 Future Total – Sensitivity	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Widdicombe Hill Blvd. & Hunting Ridge												
WBL	3.0 (2.9) [2.8]	A (A) [A]	3.0 (2.9) [2.8]	A (A) [A]	3.0 (2.8) [2.8]	A (A) [A]	3.0 (2.8) [2.8]	A (A) [A]	3.0 (2.8) [2.8]	A (A) [A]	3.0 (2.8) [2.8]	A (A) [A]
NBLR	9.6 (9.3) [9.3]	A (A) [A]	9.6 (9.3) [9.3]	A (A) [A]	9.8 (9.2) [9.2]	A (A) [A]	9.8 (9.2) [9.2]	A (A) [A]	9.8 (9.2) [9.2]	A (A) [A]	9.8 (9.2) [9.2]	A (A) [A]
Eglinton Ave. E. & South Site Access												
EBL	12.1 (10.7) [11.8]	B (B) [B]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]
SBLR	11.6 (11.0) [13.7]	B (B) [B]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]
SBR	-- (--) [--]	-- (--) [--]	10.5 (10.0) [11.0]	B (B) [B]	12.5 (11.1) [13.7]	B (B) [B]	12.6 (11.3) [14.1]	B (B) [B]	13.0 (11.5) [14.5]	B (B) [B]	13.1 (11.7) [15.0]	B (B) [C]
Wincott Dr. & Hunting Ridge												
EBLR	12.3 (13.1) [10.6]	B (B) [B]	12.8 (13.1) [10.6]	B (B) [B]	13.7 (14.0) [11.2]	B (B) [B]	13.7 (14.1) [11.2]	B (B) [B]	14.0 (14.1) [11.2]	B (B) [B]	14.0 (14.2) [11.2]	B (B) [B]
NBL	2.3 (1.2) [1.2]	A (A) [A]	2.4 (1.2) [1.2]	A (A) [A]	2.0 (1.1) [1.0]	A (A) [A]	2.0 (1.1) [1.0]	A (A) [A]	1.8 (1.1) [1.0]	A (A) [A]	1.8 (1.1) [1.0]	A (A) [A]
Wincott Dr. & SE Site Access/Waterford Dr.												
EBLTR	9.2 (10.8) [9.5]	A (B) [A]	9.7 (11.8) [10.5]	A (B) [B]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]
WBLTR	9.3 (9.9) [8.9]	A (A) [A]	9.6 (10.5) [9.4]	A (B) [A]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]
NBLTR	9.7 (12.3) [9.9]	A (B) [A]	11.0 (17.1) [12.1]	B (C) [B]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]
SBLTR	10.4 (10.7) [9.3]	B (B) [A]	10.9 (11.5) [9.9]	B (B) [A]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]	-- (--) [--]

Key Movements	Existing		Future Background		2025 Future Total – Baseline		2025 Future Total – Sensitivity		2030 Future Total – Baseline		2030 Future Total – Sensitivity	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Wincott Dr. & NE Site Access												
EBLR	10.4 (10.5) [10.0]	B (B) [A]	10.4 (10.5) [10.0]	B (B) [A]	10.8 (10.8) [10.4]	B (B) [B]	10.8 (10.9) [10.4]	B (B) [B]	10.9 (10.9) [10.4]	B (B) [B]	10.9 (10.9) [10.4]	B (B) [B]
NBLT	1.6 (1.1) [1.6]	A (A) [A]	1.6 (1.1) [1.6]	A (A) [A]	1.3 (1.0) [1.4]	A (A) [A]	1.3 (1.0) [1.4]	A (A) [A]	1.2 (1.0) [1.3]	A (A) [A]	1.2 (1.0) [1.4]	A (A) [A]
Widdicombe Hill Blvd. & NW Site Access												
WBLR	9.5 (9.8) [9.3]	A (A) [A]	9.5 (9.9) [9.4]	A (A) [A]	10.1 (10.2) [9.9]	B (B) [A]	10.1 (10.2) [9.9]	B (B) [A]	10.1 (10.2) [9.9]	B (B) [A]	10.1 (10.2) [9.9]	B (B) [A]
SBLT	1.6 (2.8) [2.5]	A (A) [A]	1.6 (2.8) [2.5]	A (A) [A]	1.6 (2.4) [2.6]	A (A) [A]	1.6 (2.4) [2.6]	A (A) [A]	1.6 (2.4) [2.6]	A (A) [A]	1.6 (2.4) [2.6]	A (A) [A]
Wincott Dr. & 265 Wincott Dr. Plaza South												
WBLR	11.6 (12.1) [11.0]	B (B) [B]	12.3 (13.3) [12.1]	B (B) [B]	14.3 (17.4) [15.4]	B (C) [C]	14.7 (18.4) [16.3]	B (C) [C]	14.8 (18.5) [16.2]	B (C) [C]	15.6 (19.5) [17.3]	C (C) [C]
SBLT	0.6 (0.4) [0.6]	A (A) [A]	0.6 (0.4) [0.6]	A (A) [A]	0.5 (0.4) [0.5]	A (A) [A]	0.5 (0.4) [0.5]	A (A) [A]	0.5 (0.4) [0.5]	A (A) [A]	0.5 (0.3) [0.5]	A (A) [A]
Wincott Dr. & 265 Wincott Dr. Plaza North												
WBLR	10.5 (10.5) [10.9]	B (B) [B]	11.0 (11.4) [11.9]	B (B) [B]	11.9 (13.6) [15.1]	B (B) [C]	12.1 (14.2) [16.1]	B (B) [C]	12.2 (14.2) [15.9]	B (B) [C]	12.5 (14.7) [17.0]	B (B) [C]
SBLT	0.2 (0.0) [0.2]	A (A) [A]	0.2 (0.0) [0.2]	A (A) [A]	0.2 (0.0) [0.2]	A (A) [A]	0.2 (0.0) [0.2]	A (A) [A]	0.2 (0.0) [0.2]	A (A) [A]	0.2 (0.0) [0.2]	A (A) [A]

Notes:
1. XXX (XXX) [XXX] – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour) [Saturday Midday Peak Hour].

7.5 QUEUEING STUDY

Queueing analyses were completed for both average (50th percentile) and 95th percentile peak hour queues for the following key movements and intersections.

- The northbound left turn and northbound through lane groups at the proposed signalized Wincott Drive / Waterford Drive – East Site Access intersection. Queueing results are summarized in **Table 19**.
- The southbound left turn and southbound through-right turn lane groups at the Eglinton Avenue W / Wincott Drive intersection. Queueing results are summarized in **Table 20**.

Analysis results are attached in **Appendix G**.

TABLE 19 NORTHBOUND LANE GROUP QUEUE ANALYSIS– WINCOTT DRIVE / WATERFORD DRIVE – EAST SITE ACCESS INTERSECTION

Lane Group	Storage (m)	AM Peak Hour		
		Peak Hour Volume	Average Queue (m)	95th Percentile Queue (m)
Existing Conditions				
NBL	N.A.	25 (60) [80]	- (-) [-]	- (-) [-]
NBT	90	110 (185) [95]	- (-) [-]	- (-) [-]
2025 Future Background Conditions				
NBL	N.A.	85 (160) [170]	- (-) [-]	- (-) [-]
NBT	90	85 (185) [95]	- (-) [-]	- (-) [-]
2025 Future Total Conditions				
NBL	65	180 (310) [320]	15.6 (27.3) [25.6]	21.6 (53.9) [47.6]
NBT	90	85 (175) [90]	6.9 (12.4) [5.3]	10.7 (24.3) [11.9]
2030 Future Total Conditions				
NBL	65	195 (335) [345]	17.3 (30.8) [28.5]	23.9 (64.9) [56.0]
NBT	90	85 (175) [90]	6.9 (12.4) [5.3]	10.9 (26.0) [12.6]

Notes:
1. Storage measured as parallel length for left turn lanes, and STOP bar to STOP bar distance for through lanes.

As can be seen in the Table, both average queues and 95th percentile queues be well accommodated under all analysis scenario following the proposed signalization of the Wincott Drive / Waterford Drive – East Site Access intersection.

TABLE 20 SOUTHBOUND LANE GROUP QUEUE ANALYSIS– EGLINTON AVENUE W / WINCOTT DRIVE INTERSECTION

Lane Group	Existing Storage (m)	AM Peak Hour		
		Peak Hour Volume	Average Queue (m)	95th Percentile Queue (m)
Existing Conditions				
SBL	18	65 (70) [75]	14.2 (15.3) [11.4]	28.1 (30.3) [23.4]
SBTR	90	175 (175) [145]	36.3 (34.1) [14.3]	59.9 (56.9) [30.6]
2025 Future Background Conditions				
SBL	18	80 (80) [105]	17.7 (17.5) [16.4]	33.6 (33.6) [31.2]
SBTR	90	175 (175) [145]	36.3 (34.1) [16.9]	59.9 (56.9) [33.4]
2025 Future Total Conditions				
SBL	65	120 (175) [200]	27.9 (42.6) [47.2]	48.9 (79.5) [75.6]
SBTR	90	230 (180) [165]	50.2 (37.6) [25.9]	78.8 (61.0) [47.7]
2030 Future Background Conditions				
SBL	65	130 (180) [210]	30.7 (44.2) [50.2]	53.3 (84.9) [84.3]
SBTR	90	240 (205) [180]	52.4 (40.8) [30.4]	82.0 (65.7) [53.6]

Notes:
1. Storage measured as parallel length for left turn lanes, and STOP bar to STOP bar distance for through lanes.

As can be seen in the Table, both average queues will be well accommodated under all analysis scenario at the Eglinton Avenue W / Wincott Drive intersection. 95th percentile queues will intermittently block the Wincott Drive / Waterford Drive – East Site Access intersection, but will clear on every cycle.

8.0 SIGNAL WARRANT REVIEW UPDATE

Signal warrant analysis were completed for the existing Wincott Drive / East Site Access – Waterford Drive intersection. The warrant analysis was conducted in accordance with the methodologies outlined in the Ontario Traffic Manual (OTM) Book 12. Signal warrant calculation sheets are attached in **Appendix I**.

The 8-hour vehicular traffic utilized in the analysis was based on existing peak 8-hour survey data at both intersections surveyed by Spectrum Traffic Data Inc. on behalf of BA Group on March 20th, 2018. Site build-out forecasts of 8-hour site traffic have been estimated based on applying the observed hourly variation of residential traffic from comparable developments located within a similar transportation context in the city of Toronto. The detailed vehicular traffic data and resultant 8-hour intersection traffic volumes under 2025 horizon year conditions (i.e. Phase 1 of development) are summarized and attached in **Appendix I**.

The proposed intersection was assessed based on Justification 1, 2, 3 and 4 of the Ontario Traffic Manual (OTM) signal warrant procedure. On this basis, signalization is warranted by the 2025 horizon year, as summarized in **Table 21** for the Wincott Drive / Site Access – Waterford Drive intersection.

TABLE 21 WINCOTT DRIVE / EAST SITE ACCESS – WATERFORD DRIVE WARRANT ANALYSIS RESULTS SUMMARY

Justification 1 – Minimum Vehicular Volume		Justification 2 – Delay to Cross Traffic		Justification 3 – Combination		Justification 4 – Four Hour Volume	
Justification	% Met	Justification	% Met	Justification	% Met	Justification	% Met
1A	100%	2A	71%	3A	100%	4	94%
1B	100%	2B	100%	3B	71%		
Result: Warranted		**Result: Not Warranted**		**Result: Not Warranted**		**Result: Not Warranted**	

9.0 NEIGHBORHOOD TRAFFIC IMPACT UPDATE

A review of existing and projected future daily traffic volumes on the existing local roads that will be impacted by the proposed development was undertaken to confirm that new site traffic will not unduly change the character and/or operation of existing local streets in the neighbourhood. Existing and forecast future two-way street peak hour and daily traffic volumes on relevant local roads are summarized for the base and sensitivity access conditions in **Table 22**.

TABLE 22 LOCAL AREA STREET TRAFFIC VOLUMES – 2030 HORIZON YEAR

Street and Location	Link Volumes			Site Impact	
	Existing/ Future Background	Future Total – Base Case	Future Total – Sensitivity	Compared to Future Total – Base Case	Compared to Future Total – Sensitivity
Wincott Drive, north of Hunting Ridge - Collector	500 (530) [515] {5,725}	585 (600) [590] {6,550}	585 (605) [595] {6,600}	85 (70) [75] {825}	85 (75) [80] {875}
Hunting Ridge, west of Widdicombe Hill - Local	195 (140) [165] {1,825}	200 (130) [165] {1,825}	200 (130) [165] {1,825}	5 (-10) [0] {0}	5 (-10) [0] {0}
Waterford Drive, east of Wincott Drive - Local	155 (180) [170] {1,875}	155 (195) [175] {1,950}	130 (145) [140] {1,550}	0 (15) [5] {75}	-25 (-35) [-30] {-325}
Bemersyde Drive, south of Eglinton Avenue - Local	260 (275) [270] {3,000}	315 (325) [320] {3,550}	315 (325) [320] {3,550}	55 (50) [50] {550}	55 (50) [50] {550}

Notes:
1. 00 - morning peak hour volume
   (00) - afternoon peak hour volume
   [00] - average peak hour volume
   {00} - daily traffic (based upon ADT counts provided by the City of Toronto for existing conditions {except Bemersyde Drive, south of Eglinton} and the average peak hour being 9 percent of the daily traffic for future total scenarios).
2. Peak hour volumes rounded to the nearest 5 vehicles. Daily volumes rounded to the nearest 25 vehicles.

Definitions of acceptable average daily traffic volumes on various road types were made in relation to Road Classification criteria adopted by the City of Toronto. Standards for typical average daily traffic volumes as utilized by the City of Toronto are illustrated in **Table 23**.

TABLE 23 AVERAGE DAILY TRAFFIC VOLUMES BASED ON ROAD CLASSIFICATION

Classification	Accepted Daily Traffic Volumes[1]
Collector Road	< 8,000 vehicles per day
Local Road	<2,500 vehicles per day

Notes:
1. City of Toronto Road Classification Criteria (adopted by City Council on February 29, March 1 & 2, 2000).

Key observations based on the foregoing analysis are as follows:

Wincott Drive – North of Hunting Ridge

Wincott Drive is classified as a collector road by the City of Toronto. On Wincott Drive north of Hunting Ridge, the existing average daily traffic was estimated at approximately 5,725 vehicles per day. These volumes are within the typically accepted threshold (<8,000 vehicles per day) for collector roads. With regards to site generated traffic in the future, daily traffic is projected to increase to approximately 6,550 – 6,600 vehicles per day. Under each site access condition assessed though, site traffic will not alter the fundamental character or operation of Wincott Drive.

Hunting Ridge – West of Widdicombe Hill

Hunting Ridge (west of Widdicombe Hill) is classified as a local road by the City of Toronto. On Hunting Ridge west of Widdicombe Hill, the existing average daily traffic was estimated at approximately 1,825 vehicles per day. These volumes are within the typically accepted threshold (<2,500 vehicles per day) for local roads. With regards to site generated traffic in the future, daily traffic is projected to remain at approximately 1,825 vehicles per day. Under each site access condition assessed therefore, site traffic will not alter the fundamental character or operation of Hunting Ridge.

Waterford Drive – East of Wincott Drive

Waterford Drive is classified as a local road by the City of Toronto. On Waterford Drive east of Wincott Drive, the existing average daily traffic was estimated at approximately 1,875 vehicles per day. These volumes are within the typically accepted threshold (<2,500 vehicles per day) for local roads. With regards to site generated traffic in the future, daily traffic is projected to vary between 1,550 – 1,950 vehicles per day. Under each site access condition assessed though, site traffic will not alter the fundamental character or operation of Waterford Drive.

Bemersyde Drive – South of Eglinton Avenue West

Bemersyde Drive is classified as a local road by the City of Toronto. On Bemersyde Drive south of Eglinton Avenue West, the existing average daily traffic was estimated at approximately 3,000 vehicles per day. These volumes exceeds the typically accepted threshold (<2,500 vehicles per day) for local road. With regards to site generated traffic in the future, daily traffic is projected to increase to approximately 3,550 vehicles per day. Forecast daily traffic volumes are estimated to exceed typical local road thresholds by approximately 1,050 vehicles.

10.0 SUMMARY AND FINDINGS

Development Plan

- The development plan for the project considers changes to the existing Richview Square plaza, and development of the Build Toronto lands located immediately to the south. The proposed development plan for the site involves the demolition of a portion of the existing retail plaza and the construction of three new mixed-use buildings on the property.
- A variety of retail uses are proposed, including general CRU, a fitness club, and a grocery store. The Site upon completion would contain a total of 605 residential units and approximately 148,843 sq.ft GFA of retail.
- The site would continue to have access onto Wincott Drive, Widdicombe Hill and Eglinton Avenue West. It is proposed as part of the development plan that the Wincott Drive / Site Driveway / Waterford Drive intersection be signalized. The Eglinton West private access would be shifted further west to generally to the property limits, and is proposed to operate as a right-in/right-out intersection. The access at the Wincott Drive / Waterford Drive intersection is proposed to be signalized.
- Sensitivity access conditions have been explored to alter traffic patterns in the area and refocus traffic to the arterial road network: restricting eastbound and westbound through traffic at the Waterford /Wincott / Site access intersection.
- A private street is proposed within the development program between Eglinton Avenue West and Wincott Drive to provide circulation to all key areas of the site. This street has been designed to have the look and feel of a public road, with on-street parking, sidewalks and landscaped boulevards, and would operate under private control.

Parking Overview

- Parking on site is provided through a combination of surface parking within parking areas, and within a two-level underground parking garage. The parking garage would be accessed through the internal private street and drive aisles. In total there are approximately 958 parking spaces proposed.
- The site supply would meet the City's recommendations for Zoning By-law 569-2013 Policy Area 4 parking requirements.

Loading Overview

- Loading activity for the existing Richview Square businesses are serviced through a rear private drive aisle at the north end of the property.
- All new buildings on site have individual loading areas contained within the building footprints. The number and quantity of spaces provided in these loading areas would meet the 569-2013 Zoning By-law requirements.

Traffic Volumes

- To document existing peak hour traffic conditions, traffic data was collected by BA Group and obtained from the City of Toronto for the weekday morning, weekday afternoon and Saturday midday peak hours.
- Future background traffic volumes were developed, which take into consideration corridor growth trends in the area and known development applications, which comprise of 4 area developments with approximately 1,980 residential units and 2,040 m^2 of retail space.
- Site Traffic Volumes were developed for the site based on a review of trip generation information from various proxy sources and published information in the ITE Trip Generation Manual 10th Edition.

- At the 6-year (2025) horizon year, the site is expected to generate approximately 555, 575, and 720 new two-way vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively. Considering the existing retail vehicle trips, and retail pass-by trips associated with the proposed new retail uses, the site is expected to generate approximately 820, 840, and 990 new two-way vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively.
- At the 11-year (2030) horizon year, the proposed development is expected to generate approximately 615, 645, and 785 new two-way vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively. Considering the existing retail vehicle trips, and retail pass-by trips associated with the proposed new retail uses, the site is expected to generate approximately 880, 910, and 1,050 new two-way vehicle trips during the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively.

Capacity Analysis Review

- Peak hour traffic operations were assessed using Synchro capacity analysis software, which provides a review of volume-to-capacity ratios and delays at study area signalized and unsignalized intersections.

- *Signalized Intersections*
  - The Wincott Drive / Eglinton Avenue West intersection is forecast to function in a satisfactory manner.
  - Signalized intersections on Eglinton Avenue West at Islington and Kipling will experience higher end demands and poor operational characteristics under future background conditions, particularly during the weekday morning afternoon peak hours. These intersections will continue to operate in a busy manner with the addition of site traffic during the weekday and morning peak hours. At the 11-year (2030) horizon year it is recommended that bus laybys be constructed on both the eastbound and westbound approaches of Eglinton Avenue West at the Kipling Avenue intersection. Overall service grades at both the on Eglinton Avenue West at Islington and Kipling intersections will operate at LOS grade E or better under all future scenarios and peak hours
  - During the Saturday peak hour intersections operate in a satisfactory manner. Similarly with the addition of site traffic the weekday morning and afternoon peak hours will continue to be busy. Intersections are forecast to operate in a busy, but satisfactory manner during the Saturday midday peak hour.

- *Unsignalized Intersections*
  - All area unsignalized intersections reviewed will operate in a satisfactory manner. All movements will operate at LOS grade C or better under all scenarios and peak hours.

Neighbourhood Traffic Impact

- A neighbourhood traffic impact review was prepared to document the daily volume changes related to the proposed Site Plan.
- The results generally showed that under the Base Access Plan local roads: Hunting Ridge Boulevard and Waterford Drive will have daily volumes consistent with their respective classifications.

- Bemersyde Drive, a Local road, operates with volumes that exceed typical volumes of a local road today. Given the Bemersyde Drive's location and connectivity, it generally functions in manner more consistent with a Collector road. This will continue in the future.
- Collector Roads such as Wincott Drive and Widdicombe Hill would operate with daily volumes consistent with their Collector Road designation.

Signal Warrant Review

- Signal warrant analysis were completed for the existing Wincott Drive / Site Access – Waterford Drive intersection. The warrant analysis was conducted in accordance with the methodologies outlined in the Ontario Traffic Manual (OTM) Book 12.
- The proposed intersection was assessed based on Justification 1, 2, 3 and 4 of the Ontario Traffic Manual (OTM) signal warrant procedure. On this basis, signalization of the Wincott Drive / Site Access – Waterford Drive intersection is warranted during Phase 1 of the development.

In summary, the Site Plan provides the necessary elements to accommodate on site parking and loading activity. Further, the development program proposes a number of mitigation measures and area transportation improvements to assist in accommodating projected traffic demands. Based upon our review, the development program is appropriate from a transportation perspective.

APPENDIX A:
Reduced Architectural Plans

DRAWING LIST

DWG NO.	
A000	TITLE PAGE
A100	PROJECT STATISTICS
A101	OBC BUILDING MATRICES
A102	CONTEXT PLAN
A103	SITE PLAN
A104	SITE SURVEY
A105	REGISTERED PLAN 6864
A106	EASEMENT DIAGRAM
PLANS	
A201	PARTIAL P2 - P1 PARKING LEVEL PLANS A
A202	LEVEL P2 FLOOR PLAN BUILDINGS B & C
A203	PARTIAL P1 PARKING LEVEL PLAN BC
A204	GROUND LEVEL PLAN A & LEVEL 1.5 PLAN A
A205	LEVEL 2 A PLAN & LEVEL 3 A PLAN
A206	LEVEL 4 PLAN A & LEVEL 5-11 A
A207	LEVEL 12-18 PLAN A & MEC. PENTHOUSE
A208	ROOF PLAN A
A250	GROUND LEVEL PLAN BC
A251	LEVEL 1.5 PLAN BC
A252	LEVEL 2 PLAN BC
A253	LEVEL 3 PLAN BC
A254	LEVEL 4 PLAN BC
A255	LEVEL 5 PLAN BC
A256	LEVEL 6 PLAN BC
A257	LEVEL 7 PLAN BC
A258	LEVEL 8-9 PLAN BC
A259	LEVEL 10 PLAN BC
A260	LEVEL 11 PLAN BC
A261	LEVEL 12 (B) & MECH/EXT. AMENITY (C) PLAN
A262	MECHANICAL PENTHOUSE AND ROOFTOP AMENITY B
A263	ROOF PLAN BC
ELEVATIONS	
A401	SOUTH ELEVATION (ABC)
A402	WEST ELEVATION (B)
A403	WEST ELEVATION (A)
A404	NORTH ELEVATION (ABC)
A405	EAST ELEVATION (C)
A406	EAST ELEVATION (A)
SECTIONS	
A420	EW SECTION (A)
A421	EW SECTION (BC)
A422	NS SECTION (C)
A423	NS SECTION (B)
MASSING	
A500	MASSING MODEL

KEY PLAN
1:5000

TRINITY CREATE TO

RICHVIEW SQUARE

4620 Eglinton Avenue West
& 250 Wincott Drive
Etobicoke, ON
17-319

NO.	REVISIONS	DATE
3	ISSUED FOR REZONING	SEPT. 2019
2	ISSUED FOR REZONING	MARCH 22, 2019
1	ISSUED FOR REZONING	APRIL 30, 2018

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CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS ON THE JOB.

N

TITLE PAGE

SEPTEMBER 23, 2019

SCALE 1 : 5000

A000

CORE

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RICHVIEW SQUARE
PROJECT STATISTICS
AMALGAMATED BY-LAW 569-2013

SITE AREA	APPROXIMATE 30,431.84 SM (327,566 SF OR 3.04 ha)			
PROGRAM	PROPOSED RESIDENTIAL PROPOSED COMMERCIAL - RETAIL			
GROSS FLOOR AREA (SEE NOTE 1)	BUILDING A RETAIL GFA = 272.55 SM (2,934 SF)	BUILDING A RESIDENTIAL GFA = 13,920.39 SM (149,838 SF)		
	BUILDING B RETAIL GFA = 3,735 SM (40,205 SF)	BUILDING B RESIDENTIAL GFA = 15,905.90 SM (171,210 SF)		
	BUILDING C RETAIL GFA = 5,604.66 SM (60,328 SF)	BUILDING C RESIDENTIAL GFA = 21,161.58 SM (227,781 SF)		
	BUILDING D EX. RETAIL GFA = 3,939.93 SM (42,409 SF)			
	BUILDING D NEW RETAIL GFA = 275.65 SM (2,967 SF)			
	PARKING LEVELS RETAIL GFA = 124.07 SM (1,335 SF)	PARKING LEVELS RESIDENTIAL GFA = 1,814.95 SM (19,536 SF)		
	TOTAL PROJECT RETAIL GFA = 13,952.07 SM (150,179 SF)	TOTAL PROJECT RESIDENTIAL GFA = 52,802.82 (568,365 SF)		
	TOTAL PROJECT NEW GFA = 62,814.97 (676,135 SF)	TOTAL PROJECT EXISTING GFA = 3,939.93 SM (42,409 SF)		
	TOTAL PROJECT GFA (NEW & EXISTING) = 66,754.89 SM (718,544 SF)			
NO. OF DWELLING UNITS	1 BEDROOM (469 - 860 SF)	2 BEDROOM (752 - 1,062 SF)	3 BEDROOM (994 - 1,381 SF)	TOTAL PROVIDED
	355 UNITS (58.7%)	182 UNITS (30.1%)	68 UNITS (11.2%)	605 UNITS (100%)
	AVG. UNIT SIZE (628 SF)	AVG. UNIT SIZE (880 SF)	AVG. UNIT SIZE (1,143 SF)	AVG. UNIT SIZE (762 SF)

FLOOR SPACE INDEX	2.19 X
MAX. BUILDING HEIGHT	BUILDING A - 66.30 m (18 STOREYS + MPH) BUILDING B - 51.60 m (12 STOREYS + MPH) BUILDING C - 48.30 m (11 STOREYS + MPH) BUILDING D - 7.65 m (2 STOREYS) - EXISTING BUILDING
SETBACKS	TOWER A SETBACK 12.5 m FROM SOUTH AND WEST PROPERTY LINE
OFF-STREET LOADING PASSENGER	NON-RESIDENTIAL SURFACE PARKING SUFFICIENT FOR DROP-OFF USE. COVERED PEDESTRIAN CANOPY AT RESIDENTIAL LOBBY EXITS.
RESIDENTIAL AMENITY SPACE (INTERIOR & EXTERIOR)	REQUIRED: 4.0 SM / RESIDENTIAL UNIT: BUILDING A = 4.0 x 174 = 696 SM BUILDING B = 4.0 x 191 = 764 SM BUILDING C = 4.0 x 240 = 960 SM PROVIDED: BUILDING A = 769.41 SM OF WHICH 410.82 SM IS OUTDOOR AMENITY SPACE DIRECTLY ACCESSIBLE FROM THE INDOOR AMENITY SPACE BUILDING B = 785.34 SM OF WHICH 382.77 SM IS OUTDOOR AMENITY SPACE DIRECTLY ACCESSIBLE FROM THE INDOOR AMENITY SPACE BUILDING C = 970.08 SM OF WHICH 486.04 SM IS OUTDOOR AMENITY SPACE DIRECTLY ACCESSIBLE FROM THE INDOOR AMENITY SPACE

	USE	RATE*	AREA OR UNITS	REQUIRED STS	REQUIRED LTS
BICYCLE PARKING	COMMERCIAL	3 + 0.25 SHORT TERM SPACE / 100 SM	13,952.07 SM	38 STALLS	19 STALLS
		0.13 LONG TERM SPACE / 100 SM			
	RESIDENTIAL	0.07 SHORT TERM SPACE / UNIT	605	43 STALLS	412 STALLS
		0.68 SHORT TERM SPACE / UNIT			
	TOTAL REQUIRED			81 STALLS	431 STALLS
	TOTAL PROVIDED			81 STALLS	431 STALLS
	*RATES USED REFLECT CITY OF TORONTO BICYCLE ZONE 2 ACCORDING TO BYLAW 569-2013				

VEHICULAR PARKING (RATES AS PER PA4)

REQUIRED:
MIN. RATE, 81 RETAIL + 13 FITNESS CLUB + 34 GROCERY STORE + 91 VISITOR* + 523 RESIDENTIAL = 742
MAX. RATE, 320 RETAIL + 37 FITNESS CLUB + 150 GROCERY STORE + 91 VISITOR* + 772 RESIDENTIAL = 1,370

RETAIL	FITNESS CLUB	GROCERY STORE	VISITOR*	1 BEDROOM	2 BEDROOM	3 BEDROOM
MIN. 1.0 / 100 SM = 1.0 x (8,004.41/100) = 81 REQUIRED	MIN. 0.5 / 100 SM = 0.5 x (2,499.6/100) = 13 REQUIRED	MIN. 1.0 / 100 SM = 1.0 x (3,324/100) = 34 REQUIRED	MIN. 0.15 / UNIT = 0.2 x 605 = 91 REQUIRED	MIN. 0.8 / UNIT = 0.8 x 355 = 284 REQUIRED	MIN. 0.9 / UNIT = 0.9 x 182 = 164 REQUIRED	MIN. 1.1 / UNIT = 1.1 x 68 = 75 REQUIRED
MAX. 4.0 / 100 SM = 4.0 x (8,004.41/100) = 320 REQUIRED	MAX. 1.5 / 100 SM = 1.5 x (2,499.6/100) = 37 REQUIRED	MAX. 4.5 / 100 SM = 4.5 x (3,324/100) = 150 REQUIRED	MAX. 0.15 / UNIT = 0.15 x 605 = 91 REQUIRED	MAX. 1.2 / UNIT = 1.2 x 355 = 426 REQUIRED	MAX. 1.3 / UNIT = 1.3 x 182 = 237 REQUIRED	MAX. 1.6 / UNIT = 1.6 x 68 = 109 REQUIRED

PROVIDED: 248 RETAIL + 37 FITNESS CLUB + 150 GROCERY STORE + 91 VISITOR* + 523 RESIDENTIAL = 1,049

RETAIL	FITNESS CLUB	GROCERY STORE	VISITOR*	RESIDENTIAL
3.10 / 100 SM = 3.10 x (*8,004.41/100) = 248 PROVIDED	1.5 / 100 SM = 1.50 x (2,499.6/100) = 37 PROVIDED	4.5 / 100 SM = 4.50 x (3,324/100) = 150 PROVIDED	0.15 / 100 UNIT = 0.15 x 605 = 91 PROVIDED	0.86/ 100 UNIT = 0.864 x 605 = 523 PROVIDED

*SHARED WITH COMMERCIAL SPACES AT GROUND LEVEL

ACCESSIBLE PARKING
As Per Zoning By-law No. 569-2013 [200.15]

RATE | 100+ SPACES REQUIRED | 5 ACCESSIBLE SPACES + 1/50 SPACES OR PORTION THEREOF

	TOTAL SPACES	REQUIRED	PROVIDED	LOCATION
TOTAL	1049	24 STALLS	24 STALLS	GROUND, P1
NON-RESIDENTIAL*	526 (50%)	12 STALLS	12 STALLS	GROUND
RESIDENTIAL	523 (50%)	12 STALLS	12 STALLS	P1

*COMBINED VISITOR (91) / COMMERCIAL (435)

GREEN STANDARDS PARKING SUMMARY		RATE	REQUIRED	PROVIDED	EXCESS OF MIN.
	NO. PARKING SPACES	-	742 STALLS	1,049 STALLS	307 STALLS
	NO. NON-RES. SPACES	-	128 STALLS	435 STALLS	307 STALLS
	NO. LEV. SPACES (AQ 1.2)	10% OF NON-RES. STALLS PROVIDED ABOVE MIN. AS PER BYLAW	31 STALLS	31 STALLS	0 STALLS
	NO. EVSE SPACES (AQ 1.3)	20%	210 STALLS	210 STALLS	0 STALLS

NOTE 1:
GROSS FLOOR AREA HAS BEEN CALCULATED AS PER AMALGAMATED ZONING BY-LAW 569-2013
AS DEFINED IN SECTION 15.4.40.40 & 40.5.40.40

UNIT BREAKDOWN

	BUILDING A	BUILDING B	BUILDING C	BUILDING D	TOTAL
1 BEDROOM	101 UNITS (58.04%)	126 UNITS (65.97%)	128 UNITS (53.33%)	-	355 UNITS (58.7%)
2 BEDROOM	57 UNITS (32.76%)	41 UNITS (21.47%)	84 UNITS (35.00%)	-	182 UNITS (30.1%)
3 BEDROOM	16 UNITS (9.20%)	24 UNITS (12.57%)	28 UNITS (11.67%)	-	68 UNITS (11.2%)
TOTAL	174 UNITS	191 UNITS	240 UNITS	-	605 UNITS (100%)

GARBAGE ROOM REQUIREMENTS

	NO. OF UNITS	RATE REQUIRED	RATE PROVIDED	SIZE REQUIRED	SIZE PROVIDED
BUILDING A	174 UNITS	25 SM/50 UNITS + 13.00SM/ADD. 50 UNITS	25 SM/50 UNITS + 26.37 SM/ADD. 50 UNITS	57.24 SM	104.11 SM
BUILDING B	191 UNITS	25 SM/50 UNITS + 13.00SM/ADD. 50 UNITS	25 SM/50 UNITS + 26.48 SM/ADD. 50 UNITS	61.66 SM	99.67 SM
BUILDING C	240 UNITS	25 SM/50 UNITS + 13.00SM/ADD. 50 UNITS	25 SM/50 UNITS + 22.14 SM/ADD. 50 UNITS	74.40 SM	109.15 SM

STAGING AREA REQUIREMENTS

BUILDING	NO. OF UNITS	RATE REQUIRED	RATE PROVIDED	SIZE REQUIRED	SIZE PROVIDED
A	174	0 SM/50 UNITS + 5.00SM/ADD. 50 UNITS	0 SM/50 UNITS + 11.98SM/ADD. 50 UNITS	12.40 SM	29.72 SM
B	191	0 SM/50 UNITS + 5.00SM/ADD. 50 UNITS	0 SM/50 UNITS + 5.30SM/ADD. 50 UNITS	31.20 SM	33.06 SM
C	240	0 SM/50 UNITS + 5.00SM/ADD. 50 UNITS	0 SM/50 UNITS + 12.30SM/ADD. 50 UNITS	15.70 SM	38.61 SM

LOADING REQUIREMENTS

USE	NO. OF UNITS/ FLOOR AREA	TYPE A LOADING SPACES	TYPE B LOADING SPACES	TYPE C LOADING SPACES	TYPE G LOADING SPACES	TOTAL
BUILDING A						
RESIDENTIAL	174	-	-	-	1 SPACE	1 SPACE
RETAIL	272.55 SM	-	-	-	-	-
SUBTOTAL		-	-	-	1 SPACE	1 SPACE
BUILDING B						
RESIDENTIAL	191	-	-	-	1 SPACE	1 SPACE
RETAIL	1,163.61 SM	-	1 SPACE	-	-	1 SPACE
FITNESS CENTRE	2,499.59 SM	-	-	-	-	-
SUBTOTAL		-	1 SPACE	-	1 SPACE	2 SPACE
TOTAL (WITH SHARING)		-	1 SPACE	-	1 SPACE	2 SPACE
BUILDING C						
RESIDENTIAL	240	-	-	-	1 SPACE	1 SPACE
RETAIL	2190.16 SM	-	3 SPACE	-	-	3 SPACES
GROCERY STORE	3324.00 SM	1 SPACE	1 SPACE	-	-	2 SPACES
SUBTOTAL		1 SPACE	4 SPACE	-	1 SPACE	6 SPACES
TOTAL (WITH SHARING) [2]		1 SPACE	4 SPACE	-	1 SPACE	6 SPACES
TOTAL SITE REQUIREMENT		1 SPACE	5 SPACES	-	3 SPACES	9 SPACES
TOTAL PROVIDED (WITH SHARING) [2]		1 SPACE	5 SPACES	-	3 SPACES	9 SPACES

NOTES:
1. GFA TOTALS REPRESENT TOTAL LEASABLE SPACE FOR EACH USE
2. SHARED LOADING SPACE CALCULATIONS BASED UPON CHAPTER 250.5.10.1(9) AND CHAPTER 40.10.90.1.

TRINITY CREATE TO

RICHVIEW SQUARE

4620 Eglinton Avenue West
& 250 Wincott Drive
Etobicoke, ON
17-319

NO.	REVISIONS	DATE
3	ISSUED FOR REZONING	SEPT, 2019
2	ISSUED FOR REZONING	MARCH 22, 2019
1	ISSUED FOR REZONING	APRIL 30, 2018

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CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS ON THE JOB.

ISSUED FOR COORDINATION

PROJECT STATISTICS

SEPTEMBER 23, 2019

SCALE

A100

CORE

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Toronto ON Canada M5A 0P6

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Fax 416 343 0401
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COREARCHITECTS.COM

OBC 2012 BUILDING CODE MATRIX
BUILDING A

ONTARIO BUILDING CODE DATA MATRIX — Revised: 2018.08.02

PART 3 - FIRE PROTECTION, OCCUPANT SAFETY AND ACCESSIBILITY — OBC REFERENCE[1]

Name of Practice	CORE Architects Inc	
Address 1	130 Queens Quay East, West Tower, Suite 700	
Address 2	Toronto ON, M5A 0P6	
Contact	Kendra Kusick	
Name of Project	Richview Square	
Location/Address	4620 Eglinton Avenue West & 250 Wincott Drive, Etobicoke ON M9R 1B1	
Date	23-Sep-19	Seal & Signature

3.00	BUILDING CODE VERSION	O.Reg. 332/12			LAST AMENDMENT	O.Reg. 191/14		
3.01	PROJECT TYPE	New Construction						[A] 1.1.2.
		Construction of High Rise Multi-storey Apartment complex and Renovation of Existing Retail Building on site						
3.02	MAJOR OCCUPANCY CLASSIFICATION	OCCUPANCY				USE		3.1.2.1.(1)
		C	Residential			Multistorey Apartment Building		
		E	Mercantile			Retail Stores		
3.03	SUPERIMPOSED MAJOR OCCUPANCIES	YES	17 stories superimposed over 1 storey of Group E Mercantile Occupancy					3.2.2.7.
3.04	BUILDING AREA (m²)	DESCRIPTION			EXISTING	NEW	TOTAL	[A] 1.4.1.2.
		Building A - 17 storey Residential over 1 storey Retail			0.00	1237.93	1,237.9	
		TOTAL			-	1,237.9	1,237.9	
3.05	GROSS AREA (m²)	DESCRIPTION			EXISTING	NEW	TOTAL	[A] 1.4.1.2.
		Building A - 17 storey Residential over 1 storey Retail			0.00	16034.85	16,034.9	
		TOTAL			-	16,034.9	16,034.9	
3.06	MEZZANINE AREA (m²)	DESCRIPTION			EXISTING	NEW	TOTAL	3.2.1.1.
		N/A					-	
		TOTAL			-	-	-	
3.07	BUILDING HEIGHT	18	STOREYS ABOVE GRADE			66.30	(m) ABOVE GRADE	[A] 1.4.1.2. &
		2	STOREYS BELOW GRADE					3.2.1.1.
3.08	HIGH BUILDING	Yes						3.2.6
3.09	NUMBER OF STREETS/ FIREFIGHTER ACCESS	1	STREET(S)					3.2.2.10. & 3.2.5.
3.10	BUILDING CLASSIFICATION	3.2.2.42.	Group C, Any Height, Any Area, Sprinklered					3.2.2.20-83.
3.11	SPRINKLER SYSTEM	Required		PROVIDED:	Entire Building			3.2.1.5. &
3.12	STANDPIPE SYSTEM	Required						3.2.9.
3.13	FIRE ALARM SYSTEM	Required			TYPE PROVIDED	Two Stage		3.2.4.
3.14	WATER SERVICE/ SUPPLY IS ADEQUATE	Yes						
3.15	CONSTRUCTION TYPE	RESTRICTIONS	Noncombustible Required					3.2.2.20.-83.
		ACTUAL	Noncombustible		HEAVY TIMBER CONSTRUCTION		NO	3.2.1.4.
3.16	IMPORTANCE CATEGORY	Normal			-			4.1.2.1.(3), T4.1.2.1.B.
3.17	SEISMIC HAZARD INDEX ($I_E F_a S_a$ 0.2)	0.00	Seismic Design Not Required for Table 4.1.8.18. Items 6 to 21					4.1.8.18.(1)
3.18	OCCUPANT LOAD	FLOOR LEVEL/AREA		OCCUPANCY TYPE	BASED ON		OCCUPANT LOAD (PERSONS)	3.1.17.
		Retail Area (1st Storey)		E Mercantile Use	m² per person		74	
		Residential Units (1st-18th Storey)		C Dwelling Units	No. of sleeping rooms		526	
		TOTAL					600	
3.19	BARRIER-FREE DESIGN	Yes						3.8.
3.20	HAZARDOUS SUBSTANCES	No						3.3.1.2. & 3.3.1.19.
3.21	REQUIRED FIRE RESISTANCE RATINGS	HORIZONTAL ASSEMBLY			RATING (H)	SUPPORTING ASSEMBLY (H)	NONCOMBUSTIBLE IN LIEU OF RATING?	3.2.2.20.-83, 3.2.1.4.
		FLOORS OVER BSMT			TBD	TBD		
		FLOORS			TBD	TBD		
		MEZZANINE			N/A	N/A		
		ROOF			TBD	TBD		
3.22	SPATIAL SEPARATION	WALL	EBF AREA (m²)	L.D. (m)	L/H OR H/L	REQUIRED FRR (H)	CONSTRUCTION TYPE	CLADDING TYPE	3.2.3.
		TBD							
3.23	PLUMBING FIXTURE REQUIREMENTS	RATIO:	MALE:FEMALE = 50:50 EXCEPT AS NOTED OTHERWISE						3.7.4.
		FLOOR LEVEL/AREA		OCCUPANT LOAD	OBC SENTENCE	FIXTURES REQUIRED	FIXTURES PROVIDED		
		TO BE DETERMINED							
3.24	ENERGY EFFICIENCY	COMPLIANCE PATH:	TBD						
		CLIMATIC ZONE:	TBD						
3.25	NOTES	N/A							
		1	*ALL REFERENCES ARE TO DIVISION B OF THE OBC UNLESS PRECEDED BY [A] FOR DIVISION A AND [C] FOR DIVISION C*						

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OBC 2012 BUILDING CODE MATRIX
BUILDING B

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PART 3 - FIRE PROTECTION, OCCUPANT SAFETY AND ACCESSIBILITY — OBC REFERENCE[1]

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Address 2	Toronto ON, M5A 0P6	
Contact	Kendra Kusick	
Name of Project	Richview Square	
Location/Address	4620 Eglinton Avenue West & 250 Wincott Drive, Etobicoke ON M9R 1B1	
Date	23-Sep-19	Seal & Signature

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3.01	PROJECT TYPE	New Construction						[A] 1.1.2.
		Construction of High Rise Multi-storey Apartment complex and Renovation of Existing Retail Building on site						
3.02	MAJOR OCCUPANCY CLASSIFICATION	OCCUPANCY				USE		3.1.2.1.(1)
		C	Residential			Multistorey Apartment Building		
		E	Mercantile			Retail Stores		
3.03	SUPERIMPOSED MAJOR OCCUPANCIES	YES	10 stories superimposed over 2 storey of Group E Mercantile Occupancy					3.2.2.7.
3.04	BUILDING AREA (m²)	DESCRIPTION			EXISTING	NEW	TOTAL	[A] 1.4.1.2.
		Building B - 10 storey Residential over 2 storey Retail			0.00	2558.20	2,558.2	
		TOTAL			-	2,558.2	2,558.2	
3.05	GROSS AREA (m²)	DESCRIPTION			EXISTING	NEW	TOTAL	[A] 1.4.1.2.
		Building B - 10 storey Residential over 2 storey Retail			0.00	21470.68	21,470.7	
		TOTAL			-	21,470.7	21,470.7	
3.06	MEZZANINE AREA (m²)	DESCRIPTION			EXISTING	NEW	TOTAL	3.2.1.1.
		N/A					-	
		TOTAL			-	-	-	
3.07	BUILDING HEIGHT	12	STOREYS ABOVE GRADE			51.60	(m) ABOVE GRADE	[A] 1.4.1.2. &
		2	STOREYS BELOW GRADE					3.2.1.1.
3.08	HIGH BUILDING	Yes						3.2.6
3.09	NUMBER OF STREETS/ FIREFIGHTER ACCESS	2	STREET(S)					3.2.2.10. & 3.2.5.
3.10	BUILDING CLASSIFICATION	3.2.2.42.	Group C, Any Height, Any Area, Sprinklered					3.2.2.20-83.
3.11	SPRINKLER SYSTEM	Required		PROVIDED:	Entire Building			3.2.1.5. &
3.12	STANDPIPE SYSTEM	Required						3.2.9.
3.13	FIRE ALARM SYSTEM	Required			TYPE PROVIDED	Two Stage		3.2.4.
3.14	WATER SERVICE/ SUPPLY IS ADEQUATE	Yes						
3.15	CONSTRUCTION TYPE	RESTRICTIONS	Noncombustible Required					3.2.2.20.-83.
		ACTUAL	Noncombustible		HEAVY TIMBER CONSTRUCTION		NO	3.2.1.4.
3.16	IMPORTANCE CATEGORY	Normal			-			4.1.2.1.(3), T4.1.2.1.B.
3.17	SEISMIC HAZARD INDEX ($I_E F_a S_a$ 0.2)	0.00	Seismic Design Not Required for Table 4.1.8.18. Items 6 to 21					4.1.8.18.(1)
3.18	OCCUPANT LOAD	FLOOR LEVEL/AREA		OCCUPANCY TYPE	BASED ON		OCCUPANT LOAD (PERSONS)	3.1.17.
		Retail Area (1st & 2nd Storey)		E Mercantile Use	m² per person		1,010	
		Residential Units (3rd-12th Storey)		C Dwelling Units	No. of sleeping rooms		317	
		TOTAL					1,327	
3.19	BARRIER-FREE DESIGN	Yes						3.8.
3.20	HAZARDOUS SUBSTANCES	No						3.3.1.2. & 3.3.1.19.
3.21	REQUIRED FIRE RESISTANCE RATINGS	HORIZONTAL ASSEMBLY			RATING (H)	SUPPORTING ASSEMBLY (H)	NONCOMBUSTIBLE IN LIEU OF RATING?	3.2.2.20.-83, 3.2.1.4.
		FLOORS OVER BSMT			TBD	TBD		
		FLOORS			TBD	TBD		
		MEZZANINE			N/A	N/A		
		ROOF			TBD	TBD		
3.22	SPATIAL SEPARATION	WALL	EBF AREA (m²)	L.D. (m)	L/H OR H/L	REQUIRED FRR (H)	CONSTRUCTION TYPE	CLADDING TYPE	3.2.3.
		TBD							
3.23	PLUMBING FIXTURE REQUIREMENTS	RATIO:	MALE:FEMALE = 50:50 EXCEPT AS NOTED OTHERWISE						3.7.4.
		FLOOR LEVEL/AREA		OCCUPANT LOAD	OBC SENTENCE	FIXTURES REQUIRED	FIXTURES PROVIDED		
		TO BE DETERMINED							
3.24	ENERGY EFFICIENCY	COMPLIANCE PATH:	TBD						
		CLIMATIC ZONE:	TBD						
3.25	NOTES	N/A							
		1	*ALL REFERENCES ARE TO DIVISION B OF THE OBC UNLESS PRECEDED BY [A] FOR DIVISION A AND [C] FOR DIVISION C*						

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OBC 2012 BUILDING CODE MATRIX
BUILDING C

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PART 3 - FIRE PROTECTION, OCCUPANT SAFETY AND ACCESSIBILITY — OBC REFERENCE[1]

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Address 1	130 Queens Quay East, West Tower, Suite 700	
Address 2	Toronto ON, M5A 0P6	
Contact	Kendra Kusick	
Name of Project	Richview Square	
Location/Address	4620 Eglinton Avenue West & 250 Wincott Drive, Etobicoke ON M9R 1B1	
Date	23-Sep-19	Seal & Signature

3.00	BUILDING CODE VERSION	O.Reg. 332/12			LAST AMENDMENT	O.Reg. 191/14		
3.01	PROJECT TYPE	New Construction						[A] 1.1.2.
		Construction of High Rise Multi-storey Apartment complex and Renovation of Existing Retail Building on site						
3.02	MAJOR OCCUPANCY CLASSIFICATION	OCCUPANCY				USE		3.1.2.1.(1)
		C	Residential			Multistorey Apartment Building		
		E	Mercantile			Retail Stores		
3.03	SUPERIMPOSED MAJOR OCCUPANCIES	YES	9 stories superimposed over 2 storey of Group E Mercantile Occupancy					3.2.2.7.
3.04	BUILDING AREA (m²)	DESCRIPTION			EXISTING	NEW	TOTAL	[A] 1.4.1.2.
		Building C - 9 storey Residential over 2 storey Retail			0.00	3398.09	3,398.1	
		TOTAL			-	3,398.1	3,398.1	
3.05	GROSS AREA (m²)	DESCRIPTION			EXISTING	NEW	TOTAL	[A] 1.4.1.2.
		Building C - 9 storey Residential over 2 storey Retail			0.00	28903.56	28,903.6	
		TOTAL			-	28,903.6	28,903.6	
3.06	MEZZANINE AREA (m²)	DESCRIPTION			EXISTING	NEW	TOTAL	3.2.1.1.
		N/A					-	
		TOTAL			-	-	-	
3.07	BUILDING HEIGHT	11	STOREYS ABOVE GRADE			48.30	(m) ABOVE GRADE	[A] 1.4.1.2. &
		2	STOREYS BELOW GRADE					3.2.1.1.
3.08	HIGH BUILDING	Yes						3.2.6
3.09	NUMBER OF STREETS/ FIREFIGHTER ACCESS	2	STREET(S)					3.2.2.10. & 3.2.5.
3.10	BUILDING CLASSIFICATION	3.2.2.42.	Group C, Any Height, Any Area, Sprinklered					3.2.2.20-83.
3.11	SPRINKLER SYSTEM	Required		PROVIDED:	Entire Building			3.2.1.5. &
3.12	STANDPIPE SYSTEM	Required						3.2.9.
3.13	FIRE ALARM SYSTEM	Required			TYPE PROVIDED	Two Stage		3.2.4.
3.14	WATER SERVICE/ SUPPLY IS ADEQUATE	Yes						
3.15	CONSTRUCTION TYPE	RESTRICTIONS	Noncombustible Required					3.2.2.20.-83.
		ACTUAL	Noncombustible		HEAVY TIMBER CONSTRUCTION		NO	3.2.1.4.
3.16	IMPORTANCE CATEGORY	Normal			-			4.1.2.1.(3), T4.1.2.1.B.
3.17	SEISMIC HAZARD INDEX ($I_E F_a S_a$ 0.2)	0.00	Seismic Design Not Required for Table 4.1.8.18. Items 6 to 21					4.1.8.18.(1)
3.18	OCCUPANT LOAD	FLOOR LEVEL/AREA		OCCUPANCY TYPE	BASED ON		OCCUPANT LOAD (PERSONS)	3.1.17.
		Retail Area (1st & 2nd Storey)		E Mercantile Use	m² per person		1,515	
		Residential Units (3rd-11th Storey)		C Dwelling Units	No. of sleeping rooms		632	
		TOTAL					2,147	
3.19	BARRIER-FREE DESIGN	Yes						3.8.
3.20	HAZARDOUS SUBSTANCES	No						3.3.1.2. & 3.3.1.19.
3.21	REQUIRED FIRE RESISTANCE RATINGS	HORIZONTAL ASSEMBLY			RATING (H)	SUPPORTING ASSEMBLY (H)	NONCOMBUSTIBLE IN LIEU OF RATING?	3.2.2.20.-83, 3.2.1.4.
		FLOORS OVER BSMT			TBD	TBD		
		FLOORS			TBD	TBD		
		MEZZANINE			N/A	N/A		
		ROOF			TBD	TBD		
3.22	SPATIAL SEPARATION	WALL	EBF AREA (m²)	L.D. (m)	L/H OR H/L	REQUIRED FRR (H)	CONSTRUCTION TYPE	CLADDING TYPE	3.2.3.
		TBD							
3.23	PLUMBING FIXTURE REQUIREMENTS	RATIO:	MALE:FEMALE = 50:50 EXCEPT AS NOTED OTHERWISE						3.7.4.
		FLOOR LEVEL/AREA		OCCUPANT LOAD	OBC SENTENCE	FIXTURES REQUIRED	FIXTURES PROVIDED		
		TO BE DETERMINED							
3.24	ENERGY EFFICIENCY	COMPLIANCE PATH:	TBD						
		CLIMATIC ZONE:	TBD						
3.25	NOTES	N/A							
		1	*ALL REFERENCES ARE TO DIVISION B OF THE OBC UNLESS PRECEDED BY [A] FOR DIVISION A AND [C] FOR DIVISION C*						

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OBC 2012 BUILDING CODE MATRIX
BUILDING D

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PART 3 - FIRE PROTECTION, OCCUPANT SAFETY AND ACCESSIBILITY — OBC REFERENCE[1]

Name of Practice	CORE Architects Inc	
Address 1	130 Queens Quay East, West Tower, Suite 700	
Address 2	Toronto ON, M5A 0P6	
Contact	Kendra Kusick	
Name of Project	Richview Square	
Location/Address	4620 Eglinton Avenue West & 250 Wincott Drive, Etobicoke ON M9R 1B1	
Date	23-Sep-19	Seal & Signature

3.00	BUILDING CODE VERSION	O.Reg. 332/12			LAST AMENDMENT	O.Reg. 191/14		
3.01	PROJECT TYPE	Addition and Renovation						[A] 1.1.2.
		Renovation of Existing Retail Building on site						
3.02	MAJOR OCCUPANCY CLASSIFICATION	OCCUPANCY				USE		3.1.2.1.(1)
		E	Mercantile			Retail Stores		
		Select occupancy group/division from in-cell drop-dowr						
3.03	SUPERIMPOSED MAJOR OCCUPANCIES	NO						3.2.2.7.
3.04	BUILDING AREA (m²)	DESCRIPTION			EXISTING	NEW	TOTAL	[A] 1.4.1.2.
		Building D - 2 Storey Retail			3939.93	275.65	4,215.6	
		TOTAL			3,939.9	275.7	4,215.6	
3.05	GROSS AREA (m²)	DESCRIPTION			EXISTING	NEW	TOTAL	[A] 1.4.1.2.
		Building D - 2 Storey Retail			3939.93	275.65	4,215.6	
		TOTAL			3,939.9	275.7	4,215.6	
3.06	MEZZANINE AREA (m²)	DESCRIPTION			EXISTING	NEW	TOTAL	3.2.1.1.
		N/A					-	
		TOTAL			-	-	-	
3.07	BUILDING HEIGHT	2	STOREYS ABOVE GRADE			7.65	(m) ABOVE GRADE	[A] 1.4.1.2. &
		0	STOREYS BELOW GRADE					3.2.1.1.
3.08	HIGH BUILDING	No						3.2.6
3.09	NUMBER OF STREETS/ FIREFIGHTER ACCESS	2	STREET(S)					3.2.2.10. & 3.2.5.
3.10	BUILDING CLASSIFICATION	3.2.2.42.	Group C, Any Height, Any Area, Sprinklered					3.2.2.20-83.
3.11	SPRINKLER SYSTEM	Required		PROVIDED:	Entire Building			3.2.1.5. &
3.12	STANDPIPE SYSTEM	Required						3.2.9.
3.13	FIRE ALARM SYSTEM	Required			TYPE PROVIDED	Two Stage		3.2.4.
3.14	WATER SERVICE/ SUPPLY IS ADEQUATE	Yes						
3.15	CONSTRUCTION TYPE	RESTRICTIONS	Noncombustible Required					3.2.2.20.-83.
		ACTUAL	Noncombustible		HEAVY TIMBER CONSTRUCTION		NO	3.2.1.4.
3.16	IMPORTANCE CATEGORY	Normal			-			4.1.2.1.(3), T4.1.2.1.B.
3.17	SEISMIC HAZARD INDEX ($I_E F_a S_a$ 0.2)	0.00	Seismic Design Not Required for Table 4.1.8.18. Items 6 to 21					4.1.8.18.(1)
3.18	OCCUPANT LOAD	FLOOR LEVEL/AREA		OCCUPANCY TYPE	BASED ON		OCCUPANT LOAD (PERSONS)	3.1.17.
		Retail Area		E Mercantile Use	m² per person		1,139	
		TOTAL					1,139	
3.19	BARRIER-FREE DESIGN	Yes						3.8.
3.20	HAZARDOUS SUBSTANCES	No						3.3.1.2. & 3.3.1.19.
3.21	REQUIRED FIRE RESISTANCE RATINGS	HORIZONTAL ASSEMBLY			RATING (H)	SUPPORTING ASSEMBLY (H)	NONCOMBUSTIBLE IN LIEU OF RATING?	3.2.2.20.-83, 3.2.1.4.
		FLOORS OVER BSMT			N/A	N/A		
		FLOORS			TBD	TBD		
		MEZZANINE			N/A	N/A		
		ROOF			TBD	TBD		
3.22	SPATIAL SEPARATION	WALL	EBF AREA (m²)	L.D. (m)	L/H OR H/L	REQUIRED FRR (H)	CONSTRUCTION TYPE	CLADDING TYPE	3.2.3.
		TBD							
3.23	PLUMBING FIXTURE REQUIREMENTS	RATIO:	MALE:FEMALE = 50:50 EXCEPT AS NOTED OTHERWISE						3.7.4.
		FLOOR LEVEL/AREA		OCCUPANT LOAD	OBC SENTENCE	FIXTURES REQUIRED	FIXTURES PROVIDED		
		TO BE DETERMINED							
3.24	ENERGY EFFICIENCY	COMPLIANCE PATH:	TBD						
		CLIMATIC ZONE:	TBD						
3.25	NOTES	N/A							
		1	*ALL REFERENCES ARE TO DIVISION B OF THE OBC UNLESS PRECEDED BY [A] FOR DIVISION A AND [C] FOR DIVISION C*						

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TRINITY CREATE TO

RICHVIEW SQUARE

4620 Eglinton Avenue West
& 250 Wincott Drive
Etobicoke, ON
17-319

NO.	REVISIONS	DATE
3	ISSUED FOR REZONING	SEPT, 2019
2	ISSUED FOR REZONING	MARCH 22, 2019
1	ISSUED FOR REZONING	APRIL 30, 2018

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CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS ON THE JOB.

OBC BUILDING MATRICES

SEPTEMBER 23, 2019

SCALE

A101

CORE

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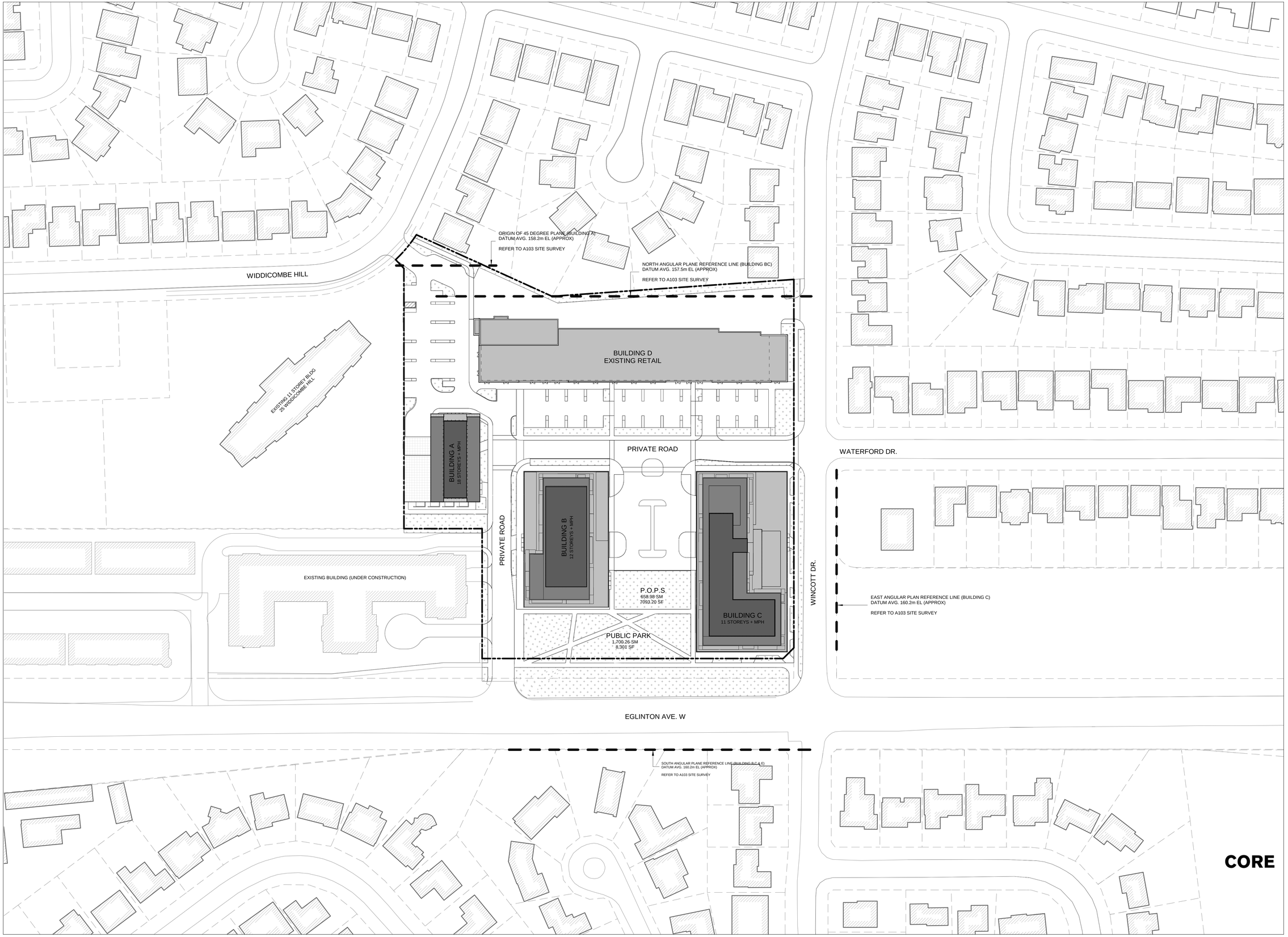

TRINITY
CREATE TO

RICHVIEW SQUARE

4620 Eglinton Avenue West
& 250 Wincott Drive
Etobicoke, ON
17-319

NO.	REVISIONS	DATE
3	ISSUED FOR REZONING	SEPT. 2019
2	ISSUED FOR REZONING	MARCH 22, 2019
1	ISSUED FOR REZONING	APRIL 30, 2018

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CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS ON THE JOB.

N

CONTEXT PLAN

SEPTEMBER 23, 2019

SCALE 1 : 750

A102

CORE

CORE ARCHITECTS INC
130 Queens Quay East Suite 700
Toronto ON Canada M5A 0P6

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Fax 416 343 0401
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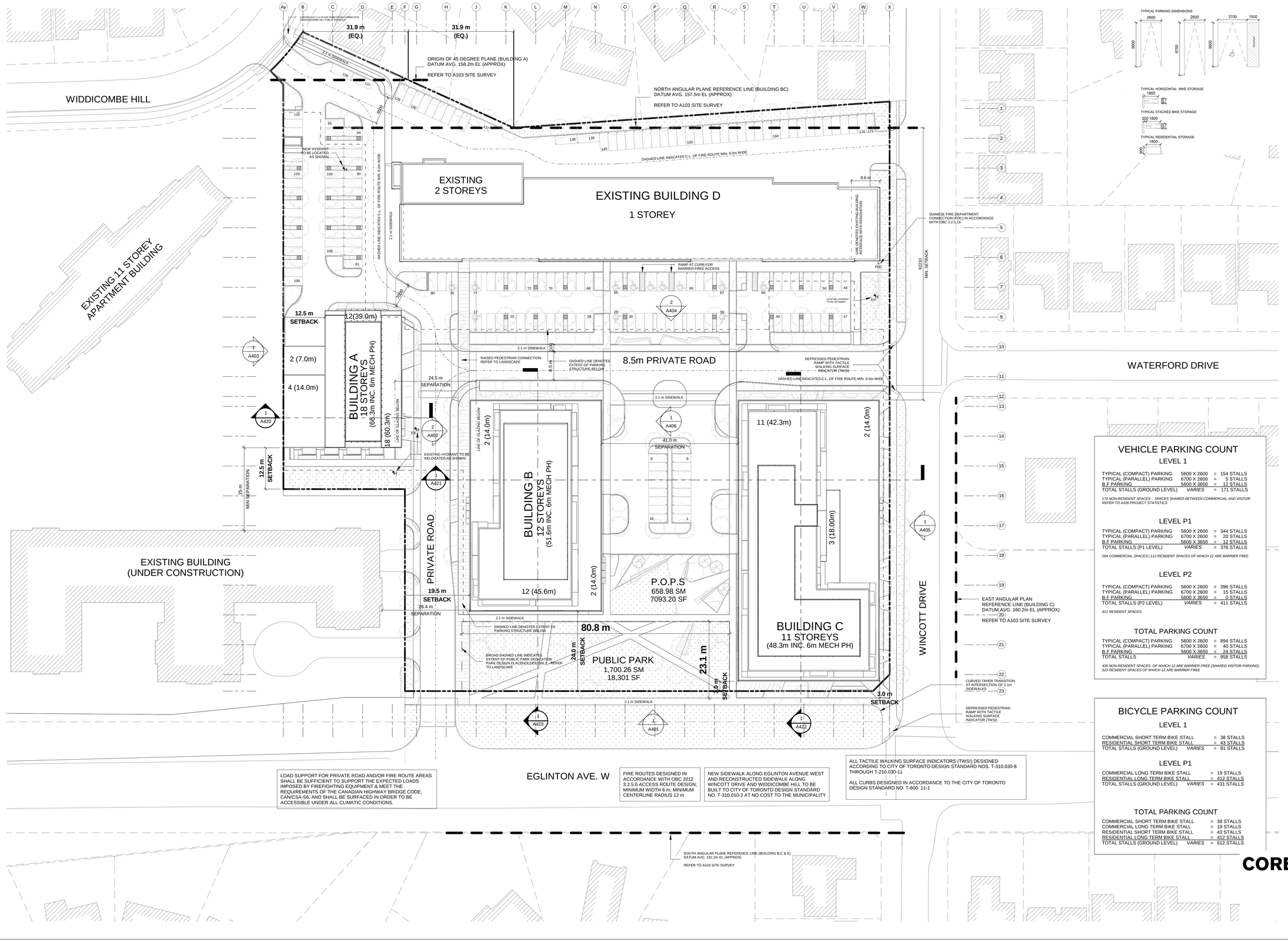

LOAD SUPPORT FOR PRIVATE ROAD AND/OR FIRE ROUTE AREAS SHALL BE SUFFICIENT TO SUPPORT THE EXPECTED LOADS IMPOSED BY FIREFIGHTING EQUIPMENT & MEET THE REQUIREMENTS OF THE CANADIAN HIGHWAY BRIDGE CODE, CAN/CSA-S6, AND SHALL BE SURFACED IN ORDER TO BE ACCESSIBLE UNDER ALL CLIMATIC CONDITIONS.

FIRE ROUTES DESIGNED IN ACCORDANCE WITH OBC 2012 3.2.5.6 ACCESS ROUTE DESIGN; MINIMUM WIDTH 6 m, MINIMUM CENTERLINE RADIUS 12 m

NEW SIDEWALK ALONG EGLINTON AVENUE WEST AND RECONSTRUCTED SIDEWALK ALONG WINCOTT DRIVE AND WIDDICOMBE HILL TO BE BUILT TO CITY OF TORONTO DESIGN STANDARD NO. T-310.010-2 AT NO COST TO THE MUNICIPALITY

ALL TACTILE WALKING SURFACE INDICATORS (TWSI) DESIGNED ACCORDING TO CITY OF TORONTO DESIGN STANDARD NOS. T-310.030-8 THROUGH T-210.030-11

ALL CURBS DESIGNED IN ACCORDANCE TO THE CITY OF TORONTO DESIGN STANDARD NO. T-600. 11-1

TYPICAL PARKING DIMENSIONS
2600 2600 3700 1500
5600 6700 5600 WALKWAY

TYPICAL HORIZONTAL BIKE STORAGE
1800 600

TYPICAL STACKED BIKE STORAGE
300 1800 600

TYPICAL RESIDENTIAL STORAGE
1800 900

VEHICLE PARKING COUNT

LEVEL 1

TYPICAL (COMPACT) PARKING	5600 X 2600	=	154 STALLS
TYPICAL (PARALLEL) PARKING	6700 X 2600	=	5 STALLS
B.F PARKING	5600 X 3650	=	12 STALLS
TOTAL STALLS (GROUND LEVEL)	*VARIES*	=	171 STALLS

179 NON-RESIDENT SPACES - SPACES SHARED BETWEEN COMMERCIAL AND VISITOR REFER TO A100 PROJECT STATISTICS

LEVEL P1

TYPICAL (COMPACT) PARKING	5600 X 2600	=	344 STALLS
TYPICAL (PARALLEL) PARKING	6700 X 2600	=	20 STALLS
B.F PARKING	5600 X 3650	=	12 STALLS
TOTAL STALLS (P1 LEVEL)	*VARIES*	=	376 STALLS

264 COMMERCIAL SPACES | 112 RESIDENT SPACES OF WHICH 12 ARE BARRIER FREE

LEVEL P2

TYPICAL (COMPACT) PARKING	5600 X 2600	=	396 STALLS
TYPICAL (PARALLEL) PARKING	6700 X 2600	=	15 STALLS
B.F PARKING	5600 X 3650	=	0 STALLS
TOTAL STALLS (P2 LEVEL)	*VARIES*	=	411 STALLS

411 RESIDENT SPACES

TOTAL PARKING COUNT

TYPICAL (COMPACT) PARKING	5600 X 2600	=	894 STALLS
TYPICAL (PARALLEL) PARKING	6700 X 2600	=	40 STALLS
B.F PARKING	5600 X 3650	=	24 STALLS
TOTAL STALLS	*VARIES*	=	958 STALLS

435 NON-RESIDENT SPACES OF WHICH 12 ARE BARRIER FREE (SHARED VISITOR PARKING) 523 RESIDENT SPACES OF WHICH 12 ARE BARRIER FREE

BICYCLE PARKING COUNT

LEVEL 1

COMMERCIAL SHORT TERM BIKE STALL		=	38 STALLS
RESIDENTIAL SHORT TERM BIKE STALL		=	43 STALLS
TOTAL STALLS (GROUND LEVEL)	*VARIES*	=	81 STALLS

LEVEL P1

COMMERCIAL LONG TERM BIKE STALL		=	19 STALLS
RESIDENTIAL LONG TERM BIKE STALL		=	412 STALLS
TOTAL STALLS (GROUND LEVEL)	*VARIES*	=	431 STALLS

TOTAL PARKING COUNT

COMMERCIAL SHORT TERM BIKE STALL		=	38 STALLS
COMMERCIAL LONG TERM BIKE STALL		=	19 STALLS
RESIDENTIAL SHORT TERM BIKE STALL		=	43 STALLS
RESIDENTIAL LONG TERM BIKE STALL		=	412 STALLS
TOTAL STALLS (GROUND LEVEL)	*VARIES*	=	512 STALLS

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N

SITE PLAN

SEPTEMBER 23, 2019

SCALE 1 : 500

A103

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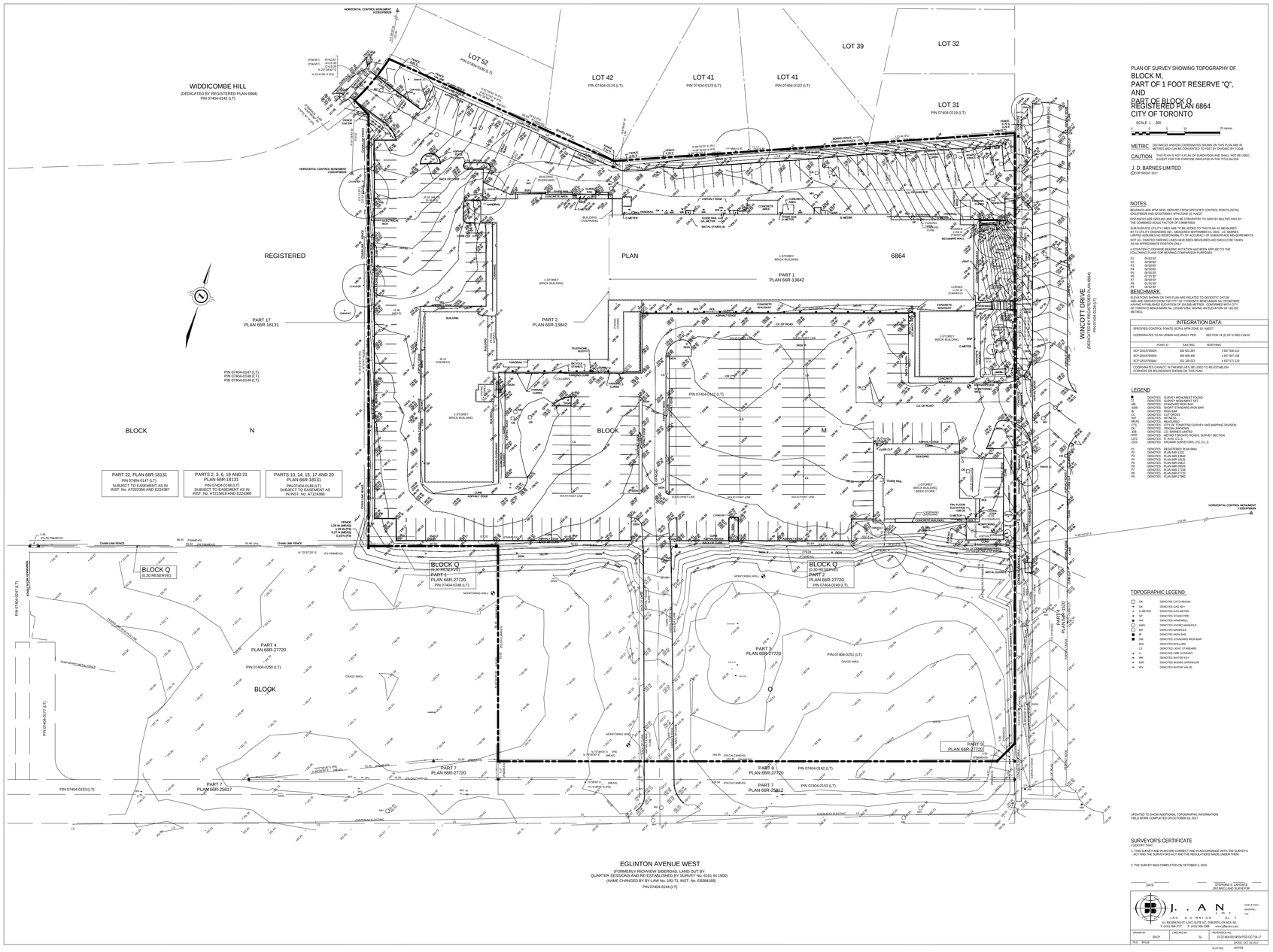

PLAN OF SURVEY SHOWING TOPOGRAPHY OF
BLOCK M,
PART OF 1 FOOT RESERVE "Q",
AND
PART OF BLOCK Q
REGISTERED PLAN 6864
CITY OF TORONTO

SCALE 1 : 300

1 0 5 10 20 metres

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

CAUTION THIS PLAN IS NOT A PLAN OF SUBDIVISION AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

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NOTES

BEARINGS ARE MTM GRID, DERIVED FROM SPECIFIED CONTROL POINTS (SCPs) 02037902R AND 02037903M, MTM ZONE 10, NAD27.

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.9996739.

SUB-SURFACE UTILITY LINES ARE TO BE ADDED TO THIS PLAN AS MEASURED LOCATIONS BECOME AVAILABLE. THE SURVEYOR (J. D. BARNES LIMITED - LIMITED ASSUMES) NO RESPONSIBILITY OF ACCURACY OF SUBSURFACE MEASUREMENTS

NOT ALL PAINTED PARKING LINES HAVE BEEN MEASURED AND SHOULD BE TAKEN AS AN APPROXIMATE POSITION ONLY.

A COUNTER-CLOCKWISE BEARING ROTATION HAS BEEN APPLIED TO THE FOLLOWING BEARINGS FOR BEARING COMPARISON PURPOSES

P1 00°00'00"
P2 00°00'00"
P3 00°00'00"
P4 00°00'00"
P5 00°00'00"
P6 01°50'30"
P7 00°00'00"
P8 00°00'00"
P9 00°00'00"

BENCHMARK

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE CITY OF TORONTO BENCHMARK No.1253617283 HAVING AN ELEVATION OF 162.283 METRES AND CITY OF TORONTO BENCHMARK No. 1253617284, HAVING AN ELEVATION OF 162.283 METRES.

INTEGRATION DATA

SPECIFIED CONTROL POINTS (SCPs): MTM ZONE 10, NAD27.

COORDINATES TO AN URBAN ACCURACY PER SECTION 14 (3) OF O.REG 216/10.

POINT ID	EASTING	NORTHING
SCP 02037902R	300 922.397	4 837 530.314
SCP 02037903M	300 909.400	4 837 687.158
SCP 02037904H	301 330.023	4 837 573.129

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

LEGEND

■	DENOTES SURVEY MONUMENT FOUND
SIB	DENOTES STANDARD IRON BAR
SSIB	DENOTES STANDARD IRON BAR
SSIB	DENOTES SHORT STANDARD IRON BAR
CC	DENOTES CUT CROSS
CC	DENOTES CUT CROSS
MP	DENOTES MITRED
MEAS	DENOTES MEASURED
CTS	DENOTES CITY OF TORONTO/TO SURVEY AND MAPPING DIVISION
OU	DENOTES ORIGIN UNKNOWN
CL	DENOTES CENTRE LINE/TYP.
MTR	DENOTES METRIC TORONTO ROADS, SURVEY SECTION
1370	DENOTES R. AVIS, C.L.S.
1525	DENOTES ARCHAN SURVEYORS LTD, C.L.S.
P1	DENOTES REGISTERED PLAN 6864
P2	DENOTES PLAN 66R-13842
P3	DENOTES PLAN 66R-13842
P4	DENOTES PLAN 66R-18131
P5	DENOTES PLAN 66R-25817
P6	DENOTES PLAN 66R-26916
P7	DENOTES PLAN 66R-27108
P8	DENOTES PLAN 66R-27720
P9	DENOTES PLAN 66R-27960

TOPOGRAPHIC LEGEND

CB	DENOTES CATCH-BASIN
DA	DENOTES GAS VET
G METER	DENOTES GAS METER
HH	DENOTES HYDRO TYPE
HW	DENOTES HANDWELL
HWH	DENOTES HYDRO MANHOLE
MH	DENOTES MANHOLE
IB	DENOTES IRON BAR
SIB	DENOTES STANDARD IRON BAR
BOL	DENOTES BOLLARD
LS	DENOTES LIGHT STANDARD
MW	DENOTES MONITOR WELL
WV	DENOTES WATER VLV
BSP	DENOTES BURIED SPRINKLER
WV	DENOTES WATER VALVE

UPDATED TO SHOW ADDITIONAL TOPOGRAPHIC INFORMATION.
FIELD WORK COMPLETED ON OCTOBER 18, 2017.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT AND THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.

2. THE SURVEY WAS COMPLETED ON OCTOBER 5, 2015

DATE

STEPHANE E. LAPOINTE
ONTARIO LAND SURVEYOR

J. D. BARNES LIMITED
LAND INFORMATION SURVEYING MAPPING GIS
411 RICHMOND ST. EAST, SUITE 107, TORONTO, ON M5A 3S.
T: (416) 366-1727 F: (416) 366-1328 www.jdbarnes.com

DRAWN BY:	CHECKED BY:	REFERENCE NO:
SHOY	SL	15-02-44-M-UPDATED-OCT18-17

FILE: BY429 DATED: OCT.18.2017

PLOTTED: 9AM/18

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17-319

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SITE SURVEY

SEPTEMBER 23, 2019

SCALE 1 : 600
DRAWING BY OTHERS
HALF SCALE AS NOTED

A104

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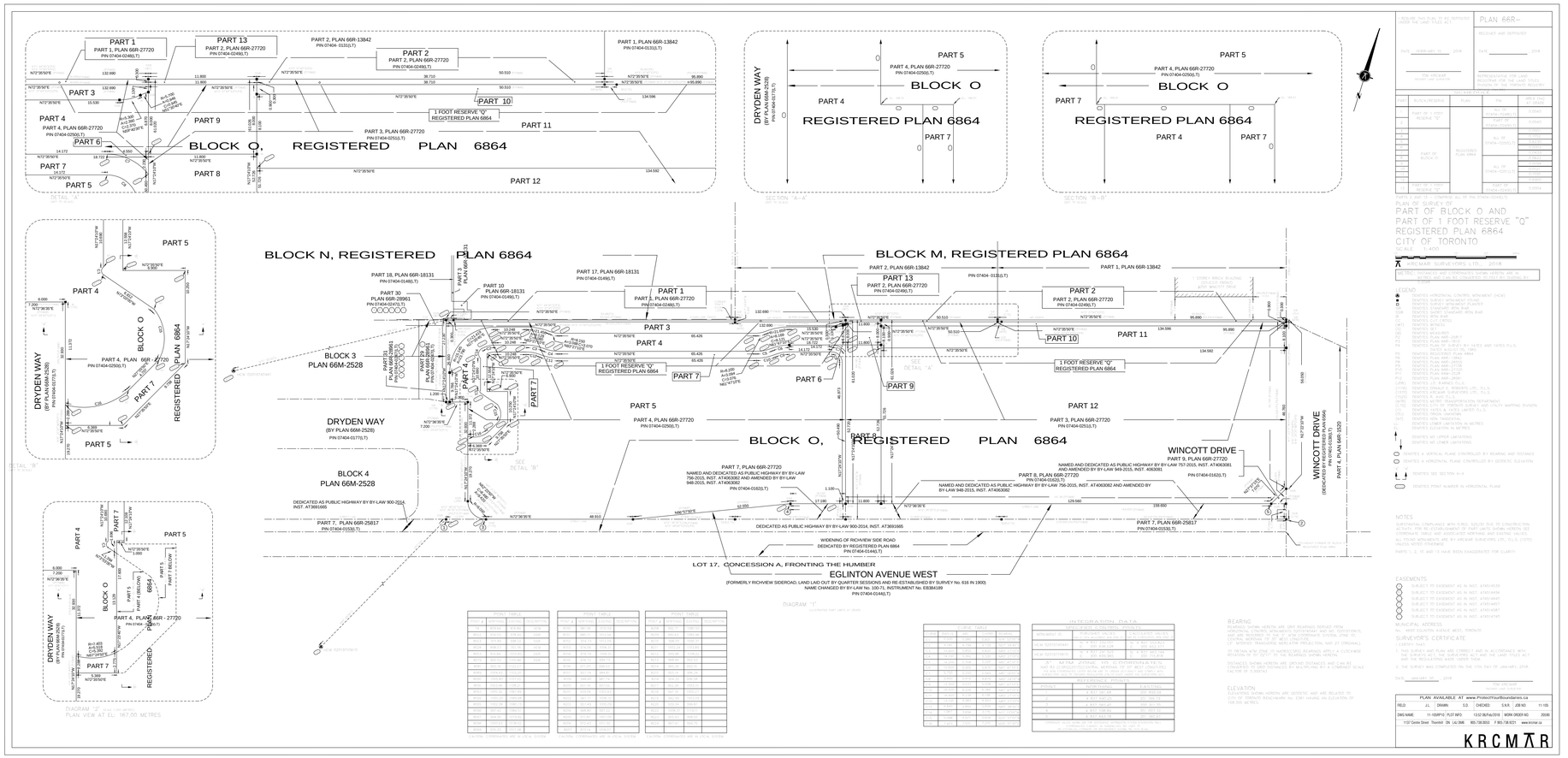

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REGISTERED PLAN 6864

SEPTEMBER 23, 2019

SCALE 1 : 800
DRAWING BY OTHERS
HALF SCALE AS NOTED

A105

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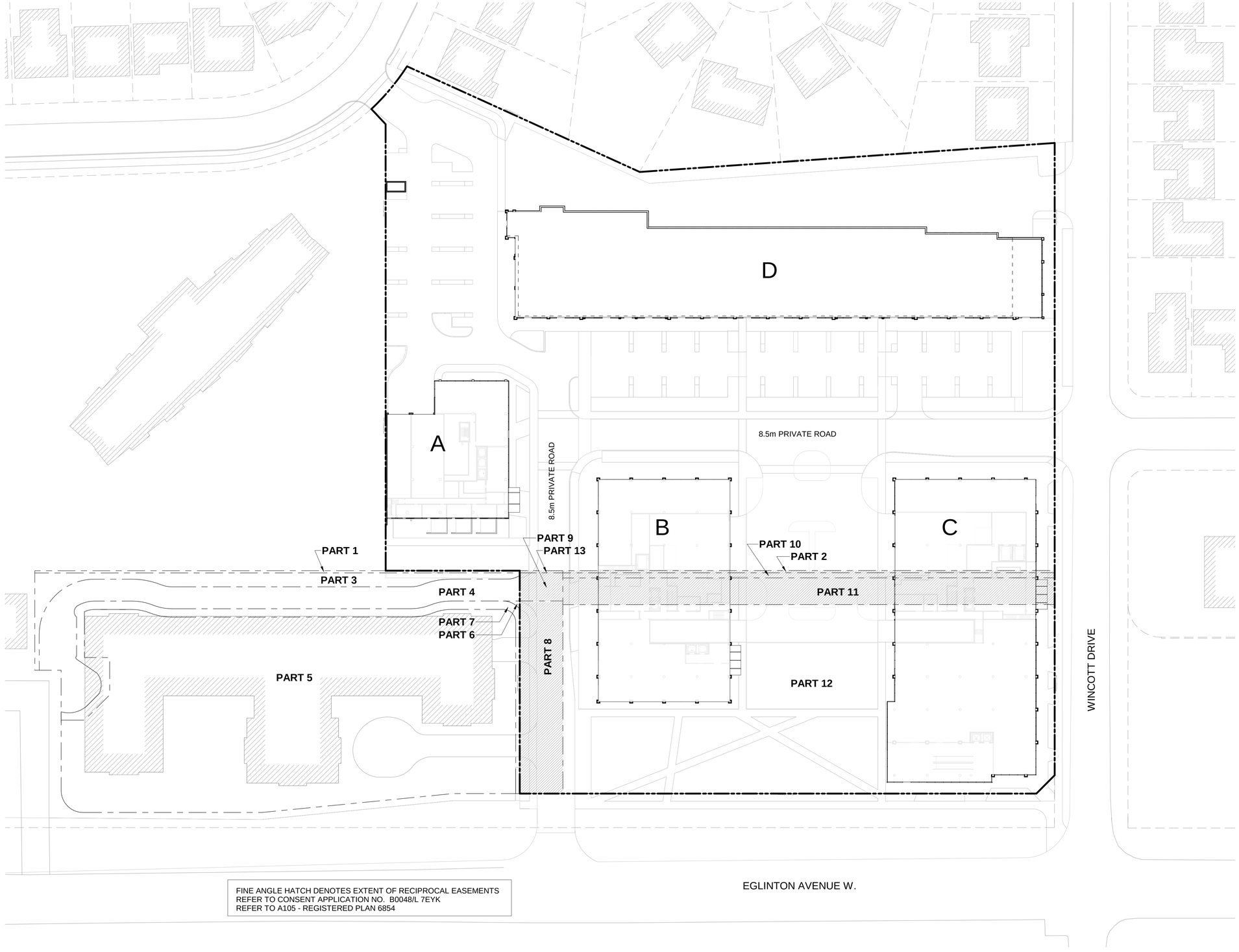

FINE ANGLE HATCH DENOTES EXTENT OF RECIPROCAL EASEMENTS
REFER TO CONSENT APPLICATION NO. B0048/L 7EYK
REFER TO A105 - REGISTERED PLAN 6854

1 / A106 EASEMENT DIAGRAM

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EASEMENT DIAGRAM

SEPTEMBER 23, 2019

SCALE 1 : 500

A106

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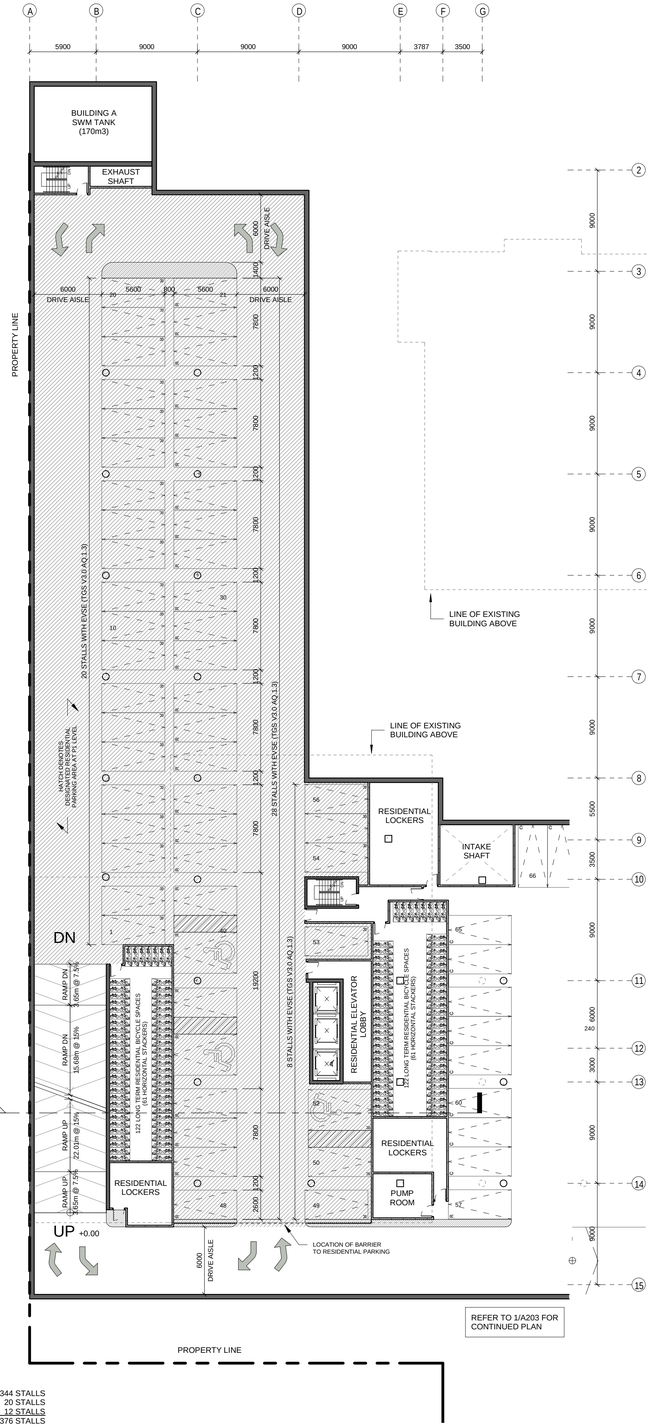


LEVEL P1 BICYCLE COUNT

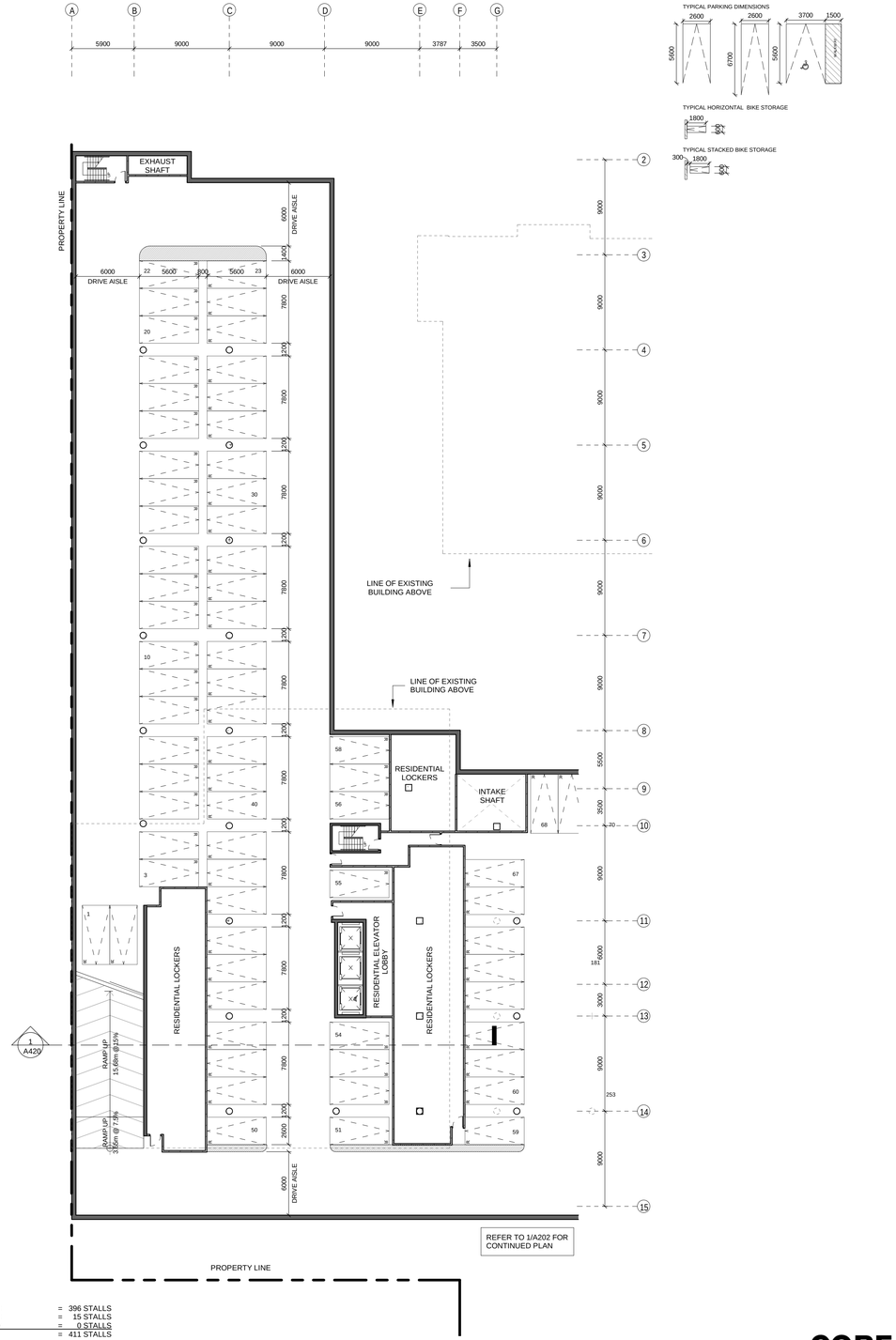
COMMERCIAL LONG TERM BIKE STALL	=	19 STALLS
RESIDENTIAL LONG TERM BIKE STALL	=	412 STALLS
TOTAL STALLS (P1 LEVEL) *VARIES*	=	431 STALLS

LEVEL P1 VEHICLE COUNT

TYPICAL (COMPACT) PARKING	5600 X 2600	=	344 STALLS
TYPICAL (PARALLEL) PARKING	6700 X 2600	=	20 STALLS
B.F PARKING	5600 X 3650	=	12 STALLS
TOTAL STALLS (P2 LEVEL) *VARIES*		=	376 STALLS

264 COMMERCIAL SPACES | 112 RESIDENT SPACES OF WHICH 12 ARE BARRIER FREE

2 A201 PARTIAL P1 PARKING LEVEL PLAN (A)



LEVEL P2 VEHICLE COUNT

TYPICAL (COMPACT) PARKING	5600 X 2600	=	396 STALLS
TYPICAL (PARALLEL) PARKING	6700 X 2600	=	15 STALLS
B.F PARKING	5600 X 3650	=	0 STALLS
TOTAL STALLS (P2 LEVEL) *VARIES*		=	411 STALLS

411 RESIDENT SPACES

1 A201 PARTIAL P2 PARKING LEVEL PLAN (A)

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PARTIAL P2 - P1 PARKING LEVEL PLANS A

SEPTEMBER 23, 2019

SCALE 1 : 250

A201

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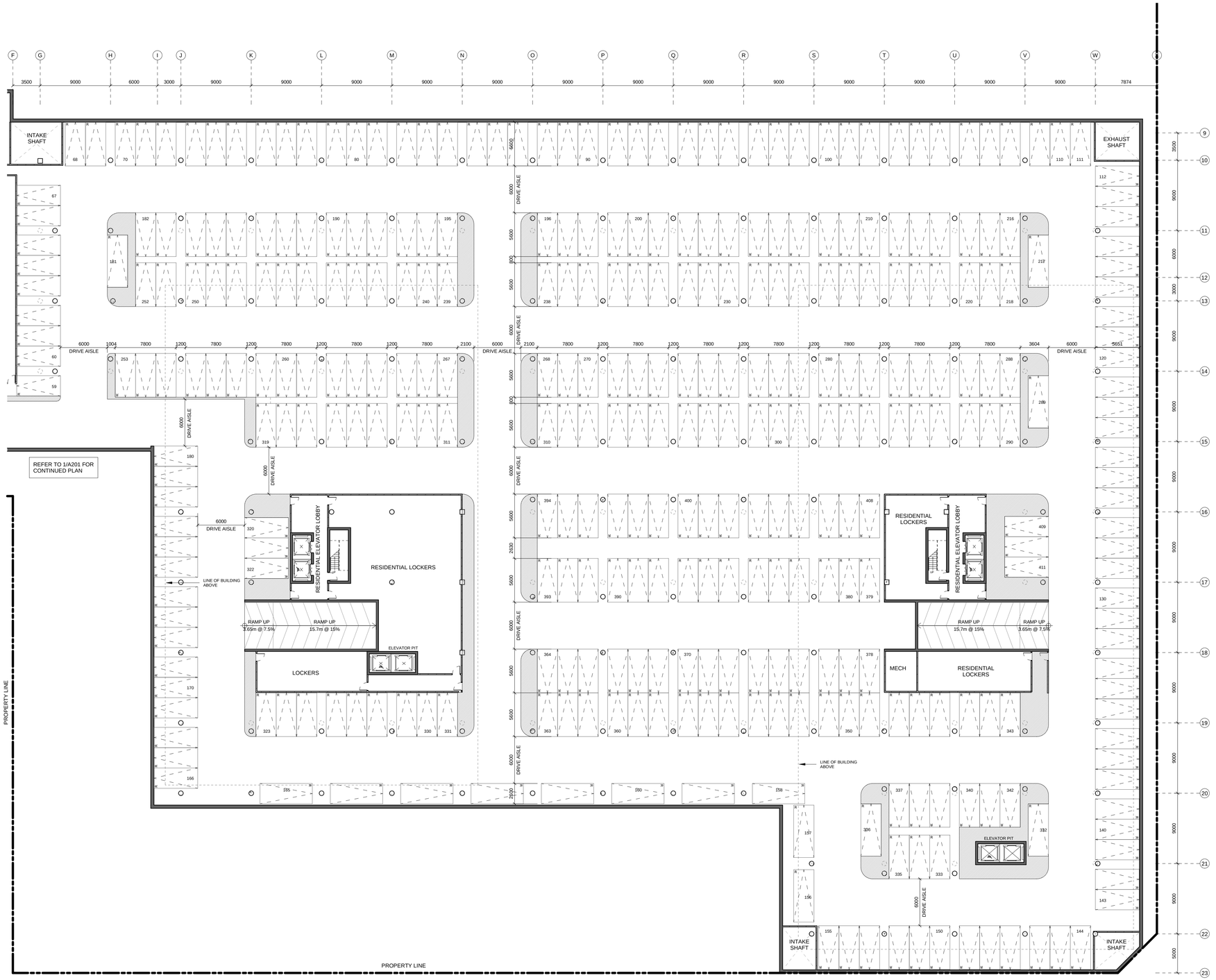

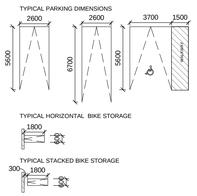

LEVEL P2 VEHICLE COUNT

TYPICAL (COMPACT) PARKING	5600 X 2600	= 396 STALLS
TYPICAL (PARALLEL) PARKING	6700 X 2600	= 15 STALLS
B.F PARKING	5600 X 3650	= 0 STALLS
TOTAL STALLS (P2 LEVEL)	*VARIES*	= 411 STALLS

411 RESIDENT SPACES

1 A202 PARTIAL P2 PARKING LEVEL PLAN BC

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LEVEL P2 FLOOR PLAN
BUILDINGS B & C

SEPTEMBER 23, 2019

SCALE 1 : 250

A202

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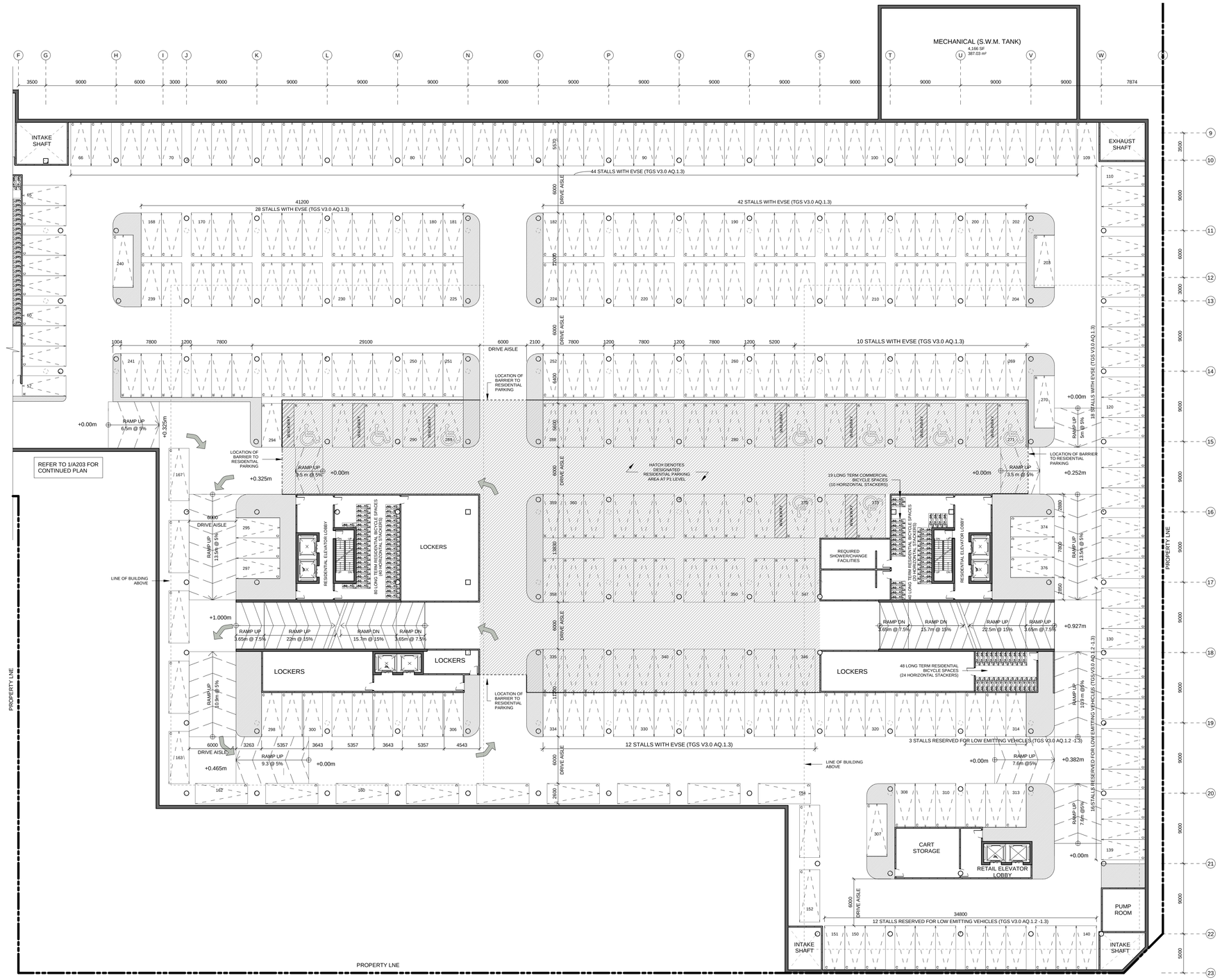
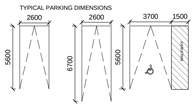


TYPICAL PARKING DIMENSIONS



TYPICAL HORIZONTAL BIKE STORAGE

TYPICAL STACKED BIKE STORAGE

LEVEL P1 BICYCLE COUNT

COMMERCIAL LONG TERM BIKE STALL		= 19 STALLS
RESIDENTIAL LONG TERM BIKE STALL		= 412 STALLS
TOTAL STALLS (P1 LEVEL)	*VARIES*	= 431 STALLS

LEVEL P1 VEHICLE COUNT

TYPICAL (COMPACT) PARKING	5600 X 2600	= 344 STALLS
TYPICAL (PARALLEL) PARKING	6700 X 2600	= 20 STALLS
B.F PARKING	5600 X 3650	= 12 STALLS
TOTAL STALLS (P1 LEVEL)	*VARIES*	= 376 STALLS

264 COMMERCIAL SPACES | 112 RESIDENT SPACES OF WHICH 12 ARE BARRIER FREE
REFER TO A201 FOR LEVEL P1 CONTINUATION

1 A203 PARTIAL P1 PARKING LEVEL PLAN BC

TRINITY CREATE TO

RICHVIEW SQUARE

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PARTIAL P1 PARKING LEVEL PLAN BC

SEPTEMBER 23, 2019

SCALE 1 : 250

A203

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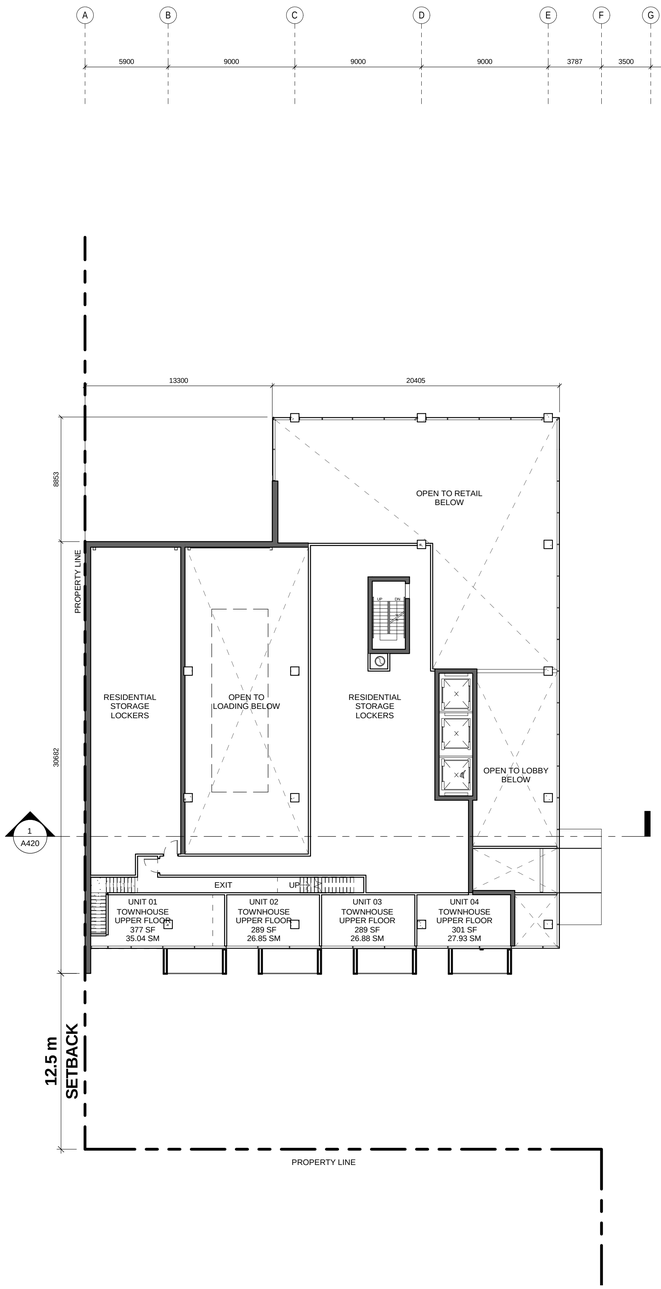

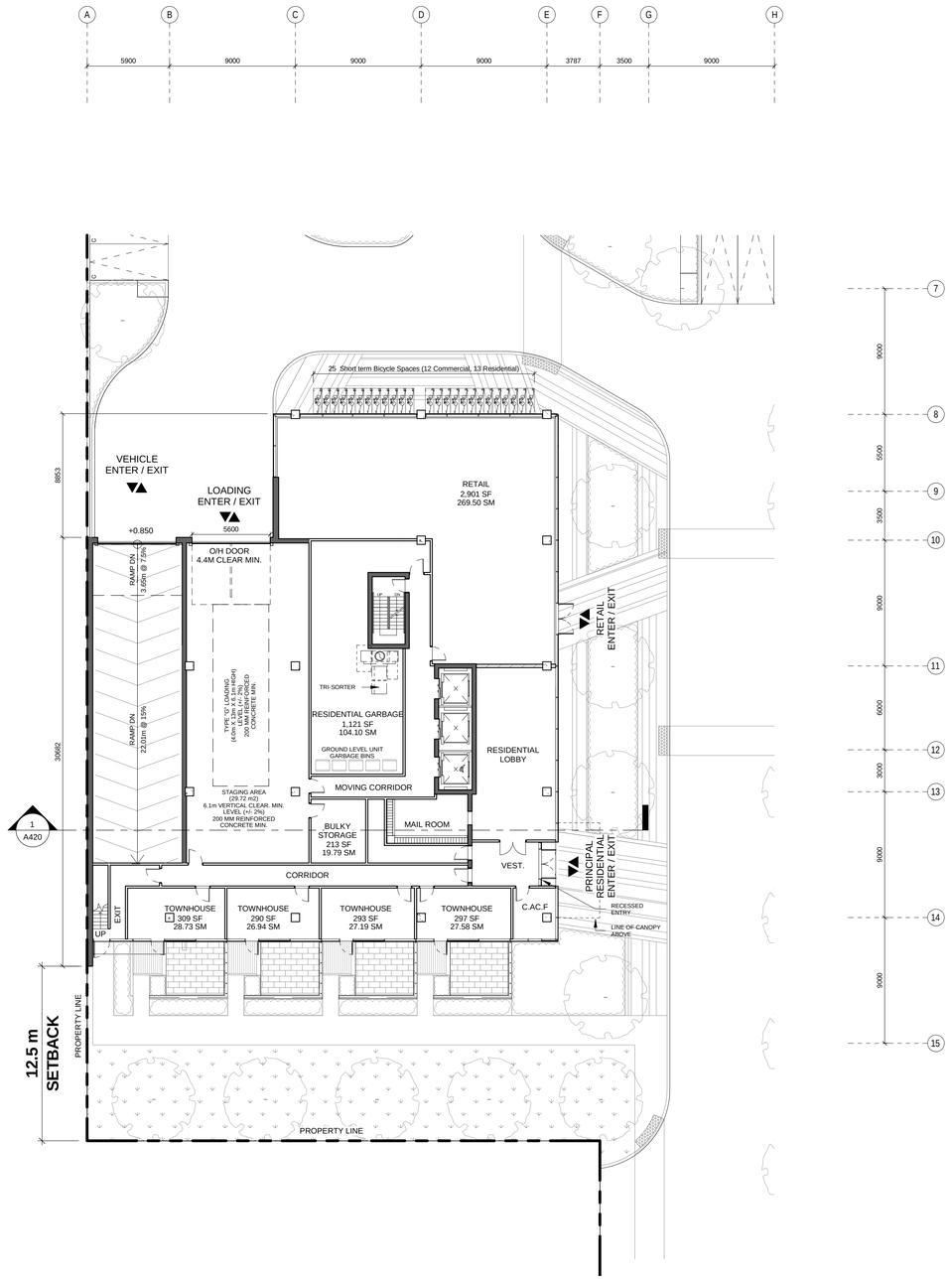

2 A204 LEVEL 1.5 PLAN A

1 A204 GROUND LEVEL PLAN A

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GROUND LEVEL PLAN A & LEVEL 1.5 PLAN A

SEPTEMBER 23, 2019

SCALE 1 : 200

A204

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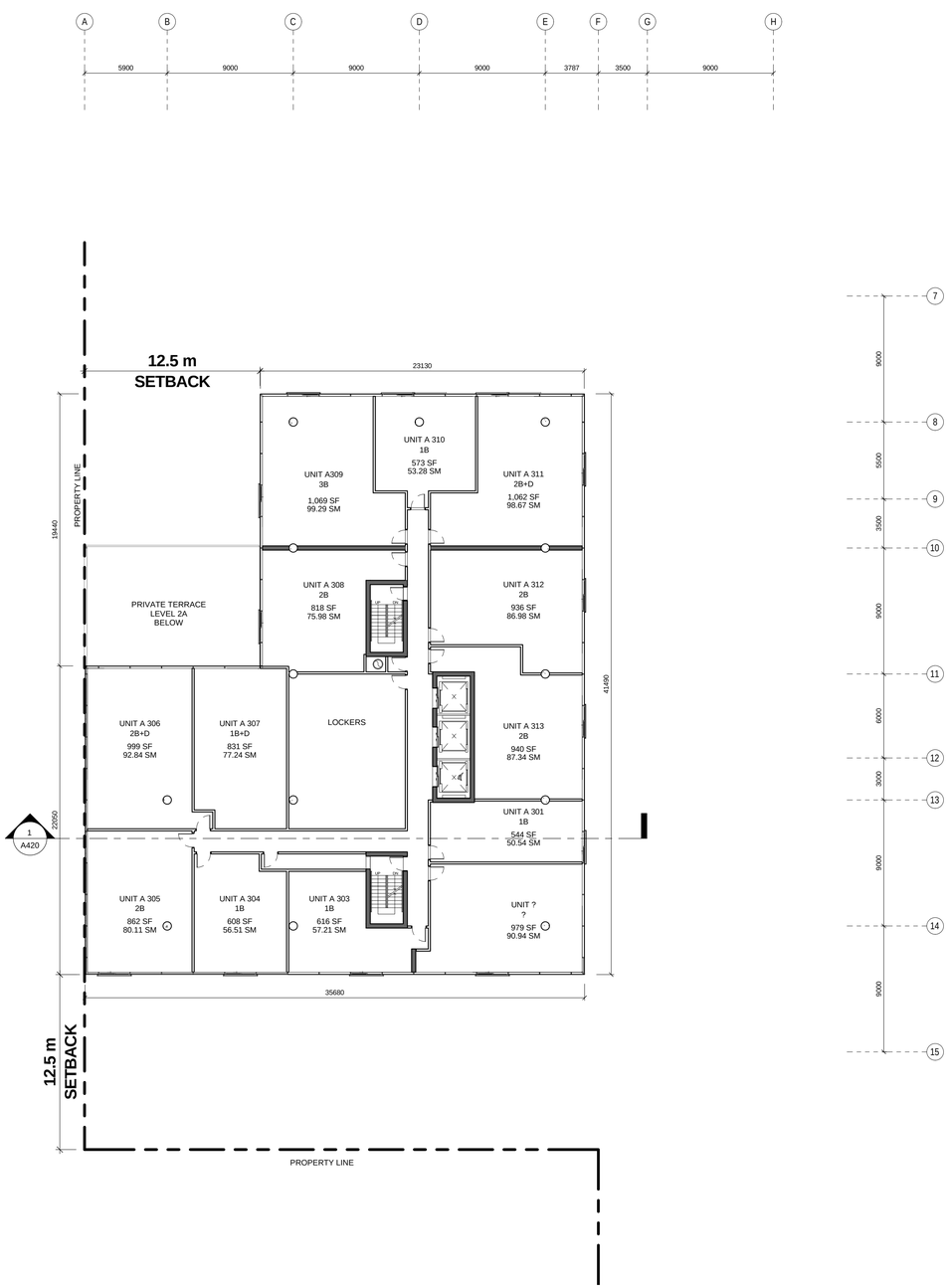
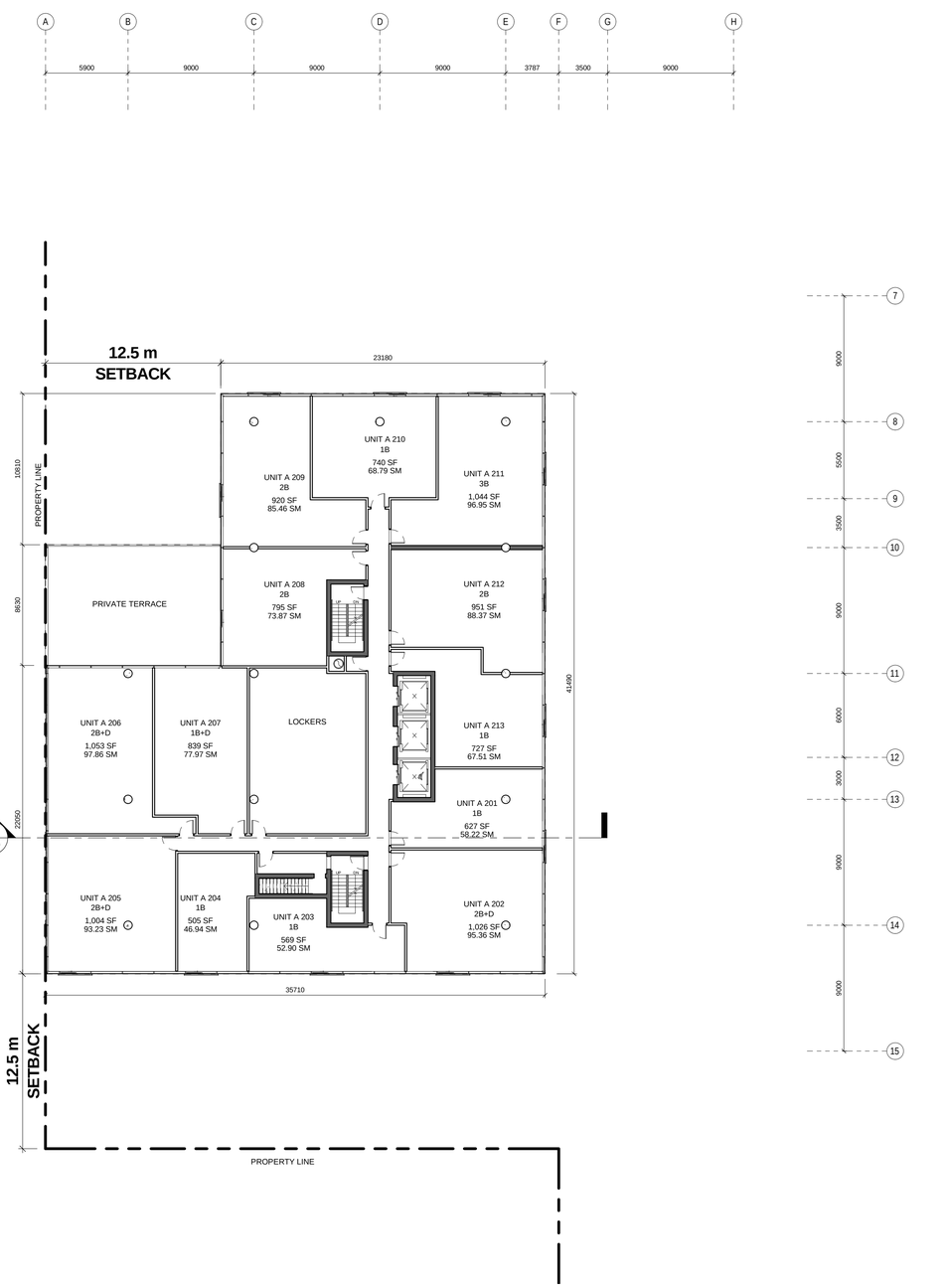


2 A205 LEVEL 3 PLAN A



1 A205 LEVEL 2 PLAN A

TRINITY CREATE TO

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LEVEL 2 A PLAN & LEVEL 3 A PLAN

SEPTEMBER 23, 2019

SCALE 1 : 200

A205

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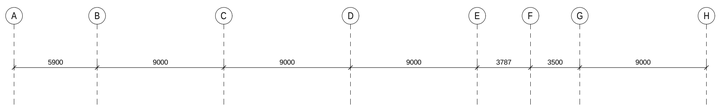

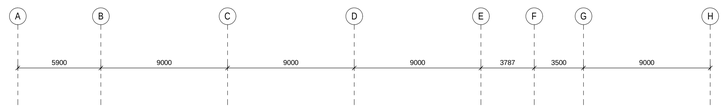

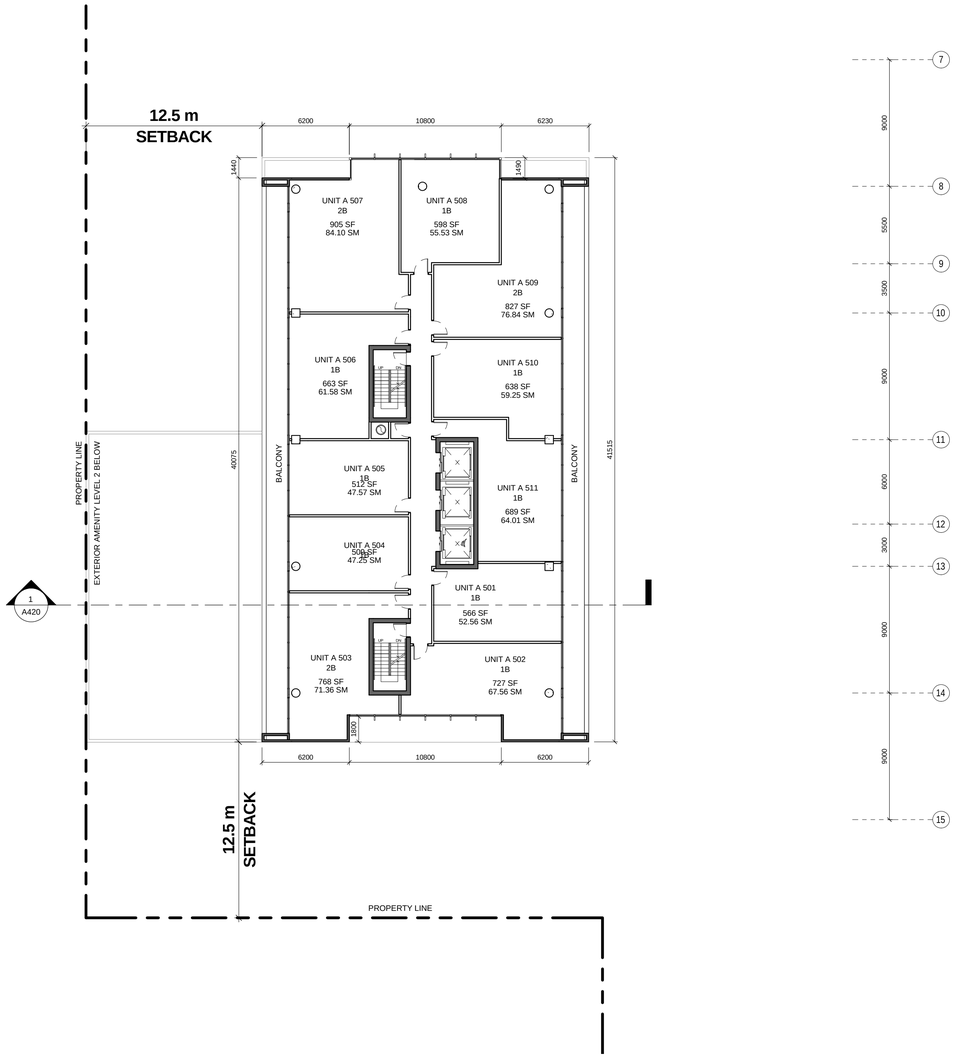

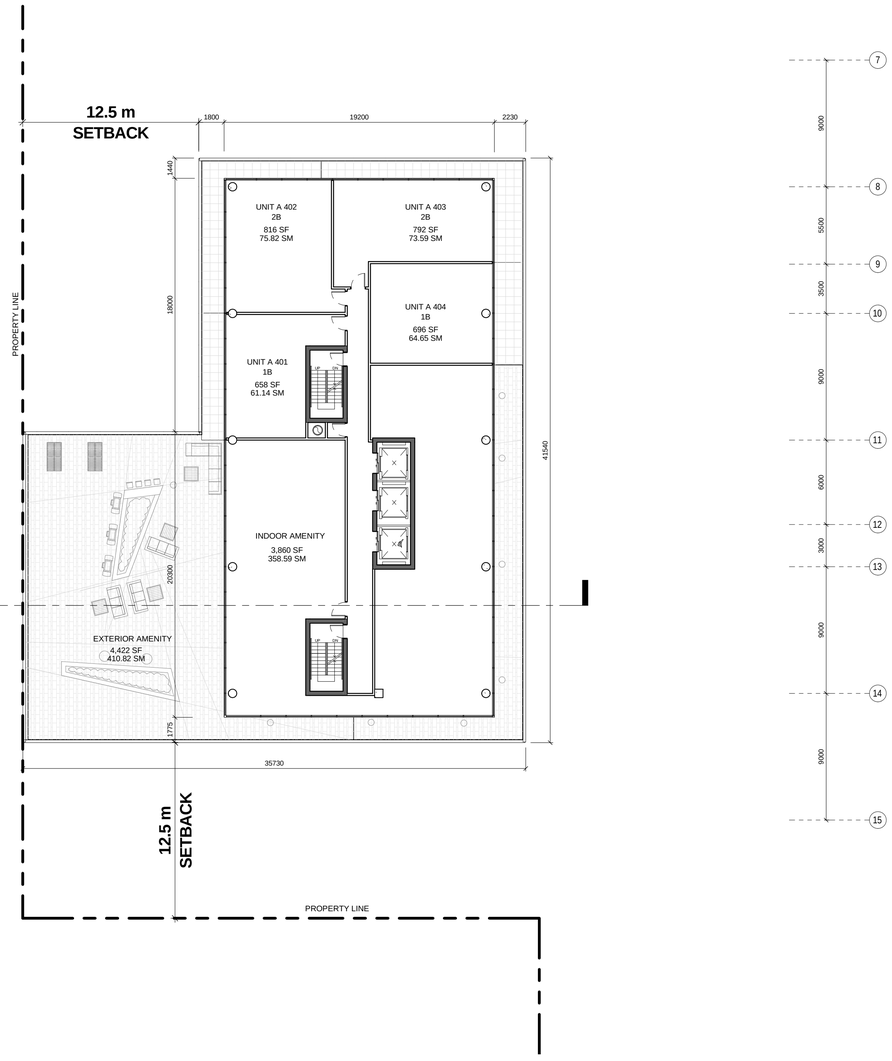

TRINITY
CREATE TO

RICHVIEW SQUARE

4620 Eglinton Avenue West
& 250 Wincott Drive
Etobicoke, ON
17-319

NO.	REVISIONS	DATE
2	ISSUED FOR REZONING	MARCH 22, 2019
1	ISSUED FOR REZONING	APRIL 30, 2018

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N

LEVEL 4 A PLAN & LEVEL 5-11 A

SEPTEMBER 23, 2019

SCALE 1 : 200

A206

CORE

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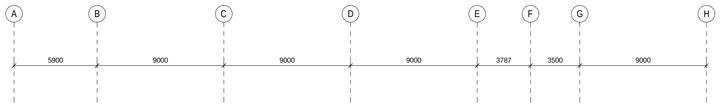
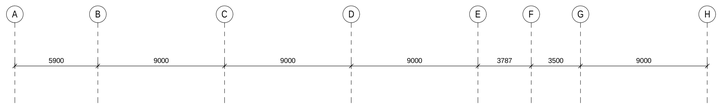
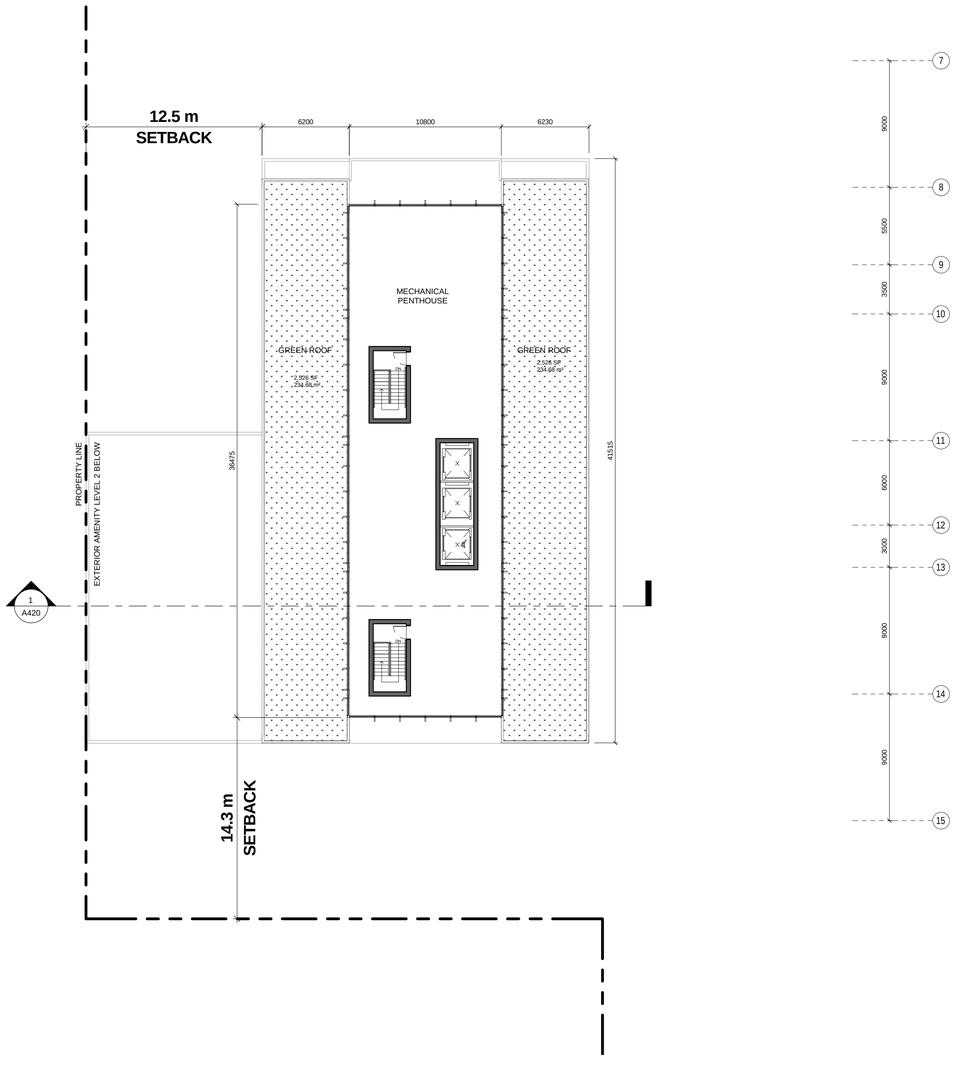
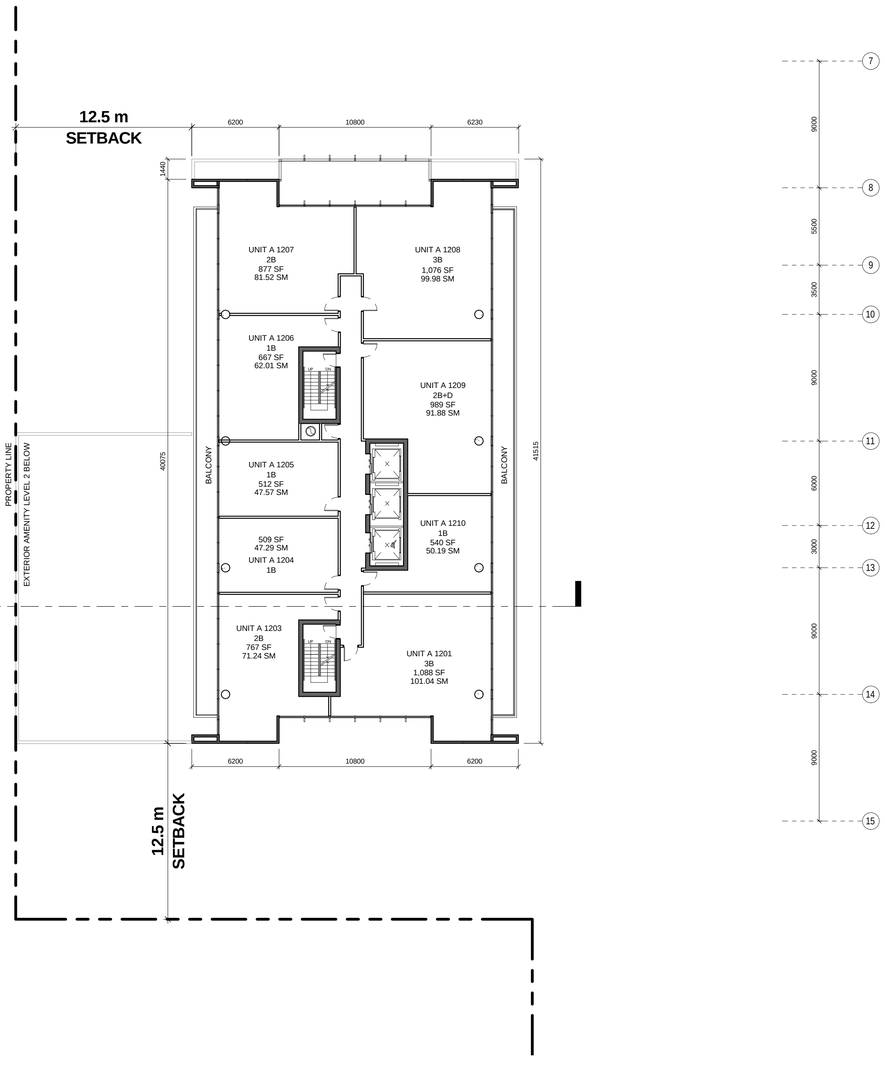
2 A206 LEVEL 5-11 PLAN A

1 A206 LEVEL 4 PLAN A









2 A207 MECHANICAL PENTHOUSE A

1 A207 LEVEL 12-18 PLAN A

TRINITY
CREATE TO

RICHVIEW SQUARE

4620 Eglinton Avenue West
& 250 Wincott Drive
Etobicoke, ON
17-319

NO.	REVISIONS	DATE
3	ISSUED FOR REZONING	SEPT. 2019
2	ISSUED FOR REZONING	MARCH 22, 2019
1	ISSUED FOR REZONING	APRIL 30, 2018

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LEVEL 12-18 PLAN A & MECHANICAL PENTHOUSE

SEPTEMBER 23, 2019

SCALE 1 : 200

A207

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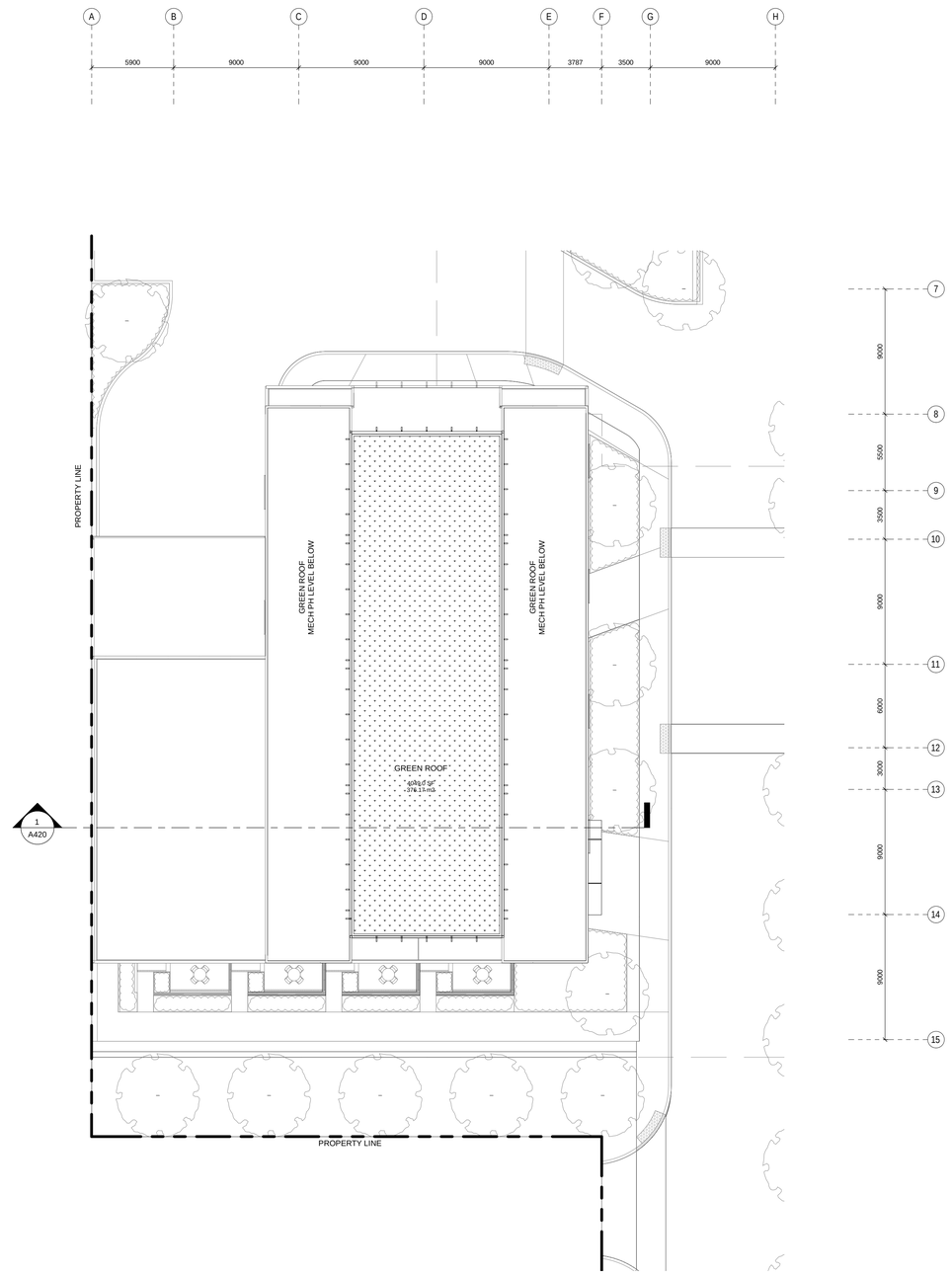

1 A208 ROOF PLAN A

TRINITY CREATE TO

RICHVIEW SQUARE

4620 Eglinton Avenue West
& 250 Wincott Drive
Etobicoke, ON
17-319

NO.	REVISIONS	DATE
3	ISSUED FOR REZONING	SEPT. 2019
2	ISSUED FOR REZONING	MARCH 22, 2019
1	ISSUED FOR REZONING	APRIL 30, 2018

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ROOF PLAN A

SEPTEMBER 23, 2019

SCALE 1 : 200

A208

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TRINITY CREATE TO

RICHVIEW SQUARE

4620 Eglinton Avenue West
& 250 Wincott Drive
Etobicoke, ON
17-319

NO.	REVISIONS	DATE
3	ISSUED FOR REZONING	SEPT, 2019
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GROUND LEVEL PLAN BC

SEPTEMBER 23, 2019

SCALE 1 : 200

A250

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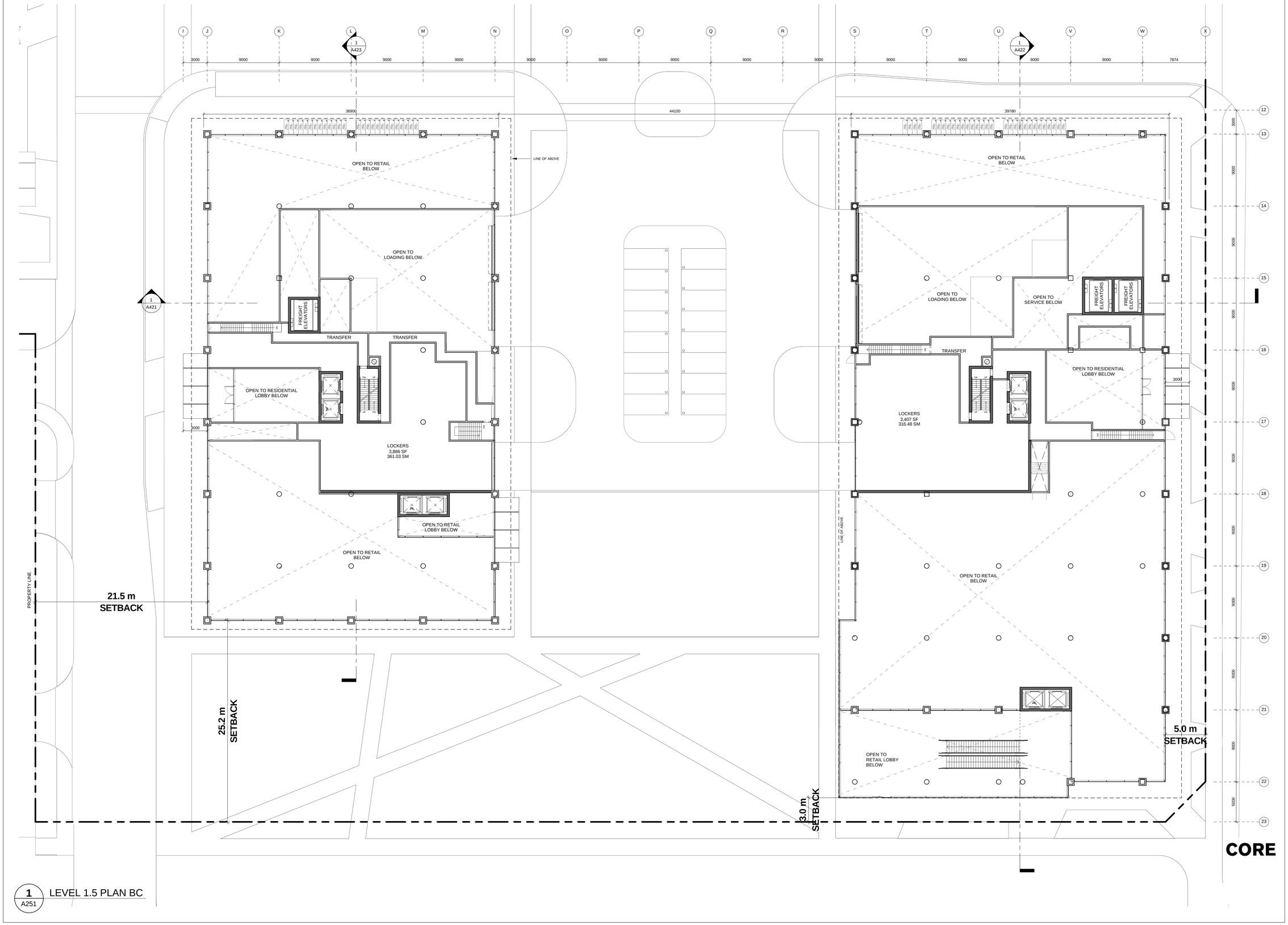
1 A250 GROUND LEVEL PLAN BC



1 LEVEL 1.5 PLAN BC
A251

TRINITY CREATE TO

RICHVIEW SQUARE

4620 Eglinton Avenue West
& 250 Wincott Drive
Etobicoke, ON
17-319

NO.	REVISIONS	DATE
3	ISSUED FOR REZONING	SEPT. 2019
2	ISSUED FOR REZONING	MARCH 22, 2019
1	ISSUED FOR REZONING	APRIL 30, 2018

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LEVEL 1.5 PLAN BC

SEPTEMBER 23, 2019

SCALE 1 : 200

A251

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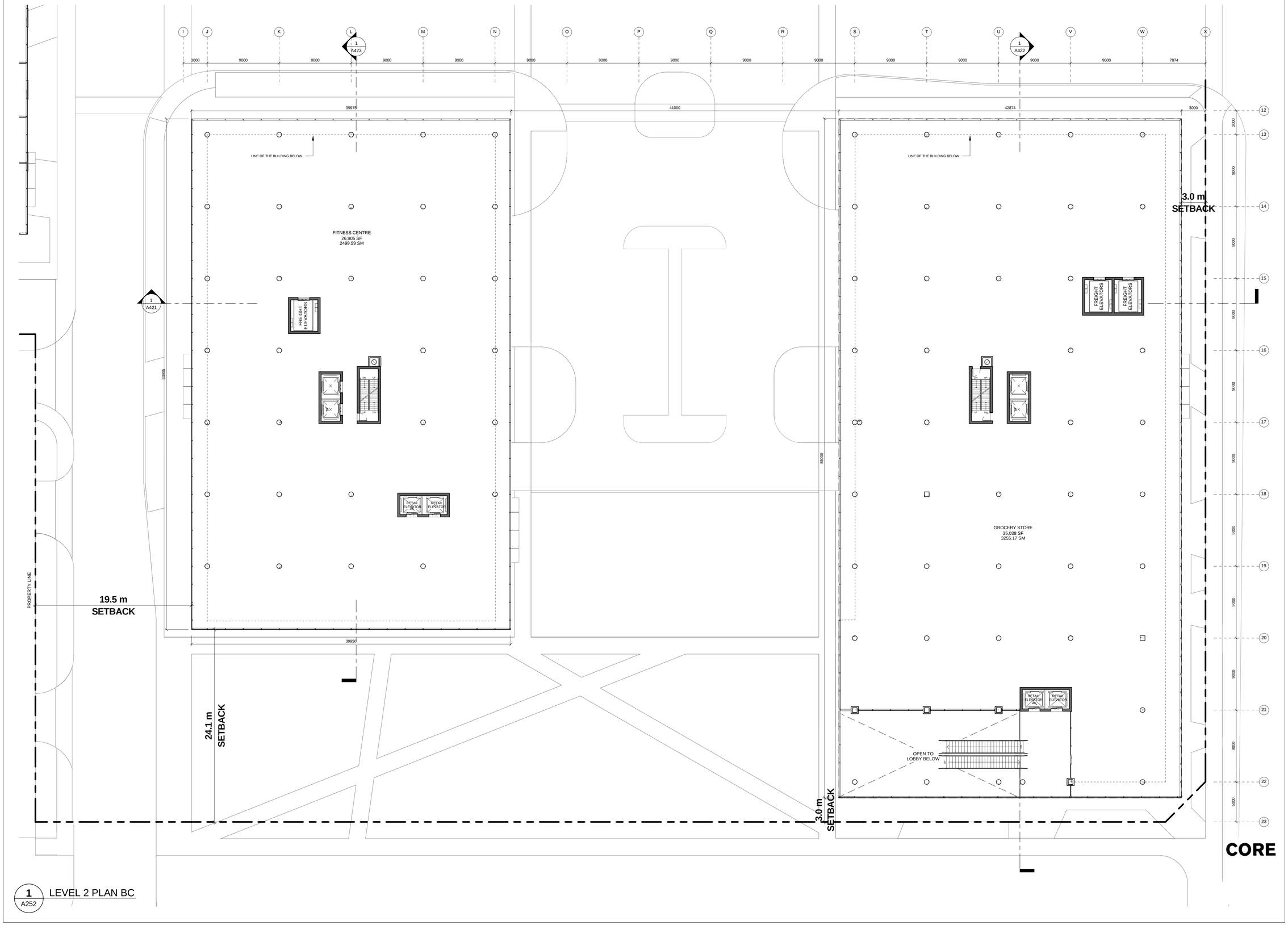

1 LEVEL 2 PLAN BC
A252

TRINITY CREATE TO

RICHVIEW SQUARE

4620 Eglinton Avenue West
& 250 Wincott Drive
Etobicoke, ON
17-319

NO.	REVISIONS	DATE
3	ISSUED FOR REZONING	SEPT. 2019
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N

LEVEL 2 PLAN BC

SEPTEMBER 23, 2019

SCALE 1 : 200

A252

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CORE

APPENDIX B:
City Comments

Ashraf Hanna, P.Eng.
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Etobicoke York District

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Reply to: John Baldesarra, P.Eng.
Tel: 416-394-8398
Fax: 416-696-3776
E-mail: Giovanni.Baldesarra@toronto.ca

MEMORANDUM

File: 250 Wincott Dr & 4620 Eglinton Ave. W

TO: Luisa Galli, Manager, Community Planning,
Etobicoke York District
Attn: Kathryn Thom

FROM: Ashraf Hanna, P. Eng., Manager, Development Engineering
Etobicoke York District
Attn: John Baldesarra.

DATE: May 15, 2019

SUBJECT: Zoning By-law Amendment
Application No: 18 150932 WET 04 OZ (2nd Submission)
Your Circulation Memorandum Dated: Friday April 12, 2019
Applicant / Agent: Peter Smith
Owner: Montrin Richview GP Inc.
Location: 250 Wincott Dr. & 4620 Eglinton Ave. W.
Ward: 02 Etobicoke Centre (Formerly 04 Etob. Centre)

APPLICATION DESCRIPTION

This is in reference to the application made by Peter Smith on behalf of Montrin Richview GP Inc., for one 16-storey tower and two 22-storey towers which will result in approximately 14,509 square metres of new and revitalized retail uses and 773 residential dwelling units. In total, the proposal contains approximately 77,964 m^2 of gross floor area, resulting in a density of 2.56 times the area of the lot. Also proposed is an 869 m^2 POPS. The subject site is located at 250 Wincott Dr & 4620 Eglinton Ave. W.

Our previous comments on the proposed development are detailed in our memorandum dated June 25, 2018.

The following comments and conditions are provided based on the following submissions:

- Architectural Plans Dwg. No. See Below, latest revision 2, dated March 22, 2019, prepared by Core Architects Inc.
  - A100 Project Statistics
  - A101 OBC Building Matrices
  - A102 Context Plan
  - A103 Site Plan
  - A104 Survey Plan
  - A105 Registered Plan 6964
  - A201 P2 & P1 Parking Level Plans (A)
  - A202 P2 Parking Level Plan (BCE)
  - A203 P1 Parking Level Plan (BCE)
  - A204 Levels 1 And 1.5 Plan (A)
  - A205 Levels 2 And 3 Plan (A)
  - A206 Levels 4 And 5-11 Plan (A)
  - A207 Levels 12-20 And Mechanical Penthouse Plan (A)
  - A208 Roof Plan (A)
  - A250 Level 1 Plan (BCE)
  - A251 Level 1.5 Plan (BCE)
  - A252 Level 2 Plan (BCE)
  - A253 Level 3 Plan (BCE)
  - A254 Typical Levels 4-11 Plan (BCE)
  - A255 Level 11 Plan (BCE)
  - A256 Level 13-19 Plan (BCE)
  - A258 Mechanical Penthouse Level Plan (BCE)
  - A259 Roof Plan (BCE)
  - A401 North Elevations (A)
  - A402 South Elevations (A)
  - A403 East Elevation (A)
  - A404 West Elevation (A)
  - A405 South Elevation (B, C & E)
  - A406 North Elevation (B, C & E)
  - A407 West Elevation (B, C & E)
  - A408 East Elevation (B, C & E)
  - A420 Cross Section East-West (A)
  - A421 Cross Section East-West (B, C & E.)
  - A500 Massing
- Landscape Plans Dwg. No. L-100, L-200, L-201 & L-202 latest revision 2 dated March 12, 2019, prepared by Land Art Design Landscape Architects Inc.
- Update Letter, Richview Square, dated, March 29, 2019, prepared by BA Group.
- Functional Servicing Report, Proj. No. 15M-00048-03, dated March, 2019, prepared by WSP
- Stormwater Management Report, Proj. No. 15M-00048-03, dated March 18, 2019, prepared by WSP
- Green Standard Statistics
- Servicing Form for Groundwater prepared by WSP
- Hydrological Review Summary prepared by Brown Associates Limited

Please advise me if any changes or modifications are required to the comments or conditions identified in this memorandum.

A. REVISIONS AND ADDITIONAL INFORMATION REQUIRED FOR PLANS AND STUDIES.

The owner is required to amend the Studies and/or Drawings to address the following comments and resubmit for the review and acceptance by the Executive Director of Engineering and Construction Services prior to approval of the zoning by-law amendment.

TRANSPORTATION SERVICES

1. The applicant is required to have the retained transportation consultant revise the traffic analysis and provide additional information to address the following issues to the satisfaction of Transportation Services:

   (i) The assessment of the Eglinton Avenue/Wincott Drive intersection must be revised to reflect the latest weekday City counts, unless acceptable documentation is provided that explains why the counts used in the TIS are significantly lower.
   (ii) The study must be revised to ensure consistency regarding the description of future horizon years for the study traffic analysis.
   (iii) The consultant must ensure that the recommended growth rates for traffic analysis are consistent with the derived growth rate values based on historical data. A conservative assumption of the future background traffic will not be an appropriate benchmark in assessing the site traffic impact on the road network.
   (iv) The consultant must elaborate what the reduction of traffic from the road network in Figure 6 represents. See Section D for details.
   (v) The consultant must ensure that the inbound and outbound vehicle trips shown in figures match the numbers in the trip generation table.
   (vi) The consultant must ensure that the FT traffic forecasts shown in Figures 30 to 39 match the combined numbers from the redistributed existing traffic volumes, future background traffic volumes, new site traffic volumes and retail pass-by trips.
   (vii) The all-red time for the north/south phases at the Eglington Avenue/Wincott Drive intersection is input as 2 seconds instead of 3 seconds as per the City signal timing plans for the AM peak analyses. The analysis must be revised accordingly.
   (viii) All Synchro outputs must be provided and labelled correctly. See Section D for details.
   (ix) The applicant must demonstrate to the City's satisfaction that the proposed signalized intersection on Eglinton can be accommodated with the approved LRT design and will not introduce additional delays to the LRT operations, as well as address any potential queuing issues. Otherwise, the Eglinton Avenue driveway must be designed a right-in/right-out only unsignalized driveway. A functional plan must be submitted for the proposed relocation of site driveway under the traffic control that is to be determined.
   (x) The applicant must address any potential queuing issues related to the proposed signalization of Wincott Drive/Waterford Drive intersection. A functional plan must be submitted for the proposed signalization and changes required on Wincott Drive.
   (xi) The applicant is required to recommend mitigation measures to maintain the Eglinton Avenue/Kipling Avenue intersection level of service to 'E' in the future conditions. The applicant will be required to pay for all costs associated with the mitigation measures.

2. The applicant is required to revise the site plans to identify the extent of the reciprocal easements/rights-of-way created through Consent Application No. B0048/17EYK related to the subject property and the adjacent properties and to demonstrate that the proposed private streets are consistent with the easements/rights-of-way.
3. In order to comply with current City standards, and the requirements of the Accessibility for Ontarians with Disabilities Act (AODA), the landscape plan must be revised to clearly show a continuous 2.1 m wide clear linear path of public sidewalk along the Eglinton Avenue, Wincott Drive and Widdicombe Hill site frontages, which must be exclusive of utilities, planting/furniture zones, street curbs etc. The width of the required sidewalks along the development site frontage must also be clearly dimensioned.
4. The site plan and landscape plan must illustrate the transition between the 2.1-metre wide sidewalk along the site frontage and the abutting sidewalk as being designed with a gentle taper.
5. The site plan must be revised to identify the locations of the proposed depressed pedestrian ramp with tactile walking surface indicator (TWSI) at the northwest corner of Eglinton Avenue and Wincott Drive intersection, as well as both the northwest and northeast corners of the relocated site driveway at Eglinton Avenue.
6. The applicant is also required to demonstrate whether the proposed modification to the northwest corner of the Eglinton Avenue/Wincott Drive intersection will require the relocation of the existing signal poles.
7. The site plan must be revised to include a tabular breakdown of parking supply by parking level and by use.
8. The applicant must confirm whether the overall parking supply of 1,013 spaces will be built by the end of the first development phase. If not, the applicant is advised that the parking supply that is built for Phase 1 must comply with the minimum parking ratios noted above.
9. The site plan must be revised to show the transition ramp between ground level and main ramp for Building A with a length of 6 m and slope of 7.5%.
10. To improve traffic circulation, we require the drive aisle area below Building E operate one-way only in the counter-clockwise direction starting and ending at the northerly row of columns.
11. All columns under Building E must be protected by raised curb and other protection mechanism from vehicular traffic.
12. Passenger vehicle manoeuvring diagram must be submitted to demonstrate how vehicles can access and exit the three drop-off spaces under Building E.
13. The dimensions of the proposed passenger drop-off/pick-up areas for Building A and Buildings B/C/E must be clearly identified on the site plan drawings, including the width, length and taper.
14. Revise all applicable drawings to demonstrate compliance with the parking requirements noted under Condition Nos. B1 and B3.
15. Revise all applicable drawings to demonstrate compliance with the parking space and drive aisle dimensions noted under Condition Nos. B2 and B3.
16. The City of Toronto garbage truck inbound movement accessing the Type G loading space in Building C must be revised such that it does not conflict with one of the columns under Building E.
17. Truck movements must be tested for the turning movements at the two site driveways (i.e., Wincott Drive/ Waterford intersection and Eglinton Avenue West/private road intersection) and at the internal intersection of the N-S and E-W private road.

18. Revise all applicable drawings to demonstrate compliance with the loading requirements noted under Conditions Nos. B4 and B5.
19. The applicant's transportation consultant is required to submit truck turning diagrams demonstrating that trucks anticipated to service the site are able to enter and exit the private roads and access the proposed loading area and the site in a forward motion without encumbrances.

ENGINEERING AND CONSTRUCTION SERVICES

General:

To clarify, the site, as well as other properties along the north side of Eglinton Ave. W, moving towards Martin Grove Rd was studied by Husson and Cole Engineering and eventually services were installed along Eglinton Ave. W to support development of those studied properties including the subject site. The applicant's FSR mentions the Husson Report, but the infrastructure was designed and installed through Cole Engineering.

Sanitary

Fig. 2.1 in the report. The sanitary control manhole for Bldg A, needs to be within 3 to 4 metres of the property line. Bldg B & C leaders pointing to nothing. The connections to Eglinton will require a manhole over the existing main. If there are existing services illustrated it should be noted as such. Proposed services should also be labelled as proposed. Control manholes would be required for all connections.

The applicant to provide a profile sketch of HGL (11x17) in Appendix C

Water

The applicant to provide a current hydrant flow test as indicated in the report.

Figure 3.1 in the Functional Servicing report indicates the water service for Building A, not at the property line as per City standards. The applicant to revise the figure.

Storm

The SWM report submitted in support of this application will be reviewed in greater detail during the Site Plan application stage.

The applicant to ensure that the FSR describes and summarizes the fundamentals of the SWM for the site.

It is not clear why the storm pipe installed along Eglinton Ave. W to service the subject site is not being used? The applicant to explain.

The applicant to revise Section 4.4 of the report. The City implemented the Wet Weather Flow Management Guidelines in 2006, 13yrs ago, so it is misleading to indicate it was done recently.

Also Section 4.4 should provide an overall picture of the water balance i.e. the overall targets and the methods being processed to achieve it.

The applicant to verify the allowable release rate 2.1 Ha at 0.5 runoff coefficient is 257.2 l/s according to our calculations.

The architectural plans suggest that there will be a green roof, which should be mentioned in the Functional Servicing Report.

Groundwater:

The Hydrological Review Summary and the Servicing Report Groundwater Summary documents, are under review.

SOLID WASTE AND RECYCLING

Although Solid Waste matters must be addressed at the Site Plan approval stage, please see comments in Background Section of this memo, which should be addressed or at least considered, in the next submission to ensure that the proposed development is eligible for City collection services.

FIRE SERVICES

Although Fire Services matters must be addressed at the Site Plan approval stage, please see comments in Background Section of this memo, which should be addressed or at least considered, in the next submission to ensure that the proposed development meets Fire Service's requirements.

B. PRELIMINARY ZONING BY-LAW AMENDMENT CONDITIONS

The owner is required, as a condition of approval of the Zoning By-Law Amendment Application, to:

TRANSPORTATION SERVICES

1. Parking for the proposed mixed-use development shall be provided according to Table No. 200.5.10.1 of City of Toronto Zoning Bylaw No. 569-2013 based upon the “Policy Area 4” category.
2. Dimensions for all parking spaces and parking aisles shall comply with the minimum dimensional requirements, as per Section Nos. 200.5.1 and 200.5.1.10 of City of Toronto Bylaw No. 569-2013.
3. Accessible parking spaces shall be provided in accordance with the supply and dimensional requirements in Section No. 200.15 of City of Toronto Zoning By-law 569-2013.
4. Loading spaces for the proposed mixed-use development shall be provided according to Section No. 220.5.10 of City of Toronto Zoning Bylaw No. 569-2013.
5. Each required loading space shall provide minimum dimensions as per Section No. 220.5.1.10 of City of Toronto Zoning Bylaw No. 569-2013.

ENGINEERING AND CONSTRUCTION SERVICES:

1. Submit to the Executive Director of Engineering and Construction Services for review and acceptance, prior to approval of the rezoning application, a Functional Servicing Report to determine the storm water runoff, sanitary flow and water supply demand resulting from this development and whether there is adequate capacity in the existing municipal infrastructure to accommodate the proposed development;

2. Make satisfactory arrangements with Engineering and Construction Services and enter into the appropriate agreement with the City for the design and construction of any improvements to the municipal infrastructure, should it be determined that upgrades are required to the infrastructure to support this development, according to the accepted Functional Servicing Report and Traffic Impact Study accepted by the Executive Director of Engineering and Construction Services.

3. Provide space within the development for installation of maintenance access holes and sampling ports on the private side, as close to the property line as possible, for both the storm and sanitary service connections, in accordance with the Sewers By-law Chapter 681.

C. BACKGROUND

TRANSPORTATION SERVICES

TRAFFIC ASSESSMENT

In support of the proposed redevelopment, the applicant's transportation consultant, BA Group submitted a Transportation Considerations Report dated April 25, 2018 and a Transportation Impact Study Update dated March 18, 2019.

As noted, the proposal will be developed in two phases. The report on page 5 stated that the traffic analysis considers Phase 1 condition for 2024 horizon and full build-out of the site for 2029 horizon. However, the remaining sections of the report considered 6-year (2025) and 11-year (2030) horizons.

In the March 2019 report the consultant estimates the trip generation associated with the existing retained retail GFA, the new proposed uses, and the potential development level under the as-of-right zoning. The trip generation has been summarized in Table 2.

Table 2: Trip Generation Summary

	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
2025 Trip Generation									
Gross Total New Trips (New Proposed Use)	265	315	580	325	275	600	355	370	725
Gross Total Site Trips (Including Retained Retail GFA)	415	430	845	465	415	880	495	510	1,005
2030 Trip Generation									
Gross Total New Trips (New Proposed Use)	285	355	640	375	310	685	400	405	805
Gross Total Site Trips (Including Retained Retail GFA)	435	470	905	515	445	960	540	540	1,080
As-of-Right Zoning									
As-of-Right Zoning (163,782 ft^2 of retail GFA)	505	430	935	565	545	1,110	615	625	1,240

The trip generation related to the proposed residential use was developed using trip rates derived by the consultant on the basis of actual observed trips rates at other condo minimum developments in the City of Toronto. The trip generation related to the non-residential uses is largely based on Trip Generation Manual (10^{th} Edition) by the Institute of Transportation Engineers (ITE).

Four site access arrangement alternatives, which represent variations from the base site access arrangement have been reviewed in the study, as follows:

- Option 1: Close the existing Widdicombe Hill site driveway;
- Option 2: Restrict the eastbound left-turn movement at the Eglinton Avenue/Wincott Drive intersection;
- Option 3: Restrict the eastbound and westbound through movement at the Wincott Drive/Waterford intersection; and
- Option 4: Stop-control and RI/RO operations at the Eglinton Avenue West and site driveway intersection.

Given the projected site trips, the consultant concludes in the March 2019 report the following:

- Site driveway intersections on Wincott Drive and Eglinton Avenue West that are proposed to be signalized will function in a satisfactory manner;
- The Eglinton Avenue West/Wincott Avenue intersection is forecast to function in a satisfactory manner;
- The signalized intersections on Eglinton Avenue West at Islington and Kipling will experience higher end demands and poor operational characteristics under future background conditions particularly during the weekday AM and PM peak hours. With the addition of site traffic, the intersections will continue to be busy during the weekday morning and afternoon peak hours, but are forecast to operate in a busy, but satisfactory manner during the Saturday peak hour.

A sensitivity analysis was undertaken to review the traffic benefits of introducing exclusive eastbound and westbound right-turn lanes at the signalized intersections of Eglinton Avenue Wets/Islington Avenue and Eglinton Avenue/Kipling Avenue intersections. The consultant commented that the provision of right turn lanes has a modest, but limited effect on improving overall intersection operations.

Transportation Services provided review comments in our previous memo, some of which have been addressed by the consultant, as follows:

a) The existing traffic volumes for the Wincott Drive/Waterford Drive/site driveway intersection are now based on the March 20, 2018 weekday counts, which are higher than the observed volumes in June 2, 2016 previously used. This is acceptable.
b) The existing signal timing plans used in the traffic analyses have been submitted in Appendix E.
c) We previously commented that the existing retail trips and the associated retail trip generation rates appear to be higher than the ITE Trip Generation Manual trip generation rates that were applied for the proposed ground floor retail trips. The consultant explained that a relatively large proportion of the existing retail GFA is oriented towards "high turnover" type retail, thereby increasing travel to/from the existing retail plaza. However, the new general retail uses are not known at this time. Accordingly, the consultant indicated that ITE trip generation rates will better reflect the proposed new general retail tenants on site. We accept this explanation.
d) The consultant provided the occupancy level at the existing Richview Square when trip generation surveys were undertaken: 93 percent of the available floor space was leased. This is satisfactory.
e) Table 10 of the March 2019 report applies a 10% reduction rate to all net new non-residential site trips to account for the internal site trips. The consultant stated that the internal trip calculation using the ITE Trip Generation Handbook generally results in greater trip reduction compared to the 10% approach by the consultant. This represents a conservative approach.
f) The NEMA phases for the signalized intersections along Eglinton Avenue are now modelled correctly (i.e. as per the existing signal timing plans, the eastbound and westbound through movements are NEMA phases 2 and 6 and the northbound and southbound through movements are NEMA phases 4 and 8).

Despite the above, additional analyses and documentation are required prior to accepting the findings of the study, as further discussed below.

1. Existing Traffic Analysis

a) Our previous comments required that the existing traffic analysis of Eglinton Avenue/Kipling Avenue and Eglinton/Wincott Drive intersections must be revised to reflect the latest City counts. The revised analysis applied the City counts for the Eglinton Avenue/Kipling Avenue and Eglinton Avenue/Islington Avenue intersections. However, the Eglinton Avenue/Wincott Drive intersection continues to be analyzed on the basis of Spectrum Traffic Data Inc. counts, which are 25% to 30% lower than the City counts. Therefore, our requirements are still outstanding.

2. Future Background traffic Forecasts

b) The study must be revised to ensure consistency regarding the future horizon years for the study traffic analysis. In some report sections, 2024 and 2029 horizon years were identified, while in other sections, 2025 and 2030 horizon years were used.

c) The consultant derived growth rates for Eglinton Avenue, Kipling Avenue, and Islington Avenue based on data at the Eglinton Avenue/Kipling Avenue and Eglinton Avenue/Islington Avenue intersections. However, growth rates applied in the analysis appear to be inconsistent with the derived growth rates. For instance, most of the growth rates derived along Eglinton Avenue are negative and the consultant recommends applying an annual 1% growth rate to Eglinton Avenue in the east-west direction. Conversely, no growth rates were recommended for Islington Avenue in the north-south direction, even though 3 – 4% growth rates were calculated for the southbound traffic on Islington Avenue during the weekday PM peak period. The consultant must ensure that the recommended growth rates for traffic analysis are consistent with the derived growth rate values based on historical data. A conservative assumption of the future background traffic will not be an appropriate benchmark in assessing the site traffic impact on the road network.

d) Figure 6 illustrates the assumed redistribution and removals of existing traffic volumes under the scenario of future signalization of the new Eglinton Avenue West driveway. It is unclear what portion of the existing traffic volumes are removed in Figure 6. The redistribution results in a net decrease in 75, 140, and 165 outbound site vehicle trips during the weekday AM, PM, and Saturday peak hours, respectively. The consultant must also confirm whether redistribution is proposed for the northerly site driveway on Wincott Drive.

3. Trip Generation

e) The consultant must ensure that the inbound and outbound vehicle trips shown in Figures 15 – 24 match the numbers in Table 11. For instance, it appears that there are discrepancies in terms of site trips for Figures 15, 16, 22, 23, and 24 compared to Table 11.

4. Future Total Traffic Forecasts

f) The consultant must ensure that the FT traffic forecasts shown in Figures 30 to 39 match the combined numbers from the redistributed existing traffic volumes, future background traffic volumes, new site traffic volumes and retail pass-by trips. For instance, it appears that the numbers do not add up for the movements at the new access intersection at Eglinton Avenue West.

5. Synchro Analysis

g) As shown in the Synchro outputs, it appears that the all-red time for the north/south phases at the Eglington Avenue/Wincott Drive intersection is input as 2 seconds instead of 3 seconds as per the City signal timing plans for the AM peak analyses. The analysis must be revised accordingly.

h) Existing PM Synchro outputs appear to be missing in Appendix F. Existing Saturday Synchro outputs appear to be mislabeled as FT Phase 1 Base SAT. All Synchro outputs must be provided and labelled correctly.

6. Transportation Improvements

Our comments for the future total traffic analysis and the proposed transportation improvements are provided below on a preliminary basis. We will provide further comments upon review of the revised analysis that addresses our requirements and conditions noted above.

a) Signalization of New Site Access Driveway at Eglinton Avenue West

As per prior correspondence between Transportation Planning of City Planning Division with CreatTo and BA Group, the City has concerns with the proposed signalized access on Eglington. The City's primary concerns relate to the spacing between Wincott Drive and the proposed signal, as well as the impacts a new signalized intersection would have on plans for the Eglinton West LRT. The LRT EA was approved in 2010 as a fully at grade facility in the middle of Eglinton. LRT stops were proposed at Wincott Drive and Kipling Avenue. The LRT platforms are 90 metres in length and a new signalized intersection may significantly alter the approved design.

Our previous comments required that the applicant must demonstrate to the City's satisfaction that the proposed signalized intersection on Eglinton can be accommodated with the approved LRT design and will not introduce additional delays to the LRT operations. Otherwise, the Eglinton Avenue driveway must be analyzed under two scenarios: one as a full-movement unsignalized driveway, and another as a right-in/right-out only unsignalized driveway.

The consultant responded in the March 2019 report that they have presented traffic analysis with and without the proposed traffic signal to evaluate the impacts of the proposal. Site Access Option 4 provides analysis considering a RI/RO only driveway. The consultant also suggested that should the Eglinton LRT move forward as a surface LRT in this section, the signal could be removed, albeit with some site impacts.

Give the consultant's response, our position remains that before acceptance of the proposed signalization at this site driveway, the consultant must demonstrate to the City's satisfaction 1) that the proposed signalized intersection on Eglinton can be accommodated with the approved LRT design and will not introduce additional delays to the LRT operations; and 2) whether queuing associated with either signal will significantly impact the traffic operations at the other signal along Wincott Drive and what mitigation measures are recommended to address any identified issue.

In addition, a functional plan must be submitted for the proposed relocation of site driveway under the traffic control that is to be determined.

b) Signalization of Site Access Driveway at Wincott Drive and Waterford Drive

The consultant proposes signalization of the site access driveway at Wincott Drive and Waterford Drive and undertook a signal warrant, which demonstrates the signal is justified based on OTM Book 12 Justification 1 and 2025 traffic forecasts.

Traffic Planning accepts the signal warrant; however, we have concern with the spacing between Waterford Drive and Eglinton Avenue that is less than minimum signal spacing requirement of 215 metres. The consultant is required to demonstrate whether queuing associated with either signal will significantly impact the traffic operations at the other signal along Wincott Drive and what mitigation measures are recommended to address any identified issue. The consultant must also submit a functional plan to demonstrate the required changes to the intersection, as well as the section of Wincott Drive between Waterford Drive and Eglinton Avenue, if any.

c) Eglinton Avenue and Kipling Avenue

The consultant concluded that the Eglinton Avenue West and Kipling Avenue intersection will experience higher end demands and poor operational characteristics under future background conditions, particularly during the weekday morning and afternoon peak hours. With the addition of site traffic, the intersection will continue to operate in a busy manner.

It is noted that as shown in Table 16 of the report, the intersection is forecast to operate at level of service 'F' in Phase 2, compared to level of service 'E' under the future background and Phase 1 future total conditions, on the basis of overall delay during the weekday AM peak hour. This is not acceptable. The applicant is required to recommend mitigation measures to maintain the intersection level of service to 'E' in the future conditions. The applicant will be required to pay for all costs associated with the mitigation measures.

The proponent is advised that additional comments related to the traffic study may be provided by the Transportation Planning section of the City Planning Division for issues that fall under their purview. The proponent is also advised that additional comments may be provided with respect to the traffic impacts of the proposal once a revised Transportation study is submitted for review and approval.

ROADWAYS

We have been advised by the Land and Property Surveys Group that property conveyances for Official Plan road allowance widening purposes are **not** required along the subject property frontages.

Consent Application No. B0048/17EYK, which is related to the subject property and the adjacent properties was given conditional approval on January 9, 2018 by the Committee of Adjustment. The purpose of the consent application is to create reciprocal easements/rights-of-way for pedestrian and vehicle access as follows:

Easement "B" – Part 11 of 4620 Eglington Avenue West, as follows:

- An easement-in-gross in favour of the City for the purpose of permitting vehicular and pedestrian thoroughfare for the general public;
- An easement in favour of Richview Plaza, located at 250 Wincott Drive;
- An easement in favour of the neighbouring lands, located at 4650 Eglington Avenue West.

Easement "C" – Parts 8, 9, and 13 of 4620 Eglington Avenue West, as follows:

- An easement-in-gross in favour of the City for the purpose of permitting vehicular and pedestrian thoroughfare for the general public;
- An easement in favour of Richview Plaza, located at 250 Wincott Drive;
- An easement in favour of the neighbouring lands, located at 4650 Eglington Avenue West.

The reference plan of survey delineating the separate Parts of the lands have been deposited under the Land Titles Act on February 15, 2018.

Our previous comments required the applicant revise the site plans to identify the extent of the above reciprocal easements/rights-of-way and to demonstrate that the proposed private streets are consistent with the easements/rights-of-way. Drawing A103 has been revised to add the labels Part 8 and Part 9, as well as notation stating "*dashed angle hatch denotes extent of reciprocal easements; refer to consent application No. B0048/17EYK – Parts as noted. Refer to A105 – Registered Plan 6864.*" The dashed angle hatch does not appear to include the whole of Parts 8, 9 and 13. In addition, Part 11 is not shown on the site plan. We require the site plan to clearly identify the extent of the reciprocal easements/right-of-way and to demonstrate that the proposed private streets are consistent with the easements/rights-of-way.

It is also noted that the proposed north-south road that connects the Eglinton Avenue West driveway to the site has now been changed from the previously proposed public road to a private road.

SIDEWALKS/BOULEVARDS/STREETSCAPING

Currently, concrete municipal sidewalks exist along the Wincott Drive and Widdicombe Hill frontages of the subject site with a width of less than 2.1 metres. There is no sidewalk along the Eglinton Avenue West frontage of the subject site.

In order to comply with current City standards, and the requirements of the Accessibility for Ontarians with Disabilities Act (AODA), a continuous 2.1-metre wide clear linear path of public sidewalk is required on the site plan along the Eglinton Avenue, Wincott Drive and Widdicombe Hill site frontages, which must be exclusive of utilities, planting/furniture zones, street curbs, landscaped area, etc. The 2.1-m wide clear linear pedestrian paths have been shown on the site plan. A notation has been included on the site plan drawing, stating that, "*The new sidewalk along the Eglinton Avenue West site frontage and the reconstructed sidewalks along the Wincott Drive and Widdicombe Hill site frontage will be built to City of Toronto Design Standard No. T-310.010-2 at no cost to the municipality*."

The landscape plan must be revised to also show the proposed 2.1 metre width for the public sidewalks to ensure consistency between drawings.

The site plan and landscape plan must also be revised to show the transition between the 2.1-metre wide sidewalk along the site frontage and the abutting sidewalks being designed with a gentle taper.

No curb and sidewalk exist on the northwest corner of the Eglinton Avenue West and Wincott Drive intersection. The site plan illustrates proposed concrete curb along the edge of pavement of Eglington Avenue West and Wincott Avenue intersection abutting the site. The proposed curb has been illustrated on the site plan to be designed according to City of Toronto Design Standard No. T-600.11-1.

The applicant is advised that the Transportation Services Public Realm Section is proposing geometric improvements at the Eglinton Avenue/Wincott Drive intersection and the relocation of the westbound TTC bus stop from nearside to farside at the intersection with a lay-by. The site plan will be required to reflect the details on the site plan. Details will be provided to the applicant when available.

The applicant is also required to construct depressed pedestrian ramp, which will be designed according to City of Toronto Design Standard No. T-310.030-8 through T-310.030-11 (with tactile walking surface indicator (TWSI)) at the northwest corner of Eglinton Avenue and Wincott Drive intersection, as well as both the northwest and northeast corners of the relocated site driveway at Eglinton Avenue. Annotation was included on the site plan that states "*All tactile walking surface indicators (TWSI) designed according to City of Toronto Design Standards Nos. T-310-030-8 through T-210.030-11*."

The applicant is also required to demonstrate whether the proposed modification to the northwest corner of the Eglinton Avenue/Wincott Drive intersection will require the relocation of the existing signal poles.

The submitted landscape plan illustrates the installation of street trees/planters, walkways, and other elements along the Eglinton Avenue and Wincott Drive boulevards. A determination regarding the suitability of all elements within the subject boulevards will be provided during the site plan approval stage for the proposal. The applicant is advised that any streetscape designs proposed within existing and proposed municipal right-of-way must comply with the requirements of this Division. Anything other than municipal sidewalks, street trees and sod may be considered as encroachments that the property owner must recognize in either a site plan or encroachment agreement that is registered on-title to the property. The property owner will be responsible for designing, constructing and maintaining these encroachments.

DRIVEWAY ACCESS/ SITE CIRCULATION

According to the site plan, three of the four existing accesses to the subject site are proposed to remain, including the two Wincott Drive driveways, and Widdicombe Hill driveway. The existing Eglinton Avenue West driveway is proposed to be shifted westward to the westerly property limit. The Eglinton Avenue access will serve both the subject redevelopment and the Shannex Seniors development to the west of the site.

As noted, the applicant is required to revise the site plans to identify the extent of the reciprocal easements/rights-of-way in place and to demonstrate that the proposed private streets are consistent with the easements/rights-of-way.

The proponent is advised that additional detailed comments regarding the layout and design of the driveway access and proposed private streets will be provided pursuant to the future rezoning application resubmission for the proposed development.

PARKING

City of Toronto Zoning By-law 569-2013 applies to the subject property. We require that parking for this project be provided in accordance with the Zoning By-law 569-2013 parking standards that apply to Policy Area 4.

A summary of the parking requirements for the site in accordance with By-law 569-2013 is provided in Table 3.

Table 3: Vehicular Parking Requirements According to Zoning By-law 569-2013 (Policy Area 4)

Use	Development Scale	Minimum Parking Ratio[1]	Minimum Required Parking Spaces[2]
Residential			
1-Bedroom Unit	492 units	0.8	393
2-Bedroom Unit	198 units	0.9	178
3-Bedroom Unit	83 units	1.1	91
Resident Parking (Sub-Total)			662
Visitor Parking	773	0.15	115
Retail	7,605 square metres	1.0	76
Fitness Club (Recreation Use)	2,489 square metres	0.5	12
Grocery Store	3,315 square metres	1.0	33
Total			**898**

[1] Expressed as number of spaces per unit for the residential use and number of spaces per 100 square metres for the retail use.

[2] Rounded down to the nearest whole number as per Zoning By-law 569-2013.

The minimum parking requirement as per Zoning By-law 569-2013 (Policy Area No. 4) is 898 spaces. That includes the parking requirements for both the proposed development and the renovated existing commercial space.

According to site statistics, a total of 1,013 parking spaces are proposed for the project, including 681 resident parking spaces, 116 residential visitor parking spaces, 204 spaces for retail space, 37 spaces for the fitness club and 91 spaces for the grocery store.

The proposed overall parking supply of 1,013 spaces satisfies the minimum parking requirement of 898 spaces as per Zoning By-law 569-2013. We require the site plan be revised to include a tabular breakdown of parking supply by parking level and by use.

The applicant is also required to confirm whether the overall parking supply of 1,013 spaces will be built by the end of the first development phase. If not, the applicant is advised that the parking supply that is built for Phase 1 must comply with the minimum parking ratios noted above.

The transition ramp between ground level and main ramp for Building A must be revised to a length of 6 m and slope of 7.5%.
To improve traffic circulation, we require the drive aisle area below Building E operate one-way only in the counter-clockwise direction starting and ending at the northerly row of columns.

Dimensions of both perpendicular and parallel parking spaces, and obstructions to parking space must be clearly identified on the drawings. All drive aisle and parking spaces must comply with the applicable dimensional requirements of the zoning by-law.

No accessible parking spaces are shown in the underground parking levels and one accessible parking space is shown on the ground level plan. The number of accessible parking spaces proposed on site must satisfy the minimum supply and dimensional requirement according to Zoning By-law 569-2013.

Further details of the ground floor plan for the area below Building E must be provided. Appendix B of the March 2019 TIS appears to show raised curb to protect the columns from traffic. We will require all columns under Building E be protected by raised curb and other protection mechanism from vehicular traffic.

Passenger vehicle manoeuvring diagram must be submitted to demonstrate how vehicles can access and exit the three drop-off spaces under Building E.

The dimensions of the proposed drop-off/pick-up areas for Building A and Buildings B/C/E must be clearly identified on the site plan drawings, including the width, length and taper.

The proponent is advised that additional detailed comments regarding the layout and design of the proposed parking supply will be provided pursuant to the future rezoning application resubmission for the proposed development.

LOADING

City of Toronto Zoning By-law 569-2013 applies to the subject property. We require that loading for the development be provided in accordance with the City of Toronto Zoning By-law 569-2013, as summarized in Table 4.

Table 4: Loading Requirements According to Zoning By-law 569-2013

Use	Magnitude[1]	Type A	Type B	Type C	Type G
Building A					
Residential	204 units (30 – 400 units)	-	-	-	1
Retail	275 m^2 (<500 m^2)	-	-	-	-
Building A Requirement		**-**	**-**	**-**	**1**
Building B & E					
Residential	362 units (30 – 400 units)	-	-	-	1
Retail	3,227 m^2 (2,000 to 4,999 m^2)	-	2	-	-
Building B Requirement (with sharing)		**-**	**1[1]**	**-**	**1**
Building C					
Residential	207 units (30 – 400 units)	-	-	-	1
Grocery Store	3,316 m^2 (2,000 – 4,999 m^2)	1	1	-	-
Retail	1,412 m^2 (500 – 1,999 m^2)	-	1	-	-
Building C Requirement		**1**	**1[1]**	**-**	**1**

[1] The requirement for a Type "B' loading spaces is satisfied by the provision of a Type "G" loading space for a mixed use building in the CR zone.

The site statistics indicate the following loading provisions for the site:

Building A: 1 Type G loading space;
Building B & E: 1 Type G, and 1 Type B loading spaces; and
Building C: 1 Type G, 1 Type A, and 1 Type B loading spaces.

The proposed loading provisions satisfy the minimum loading requirements according to Zoning By-law 569-2013.

Vehicle manoeuvring diagrams illustrating truck movements accessing and exiting the proposed six loading spaces via the private road are provided in Appendix B of the traffic report using the following truck templates:

- City of Toronto garbage truck
- TAC HSU truck
- TAC-SU
- MACK-53 Food Trailer (for Type A space only)
- Dual Axle Cab with 53' Trailer (for Type A space only)

Drawing VMC-C1 illustrates City of Toronto garbage truck accessing the Type G loading space in Building C. However, the inbound truck movement appears to be very close to one of the columns. This is not acceptable. As noted, we will require all columns under Building E be protected by raised curb and other protection mechanism from vehicular traffic.

Truck movements must also be tested for the turning movements at the two site driveways (i.e., Wincott Drive/ Waterford intersection and Eglinton Avenue West/private road intersection) and at the internal intersection of the N-S and E-W private road. This is particularly important for the tractor-trailers, which generally require a larger turning swept path.

SOLID WASTE AND RECYCLING

Proposal Description

The proposal is for 4 buildings:

Bldg A – 20 storeys – 204 residential units + retail
Bldg B – 19 storeys – 198 residential units + retail
Bldg C – 12 storeys – 207 residential units + retail
Bldg E – 12 storeys – 164 residential units

Multi-Residential Component –Building A

Based upon the information available, Solid Waste Management will provide bulk lift compacted garbage, recycling and organic collection services to this component of the development. Collection of waste materials from this component will be in accordance with the "City of Toronto Requirements for Garbage, Recycling and Organics Collection Services for New Developments and Re-Developments" and Chapter 844, Solid Waste of the Municipal Code.

Collection will be subject to the following conditions being met:

1. Revised drawings must annotate the waste compactor within the residential waste room.
2. Revised drawings must indicate that all access driveways to be used by the collection vehicle will be level (+/-8%), have a minimum vertical clearance of 4.4 metres throughout, a minimum 4.5 metres wide throughout and 6 metres wide at point of ingress and egress.
3. As the planned movement of the collection vehicle is adjacent to exits from the parking garage revised drawings must indicate a warning system to caution motorists leaving the parking garage of heavy vehicles when loading operations are occurring. This warning system should include both lights and signs.
4. Revised drawings must indicate the staging pad abutting the Type G loading space.

5. Revised drawings must annotate that a trained on-site staff member will be available to manoeuvre bins for the collection driver and also act as a flagman when the truck is reversing. In the event the on-site staff is unavailable at the time the City collection vehicle arrives at the site, the collection vehicle will leave the site and not return until the next scheduled collection day.
6. Revised drawings must indicate and annotate a collection vehicle movement diagram that has a length of 12 metres and a width of 2.4 metres with a minimum inside/outside turning radii of 9.5 metres and 14 metres respectively, when entering, exiting, travelling throughout the site and entering/exiting the type G loading space. The diagram must also indicate the ability of the collection vehicle to enter and exit the site in a forward motion

with no more than a three-point turn. The current vehicle manoeuvring diagram shows a reversal from the Type G loading space of three truck lengths. Solid Waste requires no more than a one truck length reversal distance to exit the Type G loading space.

In addition to the conditions above that must be noted on revised drawings and before solid waste collection services are to begin the City will need to be provided with:
A letter certified by a professional engineer that in all cases where a collection vehicle is required to drive onto or over a supported structure (such as an underground parking garage and grading) the structure can safely support a fully loaded collection vehicle (35,000 kilograms) and conforms to the following:

(a) Design Code - Ontario Building Code
(b) Design Load - City bulk lift vehicle in addition Building Code requirements
(c) Impact Factor - 5% for maximum vehicular speeds to 15 km/h and 30% for higher speeds

Non-Residential Component

The Non-residential component of this development being ineligible for City of Toronto collection, must store, transport and make arrangements for collection of all waste materials separately from the residential component. Collection of wastes from the commercial sector of this site will be in accordance with Chapter 841, Solid Waste of the Municipal Code.

1. Revised drawings must indicate if it is planned for the non-residential component to make use of the type G loading space and if so, then the non-residential component will only schedule use of the type G loading space on different days from the collection days of the residential component to ensure that the Type G loading space will be vacant for City Waste Collection. If it is not planned for this component to use the type G loading spaces then this must also be noted.
2. Revised drawings must indicate that the bins that will be used for the non-residential waste will be labelled separately from the bins for the residential waste.

Multi-Residential Component –Building B

Based upon the information available, Solid Waste Management will provide bulk lift compacted garbage, recycling and organic collection services to this component of the development. Collection of waste materials from this component will be in accordance with the "City of Toronto Requirements for Garbage, Recycling and Organics Collection Services for New Developments and Re-Developments" and Chapter 844, Solid Waste of the Municipal Code.

Collection will be subject to the following conditions being met:

1. Revised drawings must annotate the waste compactor within the residential waste room.
2. Revised drawings must indicate and annotate the Type G loading space is level (+-2%), and is constructed of a minimum of 200 mm reinforced concrete.
3. Revised drawings must indicate and annotate a collection vehicle movement diagram that has a length of 12 metres and a width of 2.4 metres with a minimum inside/outside turning radii of 9.5 metres and 14 metres respectively, when entering, exiting, travelling

throughout the site and entering/exiting the type G loading space. The diagram must also indicate the ability of the collection vehicle to enter and exit the site in a forward motion with no more than a three-point turn. The current vehicle manoeuvring diagram shows a reversal from the Type G loading space of three truck lengths. Solid Waste requires no more than a one truck length reversal distance to exit the Type G loading space.

In addition to the conditions above that must be noted on revised drawings and before solid waste collection services are to begin the City will need to be provided with:
A letter certified by a professional engineer that in all cases where a collection vehicle is required to drive onto or over a supported structure (such as an underground parking garage and grading) the structure can safely support a fully loaded collection vehicle (35,000 kilograms) and conforms to the following:

(a) Design Code - Ontario Building Code
(b) Design Load - City bulk lift vehicle in addition Building Code requirements
(c) Impact Factor - 5% for maximum vehicular speeds to 15 km/h and 30% for higher speeds

Non-Residential Component

The Non-residential component of this development being ineligible for City of Toronto collection, must store, transport and make arrangements for collection of all waste materials separately from the residential component. Collection of wastes from the commercial sector of this site will be in accordance with Chapter 841, Solid Waste of the Municipal Code.

Solid Waste is satisfied with the submitted drawings for this component and does not require any revisions.

Multi-Residential Component –Building C & E

Based upon the information available, Solid Waste Management will provide bulk lift compacted garbage, recycling and organic collection services to this component of the development. Collection of waste materials from this component will be in accordance with the "City of Toronto Requirements for Garbage, Recycling and Organics Collection Services for New Developments and Re-Developments" and Chapter 844, Solid Waste of the Municipal Code.

Collection will be subject to the following conditions being met:

1. Revised drawings must annotate the waste compactor within the residential waste room.
2. Revised drawings must indicate a waste storage room a minimum of 108.46 square meters in size.
3. Revised drawings must indicate and annotate a staging pad abutting the front of the Type G loading space that will be at least 32.1 square metres, have an unencumbered vertical clearance of 6.1 metres, constructed of 200mm reinforced concrete and have a grade of no more than 2%.

In addition to the conditions above that must be noted on revised drawings and before solid waste collection services are to begin the City will need to be provided with:

A letter certified by a professional engineer that in all cases where a collection vehicle is required to drive onto or over a supported structure (such as an underground parking garage and grading) the structure can safely support a fully loaded collection vehicle (35,000 kilograms) and conforms to the following:

(a) Design Code - Ontario Building Code
(b) Design Load - City bulk lift vehicle in addition Building Code requirements
(c) Impact Factor - 5% for maximum vehicular speeds to 15 km/h and 30% for higher speeds

Non-Residential Component

The Non-residential component of this development being ineligible for City of Toronto collection, must store, transport and make arrangements for collection of all waste materials separately from the residential component. Collection of wastes from the commercial sector of this site will be in accordance with Chapter 841, Solid Waste of the Municipal Code.

Solid Waste is satisfied with the submitted drawings for this component and does not require any revisions.

Toronto Green Standard

Solid Waste TGS Tier 1:
SW 1.1 has not been satisfied
SW 1.2 has not been satisfied
SW 1.3 has been satisfied

FIRE SERVICES

- Clearance overhead: Fire access routes shall have an overhead clearance of at least 5 metres. (include info on drawing)

- Clarify how many buildings are being proposed, as defined in the Ontario Building Code.

If you have any questions regarding the conditions and comments outlined in this memorandum, please contact John Baldesarra at 416-394-8398.

Prepared by:
John Baldesarra
Senior Engineer
Development Engineering, Etobicoke York District

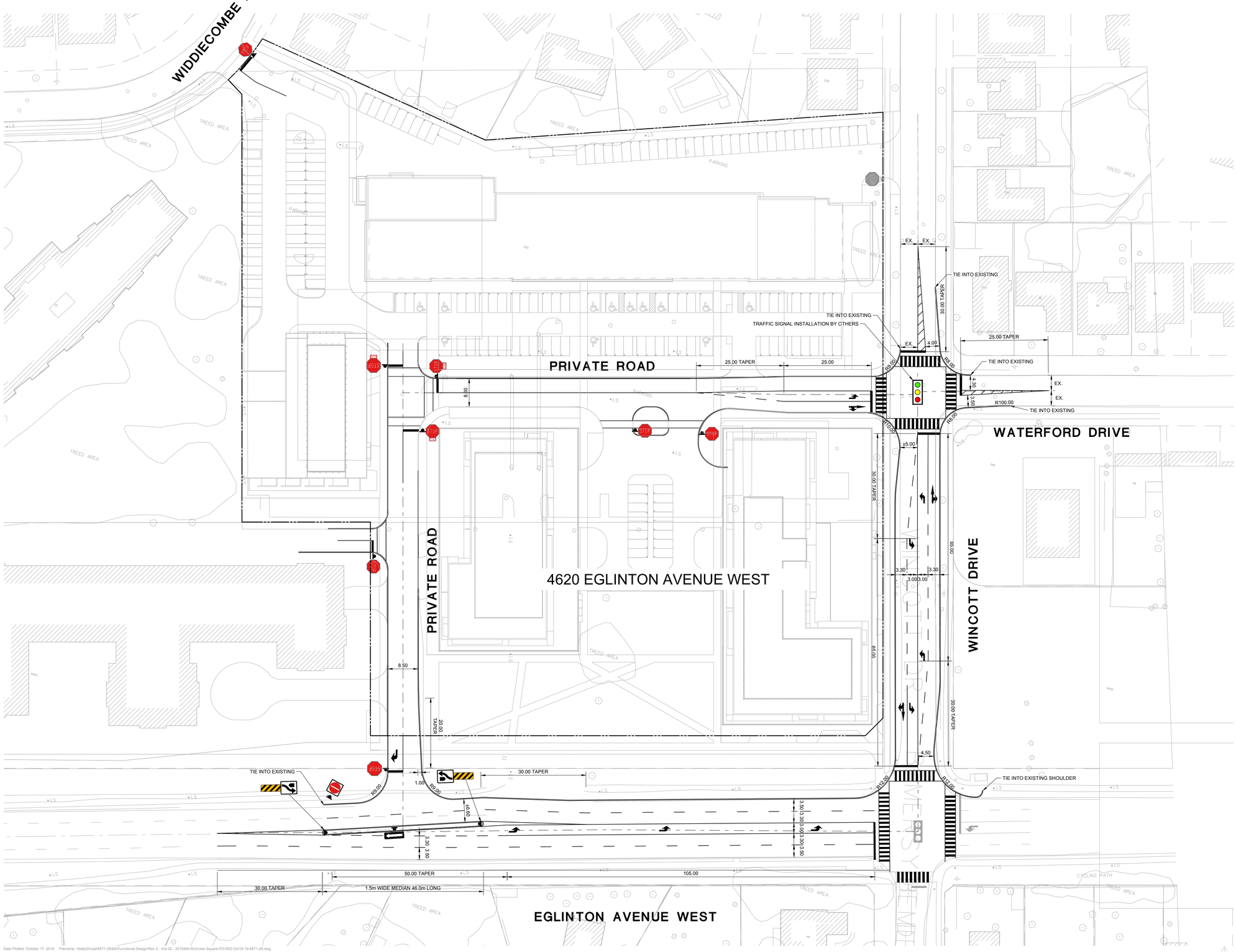
Signed by:

Ashraf Hanna, P.Eng.
Manager, Development Engineering,
Engineering and Construction Services, Etobicoke York District

JB/jb

Copy to: Transportation Services (Attn: Luigi Nicolucci / Langston Lai)
Fire Services
Solid Waste Management (Attn: John Oliver)
File Copy – 250 Wincott Dr & 4620 Eglinton Ave. W

APPENDIX C:
Functional Road Plan



GENERAL LEGEND

- EXISTING TRAFFIC SIGNAL HEAD
- PROPOSED TRAFFIC SIGNAL HEAD

PAVEMENT MARKING LEGEND

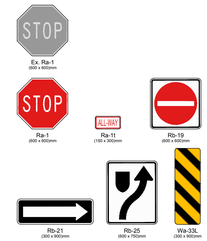
(NOTE-ALL MARKINGS MUST CONFIRM TO OTM BOOK 11)

- THROUGH/RIGHT TURN ARROW (4.8m (15 ft.))
- LEFT TURN ARROW (3m (10 ft.))
- RIGHT TURN ARROW (3m (10 ft.))
- ALL STOP BARS TO BE 60cm (2 ft.) WHITE SOLID

SIGN MOUNT LEGEND

- PROPOSED TRAFFIC SIGNAL HEAD
- EXISTING TRAFFIC SIGNAL HEAD

SIGN LEGEND



01	10-18-19	AC	ISSUED FOR RE-SUBMISSION
00	10-03-19	CAM	ISSUED FOR PRELIMINARY REVIEW

BA Group

BA Consulting Group Ltd.
300 - 45 St. Clair Ave. W.
Toronto ON M4V 1K9
TEL 416 961 7110
EMAIL bagroup@bagroup.com

MOVEMENT IN URBAN ENVIRONMENTS
BAGROUP.COM

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST

FUNCTIONAL ROAD PLAN

Date: September 30, 2019

Project No.: 6571-26

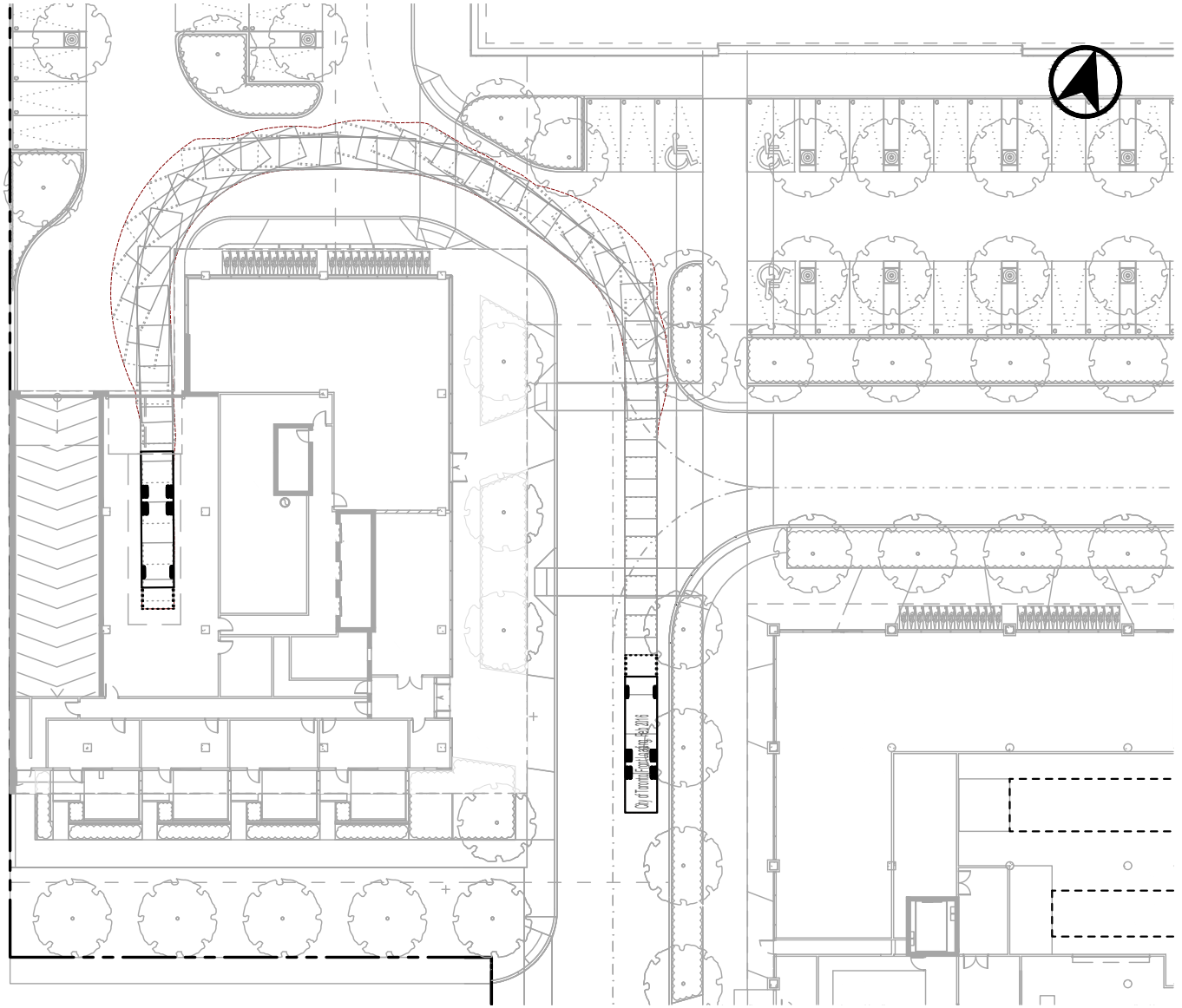
Scale: 1:500 (0 5 10 15 20m)

FD-01

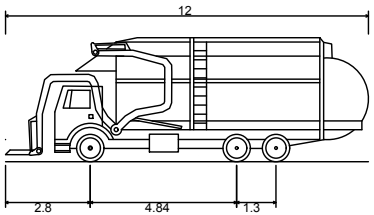
Date Plotted: October 17, 2019 Filename: \\ba\fp03\cad\6571-26\BA\Functional Design\Rev 2 - Oct 02 - 2019\BA-Richview Square-FD-R02-Oct16-19-6571-26.dwg

APPENDIX D:
Vehicle Maneuvering Diagrams

Date Plotted: October 17, 2019 Filename: \\baplus\cadd\6571-26\BA\Site Plan Review\Rev 1 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R1-Oct18-19-6571-26.dwg



Design Vehicle - CITY OF TORONTO
(Front Loading Refuse Collection Vehicle)



Overall Length (Forks Down)	12.00m
Overall Length (Forks Up)	10.00m
Overall Width	2.45m
Overall Body Height	4.10m
Outside Turning Radius	14.00m
Inside Turning Radius	9.50m

1:500

0 5 10 15 20m

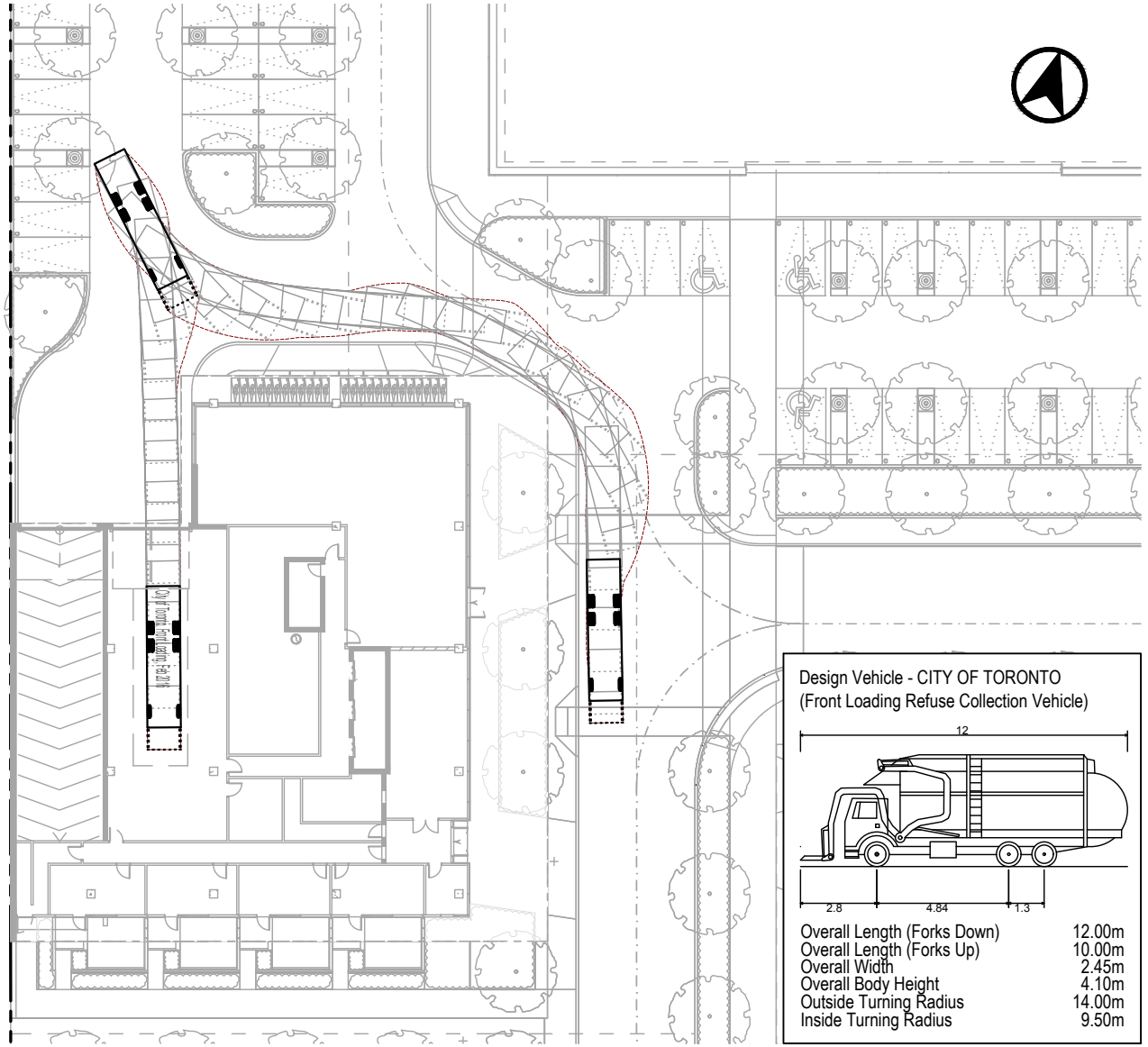
Scale

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
CITY FRONT LOAD GARBAGE TRUCK ENTRY BLDG A

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-A1

Date Plotted: October 17, 2019 Filename: \\barpu3\cad\65\1-26\BA\Site Plan Review\Rev 17 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R17-Oct18-19-65\1-26.dwg



Design Vehicle - CITY OF TORONTO
(Front Loading Refuse Collection Vehicle)

Overall Length (Forks Down)	12.00m
Overall Length (Forks Up)	10.00m
Overall Width	2.45m
Overall Body Height	4.10m
Outside Turning Radius	14.00m
Inside Turning Radius	9.50m

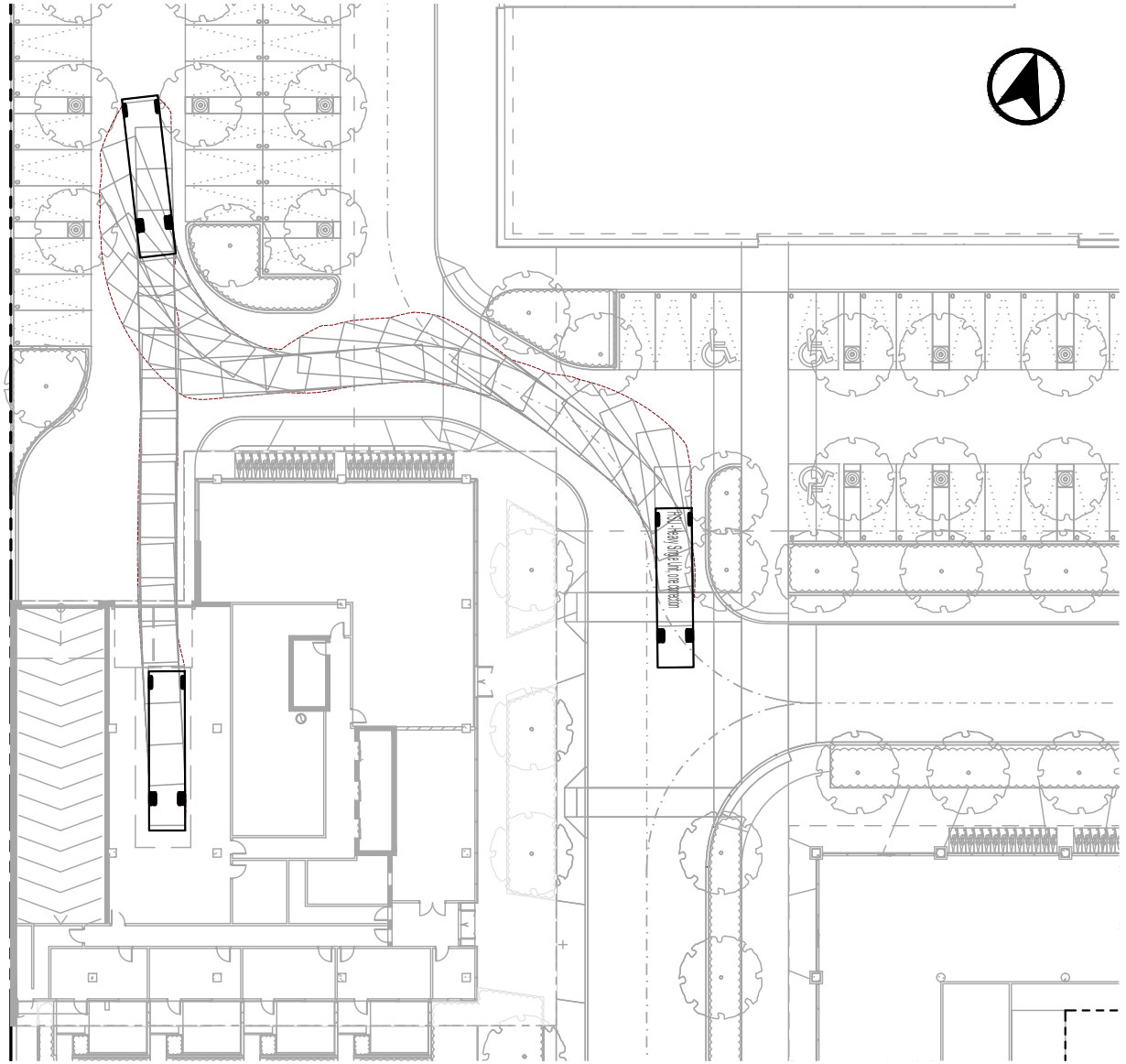
1:500 0 5 10 15 20m
Scale

BA Group

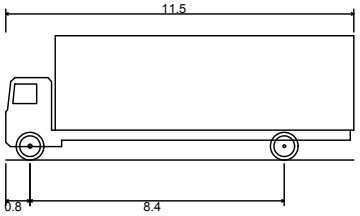
RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
CITY FRONT LOAD GARBAGE TRUCK EXIT BLDG A

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-A2

Date Plotted: October 17, 2019 Filename: \\barpu3\cad\65\71-26\BA\Site Plan Review\Rev 1 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R1 - Oct16-19-65\71-26.dwg



Design Vehicle - TAC HSU (Heavy Single Unit)



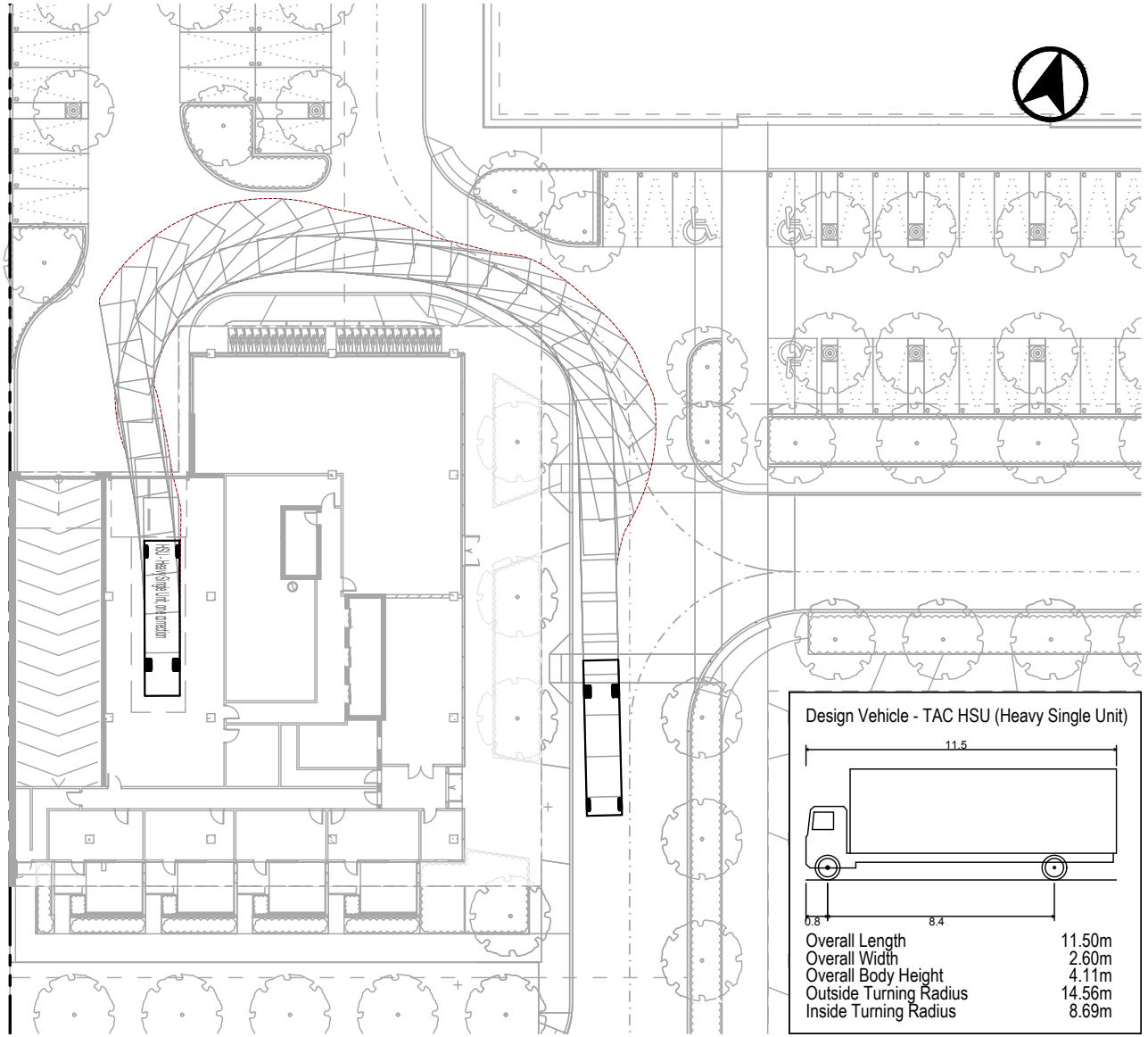
Overall Length	11.50m
Overall Width	2.60m
Overall Body Height	4.11m
Outside Turning Radius	14.56m
Inside Turning Radius	8.69m

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
TAC HSU ENTRY BUILDING A

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-A3

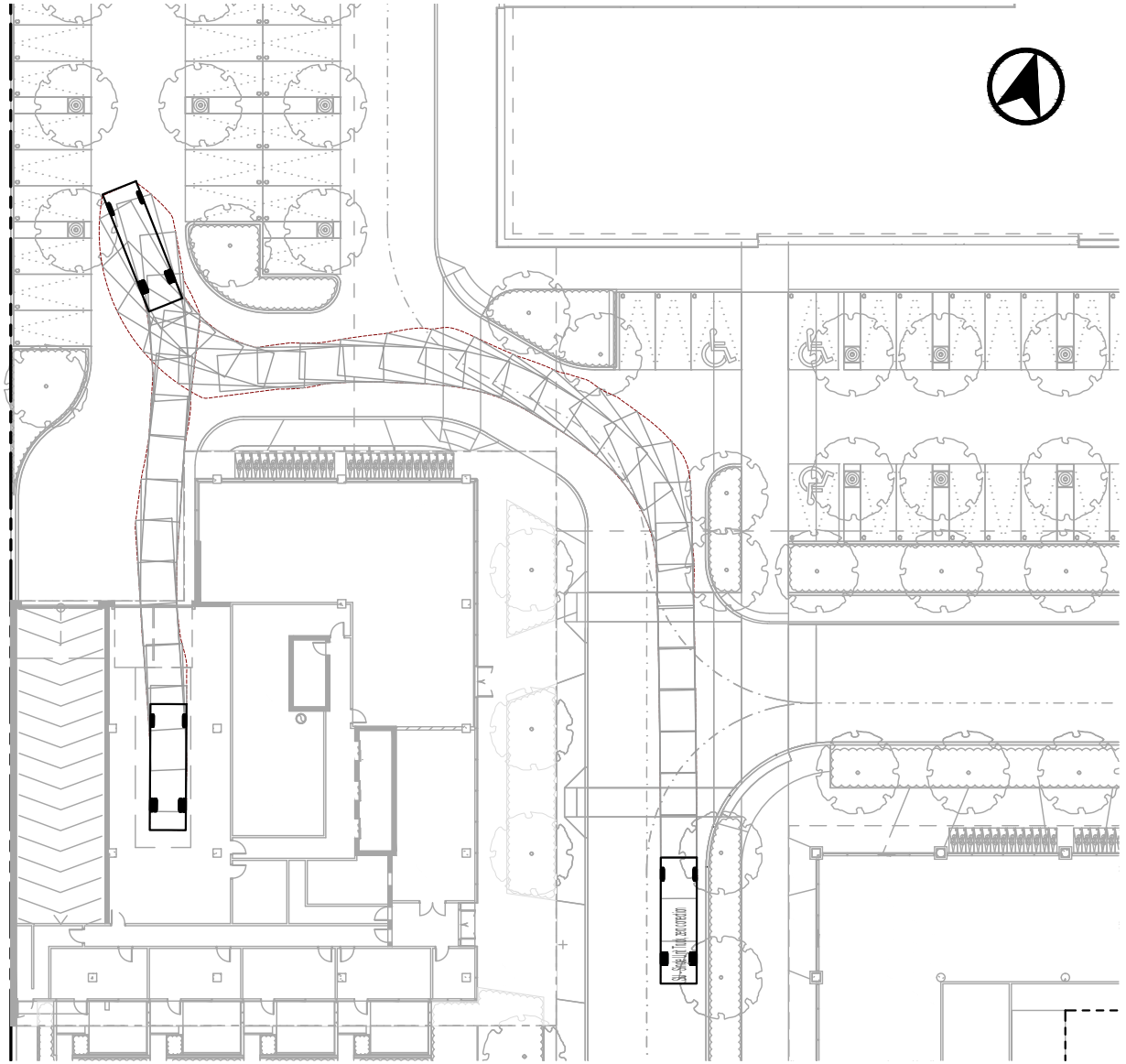
Date Plotted: October 17, 2019 Filename: \\barpu3\cad\65\71-26\BA\Site Plan Review\Rev 1\ - SPK - Oct 18 - 2019\BA-Richview Square-SPK-R1 - Oct18-19-65\71-26.dwg



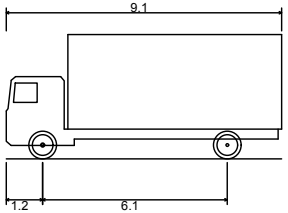
BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
TAC HSU EXIT BUILDING A

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-A4



Design Vehicle - TAC SU (Single Unit Truck)



Overall Length	9.10m
Overall Width	2.60m
Overall Body Height	4.11m
Outside Turning Radius	13.40m
Inside Turning Radius	8.60m

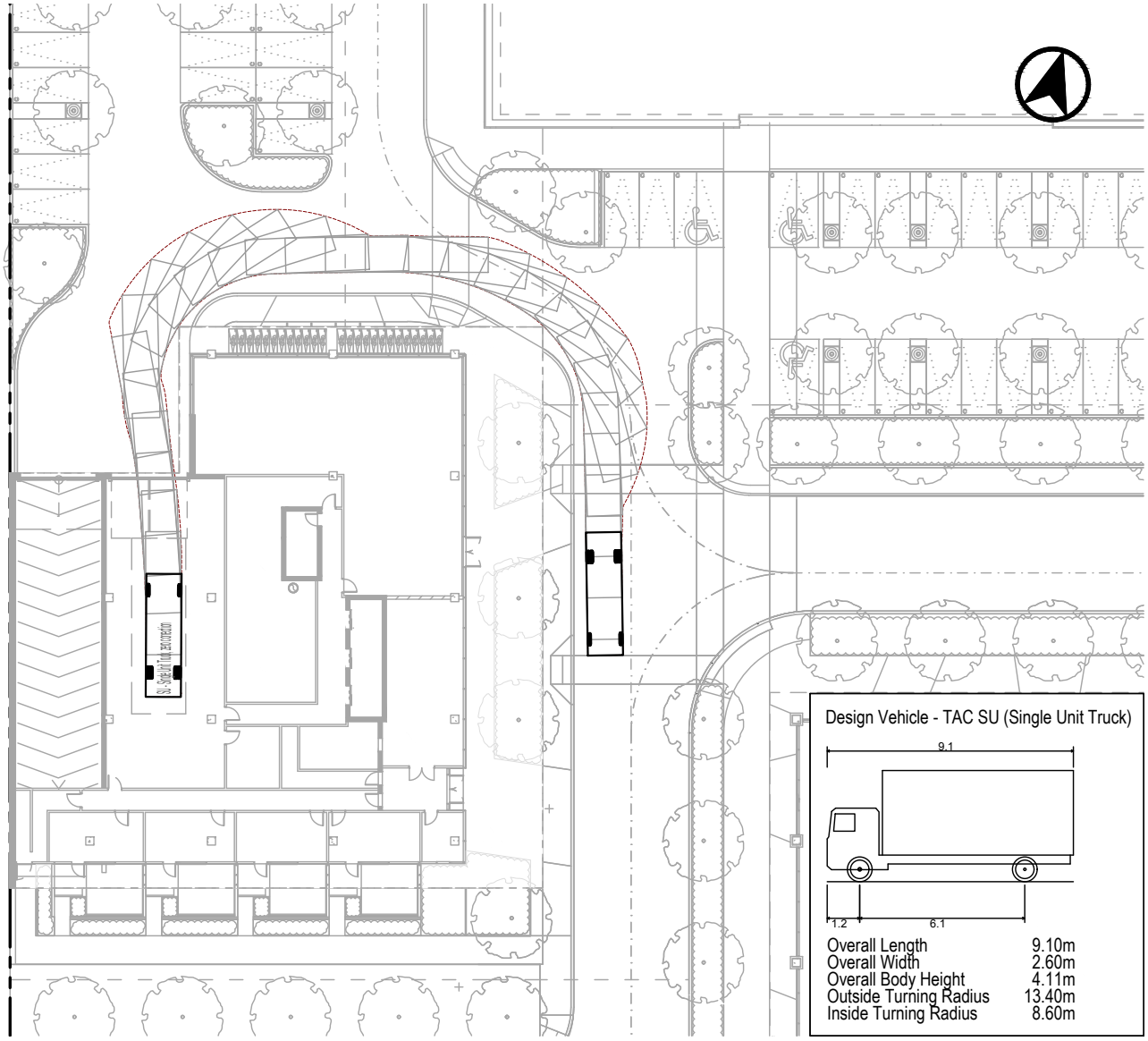
0 5 10 15 20m

1:500 Scale

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
TAC SU ENTRY BUILDING A

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-A5

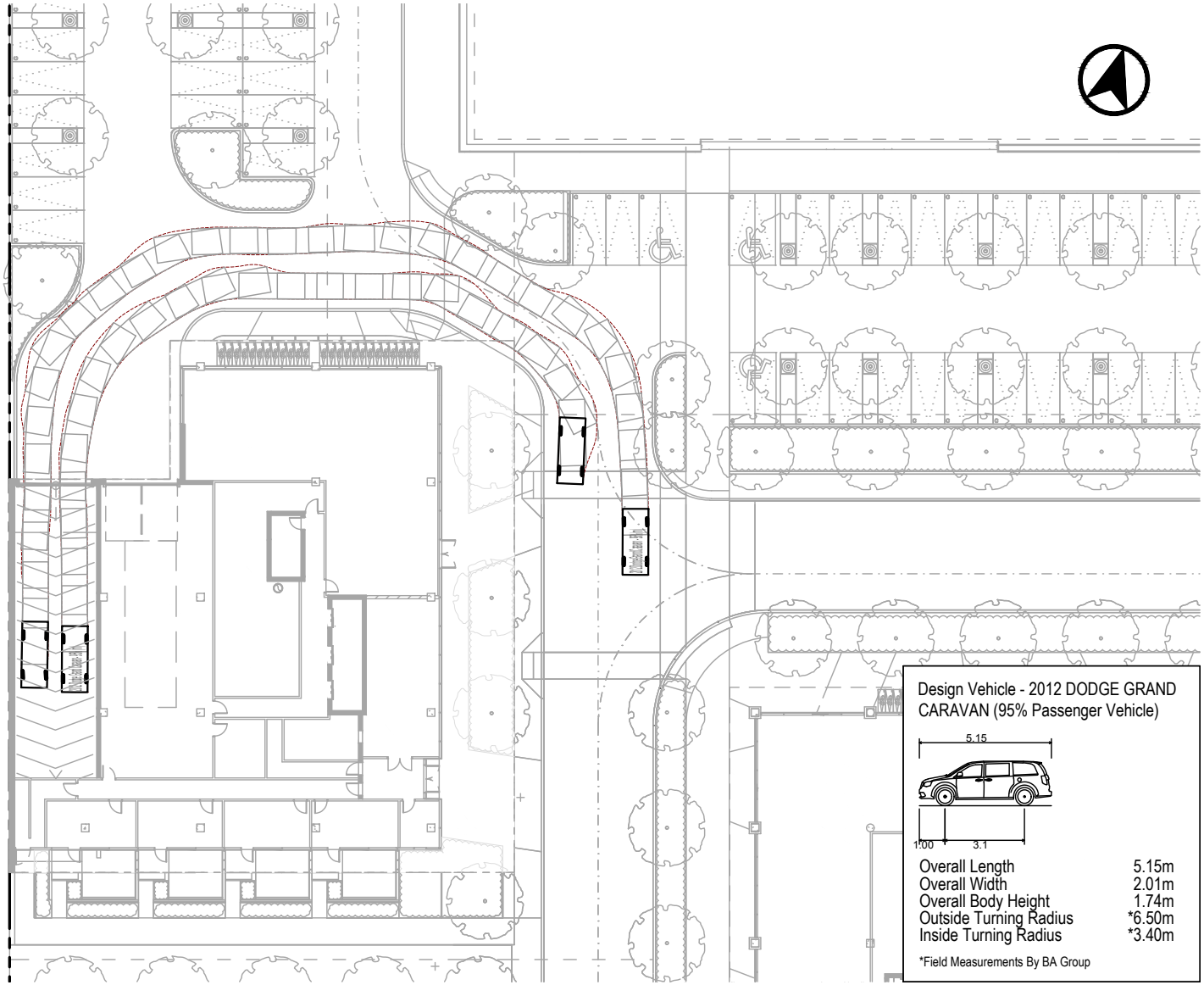
Date Plotted: October 17, 2019 Filename: \\barpu3\cad\65\71-26\BA\Site Plan Review\Rev 1 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R1 - Oct18-19-65-71-26.dwg



RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
TAC SU EXIT BUILDING A

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-A6

Date Plotted: October 17, 2019 Filename: \\barpu3\cad\65\71-26\BA\Site Plan Review\Rev 17 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R17-Oct18-19-65171-26.dwg

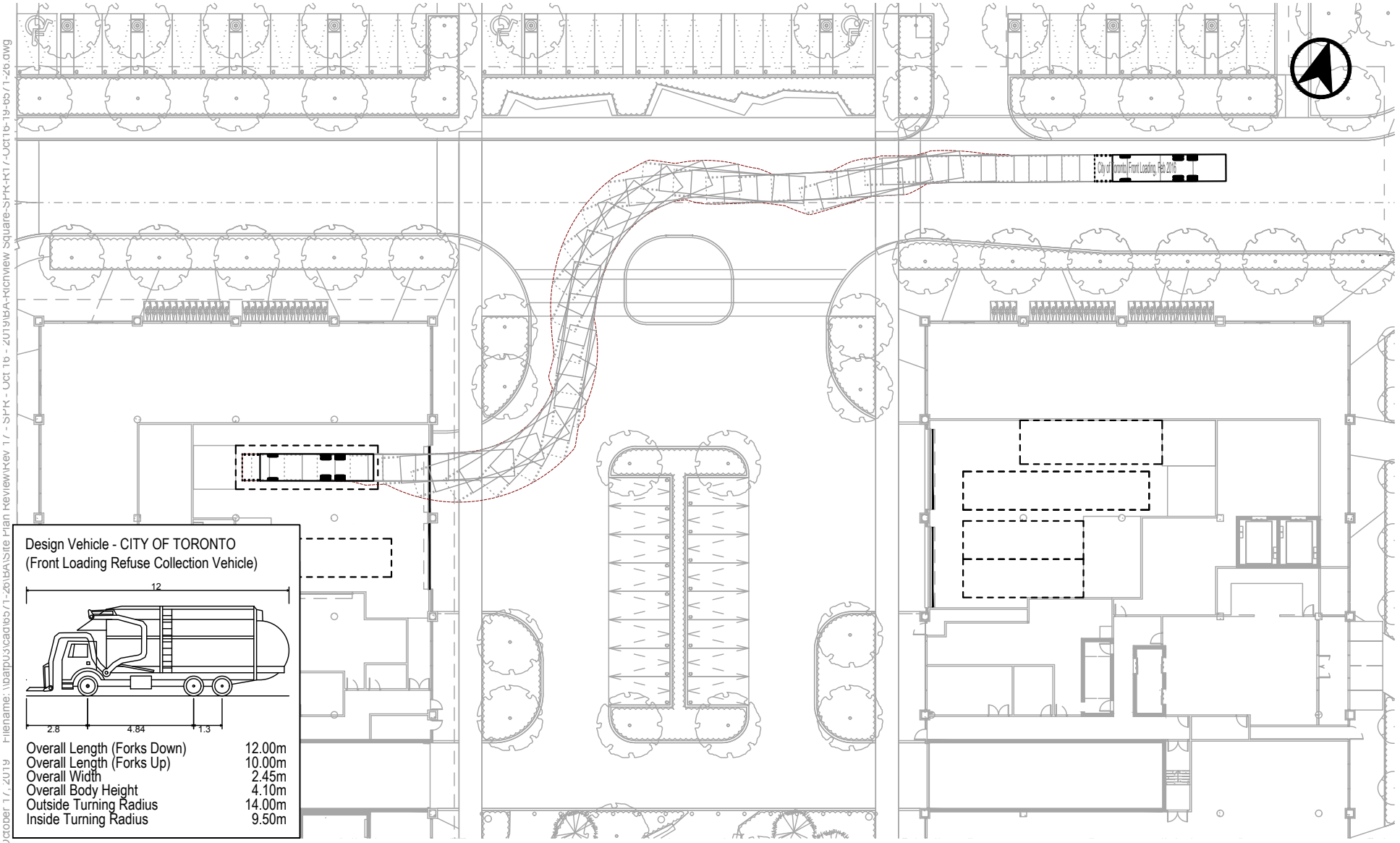


Date Plotted: October 17, 2019 Filename: \\barpu3\cad\65\1-26\BA\Site Plan Review\Rev 17 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R17-Oct18-19-65\1-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
DODGE CARAVAN RAMP BUILDING A

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-A7



Design Vehicle - CITY OF TORONTO
(Front Loading Refuse Collection Vehicle)

Overall Length (Forks Down)	12.00m
Overall Length (Forks Up)	10.00m
Overall Width	2.45m
Overall Body Height	4.10m
Outside Turning Radius	14.00m
Inside Turning Radius	9.50m

1:500

0 5 10 15 20m

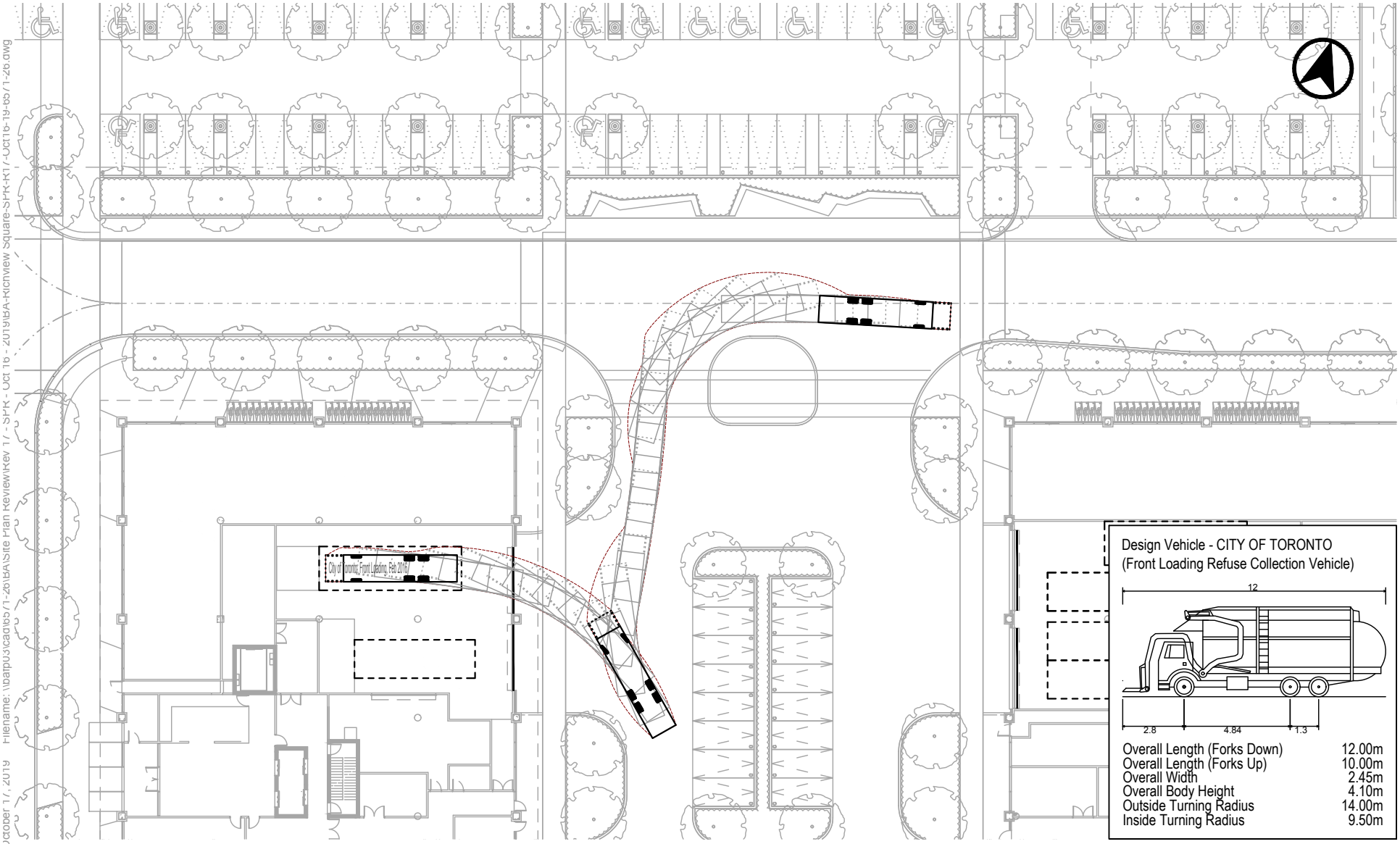
Scale

Date Plotted: October 17, 2019 Filename: \\ba.pub\vcad\b7\1-26\BA\Site Plan Review\Rev 1 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R1 - Oct18-19-b7\1-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
CITY FRONT LOAD GARBAGE TRUCK ENTRY BLDG B

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-B1

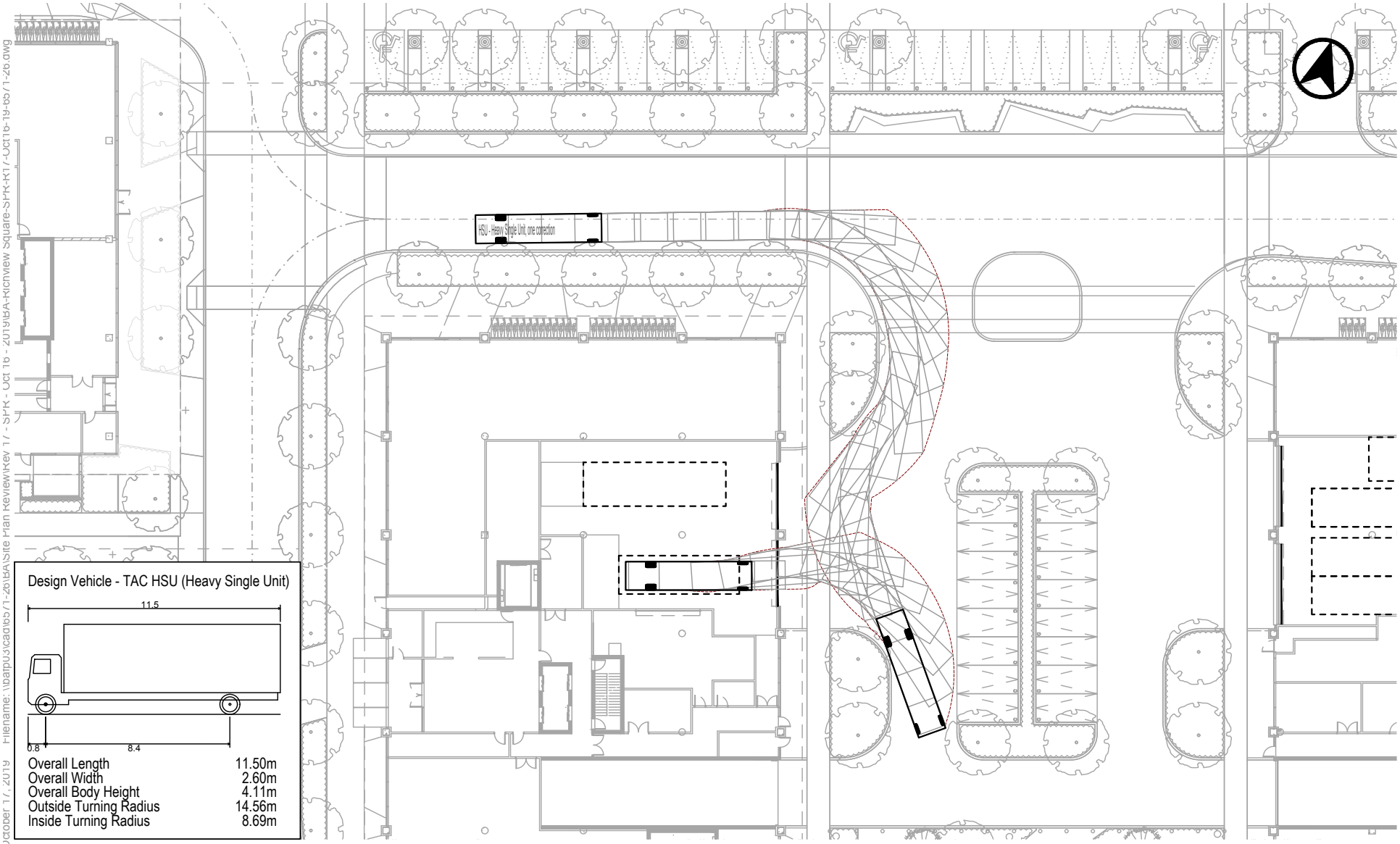


Date Plotted: October 17, 2019 Filename: \\barpu3\cad\65\1-26\BA\Site Plan Review\Rev 17 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R17-Oct18-19-65\1-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
CITY FRONT LOAD GARBAGE TRUCK EXIT BLDG B

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-B2



Design Vehicle - TAC HSU (Heavy Single Unit)

Overall Length	11.50m
Overall Width	2.60m
Overall Body Height	4.11m
Outside Turning Radius	14.56m
Inside Turning Radius	8.69m

1:500

0 5 10 15 20m

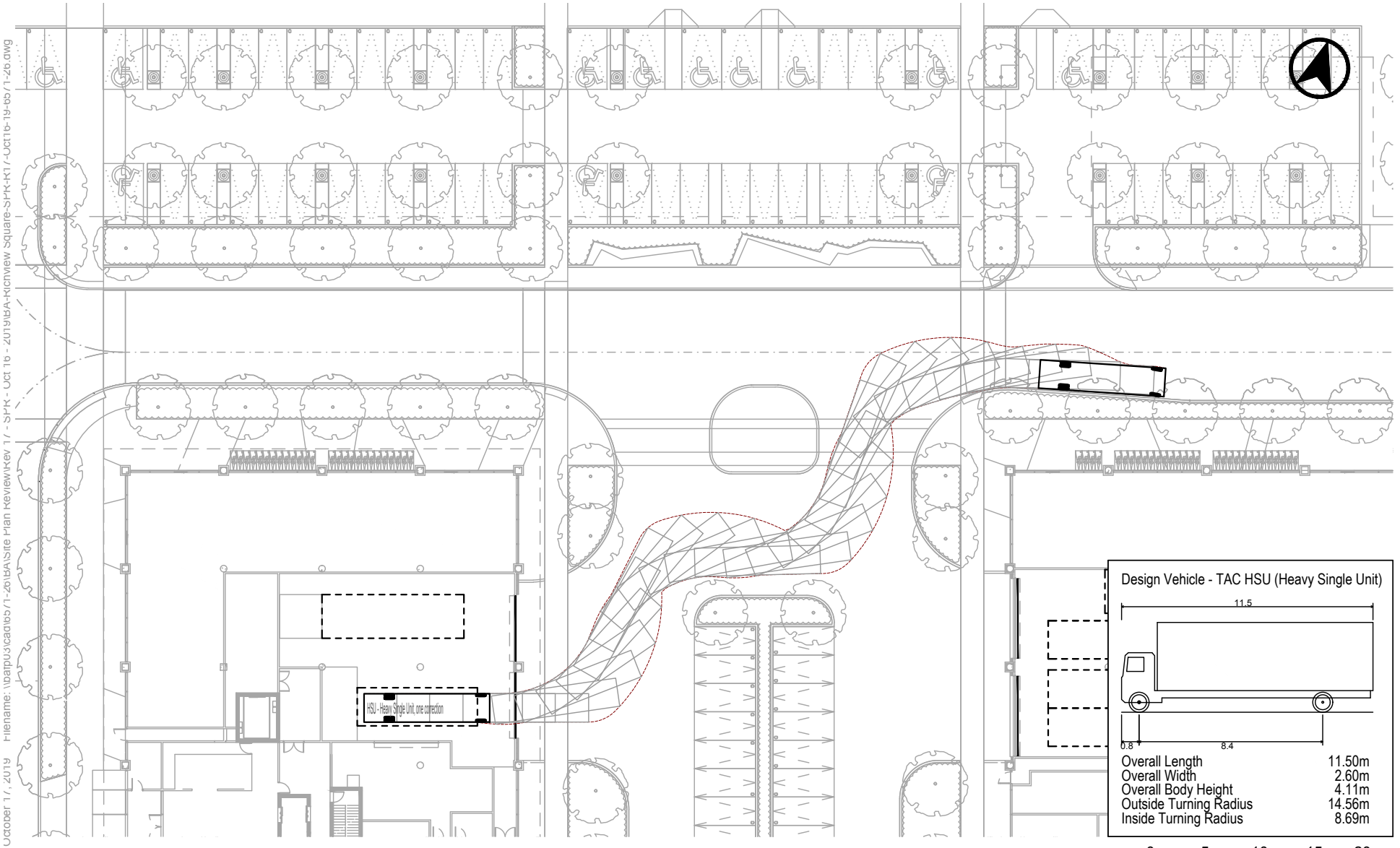
Scale

Date Plotted: October 17, 2019 Filename: \\barpu3\cad\6571-26\BA\Site Plan Review\Rev 17 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R17-Oct18-19-6b71-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
TAC HSU TYPE 'B' ENTRY BUILDING B

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-B3



Design Vehicle - TAC HSU (Heavy Single Unit)

Overall Length	11.50m
Overall Width	2.60m
Overall Body Height	4.11m
Outside Turning Radius	14.56m
Inside Turning Radius	8.69m

1:500

0 5 10 15 20m

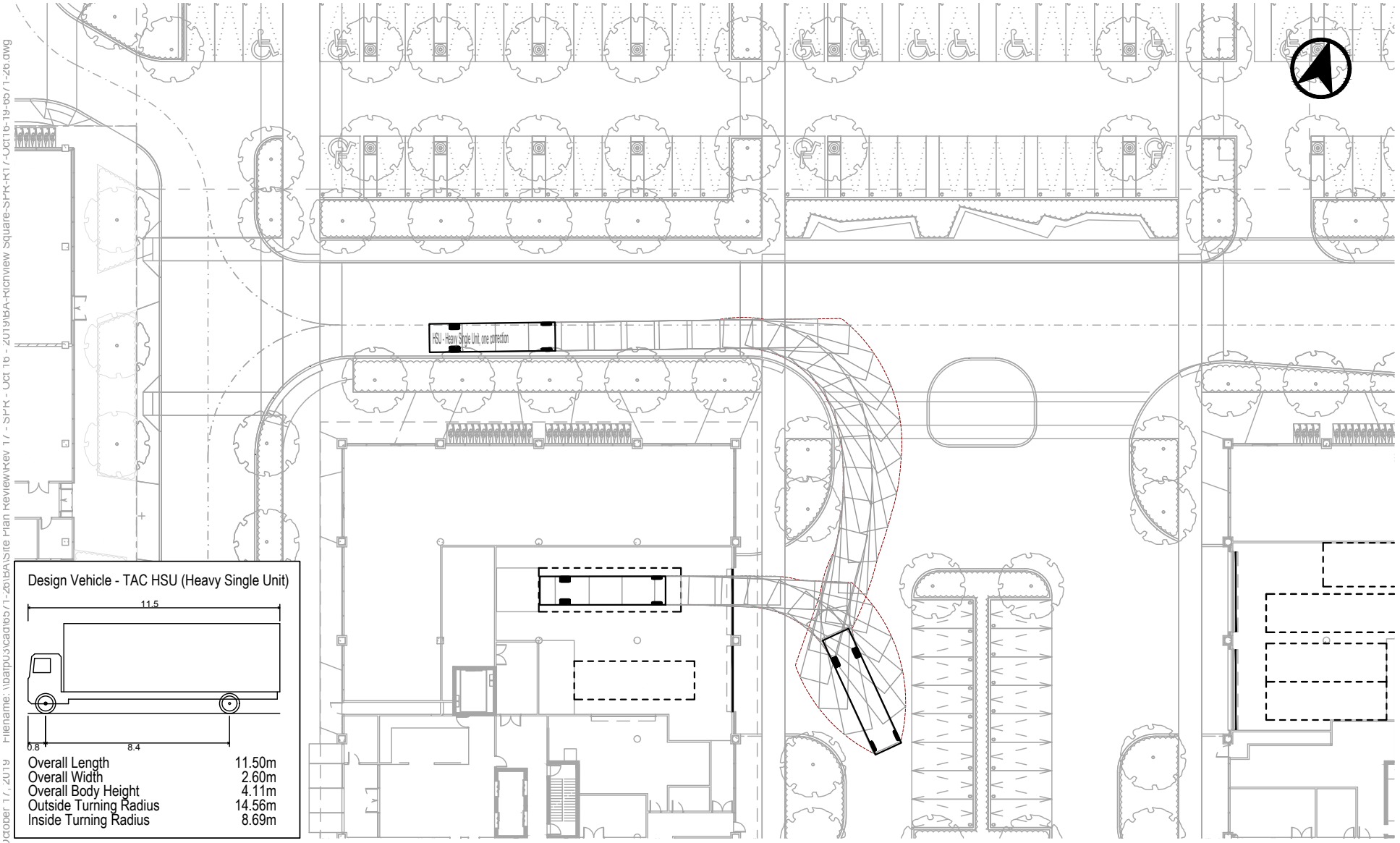
Scale

Date Plotted: October 17, 2019 Filename: \\barpw3\cad\6571-26\BA\Site Plan Review\Rev 17 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R17-Oct18-19-6b71-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
TAC HSU TYPE 'B' EXIT BUILDING B

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-B4



Design Vehicle - TAC HSU (Heavy Single Unit)

Overall Length	11.50m
Overall Width	2.60m
Overall Body Height	4.11m
Outside Turning Radius	14.56m
Inside Turning Radius	8.69m

0 5 10 15 20m

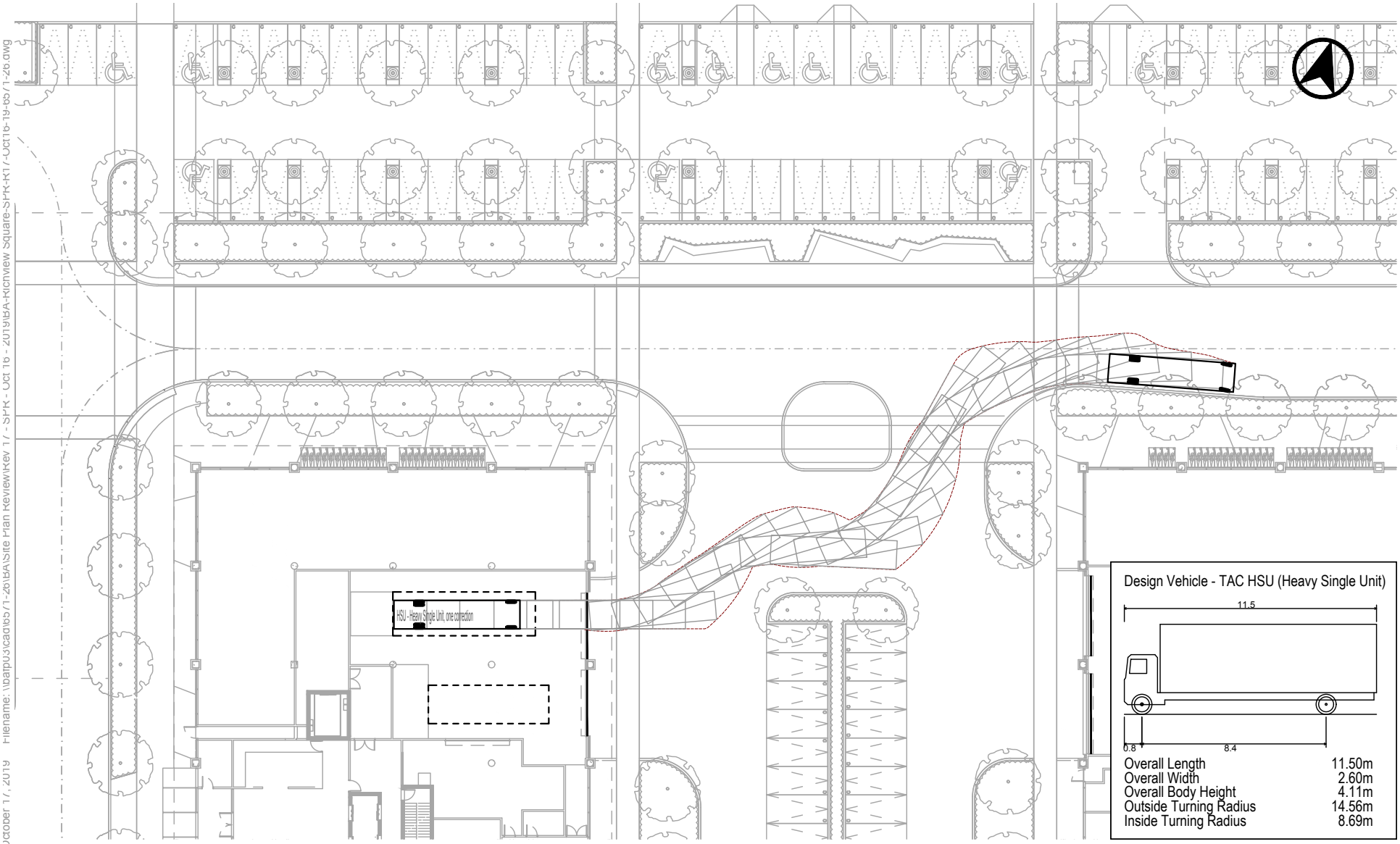
1:500 Scale

Date Plotted: October 17, 2019 Filename: \\barpu3\cad\6571-26\BA\Site Plan Review\Rev 1 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R1 - Oct16-19-6b-1-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
TAC HSU TYPE 'G' ENTRY BUILDING B

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-B5



Design Vehicle - TAC HSU (Heavy Single Unit)

Overall Length	11.50m
Overall Width	2.60m
Overall Body Height	4.11m
Outside Turning Radius	14.56m
Inside Turning Radius	8.69m

0 5 10 15 20m

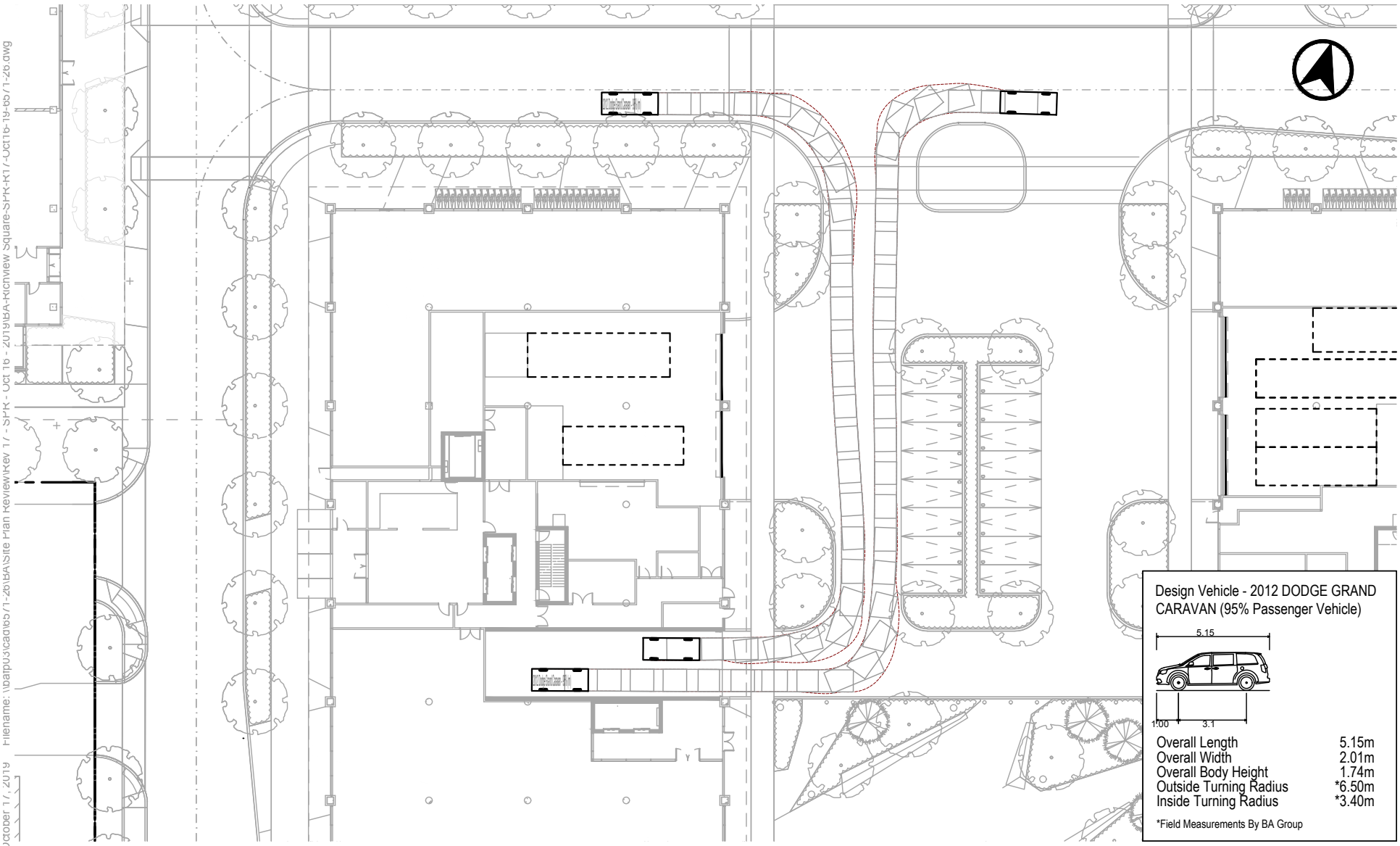
1:500 Scale

Date Plotted: October 17, 2019 Filename: \\barpu3\cad\6571-26\BA\Site Plan Review\Rev 17 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R17-Oct18-19-6b71-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
TAC HSU TYPE 'G' EXIT BUILDING B

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-B6



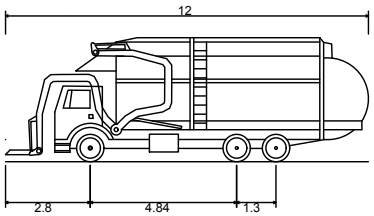
Date Plotted: October 17, 2019 Filename: \\barpu3\cad\6571-26\BA\Site Plan Review\Rev 17 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R17-Oct18-19-6b71-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
DODGE CARAVAN RAMP BUILDING B

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-B7

Design Vehicle - CITY OF TORONTO
(Front Loading Refuse Collection Vehicle)



Overall Length (Forks Down)	12.00m
Overall Length (Forks Up)	10.00m
Overall Width	2.45m
Overall Body Height	4.10m
Outside Turning Radius	14.00m
Inside Turning Radius	9.50m

0 5 10 15 20m

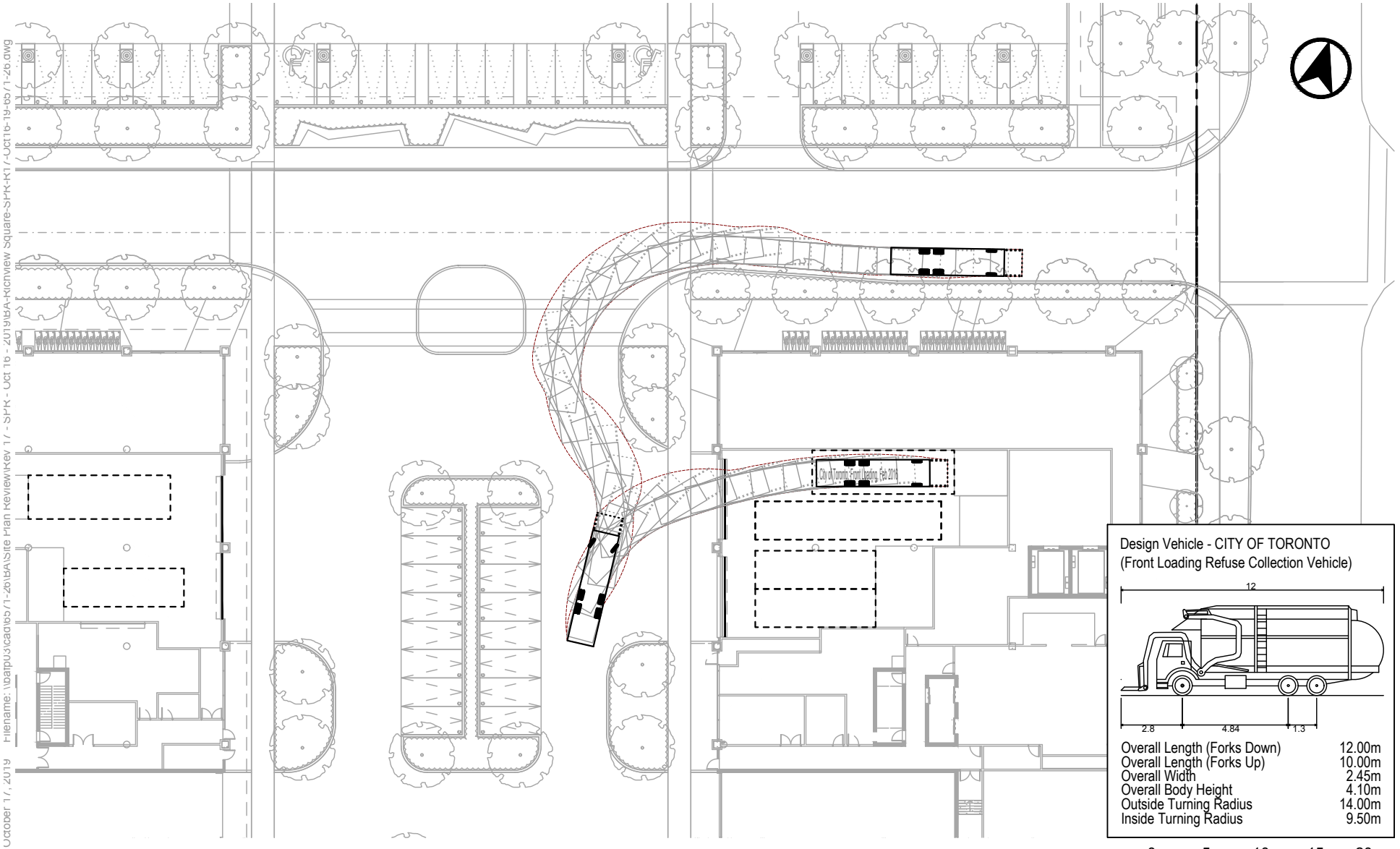
1:500 Scale

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
CITY FRONT LOAD GARBAGE TRUCK ENTRY BLDG C

BA Group

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C1

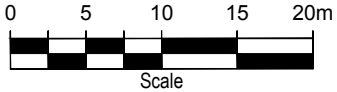
Date Plotted: October 17, 2019 Filename: \\ba.pub\vcad\6571-26\BA\Site Plan Review\Rev 1 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R1-Oct16-19-6b71-26.dwg



Design Vehicle - CITY OF TORONTO
(Front Loading Refuse Collection Vehicle)

Overall Length (Forks Down)	12.00m
Overall Length (Forks Up)	10.00m
Overall Width	2.45m
Overall Body Height	4.10m
Outside Turning Radius	14.00m
Inside Turning Radius	9.50m

1:500



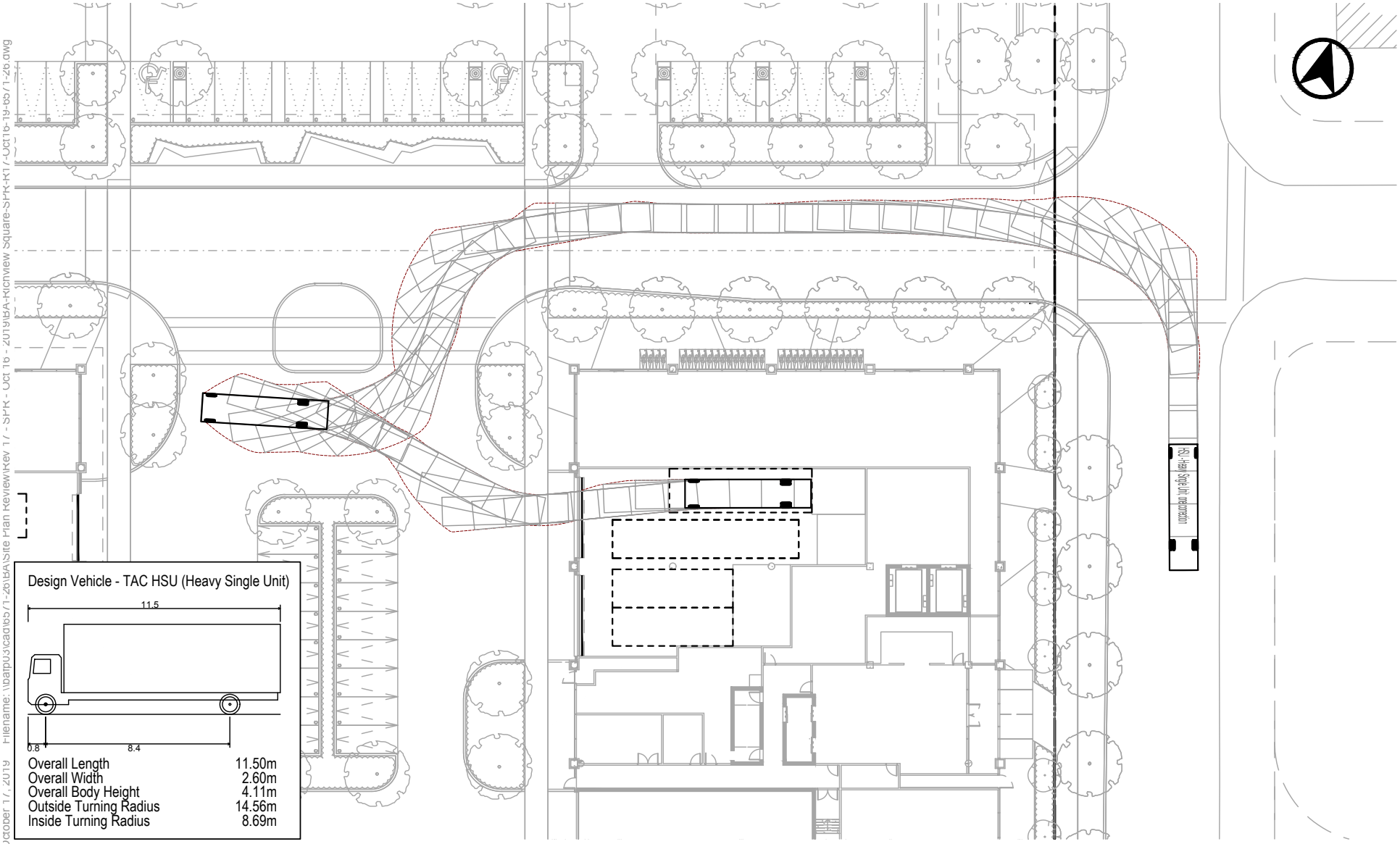
Scale

Date Plotted: October 17, 2019 Filename: \\barpu3\cad\6571-26\BA\Site Plan Review\Rev 1 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R1-Oct18-19-6b71-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
CITY FRONT LOAD GARBAGE TRUCK EXIT BLDG C

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C2



Design Vehicle - TAC HSU (Heavy Single Unit)

Overall Length	11.50m
Overall Width	2.60m
Overall Body Height	4.11m
Outside Turning Radius	14.56m
Inside Turning Radius	8.69m

1:500

0 5 10 15 20m

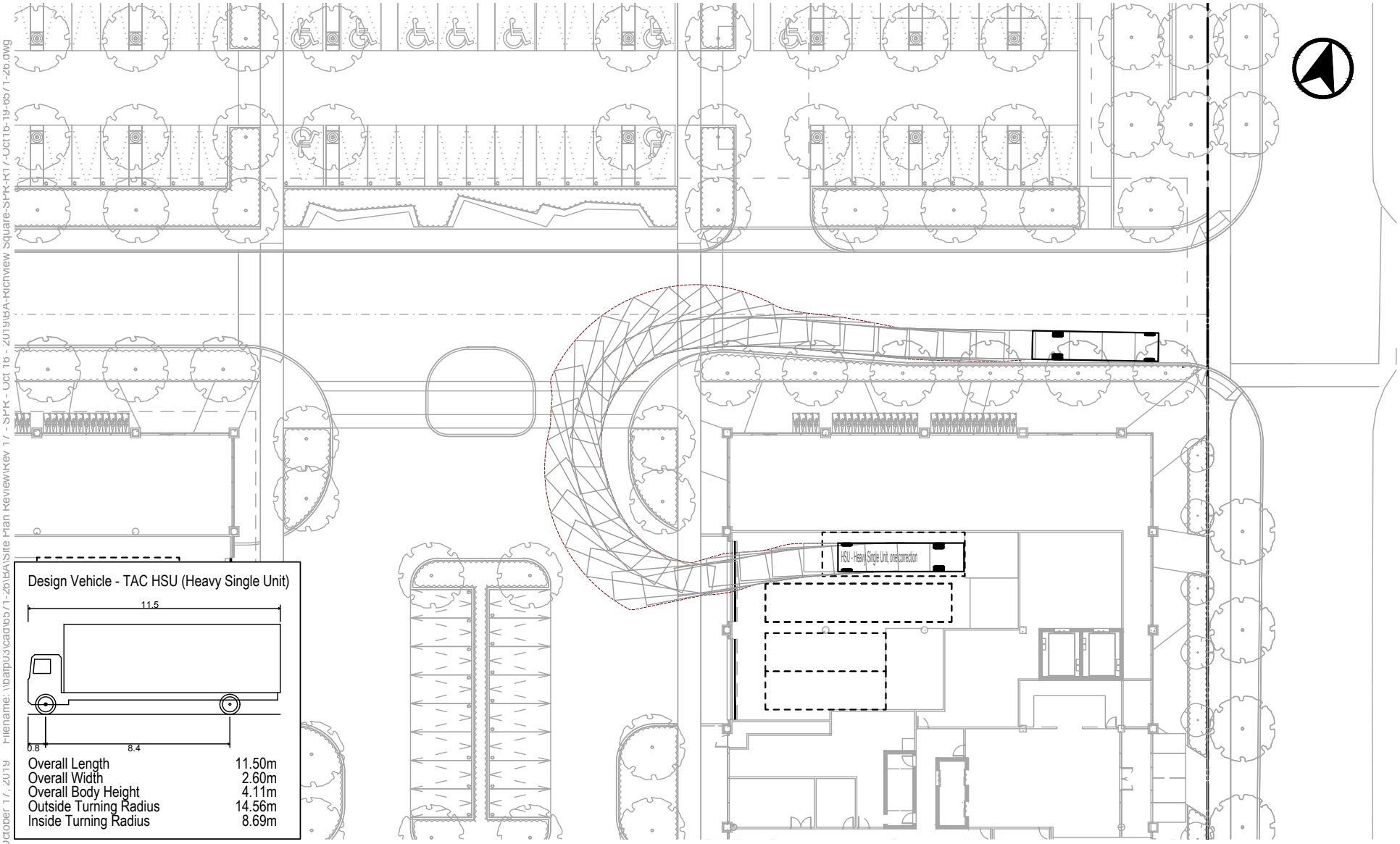
Scale

Date Plotted: October 17, 2019 Filename: \\barpu3\cad\6571-26\BA\Site Plan Review\Rev 17 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R17-Oct18-19-6b71-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
TAC HSU TYPE 'G' ENTRY BUILDING C

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C3



Design Vehicle - TAC HSU (Heavy Single Unit)

Overall Length	11.50m
Overall Width	2.60m
Overall Body Height	4.11m
Outside Turning Radius	14.56m
Inside Turning Radius	8.69m

0 5 10 15 20m

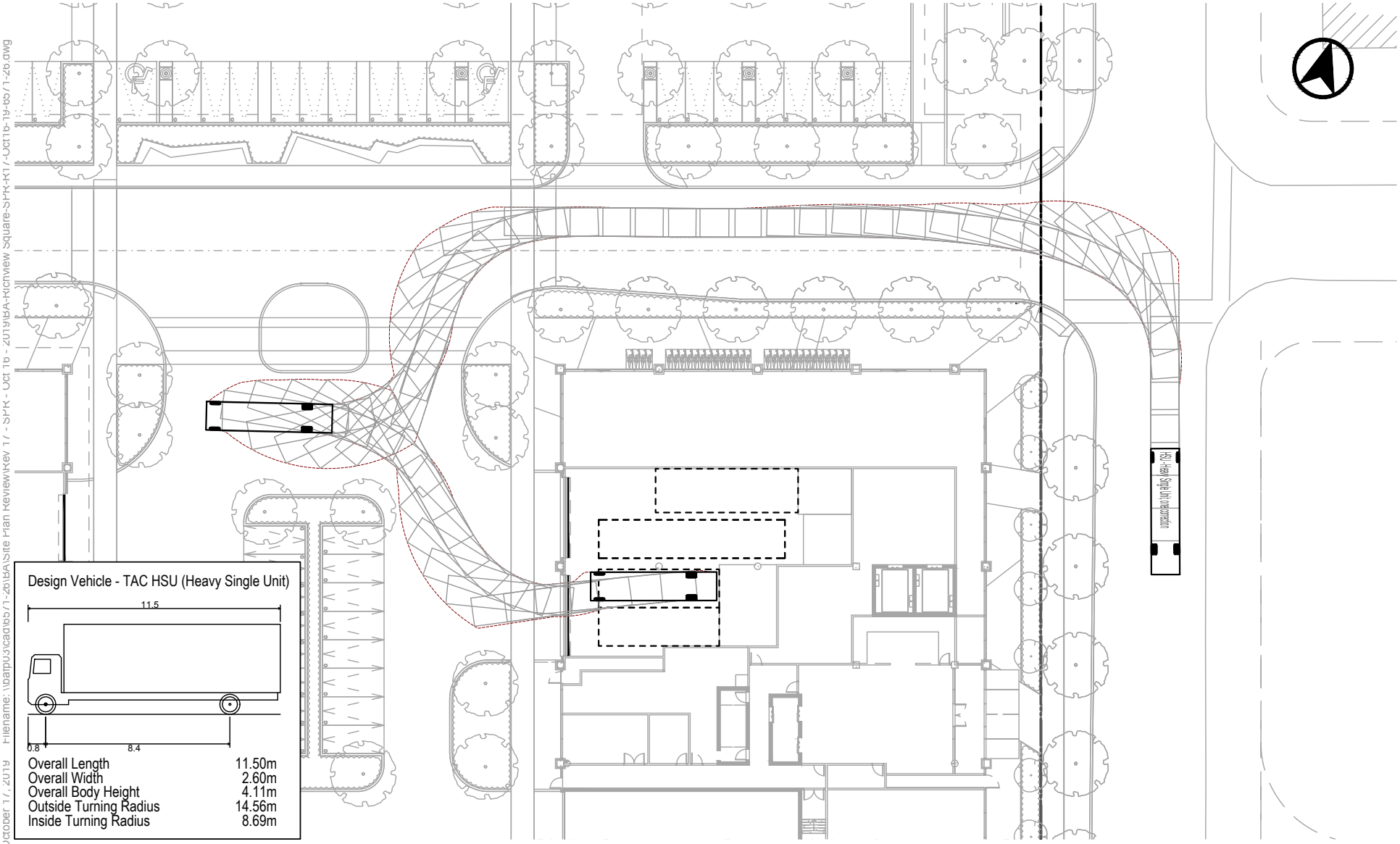
1:500 Scale

Date Plotted: October 17, 2019 Filename: \\barpu3\cad\65\71-26\BA\Site Plan Review\Key 1 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R1-Oct18-19-65-71-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
TAC HSU TYPE 'G' EXIT BUILDING C

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C4

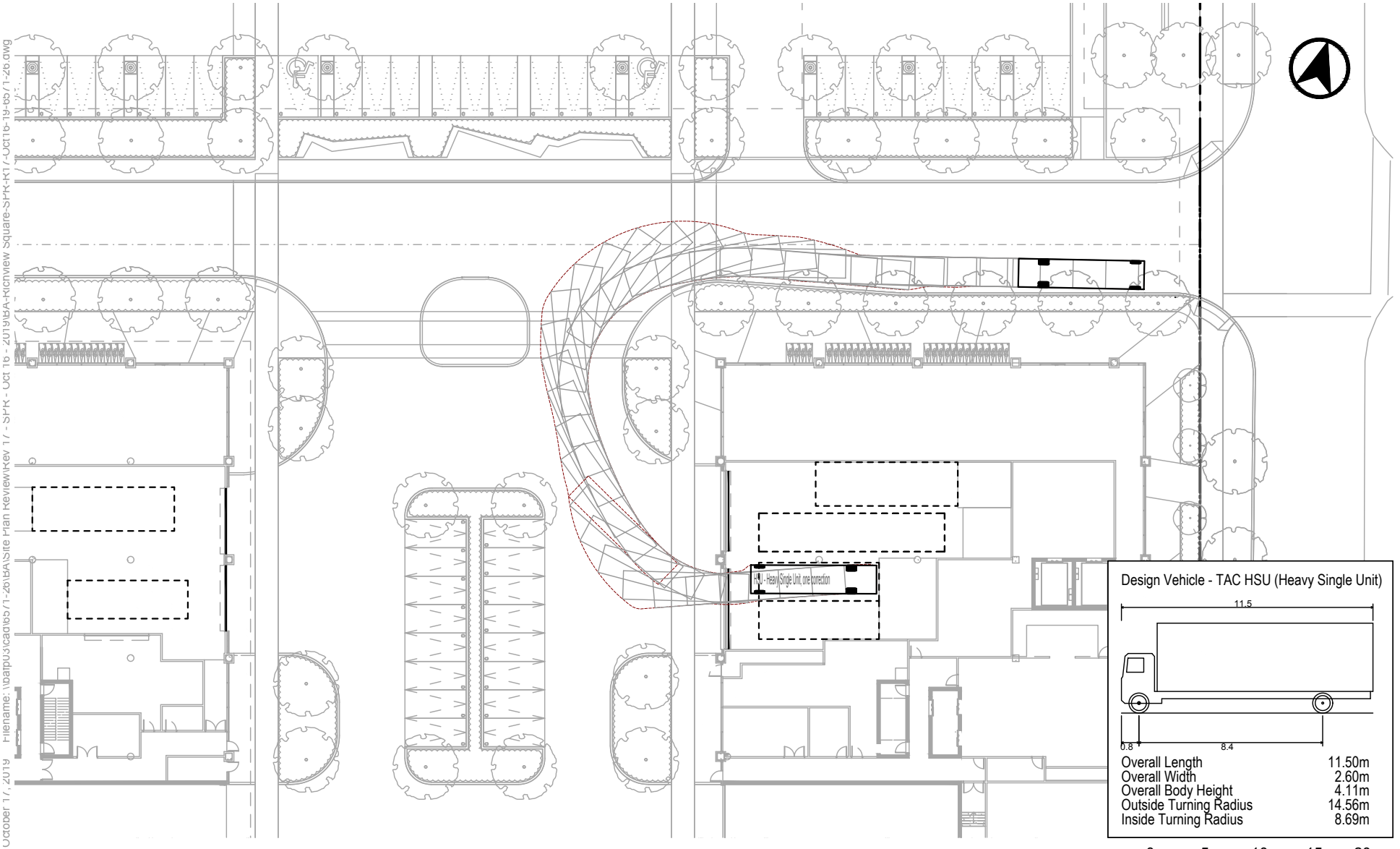


Date Plotted: October 17, 2019 Filename: \\baplus\cad\6571-26\BA\Site Plan Review\Rev 1 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R1 - Oct18-19-6b71-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
TAC HSU TYPE 'B1' ENTRY BUILDING C

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C5



Design Vehicle - TAC HSU (Heavy Single Unit)

Overall Length	11.50m
Overall Width	2.60m
Overall Body Height	4.11m
Outside Turning Radius	14.56m
Inside Turning Radius	8.69m

0 5 10 15 20m

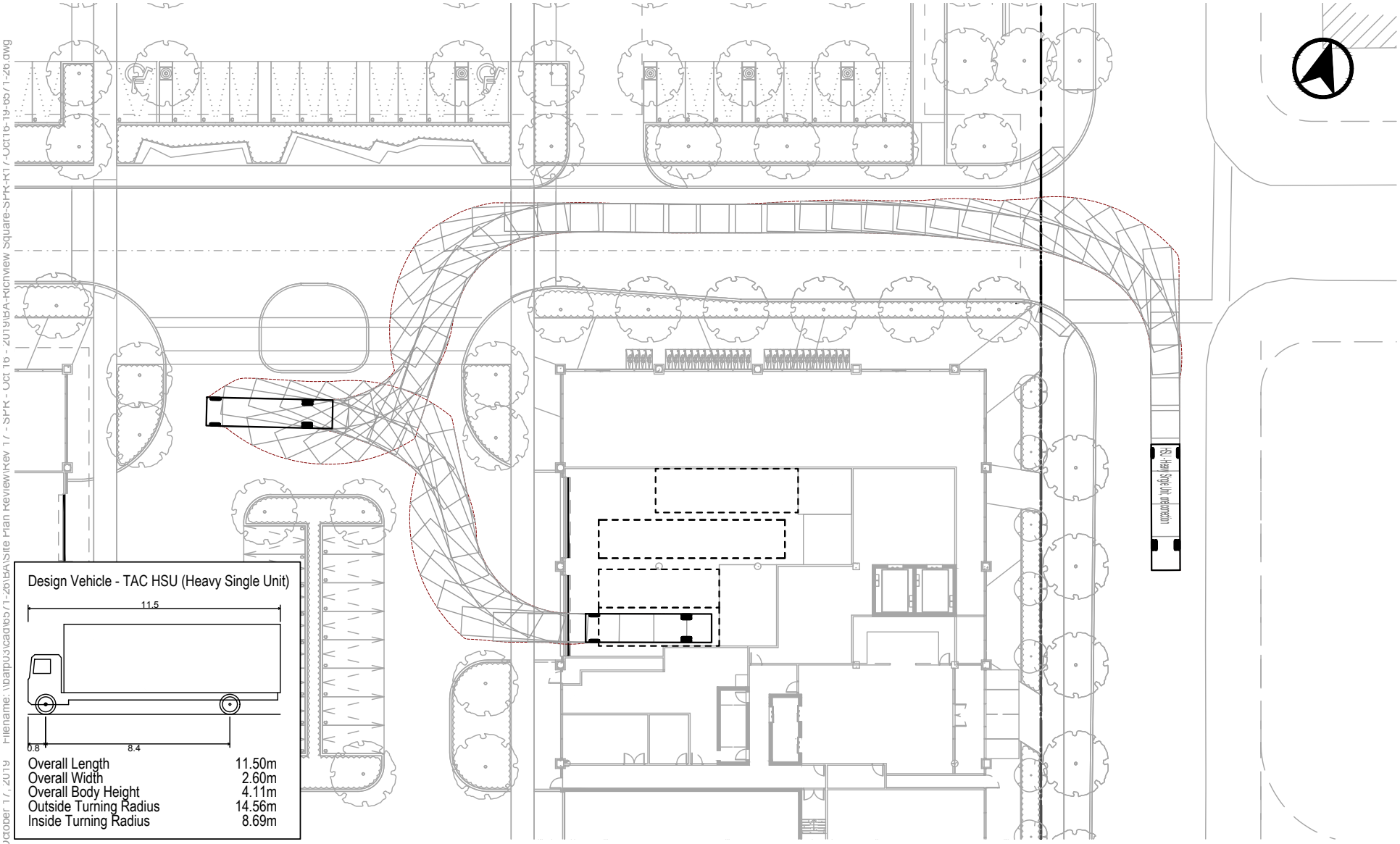
1:500 Scale

Date Plotted: October 17, 2019 Filename: \\barpu3\cad\6571-26\BA\Site Plan Review\Rev 17 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R17-Oct18-19-6b71-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
TAC HSU TYPE 'B1' EXIT BUILDING C

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C6

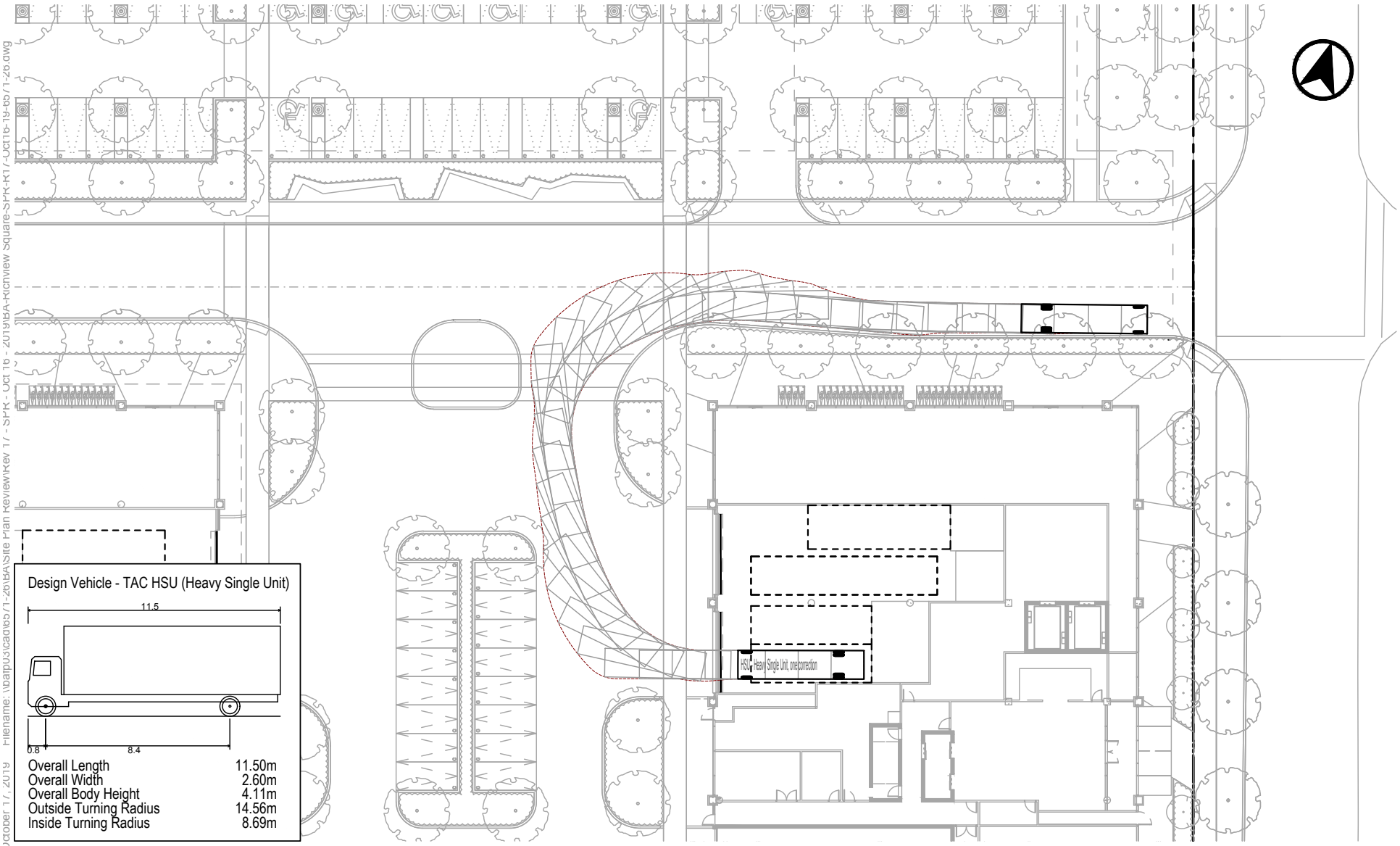


Date Plotted: October 17, 2019 Filename: \\barpu3\cad\6571-26\BA\Site Plan Review\Rev 1 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R1 - Oct18-19-6b71-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
TAC HSU TYPE 'B2' ENTRY BUILDING C

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C7



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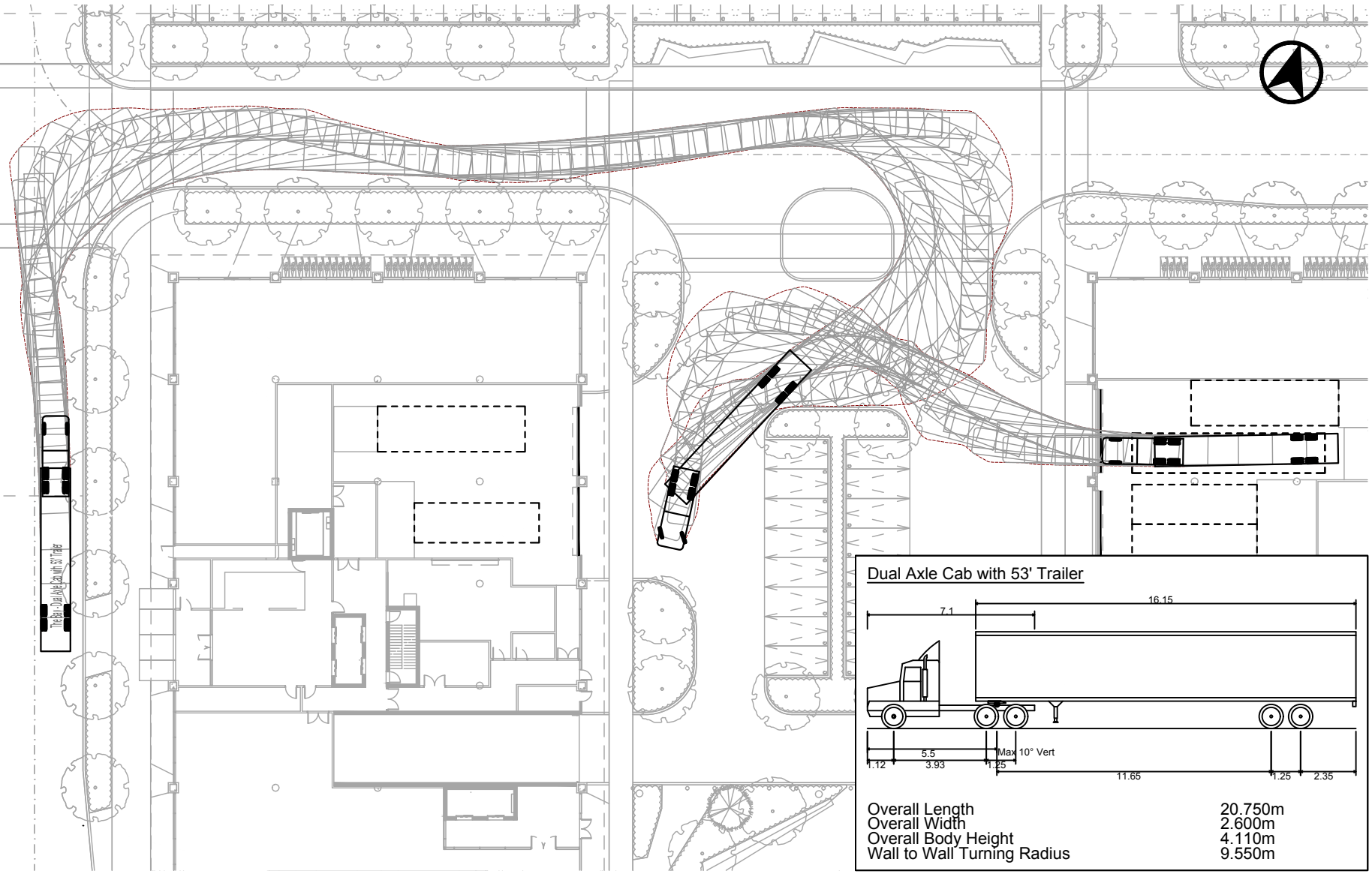
BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
TAC HSU TYPE 'B2' EXIT BUILDING C

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C8

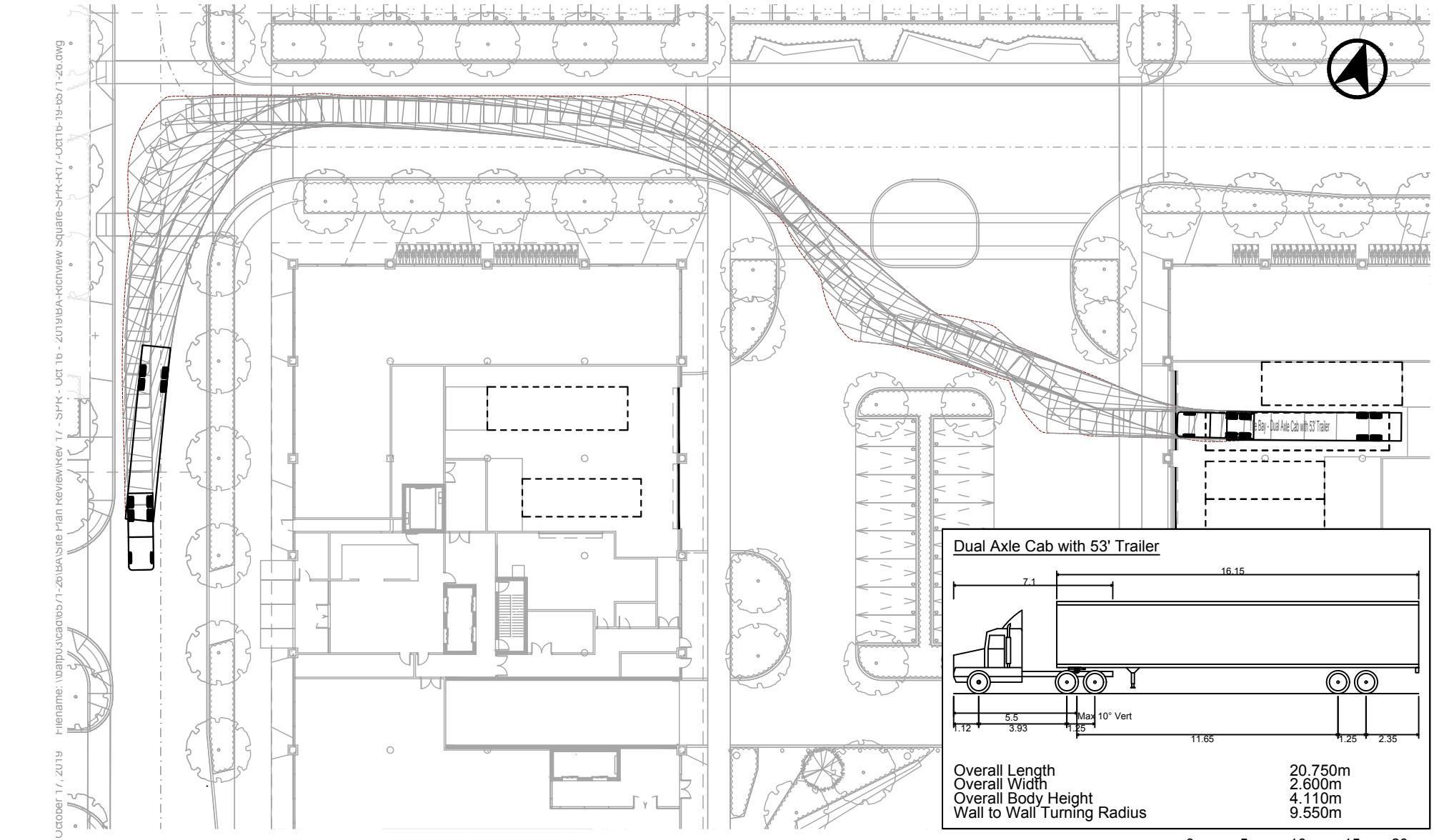


Date Plotted: October 17, 2019 Filename: \\barpw3\cad\6571-26\BA\Site Plan Review\Rev 17 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R17-Oct18-19-6b71-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
DUAL AXLE CAB WITH 53 FT TRAILER WEST ENTRY TYPE 'A' BLDG C

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C9

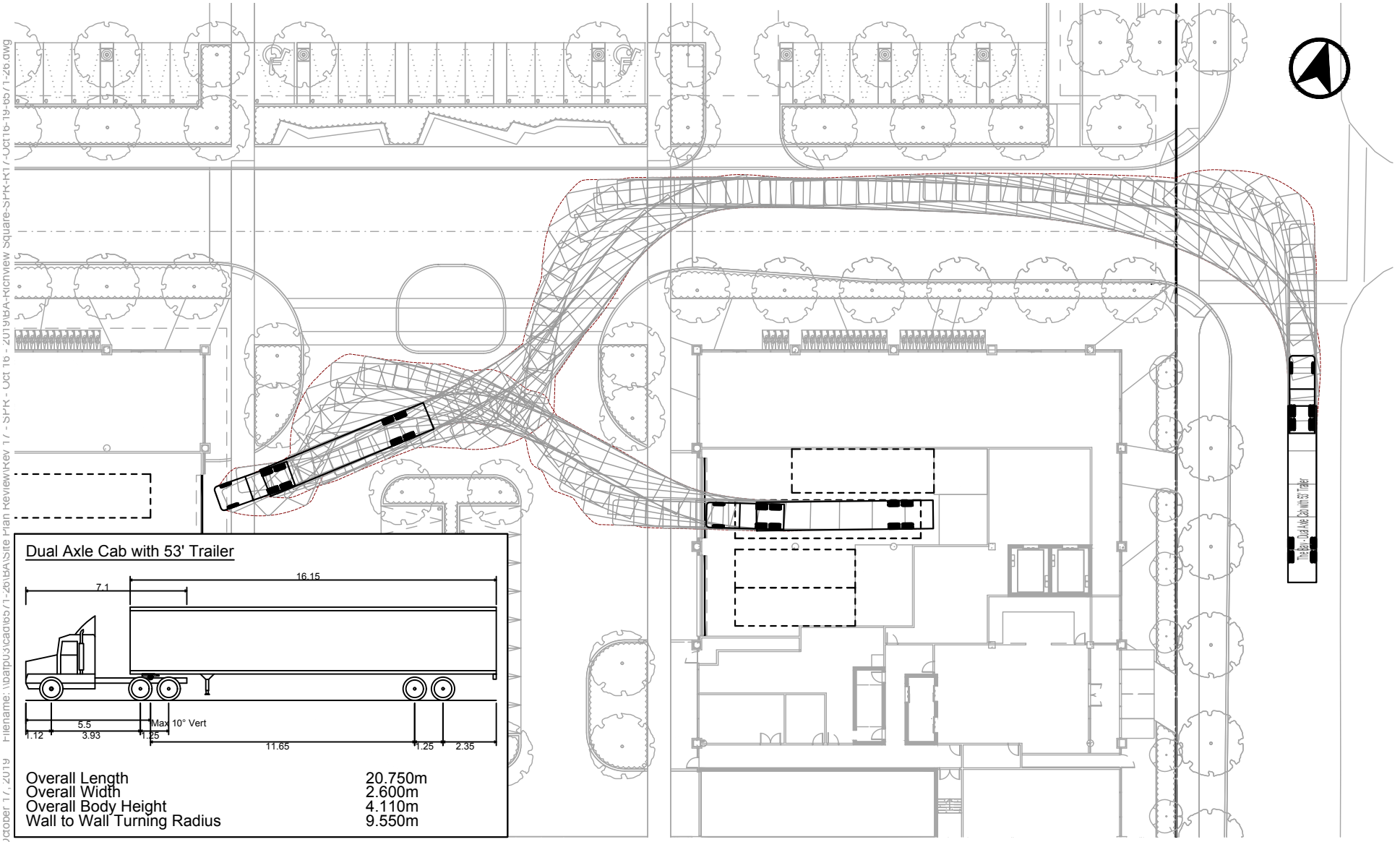


Date Plotted: October 17, 2019 Filename: \\barpu3\cad\6571-26\BA\Site Plan Review\Rev 17 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R17-Oct18-19-6b71-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
DUAL AXLE CAB WITH 53 FT TRAILER WEST EXIT TYPE 'A' BLDG C

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C10

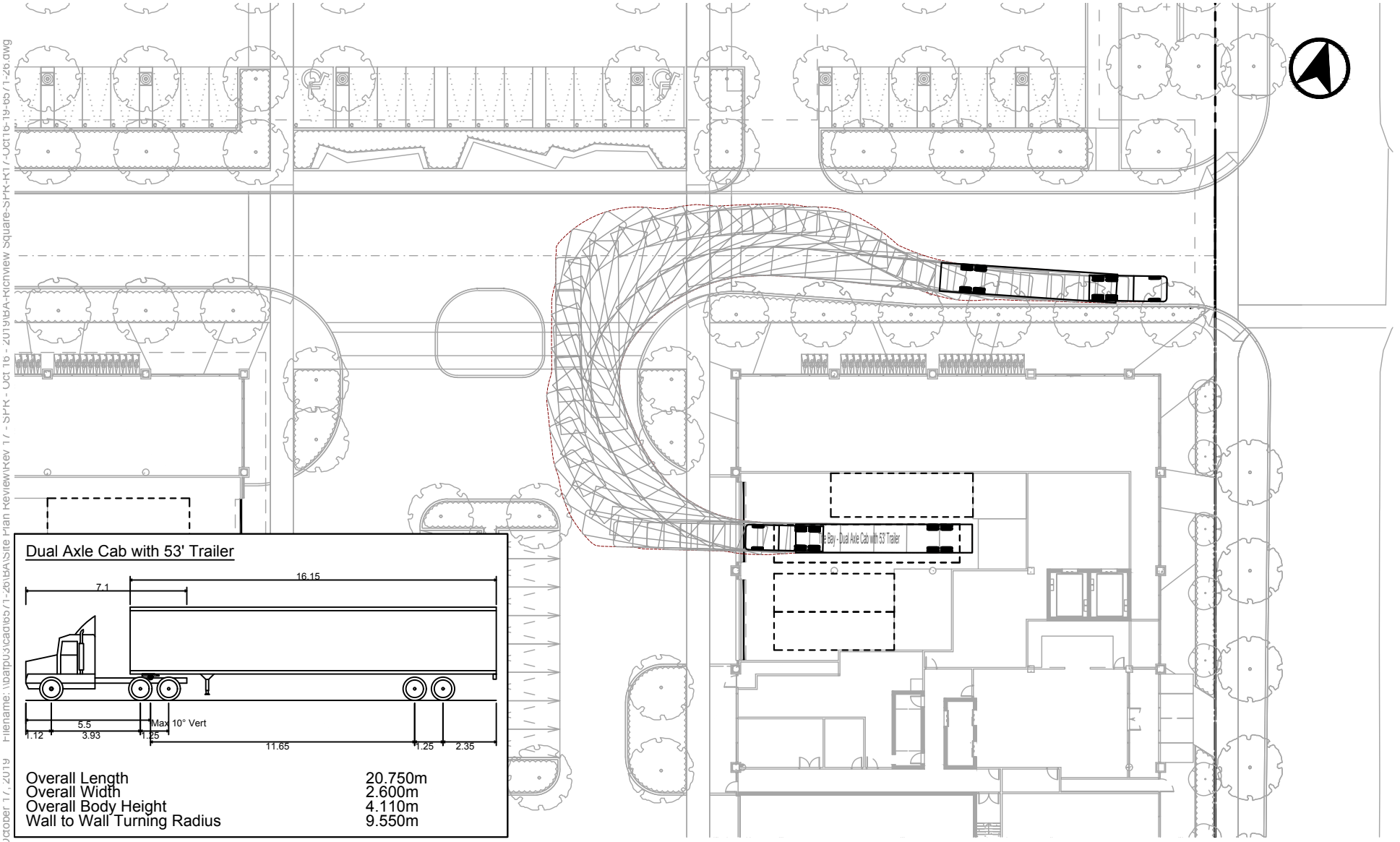


Date Plotted: October 17, 2019 Filename: \\barpu3\cad\6571-26\BA\Site Plan Review\Rev 1 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R1 - Oct16-19-6571-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
DUAL AXLE CAB WITH 53 FT TRAILER ENTRY TYPE 'A' BLDG C

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C11

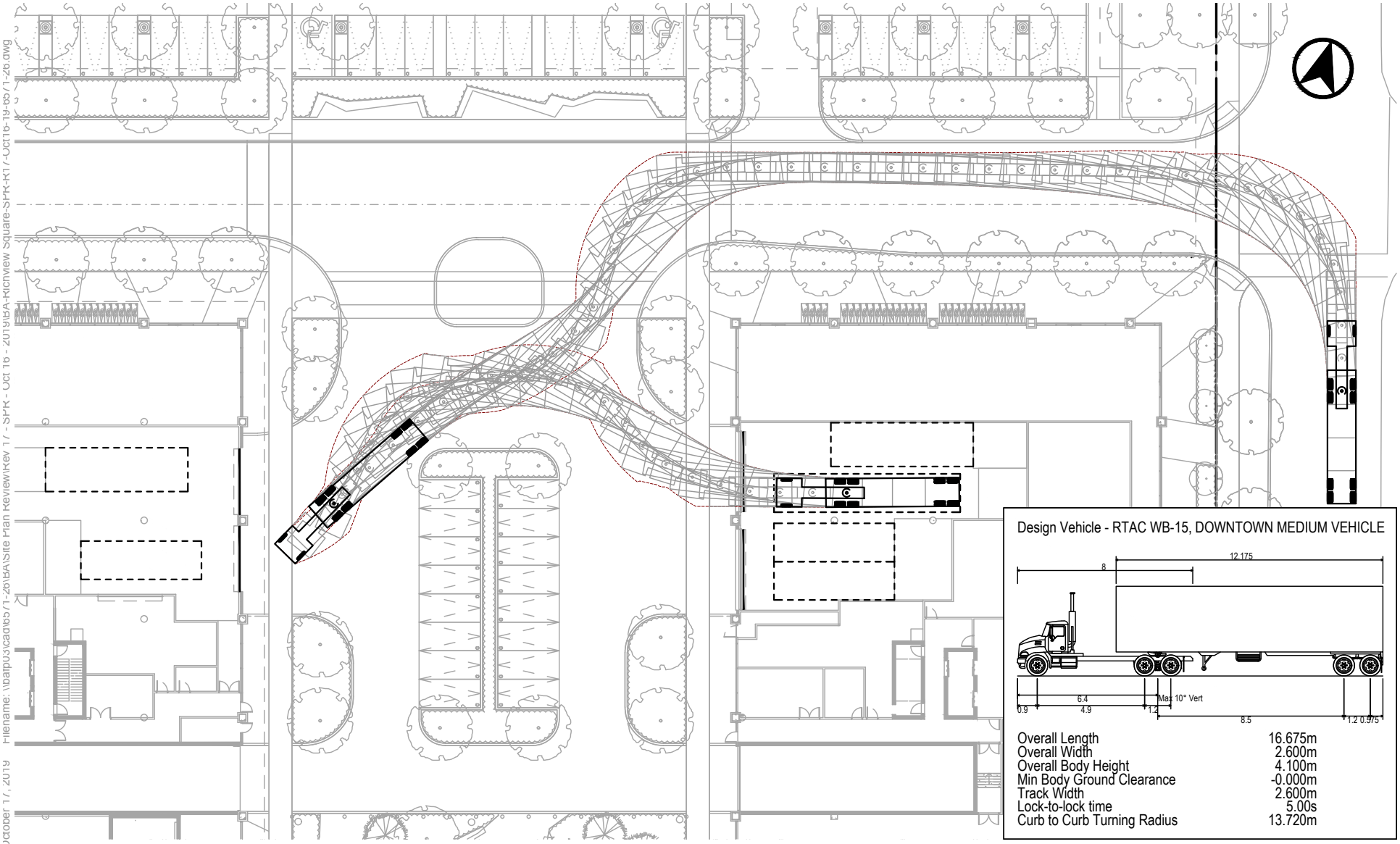


Date Plotted: October 17, 2019 Filename: \\barpu3\cad\6571-26\BA\Site Plan Review\Rev 1 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R1-Oct18-19-6b71-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
DUAL AXLE CAB WITH 53 FT TRAILER EXIT TYPE 'A' BLDG C

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C12



Design Vehicle - RTAC WB-15, DOWNTOWN MEDIUM VEHICLE

Overall Length	16.675m
Overall Width	2.600m
Overall Body Height	4.100m
Min Body Ground Clearance	-0.000m
Track Width	2.600m
Lock-to-lock time	5.00s
Curb to Curb Turning Radius	13.720m

1:500 Scale: 0 5 10 15 20m

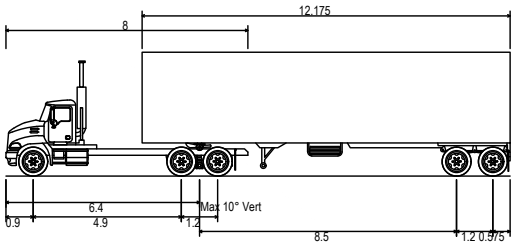
Filename: \\barpu3\cad\65\1-26\BA\Site Plan Review\Rev 1 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R1 - Oct18-19-65 1-26.dwg
Date Plotted: October 17, 2019

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
RTAC WB-15 DOWNTOWN MEDIUM VEHICLE ENTRY TYPE 'A' BLDG C

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C13

Design Vehicle - RTAC WB-15, DOWNTOWN MEDIUM VEHICLE



Overall Length	16.675m
Overall Width	2.600m
Overall Body Height	4.100m
Min Body Ground Clearance	-0.000m
Track Width	2.600m
Lock-to-lock time	5.00s
Curb to Curb Turning Radius	13.720m

0 5 10 15 20m

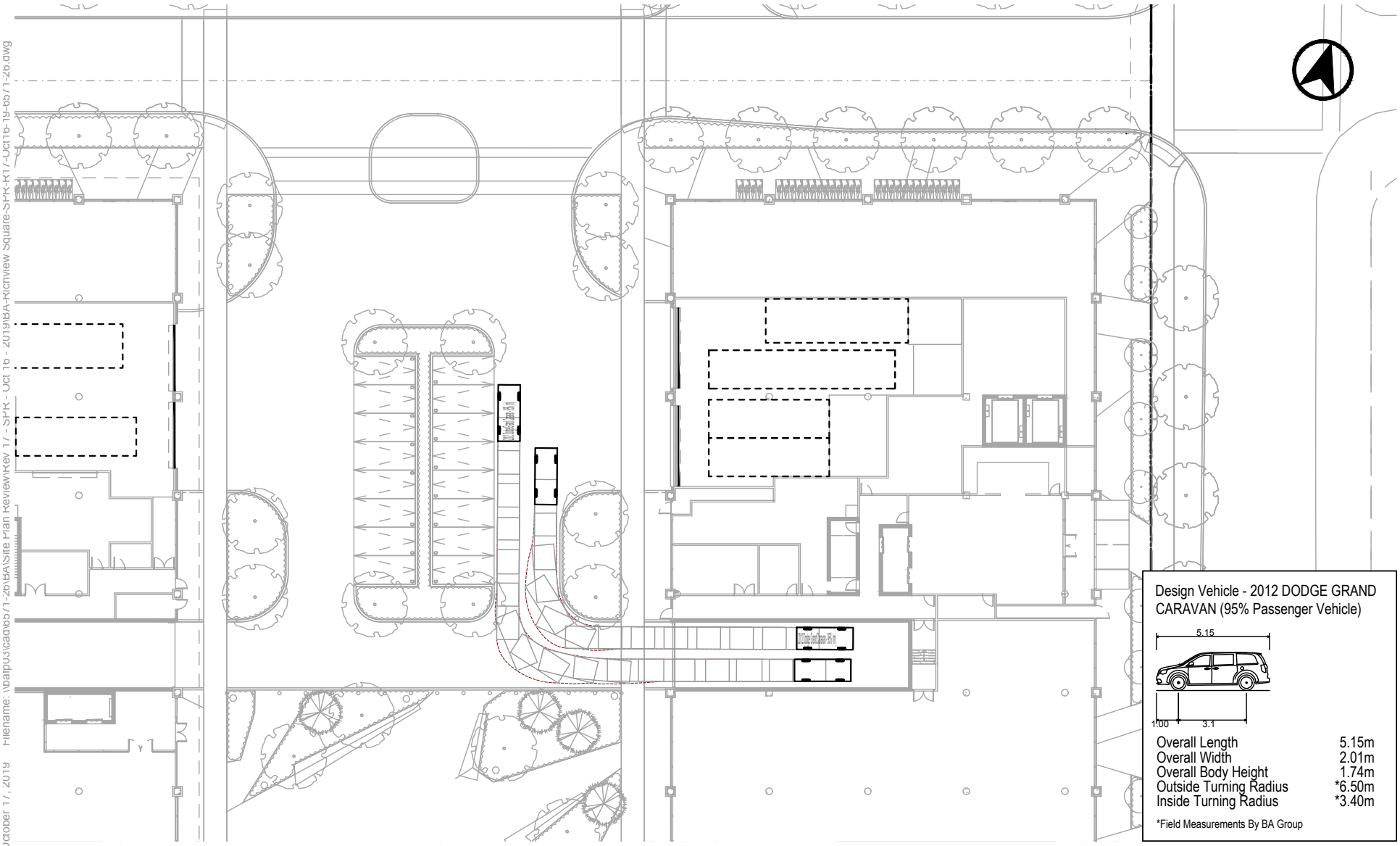
1:500 Scale

Date Plotted: October 17, 2019 Filename: \\barpu3\cad\6571-26\BA\Site Plan Review\Rev 17 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R17-Oct18-19-6571-26.dwg

BA Group

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
RTAC WB-15 DOWNTOWN MEDIUM VEHICLE EXIT TYPE 'A' BLDG C

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C14



Design Vehicle - 2012 DODGE GRAND CARAVAN (95% Passenger Vehicle)

Overall Length	5.15m
Overall Width	2.01m
Overall Body Height	1.74m
Outside Turning Radius	*6.50m
Inside Turning Radius	*3.40m

*Field Measurements By BA Group

1:500

0 5 10 15 20m

Scale

Date Plotted: October 17, 2019 Filename: \\barpu3\cad\6571-26\BA\Site Plan Review\Key 1 - SPR - Oct 18 - 2019\BA-Richview Square-SPR-R1-Oct18-19-6571-26.dwg

BA Group

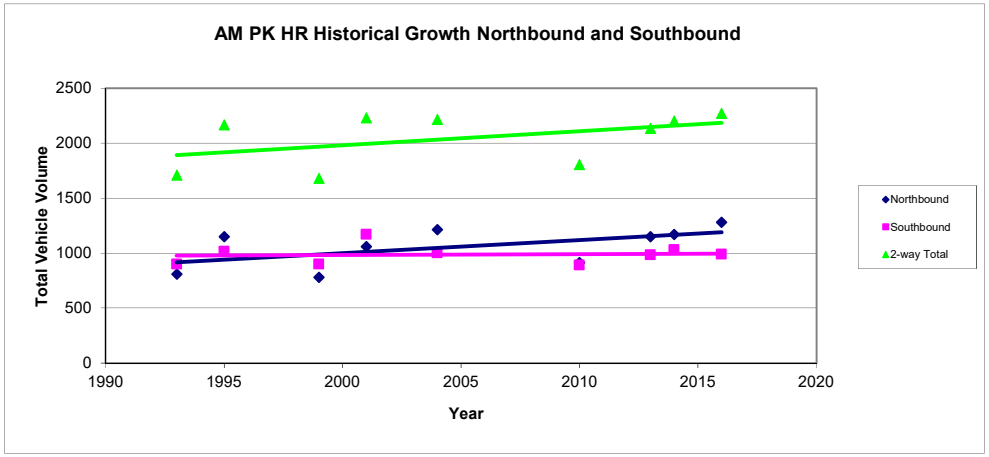
RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST
VEHICLE MANOEUVRE DIAGRAM
DODGE CARAVAN RAMP BUILDING C

Project:	RICHVIEW SQUARE
Project No.	6571-26
Date:	JUNE 16, 2016
Revised:	OCT 18, 2019
Drawing No.	VMD-C15

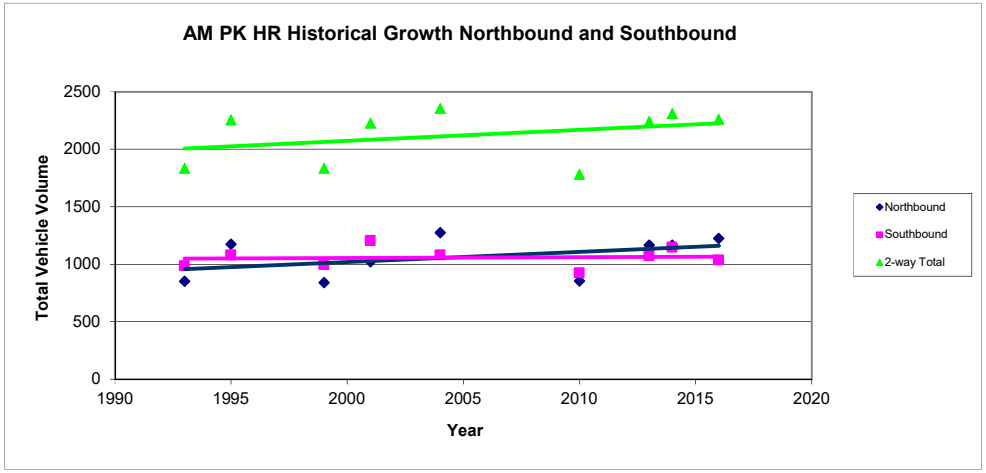
APPENDIX E:
Corridor Growth Calculations

Project: Eglinton Avenue Mixed-Use Development
Project ID: 6571-26
Intersection: Islington & Eglinton
Peak Hour: Morning
North-South Road: Islington Avenue
East-West Road: Eglinton Avenue West

Count Information		North of Islington & Eglinton		
Date	Year	Northbound	Southbound	2-way
Jul-28	1993	810	900	1710
Jun-05	1995	1150	1015	2165
Aug-24	1999	780	900	1680
Feb-05	2001	1060	1170	2230
Sep-21	2004	1215	1000	2215
Feb-04	2010	915	890	1805
Dec-05	2013	1150	985	2135
Apr-29	2014	1170	1030	2200
Jun-02	2016	1280	990	2270
Trend Point		915.42	977.28	1892.70
Slope		11.96	0.78	12.74
Growth		**1.31%**	**0.08%**	**0.67%**

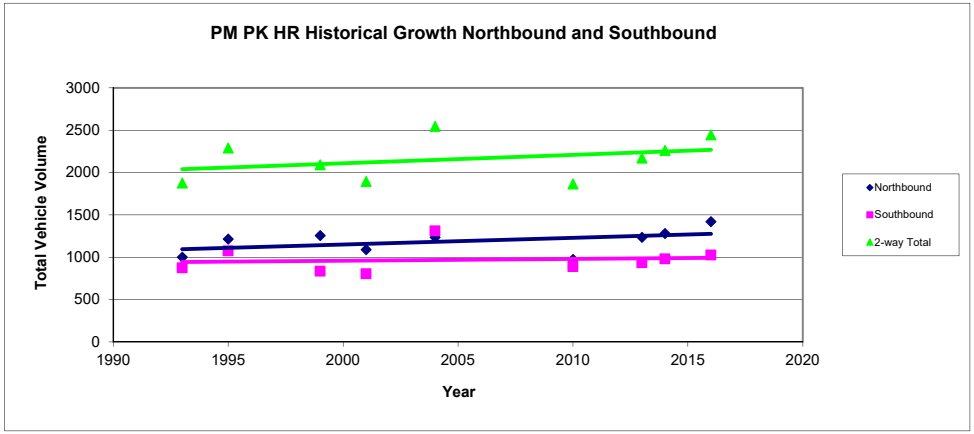


Count Information		South of Islington & Eglinton		
Date	Year	Northbound	Southbound	2-way
Jul-28	1993	850	985	1835
Jun-05	1995	1175	1080	2255
Aug-24	1999	840	995	1835
Feb-05	2001	1020	1205	2225
Sep-21	2004	1275	1080	2355
Feb-04	2010	855	925	1780
Dec-05	2013	1165	1075	2240
Apr-29	2014	1165	1145	2310
Jun-02	2016	1225	1035	2260
Trend Point		957.01	1049.66	2006.67
Slope		8.86	0.72	9.58
Growth		**0.93%**	**0.07%**	**0.48%**

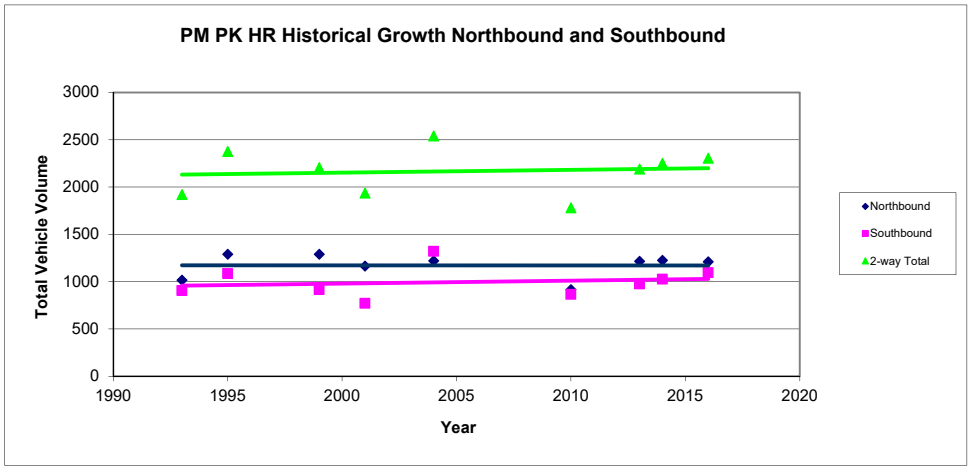


Project: Eglinton Avenue Mixed-Use Development
Project ID: 6571-26
Intersection: Kipling & Eglinton
Peak Hour: Afternoon
North-South Road: Islington Avenue
East-West Road: Eglinton Avenue West

Count Information		North of Kipling & Eglinton		
Date	Year	Northbound	Southbound	2-way
Jul-28	1993	1000	875	1875
Jun-05	1995	1215	1075	2290
Aug-24	1999	1255	835	2090
Feb-05	2001	1090	805	1895
Sep-21	2004	1235	1310	2545
Feb-04	2010	975	890	1865
Dec-05	2013	1235	935	2170
Apr-29	2014	1280	980	2260
Jun-02	2016	1420	1025	2445
Trend Point		1095.16	944.80	2039.95
Slope		7.86	2.10	9.96
Growth		**0.72%**	**0.22%**	**0.49%**

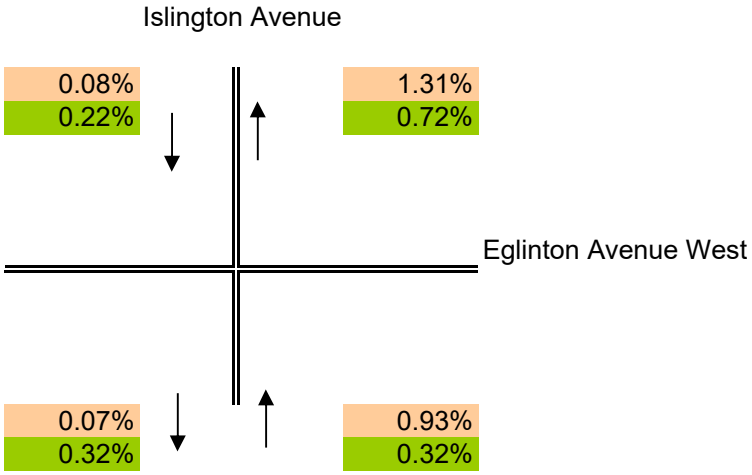


Count Information		South of Kipling & Eglinton		
Date	Year	Northbound	Southbound	2-way
Jul-28	1993	1015	905	1920
Jun-05	1995	1290	1085	2375
Aug-24	1999	1290	915	2205
Feb-05	2001	1165	770	1935
Sep-21	2004	1220	1320	2540
Feb-04	2010	915	865	1780
Dec-05	2013	1215	975	2190
Apr-29	2014	1225	1025	2250
Jun-02	2016	1210	1095	2305
Trend Point		1173.10	958.37	2131.46
Slope		-0.12	3.05	2.93
Growth		**-0.01%**	**0.32%**	**0.14%**



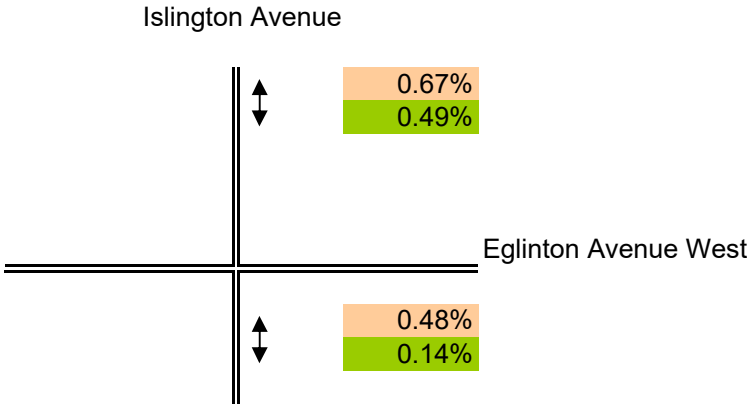
Background Traffic Growth Rates

AM
PM



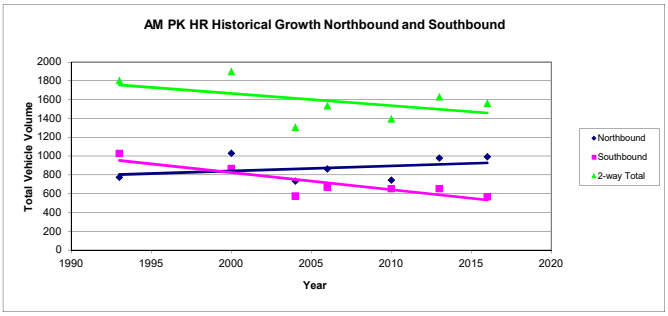
Background Traffic Growth Rates (2-way)

AM
PM

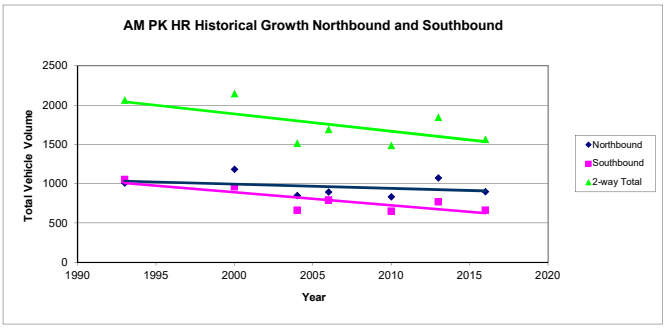


Project: Eglinton Avenue Mixed-Use Development
Project ID: 6571-26
Intersection: Kipling & Eglinton
Peak Hour: Morning
North-South Road: Kipling Avenue
East-West Road: Eglinton Avenue West

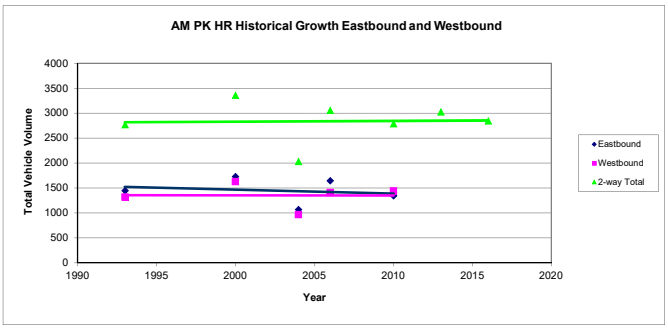
Count Information		North of Kipling & Eglinton		
Date	Year	Northbound	Southbound	2-way
Thursday, July 22	1993	776	1027	1803
Wednesday, April 26	2000	1030	867	1897
Tuesday, January 27	2004	733	573	1306
Wednesday, June 21	2006	863	670	1533
Tuesday, February 2	2010	743	651	1394
Thursday, February 19	2013	979	651	1630
Thursday June 2	2016	992	569	1561
Trend Point		803.81	953.46	1757.27
Slope		5.38	-18.31	-12.93
Growth		**0.67%**	**-1.92%**	**-0.74%**



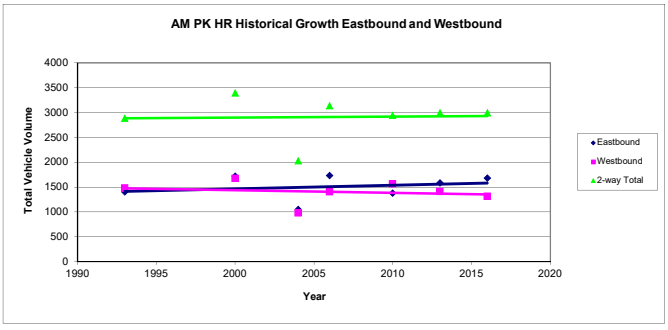
Count Information		South of Kipling & Eglinton		
Date	Year	Northbound	Southbound	2-way
Thursday, July 22	1993	1006	1054	2060
Wednesday, April 26	2000	1181	961	2142
Tuesday, January 27	2004	850	661	1511
Wednesday, June 21	2006	896	793	1689
Tuesday, February 2	2010	833	649	1482
Thursday, February 19	2013	1072	768	1840
Thursday June 2	2016	899	662	1561
Trend Point		1033.27	1008.01	2041.28
Slope		-5.45	-16.57	-22.02
Growth		**-0.53%**	**-1.64%**	**-1.08%**



Count Information		East of Kipling & Eglinton		
Date	Year	Eastbound	Westbound	2-way
Thursday, July 22	1993	1448	1318	2766
Wednesday, April 26	2000	1728	1628	3356
Tuesday, January 27	2004	1067	967	2034
Wednesday, June 21	2006	1646	1410	3056
Tuesday, February 2	2010	1348	1441	2789
Thursday, February 19	2013	1586	1439	3025
Thursday June 2	2016	1513	1330	2843
Trend Point		1466.21	1351.39	2817.61
Slope		0.80	0.80	1.60
Growth		**0.05%**	**0.06%**	**0.06%**

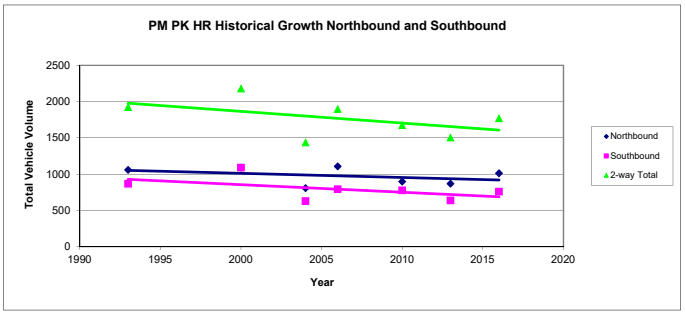


Count Information		West of Kipling & Eglinton		
Date	Year	Eastbound	Westbound	2-way
Thursday, July 22	1993	1406	1479	2885
Wednesday, April 26	2000	1719	1676	3395
Tuesday, January 27	2004	1050	979	2029
Wednesday, June 21	2006	1732	1406	3138
Tuesday, February 2	2010	1379	1564	2943
Thursday, February 19	2013	1584	1413	2997
Thursday June 2	2016	1681	1312	2993
Trend Point		1412.67	1472.76	2885.43
Slope		7.28	-5.28	2.00
Growth		**0.52%**	**-0.36%**	**0.07%**

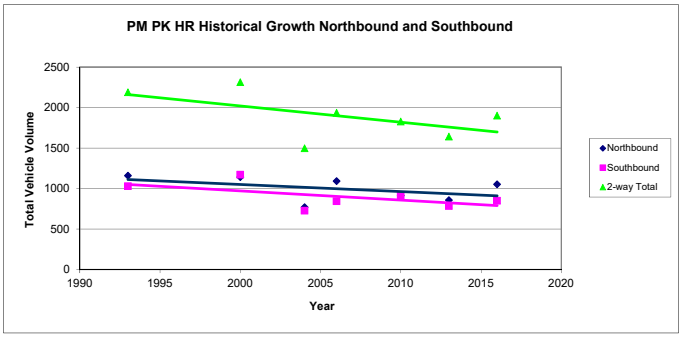


Project: Eglinton Avenue Mixed-Use Development
Project ID: 6571-26
Intersection: Kipling & Eglinton
Peak Hour: Afternoon
North-South Road: Kipling Avenue
East-West Road: Eglinton Avenue West

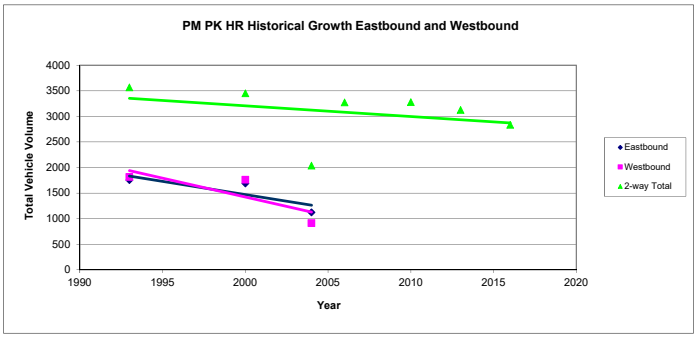
Count Information		North of Kipling & Eglinton		
Date	Year	Northbound	Southbound	2-way
Thursday, July 22	1993	1058	866	1924
Wednesday, April 26	2000	1089	1090	2179
Tuesday, January 27	2004	807	628	1435
Wednesday, June 21	2006	1106	791	1897
Tuesday, February 2	2010	898	776	1674
Thursday, February 19	2013	868	636	1504
Thursday June 2	2016	1011	757	1768
Trend Point		1050.54	928.53	1979.08
Slope		-5.68	-10.50	-16.18
Growth		**-0.54%**	**-1.13%**	**-0.82%**



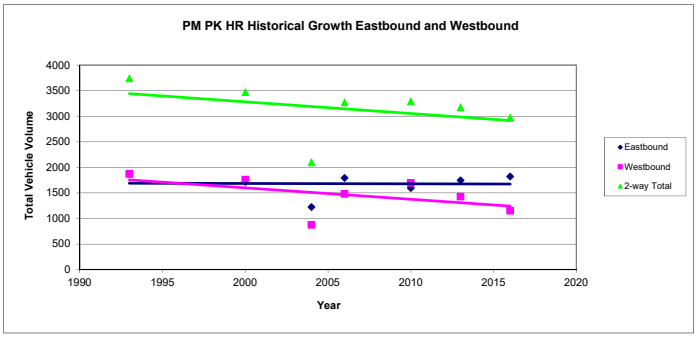
Count Information		South of Kipling & Eglinton		
Date	Year	Northbound	Southbound	2-way
Thursday, July 22	1993	1159	1029	2188
Wednesday, April 26	2000	1141	1171	2312
Tuesday, January 27	2004	769	727	1496
Wednesday, June 21	2006	1092	843	1935
Tuesday, February 2	2010	914	913	1827
Thursday, February 19	2013	856	784	1640
Thursday June 2	2016	1052	848	1900
Trend Point		1111.69	1049.42	2161.10
Slope		-8.78	-11.33	-20.11
Growth		**-0.79%**	**-1.08%**	**-0.93%**



Count Information		East of Kipling & Eglinton		
Date	Year	Eastbound	Westbound	2-way
Thursday, July 22	1993	1753	1815	3568
Wednesday, April 26	2000	1689	1762	3451
Tuesday, January 27	2004	1123	913	2036
Wednesday, June 21	2006	1760	1514	3274
Tuesday, February 2	2010	1529	1749	3278
Thursday, February 19	2013	1643	1484	3127
Thursday June 2	2016	1714	1122	2836
Trend Point		1615.89	1736.69	3352.59
Slope		-1.10	-19.76	-20.86
Growth		**-0.07%**	**-1.14%**	**-0.62%**

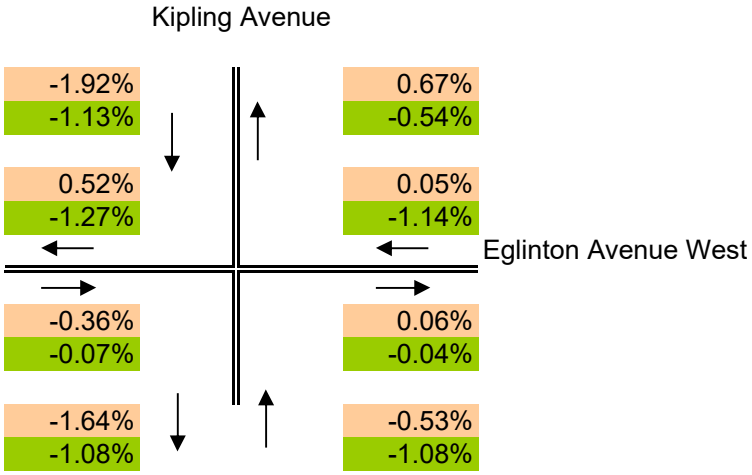


Count Information		West of Kipling & Eglinton		
Date	Year	Eastbound	Westbound	2-way
Thursday, July 22	1993	1870	1870	3740
Wednesday, April 26	2000	1713	1757	3470
Tuesday, January 27	2004	1222	875	2097
Wednesday, June 21	2006	1791	1479	3270
Tuesday, February 2	2010	1595	1694	3289
Thursday, February 19	2013	1745	1426	3171
Thursday June 2	2016	1819	1151	2970
Trend Point		1687.87	1754.26	3442.13
Slope		-0.66	-22.28	-22.94
Growth		**-0.04%**	**-1.27%**	**-0.67%**



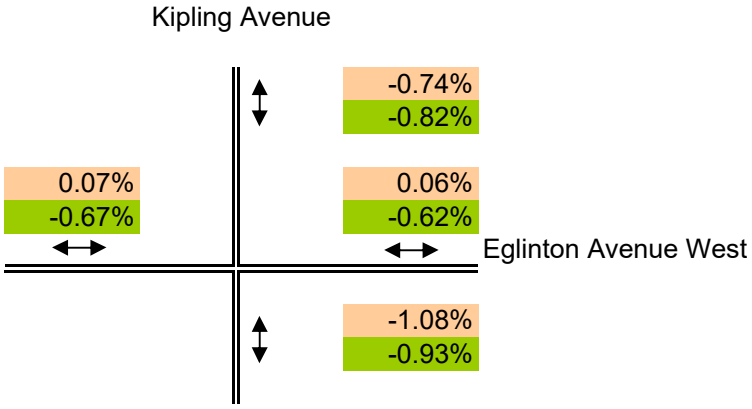
Background Traffic Growth Rates

AM
PM



Background Traffic Growth Rates (2-way)

AM
PM

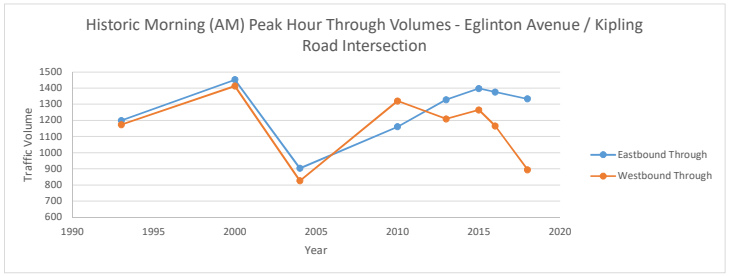


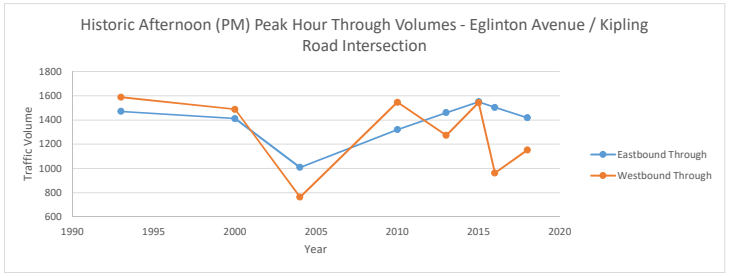
Eglinton - Kipling

		AM		PM	
	Year	EB	WB	EB	WB
	1993	1199	1174	1471	1588
	2000	1452	1413	1411	1488
	2004	903	826	1008	762
	2010	1161	1320	1320	1546
	2013	1328	1209	1461	1273
city req.	2015	1398	1265	1550	1544
our count	2016	1376	1165	1504	962
	2018	1333	894	1418	1152
	Median	1331	1192	1440	1381
	85th %	1397	1317	1502	1546
	Average	1269	1158	1393	1289
	Since 2010				
	85th %	***1385***	***1287***	***1522***	***1545***
	Average	***1319***	***1171***	***1451***	***1295***
	City 2015	1398	1265	1550	1544

-582

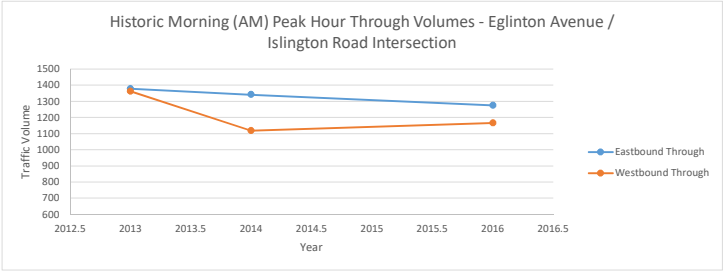
seem to match 85th percentile

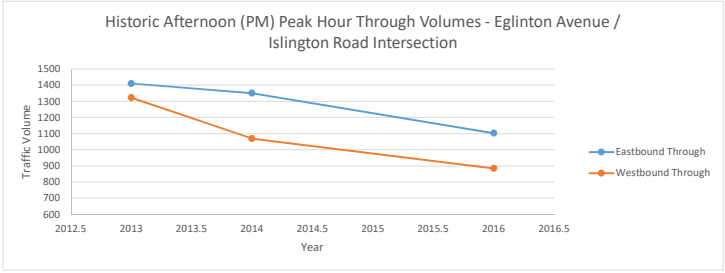




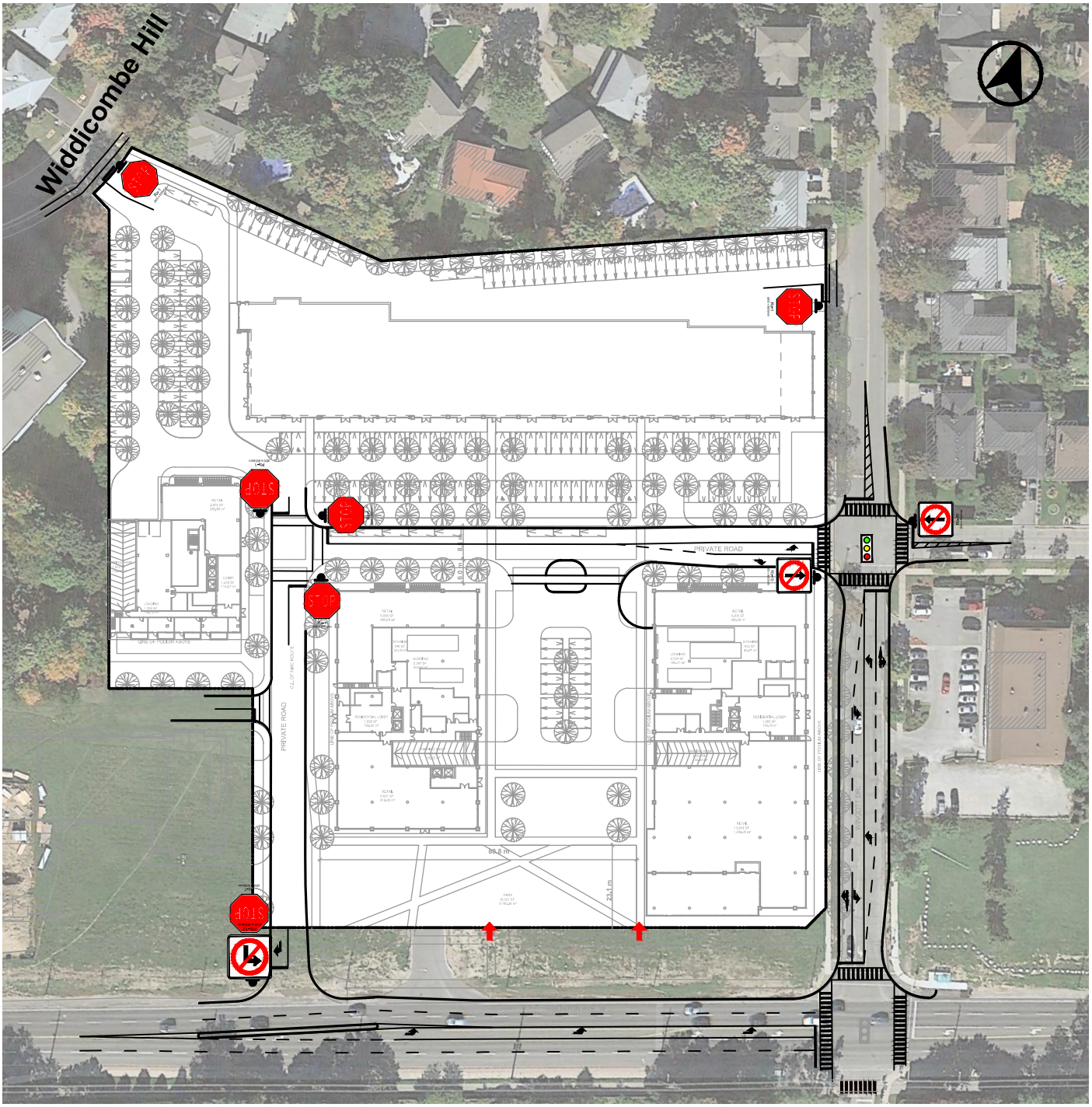
Eglinton - Islington

	AM		PM	
Year	EB	WB	EB	WB
2013	1378	1363	1411	1323
2014	1342	1118	1351	1070
2016	1276	1167	1102	885
Median	1342	1167	1351	1070
85th %	1367	1304	1393	1247
Average	1332	1216	1288	1093





APPENDIX F:
Sensitivity Access Condition



EXISTING SIGNALIZED INTERSECTION

EXISTING STOP CONTROL INTERSECTION TO BE REMOVED

POST SIGN TO BE REMOVED

PEDESTRIAN ACCESS ONLY

PROPOSED SIGNALIZED INTERSECTION

PROPOSED STOP CONTROL INTERSECTION

PROPOSED POST SIGN

PROPOSED NO THROUGH MOVEMENT PERMITTED

PROPOSED NO LEFT-TURN MOVEMENT PERMITTED

0 25 50m

1:1,500

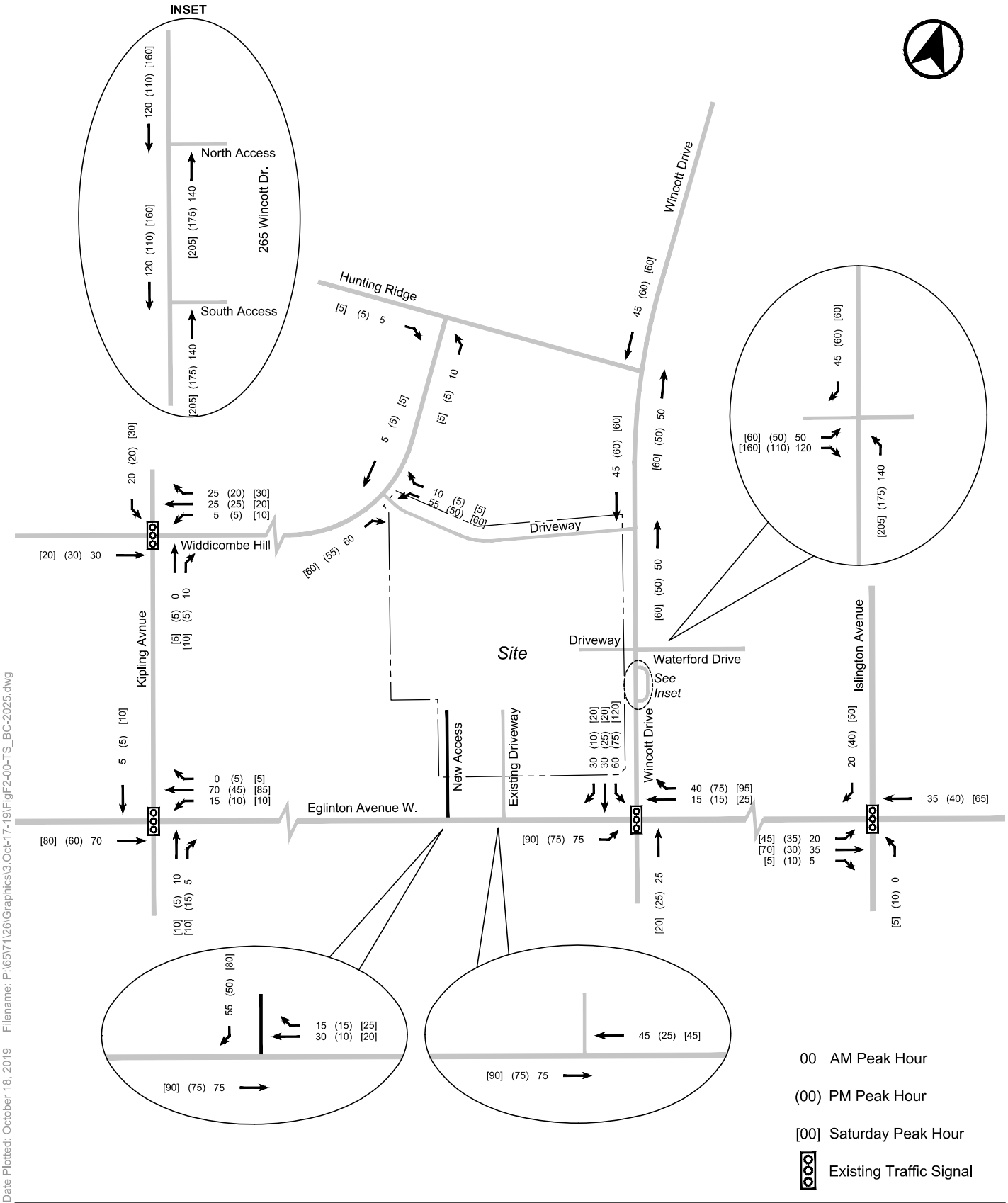
Date Plotted: October 18, 2019 Filename: P:\6571\26\Graphics\3.Oct-17-19\FigF1-SenS-Base Access Plans.dwg

SENSITIVITY CONDITIONS

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure F1



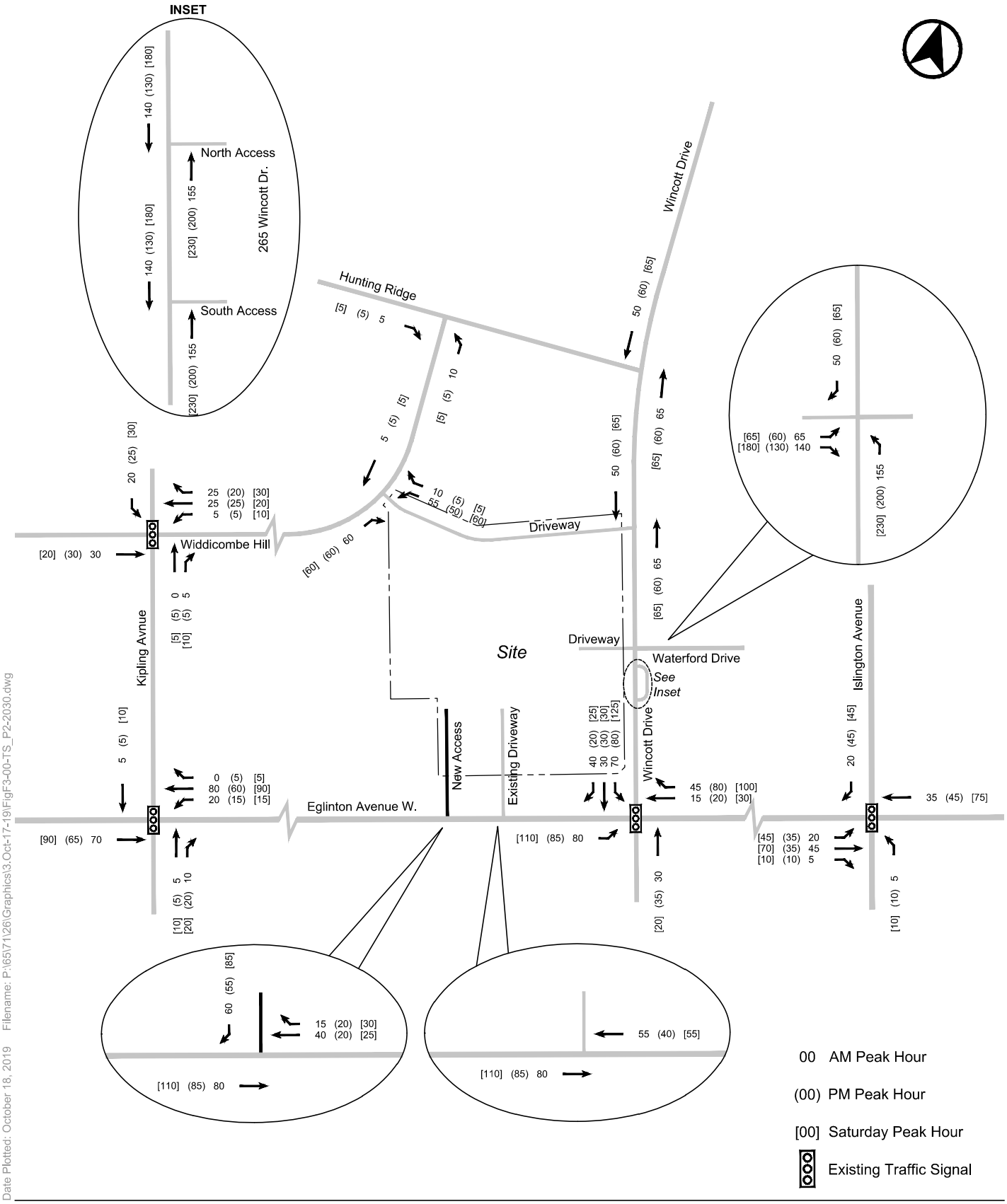
Date Plotted: October 18, 2019 Filename: P:\65\71\26\Graphics\3.Oct-17-19\FigF2-00-TS_BC-2025.dwg

2025 TOTAL SITE TRAFFIC VOLUMES - SENSITIVITY CONDITIONS

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure F2



Date Plotted: October 18, 2019 Filename: P:\65\71\26\Graphics\3.Oct-17-19\FigF3-00-TS_P2-2030.dwg

2030 TOTAL SITE TRAFFIC VOLUMES - SENSITIVITY CONDITIONS

BA Group

250 Wincott Drive and 4620 Eglinton Avenue West
6571-26 October 2019

Figure F3

APPENDIX G:
Synchro Calculation Sheets

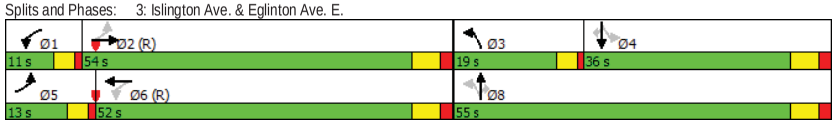
Timings
3: Islington Ave. & Eglinton Ave. E.

Existing - AM

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	185	1340	155	1120	55	930	180	50	930	50
Future Volume (vph)	185	1340	155	1120	55	930	180	50	930	50
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6	3	8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	3	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	7.0	30.0	7.0	30.0	15.0	27.0	27.0	27.0	27.0	27.0
Minimum Split (s)	11.0	36.0	11.0	36.0	19.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	13.0	54.0	11.0	52.0	19.0	55.0	55.0	36.0	36.0	36.0
Total Split (%)	10.8%	45.0%	9.2%	43.3%	15.8%	45.8%	45.8%	30.0%	30.0%	30.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	Min	Min	Min	Min	Min
Act Effct Green (s)	61.2	49.0	57.2	47.0	51.8	49.8	49.8	34.6	34.6	34.6
Actuated g/C Ratio	0.51	0.41	0.48	0.39	0.43	0.42	0.42	0.29	0.29	0.29
v/c Ratio	0.90	0.99	0.89	0.94	0.20	0.69	0.29	0.44	0.96	0.11
Control Delay	68.8	43.9	69.1	49.3	21.8	31.8	16.4	51.9	64.0	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.8	43.9	69.1	49.3	21.8	31.8	16.4	51.9	64.0	0.8
LOS	E	D	E	D	C	C	B	D	E	A
Approach Delay		46.9		51.6		29.0			60.3	
Approach LOS		D		D		C			E	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 57 (48%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 46.7		Intersection LOS: D	
Intersection Capacity Utilization 105.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Islington Ave. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
3: Islington Ave. & Eglinton Ave. E.

Existing - AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	1340	60	155	1120	55	55	930	180	50	930	50
Future Volume (vph)	185	1340	60	155	1120	55	55	930	180	50	930	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	*1.00		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.94	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1767	3471		1716	3326		1700	3390	1457	1634	3491	1457
Flt Permitted	0.08	1.00		0.09	1.00		0.11	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	154	3471		156	3326		190	3390	1457	414	3491	1457
Peak-hour factor, PHF	0.96	1.00	1.00	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	193	1340	60	161	1167	57	57	969	188	52	969	52
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	37	0	0	37
Lane Group Flow (vph)	193	1397	0	161	1221	0	57	969	151	52	969	15
Confl. Peds. (#/hr)	46		64	64		46	23		37	37		23
Heavy Vehicles (%)	1%	5%	11%	4%	4%	2%	5%	3%	3%	8%	0%	5%
Bus Blockages (#/hr)	0	12	0	0	11	0	0	11	0	0	11	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	56.4	47.2		52.4	45.2		49.6	49.6	49.6	33.6	33.6	33.6
Effective Green, g (s)	58.4	48.2		54.4	46.2		50.6	50.6	50.6	34.6	34.6	34.6
Actuated g/C Ratio	0.49	0.40		0.45	0.39		0.42	0.42	0.42	0.29	0.29	0.29
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	212	1394		177	1280		243	1429	614	119	1006	420
v/s Ratio Prot	c0.08	c0.40		0.06	0.37		0.03	c0.29			c0.28	
v/s Ratio Perm	0.36			0.35			0.07		0.10	0.13		0.01
v/c Ratio	0.91	1.00		0.91	0.95		0.23	0.68	0.25	0.44	0.96	0.04
Uniform Delay, d1	31.4	35.9		28.1	35.9		25.2	28.1	22.4	34.8	42.1	30.7
Progression Factor	1.50	0.74		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	29.7	20.7		42.2	16.3		0.5	1.3	0.2	2.6	19.9	0.0
Delay (s)	76.8	47.3		70.3	52.2		25.7	29.4	22.6	37.3	62.0	30.7
Level of Service	E	D		E	D		C	C	C	D	E	C
Approach Delay (s)		50.9			54.3			28.2			59.3	
Approach LOS		D			D			C			E	

Intersection Summary					
HCM 2000 Control Delay	48.2	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.96				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		16.0	
Intersection Capacity Utilization	105.1%	ICU Level of Service		G	
Analysis Period (min)	15				
c Critical Lane Group					

Timings
6: Kipling Ave. & Eglinton Ave. E.

Existing - AM

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	185	1400	150	1265	120	705	150	70	480	35
Future Volume (vph)	185	1400	150	1265	120	705	150	70	480	35
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6	3	8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	3	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	33.0	6.0	33.0	6.0	29.0	29.0	29.0	29.0	29.0
Minimum Split (s)	10.0	40.0	10.0	40.0	10.0	36.0	36.0	36.0	36.0	36.0
Total Split (s)	18.0	80.0	15.0	77.0	10.0	49.0	49.0	39.0	39.0	39.0
Total Split (%)	12.5%	55.6%	10.4%	53.5%	6.9%	34.0%	34.0%	27.1%	27.1%	27.1%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	Min	Min	Min	Min	Min
Act Effct Green (s)	91.8	74.3	86.4	71.5	45.9	42.9	42.9	32.4	32.4	32.4
Actuated g/C Ratio	0.64	0.52	0.60	0.50	0.32	0.30	0.30	0.22	0.22	0.22
v/c Ratio	0.88	0.94	0.85	0.93	0.63	0.78	0.36	0.93	0.70	0.11
Control Delay	73.5	44.3	71.1	45.1	52.0	52.7	26.7	132.7	53.0	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.5	44.3	71.1	45.1	52.0	52.7	26.7	132.7	53.0	4.7
LOS	E	D	E	D	D	D	C	F	D	A
Approach Delay		47.6		47.6		48.6			59.6	
Approach LOS		D		D		D			E	

Intersection Summary			
Cycle Length: 144			
Actuated Cycle Length: 144			
Offset: 50 (35%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 49.3		Intersection LOS: D	
Intersection Capacity Utilization 116.7%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 6: Kipling Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
6: Kipling Ave. & Eglinton Ave. E.

Existing - AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	1400	60	150	1265	140	120	705	150	70	480	35
Future Volume (vph)	185	1400	60	150	1265	140	120	705	150	70	480	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	0.90	1.00	1.00	0.83
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.98	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1716	3248		1684	3256		1748	3274	1362	1522	3272	1285
Flt Permitted	0.05	1.00		0.06	1.00		0.24	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)	97	3248		99	3256		445	3274	1362	362	3272	1285
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	199	1505	65	161	1360	151	129	758	161	75	516	38
RTOR Reduction (vph)	0	2	0	0	6	0	0	0	43	0	0	29
Lane Group Flow (vph)	199	1568	0	161	1505	0	129	758	118	75	516	9
Confl. Peds. (#/hr)	50		40	40		50	107		48	48		107
Confl. Bikes (#/hr)			5			2			21			4
Heavy Vehicles (%)	4%	6%	14%	6%	4%	12%	1%	6%	6%	15%	8%	3%
Bus Blockages (#/hr)	0	12	0	0	11	0	0	14	0	0	5	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	86.8	73.3		81.4	70.6		41.9	41.9	41.9	31.4	31.4	31.4
Effective Green, g (s)	88.8	74.3		83.4	71.6		42.9	42.9	42.9	32.4	32.4	32.4
Actuated g/C Ratio	0.62	0.52		0.58	0.50		0.30	0.30	0.30	0.22	0.22	0.22
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	222	1675		187	1618		200	975	405	81	736	289
v/s Ratio Prot	c0.09	c0.48		0.07	0.46		0.03	c0.23			0.16	
v/s Ratio Perm	0.46			0.43			0.16		0.09	c0.21		0.01
v/c Ratio	0.90	0.94		0.86	0.93		0.65	0.78	0.29	0.93	0.70	0.03
Uniform Delay, d1	45.7	32.6		41.8	33.9		40.5	46.2	38.9	54.6	51.3	43.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.93	0.92	1.00
Incremental Delay, d2	33.6	11.3		30.9	11.0		7.0	4.0	0.4	73.4	2.9	0.0
Delay (s)	79.3	43.9		72.7	44.8		47.4	50.1	39.3	124.5	50.4	43.6
Level of Service	E	D		E	D		D	D	D	F	D	D
Approach Delay (s)		47.9			47.5			48.1			58.8	
Approach LOS		D			D			D			E	

Intersection Summary					
HCM 2000 Control Delay	49.2	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.94				
Actuated Cycle Length (s)	144.0	Sum of lost time (s)		18.0	
Intersection Capacity Utilization	116.7%	ICU Level of Service		H	
Analysis Period (min)	15				

c Critical Lane Group

Timings
9: Kipling Ave. & Widdicombe Hill Blvd.

Existing - AM

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	85	35	25	90	45	990	30	15	550	75
Future Volume (vph)	85	35	25	90	45	990	30	15	550	75
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	26.0	26.0	26.0	26.0	17.0	17.0	17.0	17.0	17.0	17.0
Minimum Split (s)	34.0	34.0	34.0	34.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	34.0	34.0	110.0	110.0	110.0	110.0	110.0	110.0
Total Split (%)	23.6%	23.6%	23.6%	23.6%	76.4%	76.4%	76.4%	76.4%	76.4%	76.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		7.0		7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		30.7		30.7	101.3	101.3	101.3	101.3	101.3	101.3
Actuated g/C Ratio		0.21		0.21	0.70	0.70	0.70	0.70	0.70	0.70
v/c Ratio		0.70		0.43	0.10	0.45	0.03	0.06	0.26	0.08
Control Delay		63.2		50.6	6.1	6.5	1.4	8.6	8.5	2.6
Queue Delay		0.0		0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay		63.2		50.6	6.1	6.6	1.4	8.6	8.5	2.6
LOS		E		D	A	A	A	A	A	A
Approach Delay		63.2		50.6		6.4			7.8	
Approach LOS		E		D		A			A	

Intersection Summary			
Cycle Length: 144			
Actuated Cycle Length: 144			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 14.5		Intersection LOS: B	
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 9: Kipling Ave. & Widdicombe Hill Blvd.

HCM Signalized Intersection Capacity Analysis
9: Kipling Ave. & Widdicombe Hill Blvd.

Existing - AM

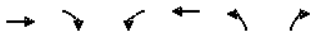
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	35	45	25	90	20	45	990	30	15	550	75
Future Volume (vph)	85	35	45	25	90	20	45	990	30	15	550	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		0.98			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00			0.99		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.96			0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1648			1756		1638	3400	1597	1500	3275	1401
Flt Permitted		0.69			0.91		0.41	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)		1169			1613		700	3400	1597	353	3275	1401
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	93	38	49	27	99	22	49	1088	33	16	604	82
RTOR Reduction (vph)	0	9	0	0	4	0	0	0	10	0	0	20
Lane Group Flow (vph)	0	171	0	0	144	0	49	1088	23	16	604	62
Confl. Peds. (#/hr)	5		30	30		5						
Heavy Vehicles (%)	5%	5%	5%	9%	2%	0%	9%	5%	0%	19%	9%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		29.7			29.7		100.3	100.3	100.3	100.3	100.3	100.3
Effective Green, g (s)		30.7			30.7		101.3	101.3	101.3	101.3	101.3	101.3
Actuated g/C Ratio		0.21			0.21		0.70	0.70	0.70	0.70	0.70	0.70
Clearance Time (s)		8.0			8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		249			343		492	2391	1123	248	2303	985
v/s Ratio Prot								c0.32			0.18	
v/s Ratio Perm		c0.15			0.09		0.07		0.01	0.05		0.04
v/c Ratio		0.68			0.42		0.10	0.46	0.02	0.06	0.26	0.06
Uniform Delay, d1		52.2			49.0		6.8	9.3	6.4	6.6	7.8	6.6
Progression Factor		1.00			1.00		0.74	0.62	0.66	1.00	1.00	1.00
Incremental Delay, d2		7.6			0.8		0.2	0.4	0.0	0.5	0.3	0.1
Delay (s)		59.8			49.8		5.3	6.2	4.2	7.1	8.0	6.7
Level of Service		E			D		A	A	A	A	A	A
Approach Delay (s)		59.8			49.8			6.1			7.9	
Approach LOS		E			D			A			A	

Intersection Summary					
HCM 2000 Control Delay		14.0	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.51			
Actuated Cycle Length (s)		144.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization		69.1%	ICU Level of Service		C
Analysis Period (min)		15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
11: Widdicombe Hill Blvd. & Hunting Ridge

Existing - AM



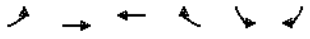
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	60	10	65	110	15	50
Future Volume (Veh/h)	60	10	65	110	15	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	66	11	71	121	16	55
Pedestrians				5		
Lane Width (m)				3.5		
Walking Speed (m/s)				1.2		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			77		334	76
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			77		334	76
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			95		97	94
cM capacity (veh/h)			1515		618	964

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	77	192	71
Volume Left	0	71	16
Volume Right	11	0	55
cSH	1700	1515	856
Volume to Capacity	0.05	0.05	0.08
Queue Length 95th (m)	0.0	1.2	2.2
Control Delay (s)	0.0	3.0	9.6
Lane LOS		A	A
Approach Delay (s)	0.0	3.0	9.6
Approach LOS			A

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	28.4%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
13: Eglinton Ave. E. & South Site Access

Existing - AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	1500	1315	15	5	35
Future Volume (Veh/h)	50	1500	1315	15	5	35
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	53	1596	1399	16	5	37
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)			107			
pX, platoon unblocked	0.76				0.76	0.76
vC, conflicting volume	1415				2311	708
vC1, stage 1 conf vol					1407	
vC2, stage 2 conf vol					904	
vCu, unblocked vol	905				2089	0
tC, single (s)	4.2				6.8	7.2
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.4
p0 queue free %	91				98	95
cM capacity (veh/h)	561				204	789

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	53	798	798	933	482	42
Volume Left	53	0	0	0	0	5
Volume Right	0	0	0	0	16	37
cSH	561	1700	1700	1700	1700	589
Volume to Capacity	0.09	0.47	0.47	0.55	0.28	0.07
Queue Length 95th (m)	2.5	0.0	0.0	0.0	0.0	1.8
Control Delay (s)	12.1	0.0	0.0	0.0	0.0	11.6
Lane LOS	B					B
Approach Delay (s)	0.4			0.0		11.6
Approach LOS						B

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	51.6%	ICU Level of Service		A
Analysis Period (min)	15			

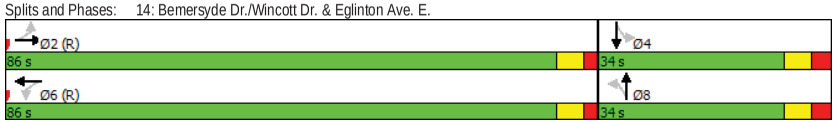
Timings
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Existing - AM

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	50	1475	15	1275	20	75	65	120
Future Volume (vph)	50	1475	15	1275	20	75	65	120
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	24.0	24.0	27.0	27.0	27.0	27.0	27.0	27.0
Minimum Split (s)	30.0	30.0	33.0	33.0	34.0	34.0	34.0	34.0
Total Split (s)	86.0	86.0	86.0	86.0	34.0	34.0	34.0	34.0
Total Split (%)	71.7%	71.7%	71.7%	71.7%	28.3%	28.3%	28.3%	28.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	81.0	81.0	81.0	81.0		28.0	28.0	28.0
Actuated g/C Ratio	0.68	0.68	0.68	0.68		0.23	0.23	0.23
v/c Ratio	0.31	0.73	0.12	0.64		0.32	0.25	0.46
Control Delay	14.0	14.9	19.8	29.4		38.3	40.4	39.7
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	14.0	14.9	19.8	29.4		38.3	40.4	39.7
LOS	B	B	B	C		D	D	D
Approach Delay		14.9		29.2		38.3		39.9
Approach LOS		B		C		D		D

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 34 (28%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 23.5		Intersection LOS: C	
Intersection Capacity Utilization 73.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Existing - AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	1475	10	15	1275	45	20	75	20	65	120	55
Future Volume (vph)	50	1475	10	15	1275	45	20	75	20	65	120	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.99			0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1783	3253		1785	3306			1768		1776	1710	
Flt Permitted	0.14	1.00		0.10	1.00			0.92		0.64	1.00	
Satd. Flow (perm)	254	3253		189	3306			1643		1190	1710	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	54	1586	11	16	1371	48	22	81	22	70	129	59
RTOR Reduction (vph)	0	0	0	0	2	0	0	6	0	0	14	0
Lane Group Flow (vph)	54	1597	0	16	1417	0	0	119	0	70	174	0
Confl. Peds. (#/hr)	5		15	15		5	5		5	5		5
Heavy Vehicles (%)	0%	7%	0%	0%	5%	4%	0%	1%	10%	0%	6%	0%
Bus Blockages (#/hr)	0	12	0	0	11	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	80.0	80.0		80.0	80.0			27.0		27.0	27.0	
Effective Green, g (s)	81.0	81.0		81.0	81.0			28.0		28.0	28.0	
Actuated g/C Ratio	0.68	0.68		0.68	0.68			0.23		0.23	0.23	
Clearance Time (s)	6.0	6.0		6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	171	2195		127	2231			383		277	399	
v/s Ratio Prot		c0.49			0.43						c0.10	
v/s Ratio Perm	0.21			0.08				0.07		0.06		
v/c Ratio	0.32	0.73		0.13	0.64			0.31		0.25	0.44	
Uniform Delay, d1	8.1	12.5		6.9	11.1			38.0		37.5	39.3	
Progression Factor	1.00	1.00		2.42	2.53			1.00		1.00	1.00	
Incremental Delay, d2	4.8	2.2		1.2	0.9			0.5		0.5	0.8	
Delay (s)	12.8	14.6		18.0	28.9			38.5		38.0	40.0	
Level of Service	B	B		B	C			D		D	D	
Approach Delay (s)		14.5			28.8			38.5			39.5	
Approach LOS		B			C			D			D	

Intersection Summary					
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.65				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0		
Intersection Capacity Utilization	73.5%	ICU Level of Service	D		
Analysis Period (min)	15				
c Critical Lane Group					

HCM Unsignalized Intersection Capacity Analysis
15: Wincott Dr. & Hunting Ridge

Existing - AM

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	35	35	95	140	145
Future Volume (Veh/h)	85	35	35	95	140	145
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)	92	38	38	103	152	158
Pedestrians	10					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	420	241	320			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	420	241	320			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	84	95	97			
cM capacity (veh/h)	571	791	1241			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	130	141	310
Volume Left	92	38	0
Volume Right	38	0	158
cSH	622	1241	1700
Volume to Capacity	0.21	0.03	0.18
Queue Length 95th (m)	6.3	0.8	0.0
Control Delay (s)	12.3	2.3	0.0
Lane LOS	B	A	
Approach Delay (s)	12.3	2.3	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		3.3		
Intersection Capacity Utilization		40.5%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
17: Wincott Dr. & SE Site Access/Waterford Dr.

Existing - AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	30	25	40	20	15	35	85	45	5	175	30
Future Volume (vph)	35	30	25	40	20	15	35	85	45	5	175	30
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	46	39	33	53	26	20	46	112	59	7	230	39

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	118	99	217	276
Volume Left (vph)	46	53	46	7
Volume Right (vph)	33	20	59	39
Hadj (s)	-0.07	0.06	-0.08	-0.02
Departure Headway (s)	5.2	5.3	4.8	4.7
Degree Utilization, x	0.17	0.15	0.29	0.36
Capacity (veh/h)	624	603	713	719
Control Delay (s)	9.2	9.3	9.7	10.4
Approach Delay (s)	9.2	9.3	9.7	10.4
Approach LOS	A	A	A	B

Intersection Summary				
Delay		9.8		
Level of Service		A		
Intersection Capacity Utilization		40.8%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
20: Bemersyde Dr. & Oldham Rd.

Existing - AM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	10	155	0	5	125
Future Volume (Veh/h)	5	10	155	0	5	125
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	11	170	0	5	137
Pedestrians	5					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						79
pX, platoon unblocked	0.95					
vC, conflicting volume	322	175			175	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	263	175			175	
tC, single (s)	6.4	6.3			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.4	
p0 queue free %	99	99			100	
cM capacity (veh/h)	690	842			1269	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	16	170	142
Volume Left	5	0	5
Volume Right	11	0	0
cSH	788	1700	1269
Volume to Capacity	0.02	0.10	0.00
Queue Length 95th (m)	0.5	0.0	0.1
Control Delay (s)	9.7	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	0.3
Approach LOS	A		

Intersection Summary				
Average Delay		0.6		
Intersection Capacity Utilization		20.6%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
25: Wincott Dr. & NE Site Access

Existing - AM

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	20	25	110	190	20
Future Volume (Veh/h)	15	20	25	110	190	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	22	28	122	211	22
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	400	222	233			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	400	222	233			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	97	98			
cM capacity (veh/h)	593	818	1335			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	39	150	233
Volume Left	17	28	0
Volume Right	22	0	22
cSH	702	1335	1700
Volume to Capacity	0.06	0.02	0.14
Queue Length 95th (m)	1.4	0.5	0.0
Control Delay (s)	10.4	1.6	0.0
Lane LOS	B	A	
Approach Delay (s)	10.4	1.6	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		1.5		
Intersection Capacity Utilization		31.7%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
26: Widdicombe Hill Blvd. & NW Site Access

Existing - AM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	15	50	45	15	60
Future Volume (Veh/h)	30	15	50	45	15	60
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	17	56	50	17	67
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			330			
pX, platoon unblocked						
vC, conflicting volume	182	81			106	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	182	81			106	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	98			99	
cM capacity (veh/h)	798	979			1485	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	50	106	84
Volume Left	33	0	17
Volume Right	17	50	0
cSH	852	1700	1485
Volume to Capacity	0.06	0.06	0.01
Queue Length 95th (m)	1.5	0.0	0.3
Control Delay (s)	9.5	0.0	1.6
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	1.6
Approach LOS	A		

Intersection Summary				
Average Delay		2.5		
Intersection Capacity Utilization		20.7%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
29: Wincott Dr. & 265 Wincott Dr. Plaza South

Existing - AM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	0	150	20	15	235
Future Volume (Veh/h)	5	0	150	20	15	235
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	0	167	22	17	261
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			72			
pX, platoon unblocked	0.97	0.97			0.97	
vC, conflicting volume	473	178			189	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	445	141			153	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			99	
cM capacity (veh/h)	549	882			1389	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	6	189	278
Volume Left	6	0	17
Volume Right	0	22	0
cSH	549	1700	1389
Volume to Capacity	0.01	0.11	0.01
Queue Length 95th (m)	0.3	0.0	0.3
Control Delay (s)	11.6	0.0	0.6
Lane LOS	B		A
Approach Delay (s)	11.6	0.0	0.6
Approach LOS	B		

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		34.7%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
31: Wincott Dr. & 265 Wincott Dr. Plaza North

Existing - AM

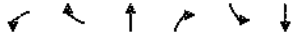
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	15	150	0	5	235
Future Volume (Veh/h)	15	15	150	0	5	235
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	17	167	0	6	261
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			
pX, platoon unblocked						
vC, conflicting volume	440	167			167	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440	167			167	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	98			100	
cM capacity (veh/h)	572	877			1411	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	34	167	267
Volume Left	17	0	6
Volume Right	17	0	0
cSH	692	1700	1411
Volume to Capacity	0.05	0.10	0.00
Queue Length 95th (m)	1.2	0.0	0.1
Control Delay (s)	10.5	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	10.5	0.0	0.2
Approach LOS	B		

Intersection Summary				
Average Delay		0.9		
Intersection Capacity Utilization		26.4%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
20: Bemersyde Dr. & Oldham Rd.

Existing - PM



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	5	135	0	5	130
Future Volume (Veh/h)	0	5	135	0	5	130
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	5	145	0	5	140
Pedestrians	15					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						79
pX, platoon unblocked	0.95					
vC, conflicting volume	310	160			160	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	247	160			160	
tC, single (s)	6.4	6.5			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.6			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	697	809			1414	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	145	145
Volume Left	0	0	5
Volume Right	5	0	0
cSH	809	1700	1414
Volume to Capacity	0.01	0.09	0.00
Queue Length 95th (m)	0.1	0.0	0.1
Control Delay (s)	9.5	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	0.3
Approach LOS	A		

Intersection Summary				
Average Delay		0.3		
Intersection Capacity Utilization		20.9%	ICU Level of Service	A
Analysis Period (min)		15		

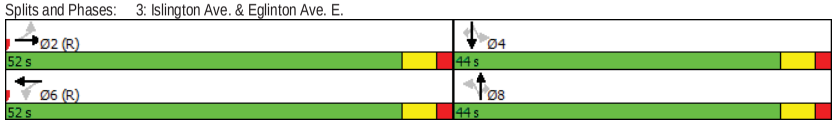
Timings
3: Islington Ave. & Eglinton Ave. E.

Future Total - Phase 1- Base - SAT

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	105	1220	105	1130	100	595	110	75	535	120
Future Volume (vph)	105	1220	105	1130	100	595	110	75	535	120
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2		6		8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	2	2	6	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	30.0	30.0	30.0	30.0	27.0	27.0	27.0	27.0	27.0	27.0
Minimum Split (s)	36.0	36.0	36.0	36.0	33.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	52.0	52.0	52.0	52.0	44.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	54.2%	54.2%	54.2%	54.2%	45.8%	45.8%	45.8%	45.8%	45.8%	45.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	56.8	56.8	56.8	56.8	29.2	29.2	29.2	29.2	29.2	29.2
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.30	0.30	0.30	0.30	0.30	0.30
v/c Ratio	0.64	0.67	0.76	0.61	0.57	0.59	0.24	0.49	0.53	0.25
Control Delay	29.9	14.0	51.6	14.3	41.2	30.7	18.4	38.6	29.7	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	14.0	51.6	14.3	41.2	30.7	18.4	38.6	29.7	17.6
LOS	C	B	D	B	D	C	B	D	C	B
Approach Delay		15.2		17.3		30.3			28.6	
Approach LOS		B		B		C			C	

Intersection Summary			
Cycle Length: 96			
Actuated Cycle Length: 96			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 21.0		Intersection LOS: C	
Intersection Capacity Utilization 123.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 3: Islington Ave. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
3: Islington Ave. & Eglinton Ave. E.

Future Total - Phase 1- Base - SAT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	1220	85	105	1130	70	100	595	110	75	535	120
Future Volume (vph)	105	1220	85	105	1130	70	100	595	110	75	535	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1731	3411		1765	3427		1756	3437	1498	1765	3417	1522
Flt Permitted	0.16	1.00		0.13	1.00		0.33	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)	287	3411		241	3427		602	3437	1498	524	3417	1522
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	108	1258	88	108	1165	72	103	613	113	77	552	124
RTOR Reduction (vph)	0	4	0	0	4	0	0	0	24	0	0	29
Lane Group Flow (vph)	108	1342	0	108	1233	0	103	613	89	77	552	95
Confl. Peds. (#/hr)	10		15	15		10	15		30	30		15
Heavy Vehicles (%)	3%	2%	2%	1%	2%	0%	1%	2%	2%	0%	3%	2%
Bus Blockages (#/hr)	0	7	0	0	6	0	0	9	0	0	7	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	55.8	55.8		55.8	55.8		28.2	28.2	28.2	28.2	28.2	28.2
Effective Green, g (s)	56.8	56.8		56.8	56.8		29.2	29.2	29.2	29.2	29.2	29.2
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.30	0.30	0.30	0.30	0.30	0.30
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	169	2018		142	2027		183	1045	455	159	1039	462
v/s Ratio Prot		0.39			0.36			c0.18			0.16	
v/s Ratio Perm	0.38			c0.45			0.17		0.06	0.15		0.06
v/c Ratio	0.64	0.66		0.76	0.61		0.56	0.59	0.20	0.48	0.53	0.21
Uniform Delay, d1	12.9	13.2		14.6	12.5		28.0	28.3	24.7	27.3	27.7	24.8
Progression Factor	0.94	0.92		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.1	1.3		31.2	1.4		3.9	0.8	0.2	2.3	0.5	0.2
Delay (s)	25.2	13.5		45.8	13.9		32.0	29.1	24.9	29.6	28.2	25.0
Level of Service	C	B		D	B		C	C	C	C	C	C
Approach Delay (s)		14.4			16.4			28.9			27.8	
Approach LOS		B			B			C			C	

Intersection Summary					
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.70				
Actuated Cycle Length (s)	96.0	Sum of lost time (s)		10.0	
Intersection Capacity Utilization	123.2%	ICU Level of Service		H	
Analysis Period (min)	15				
c Critical Lane Group					

Timings
6: Kipling Ave. & Eglinton Ave. E.

Future Total - Phase 1- Base - SAT

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	120	1325	125	1205	100	405	100	35	350	60
Future Volume (vph)	120	1325	125	1205	100	405	100	35	350	60
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	33.0	6.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Minimum Split (s)	10.0	40.0	10.0	40.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (s)	10.0	74.0	10.0	74.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	8.3%	61.7%	8.3%	61.7%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	None	C-Max	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	78.0	68.0	78.0	68.0	30.0	30.0	30.0	30.0	30.0	30.0
Actuated g/C Ratio	0.65	0.57	0.65	0.57	0.25	0.25	0.25	0.25	0.25	0.25
v/c Ratio	0.67	0.84	0.85	0.74	0.60	0.54	0.26	0.24	0.47	0.16
Control Delay	27.3	26.5	62.8	22.1	54.4	41.8	15.5	34.9	33.7	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.3	26.5	62.8	22.1	54.4	41.8	15.5	34.9	33.7	5.1
LOS	C	C	E	C	D	D	B	C	C	A
Approach Delay		26.6		25.8		39.5			30.0	
Approach LOS		C		C		D			C	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 50 (42%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 28.6		Intersection LOS: C	
Intersection Capacity Utilization 114.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 6: Kipling Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
6: Kipling Ave. & Eglinton Ave. E.

Future Total - Phase 1- Base - SAT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	1325	115	125	1205	70	100	405	100	35	350	60
Future Volume (vph)	120	1325	115	125	1205	70	100	405	100	35	350	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1785	3458		1785	3495		1774	3458	1568	1780	3417	1558
Flt Permitted	0.09	1.00		0.06	1.00		0.41	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)	174	3458		111	3495		770	3458	1568	660	3417	1558
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	138	1523	132	144	1385	80	115	466	115	40	402	69
RTOR Reduction (vph)	0	5	0	0	3	0	0	0	58	0	0	52
Lane Group Flow (vph)	138	1650	0	144	1462	0	115	466	57	40	402	17
Confl. Peds. (#/hr)	5		20	20		5	10		5	5		10
Heavy Vehicles (%)	0%	0%	4%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Bus Blockages (#/hr)	0	7	0	0	6	0	0	6	0	0	7	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	73.0	67.0		73.0	67.0		29.0	29.0	29.0	29.0	29.0	29.0
Effective Green, g (s)	75.0	68.0		75.0	68.0		30.0	30.0	30.0	30.0	30.0	30.0
Actuated g/C Ratio	0.62	0.57		0.62	0.57		0.25	0.25	0.25	0.25	0.25	0.25
Clearance Time (s)	4.0	7.0		4.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	202	1959		167	1980		192	864	392	165	854	389
v/s Ratio Prot	0.04	0.48		c0.05	0.42			0.13			0.12	
v/s Ratio Perm	0.39			c0.49			c0.15		0.04	0.06		0.01
v/c Ratio	0.68	0.84		0.86	0.74		0.60	0.54	0.15	0.24	0.47	0.04
Uniform Delay, d1	16.8	21.6		29.5	19.4		39.7	39.0	35.0	35.9	38.3	34.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.85	0.83	0.58
Incremental Delay, d2	9.2	4.6		33.9	2.5		5.0	0.7	0.2	0.8	0.4	0.0
Delay (s)	26.0	26.2		63.4	21.9		44.7	39.7	35.2	31.2	32.0	20.0
Level of Service	C	C		E	C		D	D	D	C	C	C
Approach Delay (s)		26.1			25.6			39.7			30.3	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	114.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Timings
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Total - Phase 1- Base - SAT

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	50	40	20	45	35	530	35	25	420	45
Future Volume (vph)	50	40	20	45	35	530	35	25	420	45
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	26.0	26.0	26.0	26.0	17.0	17.0	17.0	17.0	17.0	17.0
Minimum Split (s)	34.0	34.0	34.0	34.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	34.0	34.0	86.0	86.0	86.0	86.0	86.0	86.0
Total Split (%)	28.3%	28.3%	28.3%	28.3%	71.7%	71.7%	71.7%	71.7%	71.7%	71.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		7.0		7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		27.0		27.0	81.0	81.0	81.0	81.0	81.0	81.0
Actuated g/C Ratio		0.22		0.22	0.68	0.68	0.68	0.68	0.68	0.68
v/c Ratio		0.39		0.26	0.07	0.26	0.04	0.06	0.21	0.05
Control Delay		40.0		35.7	3.1	3.2	0.1	7.0	7.6	1.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		40.0		35.7	3.1	3.2	0.1	7.0	7.6	1.9
LOS		D		D	A	A	A	A	A	A
Approach Delay		40.0		35.7		3.0			7.1	
Approach LOS		D		D		A			A	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 10.0		Intersection LOS: B	
Intersection Capacity Utilization 64.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 9: Kipling Ave. & Widdicombe Hill Blvd.

HCM Signalized Intersection Capacity Analysis
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Total - Phase 1- Base - SAT

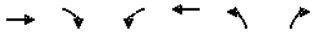
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	40	25	20	45	20	35	530	35	25	420	45
Future Volume (vph)	50	40	25	20	45	20	35	530	35	25	420	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		0.99			1.00		1.00	1.00	0.96	1.00	1.00	0.95
Flpb, ped/bikes		1.00			1.00		0.98	1.00	1.00	0.99	1.00	1.00
Frt		0.97			0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1749			1782		1754	3500	1537	1773	3466	1510
Flt Permitted		0.83			0.90		0.47	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)		1481			1630		864	3500	1537	753	3466	1510
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	57	46	29	23	52	23	40	609	40	29	483	52
RTOR Reduction (vph)	0	9	0	0	9	0	0	0	13	0	0	17
Lane Group Flow (vph)	0	123	0	0	89	0	40	609	27	29	483	35
Confl. Peds. (#/hr)	5		20	20		5	10		5	5		10
Heavy Vehicles (%)	0%	0%	4%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		26.0			26.0		80.0	80.0	80.0	80.0	80.0	80.0
Effective Green, g (s)		27.0			27.0		81.0	81.0	81.0	81.0	81.0	81.0
Actuated g/C Ratio		0.22			0.22		0.68	0.68	0.68	0.68	0.68	0.68
Clearance Time (s)		8.0			8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		333			366		583	2362	1037	508	2339	1019
v/s Ratio Prot								c0.17			0.14	
v/s Ratio Perm		c0.08			0.05		0.05		0.02	0.04		0.02
v/c Ratio		0.37			0.24		0.07	0.26	0.03	0.06	0.21	0.03
Uniform Delay, d1		39.3			38.1		6.6	7.7	6.5	6.6	7.4	6.5
Progression Factor		1.00			1.00		0.42	0.39	0.00	1.00	1.00	1.00
Incremental Delay, d2		0.7			0.3		0.2	0.2	0.0	0.2	0.2	0.1
Delay (s)		40.0			38.5		3.0	3.2	0.0	6.8	7.6	6.6
Level of Service		D			D		A	A	A	A	A	A
Approach Delay (s)		40.0			38.5			3.0			7.4	
Approach LOS		D			D			A			A	

Intersection Summary					
HCM 2000 Control Delay		10.3	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.29			
Actuated Cycle Length (s)		120.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization		64.2%	ICU Level of Service		C
Analysis Period (min)		15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
11: Widdicombe Hill Blvd. & Hunting Ridge

Future Total - Phase 1- Base - SAT



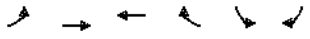
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	35	10	20	35	30	35
Future Volume (Veh/h)	35	10	20	35	30	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	45	13	26	45	39	45
Pedestrians						
Lane Width (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			58		148	52
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			58		148	52
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		95	96
cM capacity (veh/h)			1559		834	1022

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	58	71	84
Volume Left	0	26	39
Volume Right	13	0	45
cSH	1700	1559	925
Volume to Capacity	0.03	0.02	0.09
Queue Length 95th (m)	0.0	0.4	2.4
Control Delay (s)	0.0	2.8	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	2.8	9.3
Approach LOS			A

Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	20.1%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
13: Eglinton Ave. E. & South Site Access

Future Total - Phase 1- Base - SAT



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	1395	1330	30	20	90
Future Volume (Veh/h)	90	1395	1330	30	20	90
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	92	1423	1357	31	20	92
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)			107			
pX, platoon unblocked	0.71				0.71	0.71
vC, conflicting volume	1388				2268	694
vC1, stage 1 conf vol					1372	
vC2, stage 2 conf vol					896	
vCu, unblocked vol	745				1976	0
tC, single (s)	4.1				6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)	2.2				3.5	3.3
p0 queue free %	85				90	88
cM capacity (veh/h)	623				209	780

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	92	712	712	905	483	112
Volume Left	92	0	0	0	0	20
Volume Right	0	0	0	0	31	92
cSH	623	1700	1700	1700	1700	524
Volume to Capacity	0.15	0.42	0.42	0.53	0.28	0.21
Queue Length 95th (m)	4.1	0.0	0.0	0.0	0.0	6.4
Control Delay (s)	11.8	0.0	0.0	0.0	0.0	13.7
Lane LOS	B					B
Approach Delay (s)	0.7			0.0		13.7
Approach LOS						B

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	59.4%	ICU Level of Service		B
Analysis Period (min)	15			

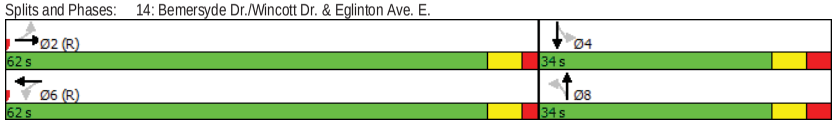
Timings
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - Phase 1- Base - SAT

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	70	1330	15	1265	15	40	75	60
Future Volume (vph)	70	1330	15	1265	15	40	75	60
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Minimum Split (s)	30.0	30.0	30.0	30.0	34.0	34.0	34.0	34.0
Total Split (s)	62.0	62.0	62.0	62.0	34.0	34.0	34.0	34.0
Total Split (%)	64.6%	64.6%	64.6%	64.6%	35.4%	35.4%	35.4%	35.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	57.0	57.0	57.0	57.0		28.0	28.0	28.0
Actuated g/C Ratio	0.59	0.59	0.59	0.59		0.29	0.29	0.29
v/c Ratio	0.58	0.69	0.12	0.70		0.15	0.21	0.29
Control Delay	35.4	15.5	6.1	11.8		21.6	27.5	18.4
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	35.4	15.5	6.1	11.8		21.6	27.5	18.4
LOS	D	B	A	B		C	C	B
Approach Delay		16.5		11.8		21.6		21.5
Approach LOS		B		B		C		C

Intersection Summary			
Cycle Length: 96			
Actuated Cycle Length: 96			
Offset: 34 (35%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 14.9		Intersection LOS: B	
Intersection Capacity Utilization 89.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - Phase 1- Base - SAT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	1330	15	15	1265	95	15	40	15	75	60	85
Future Volume (vph)	70	1330	15	15	1265	95	15	40	15	75	60	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.99			0.97		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1766	3443		1777	3415			1785		1742	1676	
Flt Permitted	0.11	1.00		0.12	1.00			0.93		0.71	1.00	
Satd. Flow (perm)	212	3443		220	3415			1671		1300	1676	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	73	1385	16	16	1318	99	16	42	16	78	62	89
RTOR Reduction (vph)	0	1	0	0	6	0	0	11	0	0	38	0
Lane Group Flow (vph)	73	1400	0	16	1411	0	0	63	0	78	114	0
Confl. Peds. (#/hr)	5		30	30		5	25		15	15		25
Heavy Vehicles (%)	1%	2%	0%	0%	2%	2%	0%	0%	0%	1%	0%	0%
Bus Blockages (#/hr)	0	7	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	56.0	56.0		56.0	56.0			27.0		27.0	27.0	
Effective Green, g (s)	57.0	57.0		57.0	57.0			28.0		28.0	28.0	
Actuated g/C Ratio	0.59	0.59		0.59	0.59			0.29		0.29	0.29	
Clearance Time (s)	6.0	6.0		6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	125	2044		130	2027			487		379	488	
v/s Ratio Prot		0.41			c0.41						c0.07	
v/s Ratio Perm	0.34			0.07				0.04		0.06		
v/c Ratio	0.58	0.69		0.12	0.70			0.13		0.21	0.23	
Uniform Delay, d1	12.1	13.4		8.5	13.5			25.0		25.6	25.8	
Progression Factor	1.00	1.00		0.48	0.74			1.00		1.00	1.00	
Incremental Delay, d2	18.4	1.9		1.6	1.7			0.1		0.3	0.2	
Delay (s)	30.5	15.2		5.7	11.7			25.2		25.9	26.1	
Level of Service	C	B		A	B			C		C	C	
Approach Delay (s)		16.0			11.6			25.2			26.0	
Approach LOS		B			B			C			C	

Intersection Summary					
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.54				
Actuated Cycle Length (s)	96.0	Sum of lost time (s)		11.0	
Intersection Capacity Utilization	89.8%	ICU Level of Service		E	
Analysis Period (min)	15				
c Critical Lane Group					

HCM Unsignalized Intersection Capacity Analysis
15: Wincott Dr. & Hunting Ridge

Future Total - Phase 1- Base - SAT

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	30	20	125	105	45
Future Volume (Veh/h)	45	30	20	125	105	45
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	49	33	22	137	115	49
Pedestrians	15					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	336	154	179			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	336	154	179			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	96	98			
cM capacity (veh/h)	645	886	1392			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	82	159	164
Volume Left	49	22	0
Volume Right	33	0	49
cSH	725	1392	1700
Volume to Capacity	0.11	0.02	0.10
Queue Length 95th (m)	3.0	0.4	0.0
Control Delay (s)	10.6	1.2	0.0
Lane LOS	B	A	
Approach Delay (s)	10.6	1.2	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		2.6		
Intersection Capacity Utilization		32.5%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
17: Wincott Dr. & SE South Access/Waterford Dr.

Future Total - Phase 1- Base - SAT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	55	45	80	30	35	5	80	95	25	10	110	60
Future Volume (vph)	55	45	80	30	35	5	80	95	25	10	110	60
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)	60	49	87	33	38	5	87	103	27	11	120	65

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	196	76	217	196
Volume Left (vph)	60	33	87	11
Volume Right (vph)	87	5	27	65
Hadj (s)	-0.21	0.05	0.02	-0.18
Departure Headway (s)	4.8	5.2	4.9	4.7
Degree Utilization, x	0.26	0.11	0.29	0.26
Capacity (veh/h)	685	614	696	712
Control Delay (s)	9.5	8.9	9.9	9.3
Approach Delay (s)	9.5	8.9	9.9	9.3
Approach LOS	A	A	A	A

Intersection Summary				
Delay		9.5		
Level of Service		A		
Intersection Capacity Utilization		46.4%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
20: Bemersyde Dr. & Oldham Rd.

Future Total - Phase 1- Base - SAT

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	5	90	0	5	85
Future Volume (Veh/h)	0	5	90	0	5	85
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	6	103	0	6	98
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						79
pX, platoon unblocked						
vC, conflicting volume	213	103			103	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	213	103			103	
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	99			100	
cM capacity (veh/h)	777	957			1502	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	6	103	104
Volume Left	0	0	6
Volume Right	6	0	0
cSH	957	1700	1502
Volume to Capacity	0.01	0.06	0.00
Queue Length 95th (m)	0.2	0.0	0.1
Control Delay (s)	8.8	0.0	0.5
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	0.5
Approach LOS	A		

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		18.6%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
25: Wincott Dr. & NE Site Access

Future Total - Phase 1- Base - SAT

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	35	30	125	120	20
Future Volume (Veh/h)	20	35	30	125	120	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	22	39	33	139	133	22
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	349	144	155			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	349	144	155			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	96	98			
cM capacity (veh/h)	633	903	1425			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	61	172	155
Volume Left	22	33	0
Volume Right	39	0	22
cSH	783	1425	1700
Volume to Capacity	0.08	0.02	0.09
Queue Length 95th (m)	2.0	0.6	0.0
Control Delay (s)	10.0	1.6	0.0
Lane LOS	A	A	
Approach Delay (s)	10.0	1.6	0.0
Approach LOS	A		

Intersection Summary				
Average Delay		2.3		
Intersection Capacity Utilization		29.1%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
26: Widdicombe Hill Blvd. & NW Site Access

Future Total - Phase 1- Base - SAT

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	45	25	40	55	10	20
Future Volume (Veh/h)	45	25	40	55	10	20
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	50	28	44	61	11	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			330			
pX, platoon unblocked						
vC, conflicting volume	118	74			105	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	118	74			105	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	97			99	
cM capacity (veh/h)	871	987			1486	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	78	105	33
Volume Left	50	0	11
Volume Right	28	61	0
cSH	909	1700	1486
Volume to Capacity	0.09	0.06	0.01
Queue Length 95th (m)	2.2	0.0	0.2
Control Delay (s)	9.3	0.0	2.5
Lane LOS	A		A
Approach Delay (s)	9.3	0.0	2.5
Approach LOS	A		

Intersection Summary				
Average Delay		3.8		
Intersection Capacity Utilization		19.0%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
29: Wincott Dr. & 265 Wincott Dr. Plaza South

Future Total - Phase 1- Base - SAT

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	5	180	25	15	210
Future Volume (Veh/h)	10	5	180	25	15	210
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	6	200	28	17	233
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			72			
pX, platoon unblocked	1.00	1.00			1.00	
vC, conflicting volume	481	214			228	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	480	213			227	
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	99			99	
cM capacity (veh/h)	537	827			1340	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	228	250
Volume Left	11	0	17
Volume Right	6	28	0
cSH	613	1700	1340
Volume to Capacity	0.03	0.13	0.01
Queue Length 95th (m)	0.7	0.0	0.3
Control Delay (s)	11.0	0.0	0.6
Lane LOS	B		A
Approach Delay (s)	11.0	0.0	0.6
Approach LOS	B		

Intersection Summary				
Average Delay		0.7		
Intersection Capacity Utilization		33.4%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
31: Wincott Dr. & 265 Wincott Dr. Plaza North

Future Total - Phase 1- Base - SAT

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	20	185	0	5	200
Future Volume (Veh/h)	25	20	185	0	5	200
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	22	206	0	6	222
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			
pX, platoon unblocked						
vC, conflicting volume	440	206			206	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440	206			206	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	97			100	
cM capacity (veh/h)	572	835			1365	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	50	206	228
Volume Left	28	0	6
Volume Right	22	0	0
cSH	664	1700	1365
Volume to Capacity	0.08	0.12	0.00
Queue Length 95th (m)	1.9	0.0	0.1
Control Delay (s)	10.9	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	10.9	0.0	0.2
Approach LOS	B		

Intersection Summary				
Average Delay		1.2		
Intersection Capacity Utilization		24.5%	ICU Level of Service	A
Analysis Period (min)		15		

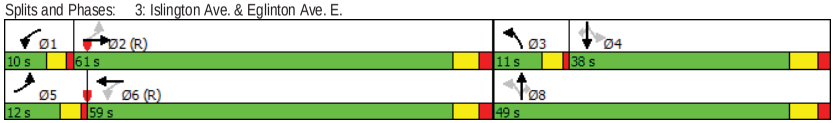
Timings
3: Islington Ave. & Eglinton Ave. E.

Future Background_AM

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	185	1435	155	1295	55	960	180	50	960	50
Future Volume (vph)	185	1435	155	1295	55	960	180	50	960	50
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6	3	8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	3	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	30.0	6.0	30.0	7.0	27.0	27.0	27.0	27.0	27.0
Minimum Split (s)	10.0	36.0	10.0	36.0	11.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	12.0	61.0	10.0	59.0	11.0	49.0	49.0	38.0	38.0	38.0
Total Split (%)	10.0%	50.8%	8.3%	49.2%	9.2%	40.8%	40.8%	31.7%	31.7%	31.7%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	Min	Min	Min	Min	Min
Act Effct Green (s)	66.7	55.5	62.7	53.5	46.3	44.3	44.3	35.5	35.5	35.5
Actuated g/C Ratio	0.56	0.46	0.52	0.45	0.39	0.37	0.37	0.30	0.30	0.30
v/c Ratio	0.97	0.93	0.98	0.94	0.33	0.80	0.33	0.66	0.97	0.10
Control Delay	84.7	30.6	89.8	45.5	29.0	39.7	19.4	79.6	63.7	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.7	30.6	89.8	45.5	29.0	39.7	19.4	79.6	63.7	0.8
LOS	F	C	F	D	C	D	B	E	E	A
Approach Delay		36.8		50.1		36.2			61.5	
Approach LOS		D		D		D			E	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 57 (48%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 45.3		Intersection LOS: D	
Intersection Capacity Utilization 107.7%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Islington Ave. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
3: Islington Ave. & Eglinton Ave. E.

Future Background_AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	1435	60	155	1295	55	55	960	180	50	960	50
Future Volume (vph)	185	1435	60	155	1295	55	55	960	180	50	960	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	*1.00		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.94	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1767	3473		1716	3330		1700	3390	1457	1639	3491	1457
Flt Permitted	0.07	1.00		0.08	1.00		0.10	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)	136	3473		137	3330		186	3390	1457	267	3491	1457
Peak-hour factor, PHF	0.96	1.00	1.00	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	193	1435	60	161	1349	57	57	1000	188	52	1000	52
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	40	0	0	37
Lane Group Flow (vph)	193	1492	0	161	1403	0	57	1000	148	52	1000	15
Confl. Peds. (#/hr)	46		64	64		46	23		37	37		23
Heavy Vehicles (%)	1%	5%	11%	4%	4%	2%	5%	3%	3%	8%	0%	5%
Bus Blockages (#/hr)	0	12	0	0	11	0	0	11	0	0	11	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	61.9	53.8		57.9	51.8		44.1	44.1	44.1	34.5	34.5	34.5
Effective Green, g (s)	63.9	54.8		59.9	52.8		45.1	45.1	45.1	35.5	35.5	35.5
Actuated g/C Ratio	0.53	0.46		0.50	0.44		0.38	0.38	0.38	0.30	0.30	0.30
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	196	1586		161	1465		153	1274	547	78	1032	431
v/s Ratio Prot	c0.07	0.43		0.06	0.42		0.02	c0.30			c0.29	
v/s Ratio Perm	c0.45			0.44			0.12		0.10	0.20		0.01
v/c Ratio	0.98	0.94		1.00	0.96		0.37	0.78	0.27	0.67	0.97	0.04
Uniform Delay, d1	34.1	31.1		30.1	32.5		28.9	33.2	26.0	37.1	41.7	30.1
Progression Factor	1.60	0.74		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	47.5	8.9		70.9	15.4		1.5	3.3	0.3	19.4	20.6	0.0
Delay (s)	102.1	31.8		101.0	47.9		30.4	36.4	26.3	56.5	62.3	30.1
Level of Service	F	C		F	D		C	D	C	E	E	C
Approach Delay (s)		39.8			53.4			34.6			60.5	
Approach LOS		D			D			C			E	

Intersection Summary				
HCM 2000 Control Delay	46.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.99			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	107.7%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Timings
6: Kipling Ave. & Eglinton Ave. E.

Future Background_AM

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	195	1485	160	1460	125	705	150	70	480	35
Future Volume (vph)	195	1485	160	1460	125	705	150	70	480	35
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2	1	6	3	8		7	4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	6.0	33.0	6.0	33.0	6.0	29.0	29.0	6.0	29.0	29.0
Minimum Split (s)	10.0	40.0	10.0	40.0	10.0	36.0	36.0	10.0	36.0	36.0
Total Split (s)	16.0	82.0	14.0	80.0	10.0	38.0	38.0	10.0	38.0	38.0
Total Split (%)	11.1%	56.9%	9.7%	55.6%	6.9%	26.4%	26.4%	6.9%	26.4%	26.4%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	Min	Min	None	Min	Min
Act Effct Green (s)	92.0	76.0	88.0	74.0	42.0	32.0	32.0	42.0	32.0	32.0
Actuated g/C Ratio	0.64	0.53	0.61	0.51	0.29	0.22	0.22	0.29	0.22	0.22
v/c Ratio	1.01	0.97	0.96	1.03	0.68	1.04	0.43	0.60	0.71	0.11
Control Delay	105.8	48.3	94.8	63.2	57.6	98.4	25.1	63.9	53.0	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.8	48.3	94.8	63.2	57.6	98.4	25.1	63.9	53.0	1.7
LOS	F	D	F	E	E	F	C	E	D	A
Approach Delay		54.8		66.1		82.0			51.2	
Approach LOS		D		E		F			D	

Intersection Summary			
Cycle Length: 144			
Actuated Cycle Length: 144			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 63.6		Intersection LOS: E	
Intersection Capacity Utilization 103.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 6: Kipling Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
6: Kipling Ave. & Eglinton Ave. E.

Future Background_AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	1485	60	160	1460	145	125	705	150	70	480	35
Future Volume (vph)	195	1485	60	160	1460	145	125	705	150	70	480	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0	6.0	3.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	0.90	1.00	1.00	0.83
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1716	3250		1684	3266		1744	3274	1355	1550	3272	1285
Flt Permitted	0.05	1.00		0.05	1.00		0.26	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)	95	3250		96	3266		479	3274	1355	204	3272	1285
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	210	1597	65	172	1570	156	134	758	161	75	516	38
RTOR Reduction (vph)	0	2	0	0	5	0	0	0	71	0	0	30
Lane Group Flow (vph)	210	1660	0	172	1721	0	134	758	90	75	516	8
Confl. Peds. (#/hr)	50		40	40		50	107		48	48		107
Confl. Bikes (#/hr)			5			2			21			4
Heavy Vehicles (%)	4%	6%	14%	6%	4%	12%	1%	6%	6%	15%	8%	3%
Bus Blockages (#/hr)	0	12	0	0	11	0	0	14	0	0	5	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	87.0	75.0		83.0	73.0		37.0	31.0	31.0	37.0	31.0	31.0
Effective Green, g (s)	89.0	76.0		85.0	74.0		39.0	32.0	32.0	39.0	32.0	32.0
Actuated g/C Ratio	0.62	0.53		0.59	0.51		0.27	0.22	0.22	0.27	0.22	0.22
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	205	1715		177	1678		191	727	301	120	727	285
v/s Ratio Prot	c0.09	0.51		0.07	0.53		c0.03	c0.23		0.03	0.16	
v/s Ratio Perm	c0.54			0.50			0.16		0.07	0.14		0.01
v/c Ratio	1.02	0.97		0.97	1.03		0.70	1.04	0.30	0.62	0.71	0.03
Uniform Delay, d1	49.4	32.8		45.3	35.0		44.8	56.0	46.7	42.7	51.7	43.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.19	0.91	1.00
Incremental Delay, d2	69.3	15.4		59.0	28.7		11.1	45.0	0.6	9.5	3.1	0.0
Delay (s)	118.7	48.2		104.3	63.7		55.9	101.0	47.2	60.3	50.1	43.9
Level of Service	F	D		F	E		E	F	D	E	D	D
Approach Delay (s)		56.1			67.4			87.0			50.9	
Approach LOS		E			E			F			D	

Intersection Summary				
HCM 2000 Control Delay	65.4	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.03			
Actuated Cycle Length (s)	144.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	103.9%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Timings
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Background_AM

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	85	35	25	90	45	1010	40	15	550	75
Future Volume (vph)	85	35	25	90	45	1010	40	15	550	75
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	26.0	26.0	26.0	26.0	17.0	17.0	17.0	17.0	17.0	17.0
Minimum Split (s)	34.0	34.0	34.0	34.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	34.0	34.0	110.0	110.0	110.0	110.0	110.0	110.0
Total Split (%)	23.6%	23.6%	23.6%	23.6%	76.4%	76.4%	76.4%	76.4%	76.4%	76.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		7.0		7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		30.7		30.7	101.3	101.3	101.3	101.3	101.3	101.3
Actuated g/C Ratio		0.21		0.21	0.70	0.70	0.70	0.70	0.70	0.70
v/c Ratio		0.70		0.43	0.10	0.46	0.04	0.07	0.26	0.08
Control Delay		63.2		50.6	3.1	3.6	0.0	8.7	8.5	2.6
Queue Delay		0.0		0.0	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay		63.2		50.6	3.1	4.1	0.0	8.7	8.5	2.6
LOS		E		D	A	A	A	A	A	A
Approach Delay		63.2		50.6		3.9			7.8	
Approach LOS		E		D		A			A	

Intersection Summary			
Cycle Length: 144			
Actuated Cycle Length: 144			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 13.0		Intersection LOS: B	
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 9: Kipling Ave. & Widdicombe Hill Blvd.

HCM Signalized Intersection Capacity Analysis
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Background_AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	35	45	25	90	20	45	1010	40	15	550	75
Future Volume (vph)	85	35	45	25	90	20	45	1010	40	15	550	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		0.98			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00			0.99		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.96			0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1648			1756		1638	3400	1597	1500	3275	1401
Flt Permitted		0.69			0.91		0.41	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)		1169			1613		700	3400	1597	343	3275	1401
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	93	38	49	27	99	22	49	1110	44	16	604	82
RTOR Reduction (vph)	0	9	0	0	4	0	0	0	11	0	0	20
Lane Group Flow (vph)	0	171	0	0	144	0	49	1110	33	16	604	62
Confl. Peds. (#/hr)	5		30	30		5						
Heavy Vehicles (%)	5%	5%	5%	9%	2%	0%	9%	5%	0%	19%	9%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		29.7			29.7		100.3	100.3	100.3	100.3	100.3	100.3
Effective Green, g (s)		30.7			30.7		101.3	101.3	101.3	101.3	101.3	101.3
Actuated g/C Ratio		0.21			0.21		0.70	0.70	0.70	0.70	0.70	0.70
Clearance Time (s)		8.0			8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		249			343		492	2391	1123	241	2303	985
v/s Ratio Prot								c0.33			0.18	
v/s Ratio Perm		c0.15			0.09		0.07		0.02	0.05		0.04
v/c Ratio		0.68			0.42		0.10	0.46	0.03	0.07	0.26	0.06
Uniform Delay, d1		52.2			49.0		6.8	9.4	6.5	6.6	7.8	6.6
Progression Factor		1.00			1.00		0.37	0.35	0.00	1.00	1.00	1.00
Incremental Delay, d2		7.6			0.8		0.1	0.2	0.0	0.5	0.3	0.1
Delay (s)		59.8			49.8		2.7	3.5	0.0	7.2	8.0	6.7
Level of Service		E			D		A	A	A	A	A	A
Approach Delay (s)		59.8			49.8			3.3			7.9	
Approach LOS		E			D			A			A	

Intersection Summary				
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	144.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	69.1%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
11: Widdicombe Hill Blvd. & Hunting Ridge

Future Background_AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	60	10	65	110	15	50
Future Volume (Veh/h)	60	10	65	110	15	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	66	11	71	121	16	55
Pedestrians				5		
Lane Width (m)				3.5		
Walking Speed (m/s)				1.2		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			77		334	76
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			77		334	76
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			95		97	94
cM capacity (veh/h)			1515		618	964

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	77	192	71
Volume Left	0	71	16
Volume Right	11	0	55
cSH	1700	1515	856
Volume to Capacity	0.05	0.05	0.08
Queue Length 95th (m)	0.0	1.2	2.2
Control Delay (s)	0.0	3.0	9.6
Lane LOS		A	A
Approach Delay (s)	0.0	3.0	9.6
Approach LOS			A

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	28.4%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
13: Eglinton Ave. E. & South Site Access

Future Background_AM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1635	1485	25	0	60
Future Volume (Veh/h)	0	1635	1485	25	0	60
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	1739	1580	27	0	64
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)			107			
pX, platoon unblocked	0.69				0.69	0.69
vC, conflicting volume	1607				2463	804
vC1, stage 1 conf vol					1594	
vC2, stage 2 conf vol					870	
vCu, unblocked vol	978				2220	0
tC, single (s)	4.2				6.8	7.2
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.4
p0 queue free %	100				100	91
cM capacity (veh/h)	479				191	719

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	870	870	1053	554	64
Volume Left	0	0	0	0	0
Volume Right	0	0	0	27	64
cSH	1700	1700	1700	1700	719
Volume to Capacity	0.51	0.51	0.62	0.33	0.09
Queue Length 95th (m)	0.0	0.0	0.0	0.0	2.3
Control Delay (s)	0.0	0.0	0.0	0.0	10.5
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.5
Approach LOS					B

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		52.2%	ICU Level of Service	A
Analysis Period (min)		15		

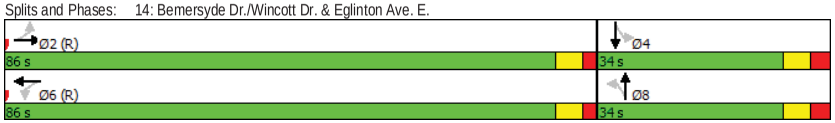
Timings
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Background_AM

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	100	1555	15	1450	20	75	80	120
Future Volume (vph)	100	1555	15	1450	20	75	80	120
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	24.0	24.0	27.0	27.0	27.0	27.0	27.0	27.0
Minimum Split (s)	30.0	30.0	33.0	33.0	34.0	34.0	34.0	34.0
Total Split (s)	86.0	86.0	86.0	86.0	34.0	34.0	34.0	34.0
Total Split (%)	71.7%	71.7%	71.7%	71.7%	28.3%	28.3%	28.3%	28.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	81.0	81.0	81.0	81.0		28.0	28.0	28.0
Actuated g/C Ratio	0.68	0.68	0.68	0.68		0.23	0.23	0.23
v/c Ratio	0.86	0.77	0.15	0.72		0.32	0.31	0.46
Control Delay	72.0	16.1	17.8	25.4		38.3	41.7	39.7
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	72.0	16.1	17.8	25.4		38.3	41.7	39.7
LOS	E	B	B	C		D	D	D
Approach Delay		19.5		25.4		38.3		40.3
Approach LOS		B		C		D		D

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 34 (28%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 24.1		Intersection LOS: C	
Intersection Capacity Utilization 102.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Background_AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1555	10	15	1450	45	20	75	20	80	120	55
Future Volume (vph)	100	1555	10	15	1450	45	20	75	20	80	120	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.99	1.00	
Frt	1.00	1.00		1.00	1.00			0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1785	3253		1785	3308			1768		1776	1710	
Flt Permitted	0.10	1.00		0.09	1.00			0.92		0.64	1.00	
Satd. Flow (perm)	185	3253		161	3308			1643		1190	1710	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	108	1672	11	16	1559	48	22	81	22	86	129	59
RTOR Reduction (vph)	0	0	0	0	2	0	0	6	0	0	14	0
Lane Group Flow (vph)	108	1683	0	16	1605	0	0	119	0	86	174	0
Confl. Peds. (#/hr)	5		15	15		5	5		5	5		5
Heavy Vehicles (%)	0%	7%	0%	0%	5%	4%	0%	1%	10%	0%	6%	0%
Bus Blockages (#/hr)	0	12	0	0	11	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	80.0	80.0		80.0	80.0			27.0		27.0	27.0	
Effective Green, g (s)	81.0	81.0		81.0	81.0			28.0		28.0	28.0	
Actuated g/C Ratio	0.68	0.68		0.68	0.68			0.23		0.23	0.23	
Clearance Time (s)	6.0	6.0		6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	124	2195		108	2232			383		277	399	
v/s Ratio Prot		0.52			0.49						c0.10	
v/s Ratio Perm	c0.58			0.10				0.07		0.07		
v/c Ratio	0.87	0.77		0.15	0.72			0.31		0.31	0.44	
Uniform Delay, d1	15.4	13.1		7.0	12.3			38.0		38.0	39.3	
Progression Factor	1.00	1.00		2.02	1.93			1.00		1.00	1.00	
Incremental Delay, d2	51.8	2.6		1.7	1.2			0.5		0.6	0.8	
Delay (s)	67.2	15.8		15.9	24.9			38.5		38.7	40.0	
Level of Service	E	B		B	C			D		D	D	
Approach Delay (s)		18.9			24.9			38.5			39.6	
Approach LOS		B			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0	
Intersection Capacity Utilization	102.0%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
15: Wincott Dr. & Hunting Ridge

Future Background_AM

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	35	35	95	175	145
Future Volume (Veh/h)	85	35	35	95	175	145
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)	92	38	38	103	190	158
Pedestrians	10					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	458	279	358			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	458	279	358			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	95	97			
cM capacity (veh/h)	542	754	1202			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	130	141	348
Volume Left	92	38	0
Volume Right	38	0	158
cSH	591	1202	1700
Volume to Capacity	0.22	0.03	0.20
Queue Length 95th (m)	6.7	0.8	0.0
Control Delay (s)	12.8	2.4	0.0
Lane LOS	B	A	
Approach Delay (s)	12.8	2.4	0.0
Approach LOS	B		

Intersection Summary					
Average Delay	3.2				
Intersection Capacity Utilization	42.3%	ICU Level of Service		A	
Analysis Period (min)	15				

HCM Unsignalized Intersection Capacity Analysis
17: Wincott Dr. & SE Site Access/Waterford Dr.

Future Background_AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	30	40	40	20	15	85	85	45	5	175	30
Future Volume (vph)	35	30	40	40	20	15	85	85	45	5	175	30
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	46	39	53	53	26	20	112	112	59	7	230	39

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	138	99	283	276
Volume Left (vph)	46	53	112	7
Volume Right (vph)	53	20	59	39
Hadj (s)	-0.14	0.06	-0.01	-0.02
Departure Headway (s)	5.3	5.6	4.9	4.9
Degree Utilization, x	0.20	0.15	0.39	0.38
Capacity (veh/h)	603	567	694	690
Control Delay (s)	9.7	9.6	11.0	10.9
Approach Delay (s)	9.7	9.6	11.0	10.9
Approach LOS	A	A	B	B

Intersection Summary				
Delay	10.6			
Level of Service	B			
Intersection Capacity Utilization	43.2%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
20: Bemersyde Dr. & Oldham Rd.

Future Background_AM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	10	155	0	5	125
Future Volume (Veh/h)	5	10	155	0	5	125
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	11	170	0	5	137
Pedestrians	5					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						79
pX, platoon unblocked	0.95					
vC, conflicting volume	322	175			175	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	263	175			175	
tC, single (s)	6.4	6.3			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.4	
p0 queue free %	99	99			100	
cM capacity (veh/h)	690	842			1269	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	16	170	142
Volume Left	5	0	5
Volume Right	11	0	0
cSH	788	1700	1269
Volume to Capacity	0.02	0.10	0.00
Queue Length 95th (m)	0.5	0.0	0.1
Control Delay (s)	9.7	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	0.3
Approach LOS	A		

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	20.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
25: Wincott Dr. & NE Site Access

Future Background_AM

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	20	25	110	190	20
Future Volume (Veh/h)	15	20	25	110	190	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	22	28	122	211	22
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	400	222	233			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	400	222	233			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	97	98			
cM capacity (veh/h)	593	818	1335			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	39	150	233
Volume Left	17	28	0
Volume Right	22	0	22
cSH	702	1335	1700
Volume to Capacity	0.06	0.02	0.14
Queue Length 95th (m)	1.4	0.5	0.0
Control Delay (s)	10.4	1.6	0.0
Lane LOS	B	A	
Approach Delay (s)	10.4	1.6	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		1.5		
Intersection Capacity Utilization		31.7%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
26: Widdicombe Hill Blvd. & NW Site Access

Future Background_AM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	15	50	55	15	60
Future Volume (Veh/h)	30	15	50	55	15	60
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	17	56	61	17	67
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			330			
pX, platoon unblocked						
vC, conflicting volume	188	86			117	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	188	86			117	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	98			99	
cM capacity (veh/h)	792	972			1471	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	50	117	84
Volume Left	33	0	17
Volume Right	17	61	0
cSH	846	1700	1471
Volume to Capacity	0.06	0.07	0.01
Queue Length 95th (m)	1.5	0.0	0.3
Control Delay (s)	9.5	0.0	1.6
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	1.6
Approach LOS	A		

Intersection Summary				
Average Delay		2.4		
Intersection Capacity Utilization		20.7%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	0	200	20	15	250
Future Volume (Veh/h)	5	0	200	20	15	250
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	0	222	22	17	278
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			72			
pX, platoon unblocked	0.96	0.96			0.96	
vC, conflicting volume	545	233			244	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	506	181			193	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			99	
cM capacity (veh/h)	499	828			1326	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	6	244	295
Volume Left	6	0	17
Volume Right	0	22	0
cSH	499	1700	1326
Volume to Capacity	0.01	0.14	0.01
Queue Length 95th (m)	0.3	0.0	0.3
Control Delay (s)	12.3	0.0	0.6
Lane LOS	B		A
Approach Delay (s)	12.3	0.0	0.6
Approach LOS	B		

Intersection Summary				
Average Delay		0.4		
Intersection Capacity Utilization		35.4%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	15	200	0	5	250
Future Volume (Veh/h)	15	15	200	0	5	250
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	17	222	0	6	278
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			
pX, platoon unblocked	1.00	1.00			1.00	
vC, conflicting volume	512	222			222	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	511	221			221	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	98			100	
cM capacity (veh/h)	520	818			1347	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	34	222	284
Volume Left	17	0	6
Volume Right	17	0	0
cSH	636	1700	1347
Volume to Capacity	0.05	0.13	0.00
Queue Length 95th (m)	1.4	0.0	0.1
Control Delay (s)	11.0	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	11.0	0.0	0.2
Approach LOS	B		

Intersection Summary				
Average Delay		0.8		
Intersection Capacity Utilization		27.2%	ICU Level of Service	A
Analysis Period (min)		15		

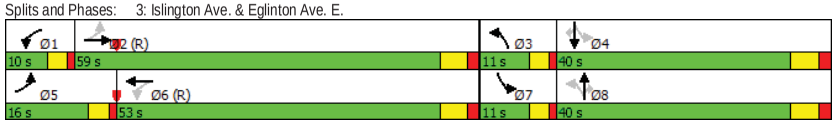
Timings
3: Islington Ave. & Eglinton Ave. E.

Future Background - PM

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	230	1550	135	1195	65	1025	165	70	850	85
Future Volume (vph)	230	1550	135	1195	65	1025	165	70	850	85
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2	1	6	3	8		7	4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	6.0	30.0	6.0	30.0	7.0	27.0	27.0	7.0	27.0	27.0
Minimum Split (s)	10.0	36.0	10.0	36.0	11.0	33.0	33.0	11.0	33.0	33.0
Total Split (s)	16.0	59.0	10.0	53.0	11.0	40.0	40.0	11.0	40.0	40.0
Total Split (%)	13.3%	49.2%	8.3%	44.2%	9.2%	33.3%	33.3%	9.2%	33.3%	33.3%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	Min	Min	None	Min	Min
Act Effct Green (s)	66.0	54.0	57.0	48.0	45.6	37.2	37.2	45.6	37.2	37.2
Actuated g/C Ratio	0.55	0.45	0.48	0.40	0.38	0.31	0.31	0.38	0.31	0.31
v/c Ratio	0.93	1.09	0.83	0.97	0.36	0.98	0.30	0.40	0.82	0.16
Control Delay	57.1	84.5	59.6	53.4	28.3	65.5	10.1	29.2	46.6	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.1	84.5	59.6	53.4	28.3	65.5	10.1	29.2	46.6	1.8
LOS	E	F	E	D	C	E	B	C	D	A
Approach Delay		81.1		54.0		56.3			41.6	
Approach LOS		F		D		E			D	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay: 61.4		Intersection LOS: E	
Intersection Capacity Utilization 101.7%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Islington Ave. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
3: Islington Ave. & Eglinton Ave. E.

Future Background - PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	1550	65	135	1195	55	65	1025	165	70	850	85
Future Volume (vph)	230	1550	65	135	1195	55	65	1025	165	70	850	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3403		1750	3326		1749	3471	1526	1785	3437	1503
Flt Permitted	0.08	1.00		0.08	1.00		0.12	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	147	3403		156	3326		220	3471	1526	202	3437	1503
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	237	1598	67	139	1232	57	67	1057	170	72	876	88
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	94	0	0	61
Lane Group Flow (vph)	237	1662	0	139	1286	0	67	1057	76	72	876	27
Confl. Peds. (#/hr)	18		45	45		18	36		25	25		36
Heavy Vehicles (%)	2%	2%	0%	2%	4%	2%	2%	1%	0%	0%	2%	0%
Bus Blockages (#/hr)	0	10	0	0	12	0	0	9	0	0	9	0
Parking (#/hr)			0									
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	62.2	52.2		52.2	46.2		41.8	36.2	36.2	41.8	36.2	36.2
Effective Green, g (s)	63.2	53.2		54.2	47.2		43.8	37.2	37.2	43.8	37.2	37.2
Actuated g/C Ratio	0.53	0.44		0.45	0.39		0.36	0.31	0.31	0.36	0.31	0.31
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	251	1508		163	1308		164	1076	473	160	1065	465
v/s Ratio Prot	c0.10	c0.49		0.05	0.39		0.02	c0.30		c0.02	0.25	
v/s Ratio Perm	0.40			0.33			0.13		0.05	0.14		0.02
v/c Ratio	0.94	1.10		0.85	0.98		0.41	0.98	0.16	0.45	0.82	0.06
Uniform Delay, d1	35.7	33.4		28.0	36.0		27.8	41.1	30.1	29.7	38.3	29.1
Progression Factor	0.88	1.23		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	30.0	52.8		32.6	21.2		1.7	23.1	0.2	2.0	5.2	0.1
Delay (s)	61.3	93.9		60.6	57.2		29.4	64.1	30.2	31.7	43.6	29.1
Level of Service	E	F		E	E		C	E	C	C	D	C
Approach Delay (s)		89.8			57.5			57.9			41.5	
Approach LOS		F			E			E			D	

Intersection Summary				
HCM 2000 Control Delay	65.5	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.02			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	101.7%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Timings
6: Kipling Ave. & Eglinton Ave. E.

Future Background - PM

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	230	1740	135	1665	130	745	135	60	520	55
Future Volume (vph)	230	1740	135	1665	130	745	135	60	520	55
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6	3	8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	3	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	33.0	6.0	33.0	6.0	29.0	29.0	29.0	29.0	29.0
Minimum Split (s)	10.0	40.0	10.0	40.0	10.0	36.0	36.0	36.0	36.0	36.0
Total Split (s)	15.0	72.0	10.0	67.0	10.0	46.0	46.0	36.0	36.0	36.0
Total Split (%)	11.7%	56.3%	7.8%	52.3%	7.8%	35.9%	35.9%	28.1%	28.1%	28.1%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	Min	Min	Min	Min	Min
Act Effct Green (s)	79.0	66.0	71.0	61.0	43.0	40.0	40.0	30.0	30.0	30.0
Actuated g/C Ratio	0.62	0.52	0.55	0.48	0.34	0.31	0.31	0.23	0.23	0.23
v/c Ratio	1.08	1.09	0.94	1.08	0.67	0.77	0.28	0.72	0.71	0.14
Control Delay	117.6	79.2	86.4	80.5	48.8	45.9	12.7	81.7	45.7	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	117.6	79.2	86.4	80.5	48.8	45.9	12.7	81.7	45.7	5.1
LOS	F	E	F	F	D	D	B	F	D	A
Approach Delay		83.5		80.9		41.8			45.6	
Approach LOS		F		F		D			D	

Intersection Summary		
Cycle Length: 128		
Actuated Cycle Length: 128		
Offset: 50 (39%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green		
Natural Cycle: 130		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.09		
Intersection Signal Delay: 70.7	Intersection LOS: E	
Intersection Capacity Utilization 127.9%	ICU Level of Service H	
Analysis Period (min) 15		

Splits and Phases: 6: Kipling Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
6: Kipling Ave. & Eglinton Ave. E.

Future Background - PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	1740	85	135	1665	75	130	745	135	60	520	55
Future Volume (vph)	230	1740	85	135	1665	75	130	745	135	60	520	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	*0.99		1.00	*1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.93	1.00	1.00	0.89
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.99	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1806	3499		1733	3549		1742	3323	1449	1645	3345	1397
Flt Permitted	0.06	1.00		0.07	1.00		0.23	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	114	3499		120	3549		414	3323	1449	384	3345	1397
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.95	0.95	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	247	1871	91	145	1753	79	140	801	145	65	559	59
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	70	0	0	45
Lane Group Flow (vph)	247	1959	0	145	1829	0	140	801	75	65	559	14
Confl. Peds. (#/hr)	20		82	82		20	58		40	40		58
Confl. Bikes (#/hr)			3						16			25
Heavy Vehicles (%)	3%	3%	2%	3%	3%	7%	2%	4%	2%	7%	5%	2%
Bus Blockages (#/hr)	0	10	0	0	12	0	0	16	0	0	8	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	75.0	65.0		66.0	60.0		39.0	39.0	39.0	29.0	29.0	29.0
Effective Green, g (s)	76.0	66.0		68.0	61.0		40.0	40.0	40.0	30.0	30.0	30.0
Actuated g/C Ratio	0.59	0.52		0.53	0.48		0.31	0.31	0.31	0.23	0.23	0.23
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	1804		151	1691		202	1038	452	90	783	327
v/s Ratio Prot	c0.10	0.56		0.05	0.52		0.04	c0.24			0.17	
v/s Ratio Perm	c0.55			0.46			0.18		0.05	0.17		0.01
v/c Ratio	1.09	1.09		0.96	1.08		0.69	0.77	0.17	0.72	0.71	0.04
Uniform Delay, d1	42.9	31.0		34.6	33.5		35.4	39.9	31.9	45.2	45.1	37.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.89	0.89	1.00
Incremental Delay, d2	86.9	48.7		61.1	47.7		9.8	3.6	0.2	23.9	3.0	0.1
Delay (s)	129.8	79.7		95.7	81.2		45.2	43.5	32.1	64.2	43.1	37.9
Level of Service	F	E		F	F		D	D	C	E	D	D
Approach Delay (s)		85.3			82.3			42.2			44.6	
Approach LOS		F			F			D			D	

Intersection Summary				
HCM 2000 Control Delay	71.8	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.03			
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	127.9%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

Timings
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Background - PM

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	90	75	20	65	50	925	70	40	720	75
Future Volume (vph)	90	75	20	65	50	925	70	40	720	75
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	26.0	26.0	26.0	26.0	17.0	17.0	17.0	17.0	17.0	17.0
Minimum Split (s)	34.0	34.0	34.0	34.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	34.0	34.0	94.0	94.0	94.0	94.0	94.0	94.0
Total Split (%)	26.6%	26.6%	26.6%	26.6%	73.4%	73.4%	73.4%	73.4%	73.4%	73.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		7.0		7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		27.9		27.9	88.1	88.1	88.1	88.1	88.1	88.1
Actuated g/C Ratio		0.22		0.22	0.69	0.69	0.69	0.69	0.69	0.69
v/c Ratio		0.63		0.27	0.12	0.40	0.07	0.12	0.31	0.07
Control Delay		52.9		41.8	10.3	11.9	6.0	8.2	8.5	3.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		52.9		41.8	10.3	11.9	6.0	8.2	8.5	3.0
LOS		D		D	B	B	A	A	A	A
Approach Delay		52.9		41.8		11.4			8.0	
Approach LOS		D		D		B			A	

Intersection Summary			
Cycle Length: 128			
Actuated Cycle Length: 128			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 15.3		Intersection LOS: B	
Intersection Capacity Utilization 73.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 9: Kipling Ave. & Widdicombe Hill Blvd.

HCM Signalized Intersection Capacity Analysis
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Background - PM

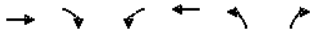
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	75	35	20	65	10	50	925	70	40	720	75
Future Volume (vph)	90	75	35	20	65	10	50	925	70	40	720	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		0.99			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00			0.99		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.98			0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1770			1793		1750	3466	1566	1785	3433	1597
Flt Permitted		0.81			0.90		0.34	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)		1472			1631		635	3466	1566	497	3433	1597
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	93	77	36	21	67	10	52	954	72	41	742	77
RTOR Reduction (vph)	0	6	0	0	3	0	0	0	13	0	0	16
Lane Group Flow (vph)	0	200	0	0	95	0	52	954	59	41	742	61
Confl. Peds. (#/hr)	5		35	35		5						
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%	2%	3%	2%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		26.9			26.9		87.1	87.1	87.1	87.1	87.1	87.1
Effective Green, g (s)		27.9			27.9		88.1	88.1	88.1	88.1	88.1	88.1
Actuated g/C Ratio		0.22			0.22		0.69	0.69	0.69	0.69	0.69	0.69
Clearance Time (s)		8.0			8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		320			355		437	2385	1077	342	2362	1099
v/s Ratio Prot								c0.28			0.22	
v/s Ratio Perm		c0.14			0.06		0.08		0.04	0.08		0.04
v/c Ratio		0.62			0.27		0.12	0.40	0.05	0.12	0.31	0.06
Uniform Delay, d1		45.3			41.6		6.8	8.6	6.5	6.8	7.9	6.5
Progression Factor		1.00			1.00		1.36	1.32	1.77	1.00	1.00	1.00
Incremental Delay, d2		3.8			0.4		0.3	0.2	0.0	0.7	0.3	0.1
Delay (s)		49.1			42.0		9.5	11.6	11.5	7.5	8.3	6.6
Level of Service		D			D		A	B	B	A	A	A
Approach Delay (s)		49.1			42.0			11.5			8.1	
Approach LOS		D			D			B			A	

Intersection Summary					
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.45				
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	12.0		
Intersection Capacity Utilization	73.2%	ICU Level of Service	D		
Analysis Period (min)	15				

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
11: Widdicombe Hill Blvd. & Hunting Ridge

Future Background - PM



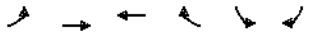
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	40	20	35	60	20	65
Future Volume (Veh/h)	40	20	35	60	20	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	46	23	40	69	23	75
Pedestrians				10		
Lane Width (m)				3.5		
Walking Speed (m/s)				1.2		
Percent Blockage				1		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			69		206	68
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			69		206	68
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		97	92
cM capacity (veh/h)			1526		766	993

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	69	109	98
Volume Left	0	40	23
Volume Right	23	0	75
cSH	1700	1526	929
Volume to Capacity	0.04	0.03	0.11
Queue Length 95th (m)	0.0	0.6	2.8
Control Delay (s)	0.0	2.9	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	2.9	9.3
Approach LOS			A

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	26.4%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
13: Eglinton Ave. E. & South Site Access

Future Background - PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1915	1165	30	0	85
Future Volume (Veh/h)	0	1915	1165	30	0	85
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	1974	1201	31	0	88
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)			107			
pX, platoon unblocked	0.81				0.81	0.81
vC, conflicting volume	1232				2204	616
vC1, stage 1 conf vol					1216	
vC2, stage 2 conf vol					987	
vCu, unblocked vol	814				2015	52
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	89
cM capacity (veh/h)	659				228	810

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	987	987	801	431	88
Volume Left	0	0	0	0	0
Volume Right	0	0	0	31	88
cSH	1700	1700	1700	1700	810
Volume to Capacity	0.58	0.58	0.47	0.25	0.11
Queue Length 95th (m)	0.0	0.0	0.0	0.0	2.9
Control Delay (s)	0.0	0.0	0.0	0.0	10.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		10.0
Approach LOS					A

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	56.3%	ICU Level of Service		B
Analysis Period (min)	15			

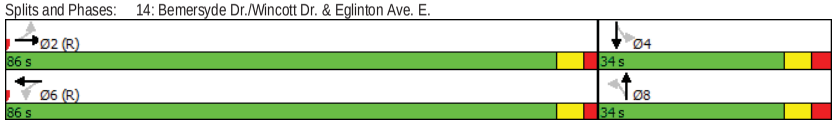
Timings
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Background - PM

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	170	1740	10	1110	15	110	80	110
Future Volume (vph)	170	1740	10	1110	15	110	80	110
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Minimum Split (s)	30.0	30.0	30.0	30.0	34.0	34.0	34.0	34.0
Total Split (s)	86.0	86.0	86.0	86.0	34.0	34.0	34.0	34.0
Total Split (%)	71.7%	71.7%	71.7%	71.7%	28.3%	28.3%	28.3%	28.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	81.0	81.0	81.0	81.0		28.0	28.0	28.0
Actuated g/C Ratio	0.68	0.68	0.68	0.68		0.23	0.23	0.23
v/c Ratio	0.81	0.81	0.14	0.56		0.38	0.35	0.44
Control Delay	44.0	17.5	2.4	1.5		40.4	43.5	37.9
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	44.0	17.5	2.4	1.5		40.4	43.5	37.9
LOS	D	B	A	A		D	D	D
Approach Delay		19.8		1.5		40.4		39.7
Approach LOS		B		A		D		D

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 34 (28%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 15.9		Intersection LOS: B	
Intersection Capacity Utilization 107.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Background - PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	1740	10	10	1110	75	15	110	20	80	110	65
Future Volume (vph)	170	1740	10	10	1110	75	15	110	20	80	110	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.97	1.00	
Frt	1.00	1.00		1.00	0.99			0.98		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1780	3392		1785	3309			1780		1676	1735	
Flt Permitted	0.18	1.00		0.06	1.00			0.96		0.58	1.00	
Satd. Flow (perm)	329	3392		114	3309			1711		1020	1735	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	1832	11	11	1168	79	16	116	21	84	116	68
RTOR Reduction (vph)	0	0	0	0	4	0	0	5	0	0	18	0
Lane Group Flow (vph)	179	1843	0	11	1243	0	0	148	0	84	166	0
Confl. Peds. (#/hr)	10		35	35		10	15		35	35		15
Heavy Vehicles (%)	0%	3%	0%	0%	4%	4%	6%	1%	5%	3%	0%	3%
Bus Blockages (#/hr)	0	10	0	0	12	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	80.0	80.0		80.0	80.0			27.0		27.0	27.0	
Effective Green, g (s)	81.0	81.0		81.0	81.0			28.0		28.0	28.0	
Actuated g/C Ratio	0.68	0.68		0.68	0.68			0.23		0.23	0.23	
Clearance Time (s)	6.0	6.0		6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	222	2289		76	2233			399		238	404	
v/s Ratio Prot		0.54			0.38						c0.10	
v/s Ratio Perm	c0.54			0.10				0.09		0.08		
v/c Ratio	0.81	0.81		0.14	0.56			0.37		0.35	0.41	
Uniform Delay, d1	13.9	13.9		7.0	10.2			38.6		38.4	39.0	
Progression Factor	1.00	1.00		0.09	0.10			1.00		1.00	1.00	
Incremental Delay, d2	26.0	3.1		1.7	0.4			0.6		0.9	0.7	
Delay (s)	39.9	17.0		2.4	1.5			39.2		39.3	39.7	
Level of Service	D	B		A	A			D		D	D	
Approach Delay (s)		19.0			1.5			39.2			39.6	
Approach LOS		B			A			D			D	

Intersection Summary					
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.70				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0		
Intersection Capacity Utilization	107.8%	ICU Level of Service	G		
Analysis Period (min)	15				
c Critical Lane Group					

HCM Unsignalized Intersection Capacity Analysis
15: Wincott Dr. & Hunting Ridge

Future Background - PM

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	30	30	210	145	85
Future Volume (Veh/h)	90	30	30	210	145	85
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	96	32	32	223	154	90
Pedestrians	10					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	496	209	254			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	496	209	254			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	82	96	98			
cM capacity (veh/h)	519	830	1295			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	128	255	244
Volume Left	96	32	0
Volume Right	32	0	90
cSH	573	1295	1700
Volume to Capacity	0.22	0.02	0.14
Queue Length 95th (m)	6.8	0.6	0.0
Control Delay (s)	13.1	1.2	0.0
Lane LOS	B	A	
Approach Delay (s)	13.1	1.2	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		3.2		
Intersection Capacity Utilization		42.8%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
17: Wincott Dr. & SE Site Access/Waterford Dr.

Future Background - PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	55	50	90	35	40	15	160	185	30	10	145	50
Future Volume (vph)	55	50	90	35	40	15	160	185	30	10	145	50
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	63	57	103	40	46	17	184	213	34	11	167	57

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	223	103	431	235
Volume Left (vph)	63	40	184	11
Volume Right (vph)	103	17	34	57
Hadj (s)	-0.21	0.00	0.04	-0.12
Departure Headway (s)	5.7	6.2	5.3	5.5
Degree Utilization, x	0.35	0.18	0.64	0.36
Capacity (veh/h)	566	486	647	606
Control Delay (s)	11.8	10.5	17.1	11.5
Approach Delay (s)	11.8	10.5	17.1	11.5
Approach LOS	B	B	C	B

Intersection Summary				
Delay		13.9		
Level of Service		B		
Intersection Capacity Utilization		57.5%	ICU Level of Service	B
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
20: Bemersyde Dr. & Oldham Rd.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	5	135	0	5	130
Future Volume (Veh/h)	0	5	135	0	5	130
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	5	145	0	5	140
Pedestrians	15					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						79
pX, platoon unblocked	0.95					
vC, conflicting volume	310	160			160	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	247	160			160	
tC, single (s)	6.4	6.5			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.6			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	697	809			1414	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	145	145
Volume Left	0	0	5
Volume Right	5	0	0
cSH	809	1700	1414
Volume to Capacity	0.01	0.09	0.00
Queue Length 95th (m)	0.1	0.0	0.1
Control Delay (s)	9.5	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	0.3
Approach LOS	A		

Intersection Summary				
Average Delay		0.3		
Intersection Capacity Utilization		20.9%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
25: Wincott Dr. & NE Site Access

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	45	30	225	165	10
Future Volume (Veh/h)	20	45	30	225	165	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	21	47	32	237	174	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	480	180	185			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	480	180	185			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	95	98			
cM capacity (veh/h)	532	863	1390			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	68	269	185
Volume Left	21	32	0
Volume Right	47	0	11
cSH	724	1390	1700
Volume to Capacity	0.09	0.02	0.11
Queue Length 95th (m)	2.5	0.6	0.0
Control Delay (s)	10.5	1.1	0.0
Lane LOS	B	A	
Approach Delay (s)	10.5	1.1	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		1.9		
Intersection Capacity Utilization		36.7%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
26: Widdicombe Hill Blvd. & NW Site Access

Future Background - PM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	60	25	60	90	20	35
Future Volume (Veh/h)	60	25	60	90	20	35
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	26	63	95	21	37
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			330			
pX, platoon unblocked						
vC, conflicting volume	190	110			158	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	190	110			158	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	97			99	
cM capacity (veh/h)	788	943			1422	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	89	158	58
Volume Left	63	0	21
Volume Right	26	95	0
cSH	827	1700	1422
Volume to Capacity	0.11	0.09	0.01
Queue Length 95th (m)	2.9	0.0	0.4
Control Delay (s)	9.9	0.0	2.8
Lane LOS	A		A
Approach Delay (s)	9.9	0.0	2.8
Approach LOS	A		

Intersection Summary				
Average Delay		3.4		
Intersection Capacity Utilization		26.9%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
29: Wincott Dr. & 265 Wincott Dr. Plaza South

Future Background - PM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	0	340	15	10	250
Future Volume (Veh/h)	5	0	340	15	10	250
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	5	0	358	16	11	263
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			72			
pX, platoon unblocked	0.91	0.91			0.91	
vC, conflicting volume	651	366			374	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	570	258			267	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			99	
cM capacity (veh/h)	437	713			1184	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	374	274
Volume Left	5	0	11
Volume Right	0	16	0
cSH	437	1700	1184
Volume to Capacity	0.01	0.22	0.01
Queue Length 95th (m)	0.3	0.0	0.2
Control Delay (s)	13.3	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	13.3	0.0	0.4
Approach LOS	B		

Intersection Summary				
Average Delay		0.3		
Intersection Capacity Utilization		31.3%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
31: Wincott Dr. & 265 Wincott Dr. Plaza North

Future Background - PM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	20	340	0	0	260
Future Volume (Veh/h)	10	20	340	0	0	260
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	21	358	0	0	274
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			
pX, platoon unblocked	0.93	0.93			0.93	
vC, conflicting volume	632	358			358	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	565	270			270	
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	97			100	
cM capacity (veh/h)	451	714			1201	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	32	358	274
Volume Left	11	0	0
Volume Right	21	0	0
cSH	595	1700	1201
Volume to Capacity	0.05	0.21	0.00
Queue Length 95th (m)	1.4	0.0	0.0
Control Delay (s)	11.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.4	0.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		27.9%	ICU Level of Service	A
Analysis Period (min)		15		

Timings
3: Islington Ave. & Eglinton Ave. E.

Future Background - SAT

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	105	1480	105	1270	100	615	110	75	550	120
Future Volume (vph)	105	1480	105	1270	100	615	110	75	550	120
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	30.0	6.0	30.0	27.0	27.0	27.0	27.0	27.0	27.0
Minimum Split (s)	10.0	36.0	10.0	36.0	33.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	12.0	72.0	10.0	70.0	38.0	38.0	38.0	38.0	38.0	38.0
Total Split (%)	10.0%	60.0%	8.3%	58.3%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	None	C-Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	78.7	68.2	77.3	67.5	31.0	31.0	31.0	31.0	31.0	31.0
Actuated g/C Ratio	0.66	0.57	0.64	0.56	0.26	0.26	0.26	0.26	0.26	0.26
v/c Ratio	0.46	0.83	0.60	0.71	0.84	0.71	0.26	0.77	0.64	0.27
Control Delay	13.6	26.1	31.2	22.2	89.8	45.4	17.8	86.5	43.1	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	26.1	31.2	22.2	89.8	45.4	17.8	86.5	43.1	14.9
LOS	B	C	C	C	F	D	B	F	D	B
Approach Delay		25.4		22.9		47.1			42.9	
Approach LOS		C		C		D			D	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 31.2		Intersection LOS: C	
Intersection Capacity Utilization 110.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 3: Islington Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
3: Islington Ave. & Eglinton Ave. E.

Future Background - SAT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	1480	85	105	1270	70	100	615	110	75	550	120
Future Volume (vph)	105	1480	85	105	1270	70	100	615	110	75	550	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		3.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1733	3417		1767	3430		1755	3437	1486	1764	3417	1516
Flt Permitted	0.11	1.00		0.06	1.00		0.26	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)	193	3417		114	3430		479	3437	1486	388	3417	1516
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	108	1526	88	108	1309	72	103	634	113	77	567	124
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	47	0	0	61
Lane Group Flow (vph)	108	1611	0	108	1378	0	103	634	66	77	567	63
Confl. Peds. (#/hr)	10		15	15		10	15		30	30		15
Heavy Vehicles (%)	3%	2%	2%	1%	2%	0%	1%	2%	2%	0%	3%	2%
Bus Blockages (#/hr)	0	7	0	0	6	0	0	9	0	0	7	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	74.7	67.2		73.3	66.5		30.0	30.0	30.0	30.0	30.0	30.0
Effective Green, g (s)	76.7	68.2		75.3	67.5		31.0	31.0	31.0	31.0	31.0	31.0
Actuated g/C Ratio	0.64	0.57		0.63	0.56		0.26	0.26	0.26	0.26	0.26	0.26
Clearance Time (s)	4.0	6.0		4.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	232	1941		178	1929		123	887	383	100	882	391
v/s Ratio Prot	c0.03	c0.47		c0.04	0.40			0.18			0.17	
v/s Ratio Perm	0.26			0.34			c0.21		0.04	0.20		0.04
v/c Ratio	0.47	0.83		0.61	0.71		0.84	0.71	0.17	0.77	0.64	0.16
Uniform Delay, d1	14.2	21.2		19.9	19.2		42.1	40.5	34.5	41.2	39.6	34.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	4.3		5.7	2.3		36.6	2.8	0.2	29.8	1.6	0.2
Delay (s)	15.6	25.4		25.6	21.5		78.7	43.2	34.7	71.0	41.2	34.6
Level of Service	B	C		C	C		E	D	C	E	D	C
Approach Delay (s)		24.8			21.8			46.4			43.1	
Approach LOS		C			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.81			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	110.3%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Timings
6: Kipling Ave. & Eglinton Ave. E.

Future Background - SAT

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	160	1570	130	1335	105	410	100	35	350	60
Future Volume (vph)	160	1570	130	1335	105	410	100	35	350	60
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	33.0	6.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Minimum Split (s)	10.0	40.0	10.0	40.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (s)	10.0	74.0	10.0	74.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	8.3%	61.7%	8.3%	61.7%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	None	C-Max	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	78.0	68.0	78.0	68.0	30.0	30.0	30.0	30.0	30.0	30.0
Actuated g/C Ratio	0.65	0.57	0.65	0.57	0.25	0.25	0.25	0.25	0.25	0.25
v/c Ratio	1.07	0.98	0.88	0.82	0.63	0.55	0.26	0.25	0.47	0.16
Control Delay	115.7	42.7	68.6	25.2	56.4	41.9	15.5	35.1	33.7	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	115.7	42.7	68.6	25.2	56.4	41.9	15.5	35.1	33.7	5.1
LOS	F	D	E	C	E	D	B	D	C	A
Approach Delay		49.0		28.8		40.1			30.0	
Approach LOS		D		C		D			C	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 50 (42%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay: 38.9		Intersection LOS: D	
Intersection Capacity Utilization 121.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 6: Kipling Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
6: Kipling Ave. & Eglinton Ave. E.

Future Background - SAT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1570	115	130	1335	75	105	410	100	35	350	60
Future Volume (vph)	160	1570	115	130	1335	75	105	410	100	35	350	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1785	3467		1785	3496		1774	3458	1568	1780	3417	1558
Flt Permitted	0.06	1.00		0.06	1.00		0.41	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)	115	3467		111	3496		770	3458	1568	651	3417	1558
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	184	1805	132	149	1534	86	121	471	115	40	402	69
RTOR Reduction (vph)	0	4	0	0	3	0	0	0	58	0	0	52
Lane Group Flow (vph)	184	1933	0	149	1617	0	121	471	57	40	402	17
Confl. Peds. (#/hr)	5		20	20		5	10		5	5		10
Heavy Vehicles (%)	0%	0%	4%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Bus Blockages (#/hr)	0	7	0	0	6	0	0	6	0	0	7	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	73.0	67.0		73.0	67.0		29.0	29.0	29.0	29.0	29.0	29.0
Effective Green, g (s)	75.0	68.0		75.0	68.0		30.0	30.0	30.0	30.0	30.0	30.0
Actuated g/C Ratio	0.62	0.57		0.62	0.57		0.25	0.25	0.25	0.25	0.25	0.25
Clearance Time (s)	4.0	7.0		4.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	169	1964		167	1981		192	864	392	162	854	389
v/s Ratio Prot	c0.06	0.56		0.05	0.46			0.14			0.12	
v/s Ratio Perm	c0.61			0.51			c0.16		0.04	0.06		0.01
v/c Ratio	1.09	0.98		0.89	0.82		0.63	0.55	0.15	0.25	0.47	0.04
Uniform Delay, d1	32.5	25.5		34.5	21.0		40.1	39.1	35.0	36.0	38.3	34.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.85	0.83	0.58
Incremental Delay, d2	94.9	16.9		40.2	3.9		6.6	0.7	0.2	0.8	0.4	0.0
Delay (s)	127.4	42.3		74.7	24.8		46.6	39.8	35.2	31.2	32.0	20.0
Level of Service	F	D		E	C		D	D	D	C	C	C
Approach Delay (s)		49.7			29.0			40.2			30.3	
Approach LOS		D			C			D			C	

Intersection Summary				
HCM 2000 Control Delay	39.3	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.96			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	121.1%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Timings
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Background - SAT

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	50	40	20	45	35	540	60	25	420	45
Future Volume (vph)	50	40	20	45	35	540	60	25	420	45
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	26.0	26.0	26.0	26.0	17.0	17.0	17.0	17.0	17.0	17.0
Minimum Split (s)	34.0	34.0	34.0	34.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	34.0	34.0	86.0	86.0	86.0	86.0	86.0	86.0
Total Split (%)	28.3%	28.3%	28.3%	28.3%	71.7%	71.7%	71.7%	71.7%	71.7%	71.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		7.0		7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		27.0		27.0	81.0	81.0	81.0	81.0	81.0	81.0
Actuated g/C Ratio		0.22		0.22	0.68	0.68	0.68	0.68	0.68	0.68
v/c Ratio		0.39		0.26	0.07	0.26	0.07	0.06	0.21	0.05
Control Delay		40.0		35.7	2.8	3.0	0.1	7.0	7.6	1.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		40.0		35.7	2.8	3.0	0.1	7.0	7.6	1.9
LOS		D		D	A	A	A	A	A	A
Approach Delay		40.0		35.7		2.7			7.1	
Approach LOS		D		D		A			A	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 9.7		Intersection LOS: A	
Intersection Capacity Utilization 64.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 9: Kipling Ave. & Widdicombe Hill Blvd.

HCM Signalized Intersection Capacity Analysis
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Background - SAT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	40	25	20	45	20	35	540	60	25	420	45
Future Volume (vph)	50	40	25	20	45	20	35	540	60	25	420	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		0.99			1.00		1.00	1.00	0.96	1.00	1.00	0.95
Flpb, ped/bikes		1.00			1.00		0.98	1.00	1.00	0.99	1.00	1.00
Frt		0.97			0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1749			1782		1754	3500	1537	1773	3466	1510
Flt Permitted		0.83			0.90		0.47	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)		1481			1630		864	3500	1537	742	3466	1510
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	57	46	29	23	52	23	40	621	69	29	483	52
RTOR Reduction (vph)	0	9	0	0	9	0	0	0	18	0	0	17
Lane Group Flow (vph)	0	123	0	0	89	0	40	621	51	29	483	35
Confl. Peds. (#/hr)	5		20	20		5	10		5	5		10
Heavy Vehicles (%)	0%	0%	4%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		26.0			26.0		80.0	80.0	80.0	80.0	80.0	80.0
Effective Green, g (s)		27.0			27.0		81.0	81.0	81.0	81.0	81.0	81.0
Actuated g/C Ratio		0.22			0.22		0.68	0.68	0.68	0.68	0.68	0.68
Clearance Time (s)		8.0			8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		333			366		583	2362	1037	500	2339	1019
v/s Ratio Prot								c0.18			0.14	
v/s Ratio Perm		c0.08			0.05		0.05		0.03	0.04		0.02
v/c Ratio		0.37			0.24		0.07	0.26	0.05	0.06	0.21	0.03
Uniform Delay, d1		39.3			38.1		6.6	7.7	6.6	6.6	7.4	6.5
Progression Factor		1.00			1.00		0.39	0.37	0.00	1.00	1.00	1.00
Incremental Delay, d2		0.7			0.3		0.2	0.2	0.1	0.2	0.2	0.1
Delay (s)		40.0			38.5		2.7	3.0	0.1	6.8	7.6	6.6
Level of Service		D			D		A	A	A	A	A	A
Approach Delay (s)		40.0			38.5			2.7			7.4	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
11: Widdicombe Hill Blvd. & Hunting Ridge

Future Background - SAT

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	35	10	20	35	30	35
Future Volume (Veh/h)	35	10	20	35	30	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	45	13	26	45	39	45
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			58		148	52
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			58		148	52
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		95	96
cM capacity (veh/h)			1559		834	1022

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	58	71	84
Volume Left	0	26	39
Volume Right	13	0	45
cSH	1700	1559	925
Volume to Capacity	0.03	0.02	0.09
Queue Length 95th (m)	0.0	0.4	2.4
Control Delay (s)	0.0	2.8	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	2.8	9.3
Approach LOS			A

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
13: Eglinton Ave. E. & South Site Access

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1735	1450	35	0	115
Future Volume (Veh/h)	0	1735	1450	35	0	115
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	0	1770	1480	36	0	117
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)			107			
pX, platoon unblocked	0.66				0.66	0.66
vC, conflicting volume	1516				2383	758
vC1, stage 1 conf vol					1498	
vC2, stage 2 conf vol					885	
vCu, unblocked vol	742				2061	0
tC, single (s)	4.1				6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	84
cM capacity (veh/h)	575				216	717

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	885	885	987	529	117
Volume Left	0	0	0	0	0
Volume Right	0	0	0	36	117
cSH	1700	1700	1700	1700	717
Volume to Capacity	0.52	0.52	0.58	0.31	0.16
Queue Length 95th (m)	0.0	0.0	0.0	0.0	4.6
Control Delay (s)	0.0	0.0	0.0	0.0	11.0
Lane LOS					B
Approach Delay (s)	0.0		0.0		11.0
Approach LOS					B

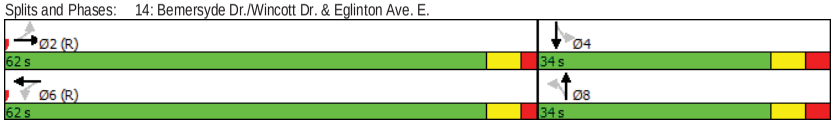
Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	55.0%	ICU Level of Service		A
Analysis Period (min)	15			

Timings
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	160	1560	15	1405	15	40	105	60
Future Volume (vph)	160	1560	15	1405	15	40	105	60
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Minimum Split (s)	30.0	30.0	30.0	30.0	34.0	34.0	34.0	34.0
Total Split (s)	62.0	62.0	62.0	62.0	34.0	34.0	34.0	34.0
Total Split (%)	64.6%	64.6%	64.6%	64.6%	35.4%	35.4%	35.4%	35.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	57.0	57.0	57.0	57.0		28.0	28.0	28.0
Actuated g/C Ratio	0.59	0.59	0.59	0.59		0.29	0.29	0.29
v/c Ratio	1.84	0.80	0.21	0.77		0.15	0.29	0.30
Control Delay	436.2	19.0	16.8	17.7		21.6	28.9	21.4
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	436.2	19.0	16.8	17.7		21.6	28.9	21.4
LOS	F	B	B	B		C	C	C
Approach Delay		57.5		17.7		21.6		24.5
Approach LOS		E		B		C		C

Intersection Summary			
Cycle Length: 96			
Actuated Cycle Length: 96			
Offset: 34 (35%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.84			
Intersection Signal Delay: 37.6		Intersection LOS: D	
Intersection Capacity Utilization 99.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Background - SAT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1560	15	15	1405	95	15	40	15	105	60	85
Future Volume (vph)	160	1560	15	15	1405	95	15	40	15	105	60	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.99			0.97		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1767	3444		1785	3419			1785		1742	1676	
Flt Permitted	0.08	1.00		0.07	1.00			0.93		0.71	1.00	
Satd. Flow (perm)	155	3444		132	3419			1671		1300	1676	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	167	1625	16	16	1464	99	16	42	16	109	62	89
RTOR Reduction (vph)	0	1	0	0	5	0	0	11	0	0	27	0
Lane Group Flow (vph)	167	1640	0	16	1558	0	0	63	0	109	125	0
Confl. Peds. (#/hr)	5		30	30		5	25		15	15		25
Heavy Vehicles (%)	1%	2%	0%	0%	2%	2%	0%	0%	0%	1%	0%	0%
Bus Blockages (#/hr)	0	7	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	56.0	56.0		56.0	56.0			27.0		27.0	27.0	
Effective Green, g (s)	57.0	57.0		57.0	57.0			28.0		28.0	28.0	
Actuated g/C Ratio	0.59	0.59		0.59	0.59			0.29		0.29	0.29	
Clearance Time (s)	6.0	6.0		6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	92	2044		78	2030			487		379	488	
v/s Ratio Prot		0.48			0.46						0.07	
v/s Ratio Perm	c1.08			0.12				0.04		c0.08		
v/c Ratio	1.82	0.80		0.21	0.77			0.13		0.29	0.26	
Uniform Delay, d1	19.5	15.1		9.0	14.6			25.0		26.3	26.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	406.2	3.4		5.9	2.8			0.1		0.4	0.3	
Delay (s)	425.7	18.6		14.9	17.4			25.2		26.7	26.3	
Level of Service	F	B		B	B			C		C	C	
Approach Delay (s)		56.2			17.4			25.2			26.5	
Approach LOS		E			B			C			C	

Intersection Summary				
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	1.31			
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	11.0	
Intersection Capacity Utilization	99.5%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
15: Wincott Dr. & Hunting Ridge

Future Background - SAT

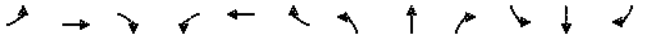
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	30	20	125	105	45
Future Volume (Veh/h)	45	30	20	125	105	45
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	49	33	22	137	115	49
Pedestrians	15					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	336	154	179			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	336	154	179			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	96	98			
cM capacity (veh/h)	645	886	1392			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	82	159	164
Volume Left	49	22	0
Volume Right	33	0	49
cSH	725	1392	1700
Volume to Capacity	0.11	0.02	0.10
Queue Length 95th (m)	3.0	0.4	0.0
Control Delay (s)	10.6	1.2	0.0
Lane LOS	B	A	
Approach Delay (s)	10.6	1.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
17: Wincott Dr. & SE South Access/Waterford Dr.

Future Background - SAT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	55	45	110	30	35	5	170	95	25	10	110	60
Future Volume (vph)	55	45	110	30	35	5	170	95	25	10	110	60
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)	60	49	120	33	38	5	185	103	27	11	120	65

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	229	76	315	196
Volume Left (vph)	60	33	185	11
Volume Right (vph)	120	5	27	65
Hadj (s)	-0.26	0.05	0.08	-0.18
Departure Headway (s)	5.1	5.7	5.1	5.0
Degree Utilization, x	0.32	0.12	0.45	0.27
Capacity (veh/h)	648	556	664	663
Control Delay (s)	10.5	9.4	12.1	9.9
Approach Delay (s)	10.5	9.4	12.1	9.9
Approach LOS	B	A	B	A

Intersection Summary				
Delay			10.9	
Level of Service			B	
Intersection Capacity Utilization			52.6%	ICU Level of Service
Analysis Period (min)			15	
				A

HCM Unsignalized Intersection Capacity Analysis
20: Bemersyde Dr. & Oldham Rd.

Future Background - SAT

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	5	90	0	5	85
Future Volume (Veh/h)	0	5	90	0	5	85
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	6	103	0	6	98
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						79
pX, platoon unblocked						
vC, conflicting volume	213	103			103	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	213	103			103	
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	99			100	
cM capacity (veh/h)	777	957			1502	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	6	103	104
Volume Left	0	0	6
Volume Right	6	0	0
cSH	957	1700	1502
Volume to Capacity	0.01	0.06	0.00
Queue Length 95th (m)	0.2	0.0	0.1
Control Delay (s)	8.8	0.0	0.5
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	0.5
Approach LOS	A		

Intersection Summary				
Average Delay			0.5	
Intersection Capacity Utilization			18.6%	ICU Level of Service
Analysis Period (min)			15	
				A

HCM Unsignalized Intersection Capacity Analysis
25: Wincott Dr. & NE Site Access

Future Background - SAT

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	35	30	125	120	20
Future Volume (Veh/h)	20	35	30	125	120	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	22	39	33	139	133	22
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	349	144	155			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	349	144	155			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	96	98			
cM capacity (veh/h)	633	903	1425			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	61	172	155
Volume Left	22	33	0
Volume Right	39	0	22
cSH	783	1425	1700
Volume to Capacity	0.08	0.02	0.09
Queue Length 95th (m)	2.0	0.6	0.0
Control Delay (s)	10.0	1.6	0.0
Lane LOS	A	A	
Approach Delay (s)	10.0	1.6	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	29.1%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
26: Widdicombe Hill Blvd. & NW Site Access

Future Background - SAT

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	45	25	40	80	10	20
Future Volume (Veh/h)	45	25	40	80	10	20
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	50	28	44	89	11	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			330			
pX, platoon unblocked						
vC, conflicting volume	132	88			133	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	132	88			133	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	97			99	
cM capacity (veh/h)	855	970			1452	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	78	133	33
Volume Left	50	0	11
Volume Right	28	89	0
cSH	893	1700	1452
Volume to Capacity	0.09	0.08	0.01
Queue Length 95th (m)	2.3	0.0	0.2
Control Delay (s)	9.4	0.0	2.5
Lane LOS	A		A
Approach Delay (s)	9.4	0.0	2.5
Approach LOS	A		

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	19.0%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
29: Wincott Dr. & 265 Wincott Dr. Plaza South

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	5	270	25	15	240
Future Volume (Veh/h)	10	5	270	25	15	240
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	6	300	28	17	267
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			72			
pX, platoon unblocked	0.96	0.96			0.96	
vC, conflicting volume	615	314			328	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	582	270			285	
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	99			99	
cM capacity (veh/h)	452	741			1232	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	328	284
Volume Left	11	0	17
Volume Right	6	28	0
cSH	524	1700	1232
Volume to Capacity	0.03	0.19	0.01
Queue Length 95th (m)	0.8	0.0	0.3
Control Delay (s)	12.1	0.0	0.6
Lane LOS	B		A
Approach Delay (s)	12.1	0.0	0.6
Approach LOS	B		

Intersection Summary				
Average Delay		0.6		
Intersection Capacity Utilization		34.9%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
31: Wincott Dr. & 265 Wincott Dr. Plaza North

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	20	275	0	5	230
Future Volume (Veh/h)	25	20	275	0	5	230
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	22	306	0	6	256
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			
pX, platoon unblocked	0.98	0.98			0.98	
vC, conflicting volume	574	306			306	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	551	276			276	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	97			100	
cM capacity (veh/h)	481	744			1255	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	50	306	262
Volume Left	28	0	6
Volume Right	22	0	0
cSH	570	1700	1255
Volume to Capacity	0.09	0.18	0.00
Queue Length 95th (m)	2.3	0.0	0.1
Control Delay (s)	11.9	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	11.9	0.0	0.2
Approach LOS	B		

Intersection Summary				
Average Delay		1.1		
Intersection Capacity Utilization		26.1%	ICU Level of Service	A
Analysis Period (min)		15		

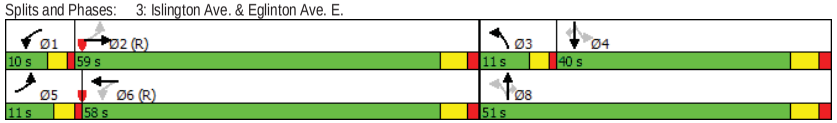
Timings
3: Islington Ave. & Eglinton Ave. E.

Future Total - 2025 - AM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	190	1465	155	1315	55	960	180	50	960	60
Future Volume (vph)	190	1465	155	1315	55	960	180	50	960	60
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6	3	8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	3	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	30.0	6.0	30.0	7.0	27.0	27.0	27.0	27.0	27.0
Minimum Split (s)	10.0	36.0	10.0	36.0	11.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	11.0	59.0	10.0	58.0	11.0	51.0	51.0	40.0	40.0	40.0
Total Split (%)	9.2%	49.2%	8.3%	48.3%	9.2%	42.5%	42.5%	33.3%	33.3%	33.3%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	Min	Min	Min	Min	Min
Act Effct Green (s)	65.6	54.0	63.6	53.0	46.4	44.4	44.4	35.6	35.6	35.6
Actuated g/C Ratio	0.55	0.45	0.53	0.44	0.39	0.37	0.37	0.30	0.30	0.30
v/c Ratio	0.96	0.98	0.87	0.97	0.33	0.80	0.32	0.67	0.96	0.13
Control Delay	68.7	45.9	64.7	50.1	27.8	39.1	18.6	78.2	62.7	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.7	45.9	64.7	50.1	27.8	39.1	18.6	78.2	62.7	2.4
LOS	E	D	E	D	C	D	B	E	E	A
Approach Delay		48.5		51.6		35.5			60.0	
Approach LOS		D		D		D			E	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 57 (48%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 48.8		Intersection LOS: D	
Intersection Capacity Utilization 108.7%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Islington Ave. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
3: Islington Ave. & Eglinton Ave. E.

Future Total - 2025 - AM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	1465	65	155	1315	55	55	960	180	50	960	60
Future Volume (vph)	190	1465	65	155	1315	55	55	960	180	50	960	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	*1.00		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.94	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1767	3472		1716	3331		1700	3390	1457	1639	3491	1457
Flt Permitted	0.08	1.00		0.08	1.00		0.10	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	140	3472		138	3331		185	3390	1457	268	3491	1457
Peak-hour factor, PHF	0.96	1.00	1.00	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	198	1465	65	161	1370	57	57	1000	188	52	1000	62
RTOR Reduction (vph)	0	3	0	0	2	0	0	0	40	0	0	44
Lane Group Flow (vph)	198	1527	0	161	1425	0	57	1000	148	52	1000	19
Confl. Peds. (#/hr)	46		64	64		46	23		37	37		23
Heavy Vehicles (%)	1%	5%	11%	4%	4%	2%	5%	3%	3%	8%	0%	5%
Bus Blockages (#/hr)	0	12	0	0	11	0	0	11	0	0	11	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	60.8	52.2		58.8	51.2		44.2	44.2	44.2	34.6	34.6	34.6
Effective Green, g (s)	62.8	53.2		60.8	52.2		45.2	45.2	45.2	35.6	35.6	35.6
Actuated g/C Ratio	0.52	0.44		0.51	0.44		0.38	0.38	0.38	0.30	0.30	0.30
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	203	1539		183	1448		153	1276	548	79	1035	432
v/s Ratio Prot	c0.08	c0.44		0.06	0.43		0.02	c0.30			c0.29	
v/s Ratio Perm	0.43			0.38			0.12		0.10	0.19		0.01
v/c Ratio	0.98	0.99		0.88	0.98		0.37	0.78	0.27	0.66	0.97	0.04
Uniform Delay, d1	34.3	33.2		29.8	33.5		28.8	33.1	26.0	36.9	41.6	30.1
Progression Factor	0.87	0.98		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	43.8	16.8		34.7	20.1		1.5	3.2	0.3	18.1	20.1	0.0
Delay (s)	73.6	49.3		64.5	53.6		30.4	36.3	26.2	54.9	61.7	30.1
Level of Service	E	D		E	D		C	D	C	D	E	C
Approach Delay (s)		52.1			54.7			34.5			59.6	
Approach LOS		D			D			C			E	

Intersection Summary					
HCM 2000 Control Delay	50.4	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.98				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		16.0	
Intersection Capacity Utilization	108.7%	ICU Level of Service		G	
Analysis Period (min)	15				
c Critical Lane Group					

Timings
6: Kipling Ave. & Eglinton Ave. E.

Future Total - 2025 - AM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	195	1535	175	1510	125	715	155	70	485	35
Future Volume (vph)	195	1535	175	1510	125	715	155	70	485	35
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2	1	6	3	8		7	4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	6.0	33.0	6.0	33.0	6.0	29.0	29.0	6.0	29.0	29.0
Minimum Split (s)	10.0	40.0	10.0	40.0	10.0	36.0	36.0	10.0	36.0	36.0
Total Split (s)	16.0	80.0	15.0	79.0	10.0	39.0	39.0	10.0	39.0	39.0
Total Split (%)	11.1%	55.6%	10.4%	54.9%	6.9%	27.1%	27.1%	6.9%	27.1%	27.1%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	Min	Min	None	Min	Min
Act Effct Green (s)	90.0	74.0	88.0	73.0	43.0	33.0	33.0	43.0	33.0	33.0
Actuated g/C Ratio	0.62	0.51	0.61	0.51	0.30	0.23	0.23	0.30	0.23	0.23
v/c Ratio	1.01	1.03	0.98	1.07	0.67	1.03	0.44	0.60	0.70	0.10
Control Delay	105.9	63.5	99.9	78.2	55.4	93.2	25.5	69.0	57.7	9.1
Queue Delay	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	115.0	63.5	99.9	78.2	55.4	93.2	25.5	69.0	57.7	9.1
LOS	F	E	F	E	E	F	C	E	E	A
Approach Delay		69.1		80.3		77.9			56.1	
Approach LOS		E		F		E			E	

Intersection Summary		
Cycle Length: 144		
Actuated Cycle Length: 144		
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green		
Natural Cycle: 140		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.07		
Intersection Signal Delay: 73.2	Intersection LOS: E	
Intersection Capacity Utilization 105.3%	ICU Level of Service G	
Analysis Period (min) 15		

Splits and Phases: 6: Kipling Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
6: Kipling Ave. & Eglinton Ave. E.

Future Total - 2025 - AM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	1535	60	175	1510	145	125	715	155	70	485	35
Future Volume (vph)	195	1535	60	175	1510	145	125	715	155	70	485	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0	6.0	3.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	0.90	1.00	1.00	0.83
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1716	3251		1684	3269		1744	3274	1356	1551	3272	1285
Flt Permitted	0.05	1.00		0.05	1.00		0.26	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)	98	3251		97	3269		485	3274	1356	198	3272	1285
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	210	1651	65	188	1624	156	134	769	167	75	522	38
RTOR Reduction (vph)	0	2	0	0	5	0	0	0	70	0	0	29
Lane Group Flow (vph)	210	1714	0	188	1775	0	134	769	97	75	522	9
Confl. Peds. (#/hr)	50		40	40		50	107		48	48		107
Confl. Bikes (#/hr)			5			2			21			4
Heavy Vehicles (%)	4%	6%	14%	6%	4%	12%	1%	6%	6%	15%	8%	3%
Bus Blockages (#/hr)	0	12	0	0	11	0	0	14	0	0	5	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	85.0	73.0		83.0	72.0		38.0	32.0	32.0	38.0	32.0	32.0
Effective Green, g (s)	87.0	74.0		85.0	73.0		40.0	33.0	33.0	40.0	33.0	33.0
Actuated g/C Ratio	0.60	0.51		0.59	0.51		0.28	0.23	0.23	0.28	0.23	0.23
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	205	1670		189	1657		195	750	310	120	749	294
v/s Ratio Prot	c0.09	0.53		0.08	c0.54		c0.03	c0.23		0.03	0.16	
v/s Ratio Perm	0.53			0.50			0.16		0.07	0.14		0.01
v/c Ratio	1.02	1.03		0.99	1.07		0.69	1.03	0.31	0.62	0.70	0.03
Uniform Delay, d1	49.5	35.0		47.7	35.5		43.9	55.5	46.1	42.0	50.9	43.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.35	1.02	1.00
Incremental Delay, d2	69.3	29.0		63.6	44.0		9.6	39.5	0.6	9.5	2.8	0.0
Delay (s)	118.8	64.0		111.3	79.5		53.6	95.0	46.7	66.4	54.8	43.1
Level of Service	F	E		F	E		D	F	D	E	D	D
Approach Delay (s)		70.0			82.5			82.2			55.5	
Approach LOS		E			F			F			E	

Intersection Summary				
HCM 2000 Control Delay	75.1	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.03			
Actuated Cycle Length (s)	144.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	105.3%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Timings
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Total - 2025 - AM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	85	45	30	100	45	1010	50	35	550	75
Future Volume (vph)	85	45	30	100	45	1010	50	35	550	75
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	26.0	26.0	26.0	26.0	17.0	17.0	17.0	17.0	17.0	17.0
Minimum Split (s)	34.0	34.0	34.0	34.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	34.0	34.0	110.0	110.0	110.0	110.0	110.0	110.0
Total Split (%)	23.6%	23.6%	23.6%	23.6%	76.4%	76.4%	76.4%	76.4%	76.4%	76.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		7.0		7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		35.3		35.3	96.7	96.7	96.7	96.7	96.7	96.7
Actuated g/C Ratio		0.25		0.25	0.67	0.67	0.67	0.67	0.67	0.67
v/c Ratio		0.68		0.48	0.11	0.49	0.05	0.17	0.27	0.09
Control Delay		58.1		47.1	3.8	5.6	0.1	12.6	10.5	3.1
Queue Delay		0.0		0.0	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay		58.1		47.1	3.8	6.1	0.1	12.6	10.5	3.1
LOS		E		D	A	A	A	B	B	A
Approach Delay		58.1		47.1		5.7			9.7	
Approach LOS		E		D		A			A	

Intersection Summary			
Cycle Length: 144			
Actuated Cycle Length: 144			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 14.7		Intersection LOS: B	
Intersection Capacity Utilization 70.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 9: Kipling Ave. & Widdicombe Hill Blvd.

HCM Signalized Intersection Capacity Analysis
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Total - 2025 - AM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	45	45	30	100	45	45	1010	50	35	550	75
Future Volume (vph)	85	45	45	30	100	45	45	1010	50	35	550	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		0.98			0.99		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00			0.99		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.97			0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1656			1733		1638	3400	1597	1500	3275	1401
Flt Permitted		0.66			0.91		0.40	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)		1118			1593		691	3400	1597	331	3275	1401
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	93	49	49	33	110	49	49	1110	55	38	604	82
RTOR Reduction (vph)	0	8	0	0	8	0	0	0	12	0	0	22
Lane Group Flow (vph)	0	183	0	0	184	0	49	1110	43	38	604	60
Confl. Peds. (#/hr)	5		30	30		5						
Heavy Vehicles (%)	5%	5%	5%	9%	2%	0%	9%	5%	0%	19%	9%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		34.3			34.3		95.7	95.7	95.7	95.7	95.7	95.7
Effective Green, g (s)		35.3			35.3		96.7	96.7	96.7	96.7	96.7	96.7
Actuated g/C Ratio		0.25			0.25		0.67	0.67	0.67	0.67	0.67	0.67
Clearance Time (s)		8.0			8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		274			390		464	2283	1072	222	2199	940
v/s Ratio Prot								c0.33			0.18	
v/s Ratio Perm		c0.16			0.12		0.07		0.03	0.11		0.04
v/c Ratio		0.67			0.47		0.11	0.49	0.04	0.17	0.27	0.06
Uniform Delay, d1		49.0			46.4		8.4	11.5	8.0	8.8	9.5	8.1
Progression Factor		1.00			1.00		0.37	0.44	0.02	1.00	1.00	1.00
Incremental Delay, d2		6.0			0.9		0.1	0.2	0.0	1.7	0.3	0.1
Delay (s)		55.1			47.3		3.3	5.3	0.2	10.4	9.8	8.2
Level of Service		E			D		A	A	A	B	A	A
Approach Delay (s)		55.1			47.3			5.0			9.7	
Approach LOS		E			D			A			A	

Intersection Summary					
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.53				
Actuated Cycle Length (s)	144.0	Sum of lost time (s)	12.0		
Intersection Capacity Utilization	70.8%	ICU Level of Service	C		
Analysis Period (min)	15				

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
11: Widdicombe Hill Blvd. & Hunting Ridge

Future Total - 2025 - AM - Base

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	60	10	65	110	20	50
Future Volume (Veh/h)	60	10	65	110	20	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	66	11	71	121	22	55
Pedestrians				5		
Lane Width (m)				3.5		
Walking Speed (m/s)				1.2		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			77		334	76
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			77		334	76
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			95		96	94
cM capacity (veh/h)			1515		618	964

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	77	192	77
Volume Left	0	71	22
Volume Right	11	0	55
cSH	1700	1515	831
Volume to Capacity	0.05	0.05	0.09
Queue Length 95th (m)	0.0	1.2	2.4
Control Delay (s)	0.0	3.0	9.8
Lane LOS		A	A
Approach Delay (s)	0.0	3.0	9.8
Approach LOS			A

Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	28.6%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
13: Eglinton Ave. E. & South Site Access

Future Total - 2025 - AM - Base

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1690	1510	35	0	100
Future Volume (Veh/h)	0	1690	1510	35	0	100
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	1798	1606	37	0	106
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)			107			
pX, platoon unblocked	0.56				0.56	0.56
vC, conflicting volume	1643				2524	822
vC1, stage 1 conf vol					1624	
vC2, stage 2 conf vol					899	
vCu, unblocked vol	579				2150	0
tC, single (s)	4.2				6.8	7.2
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.4
p0 queue free %	100				100	82
cM capacity (veh/h)	551				224	585

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	899	899	1071	572	106
Volume Left	0	0	0	0	0
Volume Right	0	0	0	37	106
cSH	1700	1700	1700	1700	585
Volume to Capacity	0.53	0.53	0.63	0.34	0.18
Queue Length 95th (m)	0.0	0.0	0.0	0.0	5.3
Control Delay (s)	0.0	0.0	0.0	0.0	12.5
Lane LOS					B
Approach Delay (s)	0.0		0.0		12.5
Approach LOS					B

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	55.7%	ICU Level of Service		B
Analysis Period (min)	15			

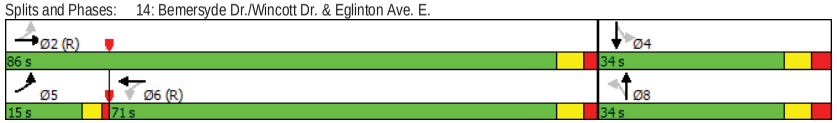
Timings
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2025 - AM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	155	1555	15	1460	20	95	120	150
Future Volume (vph)	155	1555	15	1460	20	95	120	150
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	6.0	24.0	27.0	27.0	27.0	27.0	27.0	27.0
Minimum Split (s)	10.0	30.0	33.0	33.0	34.0	34.0	34.0	34.0
Total Split (s)	15.0	86.0	71.0	71.0	34.0	34.0	34.0	34.0
Total Split (%)	12.5%	71.7%	59.2%	59.2%	28.3%	28.3%	28.3%	28.3%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	5.0	5.0		6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	83.0	81.0	67.0	67.0		28.0	28.0	28.0
Actuated g/C Ratio	0.69	0.68	0.56	0.56		0.23	0.23	0.23
v/c Ratio	0.74	0.77	0.15	0.89		0.39	0.50	0.60
Control Delay	44.2	16.1	13.6	30.4		40.6	47.6	44.3
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	44.2	16.1	13.6	30.4		40.6	47.6	44.3
LOS	D	B	B	C		D	D	D
Approach Delay		18.7		30.2		40.6		45.4
Approach LOS		B		C		D		D

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 26.7		Intersection LOS: C	
Intersection Capacity Utilization 102.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2025 - AM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	1555	10	15	1460	65	20	95	20	120	150	80
Future Volume (vph)	155	1555	10	15	1460	65	20	95	20	120	150	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		5.0	5.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99			0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1785	3253		1781	3301			1781		1776	1703	
Flt Permitted	0.06	1.00		0.10	1.00			0.88		0.60	1.00	
Satd. Flow (perm)	107	3253		194	3301			1579		1114	1703	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	167	1672	11	16	1570	70	22	102	22	129	161	86
RTOR Reduction (vph)	0	0	0	0	3	0	0	5	0	0	16	0
Lane Group Flow (vph)	167	1683	0	16	1637	0	0	141	0	129	231	0
Confl. Peds. (#/hr)	5		15	15		5	5		5	5		5
Heavy Vehicles (%)	0%	7%	0%	0%	5%	4%	0%	1%	10%	0%	6%	0%
Bus Blockages (#/hr)	0	12	0	0	11	0	0	0	0	0	0	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	80.0	80.0		66.0	66.0			27.0		27.0	27.0	
Effective Green, g (s)	81.0	81.0		67.0	67.0			28.0		28.0	28.0	
Actuated g/C Ratio	0.68	0.68		0.56	0.56			0.23		0.23	0.23	
Clearance Time (s)	4.0	6.0		6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	226	2195		108	1843			368		259	397	
v/s Ratio Prot	0.07	c0.52			c0.50						c0.14	
v/s Ratio Perm	0.43			0.08				0.09		0.12		
v/c Ratio	0.74	0.77		0.15	0.89			0.38		0.50	0.58	
Uniform Delay, d1	32.3	13.1		12.8	23.2			38.7		39.9	40.8	
Progression Factor	1.00	1.00		0.82	1.11			1.00		1.00	1.00	
Incremental Delay, d2	11.9	2.6		1.6	3.9			0.7		1.5	2.2	
Delay (s)	44.2	15.8		12.1	29.6			39.4		41.4	43.0	
Level of Service	D	B		B	C			D		D	D	
Approach Delay (s)		18.3			29.5			39.4			42.4	
Approach LOS		B			C			D			D	

Intersection Summary					
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.80				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0		
Intersection Capacity Utilization	102.8%	ICU Level of Service	G		
Analysis Period (min)	15				
c Critical Lane Group					

HCM Unsignalized Intersection Capacity Analysis
15: Wincott Dr. & Hunting Ridge

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	35	35	130	205	145
Future Volume (Veh/h)	85	35	35	130	205	145
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)	92	38	38	141	223	158
Pedestrians	10					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				163		
pX, platoon unblocked						
vC, conflicting volume	529	312	391			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	529	312	391			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	81	95	97			
cM capacity (veh/h)	493	722	1169			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	130	179	381
Volume Left	92	38	0
Volume Right	38	0	158
cSH	543	1169	1700
Volume to Capacity	0.24	0.03	0.22
Queue Length 95th (m)	7.4	0.8	0.0
Control Delay (s)	13.7	2.0	0.0
Lane LOS	B	A	
Approach Delay (s)	13.7	2.0	0.0
Approach LOS	B		

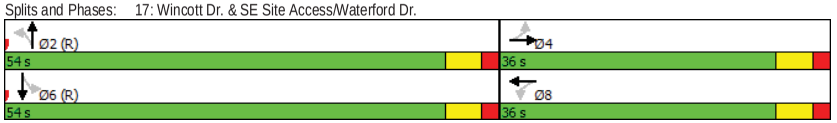
Intersection Summary				
Average Delay		3.1		
Intersection Capacity Utilization		45.7%	ICU Level of Service	A
Analysis Period (min)		15		

Timings
17: Wincott Dr. & SE Site Access/Waterford Dr.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	70	30	40	20	180	85	5	175
Future Volume (vph)	70	30	40	20	180	85	5	175
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	36.0	36.0	36.0	36.0	54.0	54.0	54.0	54.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)	19.0	19.0		19.0	61.0	61.0		61.0
Actuated g/C Ratio	0.21	0.21		0.21	0.68	0.68		0.68
v/c Ratio	0.33	0.46		0.42	0.33	0.15		0.27
Control Delay	33.9	11.4		32.2	7.5	4.1		5.8
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay	33.9	11.4		32.2	7.5	4.1		5.8
LOS	C	B		C	A	A		A
Approach Delay		18.1		32.2		6.1		5.8
Approach LOS		B		C		A		A

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.46			
Intersection Signal Delay: 11.6		Intersection LOS: B	
Intersection Capacity Utilization 76.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 17: Wincott Dr. & SE Site Access/Waterford Dr.



HCM Signalized Intersection Capacity Analysis
17: Wincott Dr. & SE Site Access/Waterford Dr.

Future Total - 2025 - AM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	30	135	40	20	15	180	85	45	5	175	60
Future Volume (vph)	70	30	135	40	20	15	180	85	45	5	175	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.97			1.00		1.00	0.98			0.98	
Flpb, ped/bikes	1.00	1.00			0.99		0.97	1.00			1.00	
Frt	1.00	0.88			0.97		1.00	0.95			0.97	
Flt Protected	0.95	1.00			0.97		0.95	1.00			1.00	
Satd. Flow (prot)	1781	1547			1691		1731	1692			1731	
Flt Permitted	0.71	1.00			0.62		0.58	1.00			1.00	
Satd. Flow (perm)	1337	1547			1071		1059	1692			1724	
Peak-hour factor, PHF	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Adj. Flow (vph)	92	39	178	53	26	20	237	112	59	7	230	79
RTOR Reduction (vph)	0	140	0	0	12	0	0	15	0	0	9	0
Lane Group Flow (vph)	92	77	0	0	87	0	237	156	0	0	307	0
Confl. Peds. (#/hr)	1		7	7		1	20		14	14		20
Heavy Vehicles (%)	0%	0%	4%	3%	5%	6%	0%	4%	2%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.0	18.0			18.0		60.0	60.0			60.0	
Effective Green, g (s)	19.0	19.0			19.0		61.0	61.0			61.0	
Actuated g/C Ratio	0.21	0.21			0.21		0.68	0.68			0.68	
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	282	326			226		717	1146			1168	
v/s Ratio Prot		0.05						0.09				
v/s Ratio Perm	0.07				c0.08		c0.22				0.18	
v/c Ratio	0.33	0.23			0.39		0.33	0.14			0.26	
Uniform Delay, d1	30.1	29.5			30.5		6.0	5.1			5.7	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.7	0.4			1.1		1.2	0.2			0.5	
Delay (s)	30.8	29.8			31.6		7.3	5.4			6.2	
Level of Service	C	C			C		A	A			A	
Approach Delay (s)		30.1			31.6			6.5			6.2	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.34			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	76.7%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
20: Bemersyde Dr. & Oldham Rd.

Future Total - 2025 - AM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	10	155	0	5	125
Future Volume (Veh/h)	5	10	155	0	5	125
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	11	170	0	5	137
Pedestrians	5					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						79
pX, platoon unblocked						
vC, conflicting volume	322	175			175	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	322	175			175	
tC, single (s)	6.4	6.3			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.4	
p0 queue free %	99	99			100	
cM capacity (veh/h)	670	842			1269	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	16	170	142
Volume Left	5	0	5
Volume Right	11	0	0
cSH	780	1700	1269
Volume to Capacity	0.02	0.10	0.00
Queue Length 95th (m)	0.5	0.0	0.1
Control Delay (s)	9.7	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	0.3
Approach LOS	A		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
25: Wincott Dr. & NE Site Access

Future Total - 2025 - AM - Base

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	20	25	145	220	20
Future Volume (Veh/h)	15	20	25	145	220	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	22	28	161	244	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				61		
pX, platoon unblocked	0.97					
vC, conflicting volume	472	255	266			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	442	255	266			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	97	98			
cM capacity (veh/h)	545	784	1298			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	39	189	266
Volume Left	17	28	0
Volume Right	22	0	22
cSH	658	1298	1700
Volume to Capacity	0.06	0.02	0.16
Queue Length 95th (m)	1.5	0.5	0.0
Control Delay (s)	10.8	1.3	0.0
Lane LOS	B	A	
Approach Delay (s)	10.8	1.3	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		1.4		
Intersection Capacity Utilization		35.1%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
26: Widdicombe Hill Blvd. & NW Site Access

Future Total - 2025 - AM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	70	20	50	95	15	60
Future Volume (Veh/h)	70	20	50	95	15	60
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	78	22	56	106	17	67
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			330			
pX, platoon unblocked						
vC, conflicting volume	210	109			162	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	210	109			162	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	98			99	
cM capacity (veh/h)	769	945			1417	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	100	162	84
Volume Left	78	0	17
Volume Right	22	106	0
cSH	802	1700	1417
Volume to Capacity	0.12	0.10	0.01
Queue Length 95th (m)	3.4	0.0	0.3
Control Delay (s)	10.1	0.0	1.6
Lane LOS	B		A
Approach Delay (s)	10.1	0.0	1.6
Approach LOS	B		

Intersection Summary				
Average Delay		3.3		
Intersection Capacity Utilization		27.5%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
29: Wincott Dr. & 265 Wincott Dr. Plaza South

Future Total - 2025 - AM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	0	295	20	15	345
Future Volume (Veh/h)	5	0	295	20	15	345
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	0	328	22	17	383
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			72			58
pX, platoon unblocked	0.93	0.93			0.93	
vC, conflicting volume	756	339			350	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	663	246			258	
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			99	
cM capacity (veh/h)	392	734			1210	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	6	350	400
Volume Left	6	0	17
Volume Right	0	22	0
cSH	392	1700	1210
Volume to Capacity	0.02	0.21	0.01
Queue Length 95th (m)	0.4	0.0	0.3
Control Delay (s)	14.3	0.0	0.5
Lane LOS	B		A
Approach Delay (s)	14.3	0.0	0.5
Approach LOS	B		

Intersection Summary				
Average Delay		0.4		
Intersection Capacity Utilization		40.3%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
31: Wincott Dr. & 265 Wincott Dr. Plaza North

Future Total - 2025 - AM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	15	295	0	5	345
Future Volume (Veh/h)	15	15	295	0	5	345
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	17	328	0	6	383
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			28
pX, platoon unblocked	0.97	0.95			0.95	
vC, conflicting volume	723	328			328	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	602	265			265	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	98			100	
cM capacity (veh/h)	447	734			1233	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	34	328	389
Volume Left	17	0	6
Volume Right	17	0	0
cSH	555	1700	1233
Volume to Capacity	0.06	0.19	0.00
Queue Length 95th (m)	1.6	0.0	0.1
Control Delay (s)	11.9	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	11.9	0.0	0.2
Approach LOS	B		

Intersection Summary				
Average Delay		0.6		
Intersection Capacity Utilization		32.2%	ICU Level of Service	A
Analysis Period (min)		15		

Timings
3: Islington Ave. & Eglinton Ave. E.

Future Total - 2025 - PM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	245	1565	135	1210	75	1025	165	70	850	100
Future Volume (vph)	245	1565	135	1210	75	1025	165	70	850	100
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2	1	6	3	8		7	4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	6.0	30.0	6.0	30.0	7.0	27.0	27.0	7.0	27.0	27.0
Minimum Split (s)	10.0	36.0	10.0	36.0	11.0	33.0	33.0	11.0	33.0	33.0
Total Split (s)	17.0	60.0	10.0	53.0	11.0	39.0	39.0	11.0	39.0	39.0
Total Split (%)	14.2%	50.0%	8.3%	44.2%	9.2%	32.5%	32.5%	9.2%	32.5%	32.5%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	Min	Min	None	Min	Min
Act Effct Green (s)	67.0	55.0	57.0	48.0	44.6	36.2	36.2	44.6	36.2	36.2
Actuated g/C Ratio	0.56	0.46	0.48	0.40	0.37	0.30	0.30	0.37	0.30	0.30
v/c Ratio	0.94	1.08	0.83	0.98	0.43	1.01	0.31	0.40	0.85	0.19
Control Delay	73.1	72.2	59.9	55.7	31.1	72.6	10.4	29.9	48.9	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.1	72.2	59.9	55.7	31.1	72.6	10.4	29.9	48.9	3.1
LOS	E	E	E	E	C	E	B	C	D	A
Approach Delay		72.3		56.1		62.1			43.1	
Approach LOS		E		E		E			D	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 60.6		Intersection LOS: E	
Intersection Capacity Utilization 102.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Islington Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
3: Islington Ave. & Eglinton Ave. E.

Future Total - 2025 - PM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	1565	75	135	1210	55	75	1025	165	70	850	100
Future Volume (vph)	245	1565	75	135	1210	55	75	1025	165	70	850	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3399		1750	3326		1749	3471	1526	1785	3437	1503
Flt Permitted	0.08	1.00		0.08	1.00		0.11	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	147	3399		156	3326		203	3471	1526	208	3437	1503
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	253	1613	77	139	1247	57	77	1057	170	72	876	103
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	95	0	0	72
Lane Group Flow (vph)	253	1687	0	139	1301	0	77	1057	75	72	876	31
Confl. Peds. (#/hr)	18		45	45		18	36		25	25		36
Heavy Vehicles (%)	2%	2%	0%	2%	4%	2%	2%	1%	0%	0%	2%	0%
Bus Blockages (#/hr)	0	10	0	0	12	0	0	9	0	0	9	0
Parking (#/hr)			0									
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	63.2	53.2		52.2	46.2		40.8	35.2	35.2	40.8	35.2	35.2
Effective Green, g (s)	64.2	54.2		54.2	47.2		42.8	36.2	36.2	42.8	36.2	36.2
Actuated g/C Ratio	0.54	0.45		0.45	0.39		0.36	0.30	0.30	0.36	0.30	0.30
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	265	1535		163	1308		157	1047	460	160	1036	453
v/s Ratio Prot	c0.11	c0.50		0.05	0.39		c0.03	c0.30		0.02	0.25	
v/s Ratio Perm	0.40			0.33			0.15		0.05	0.14		0.02
v/c Ratio	0.95	1.10		0.85	0.99		0.49	1.01	0.16	0.45	0.85	0.07
Uniform Delay, d1	36.5	32.9		28.0	36.3		28.7	41.9	30.8	30.4	39.3	29.9
Progression Factor	1.48	0.82		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	31.1	51.4		32.6	23.6		2.4	30.2	0.2	2.0	6.5	0.1
Delay (s)	85.3	78.5		60.6	59.9		31.1	72.1	30.9	32.4	45.8	29.9
Level of Service	F	E		E	E		C	E	C	C	D	C
Approach Delay (s)		79.4			60.0			64.3			43.3	
Approach LOS		E			E			E			D	

Intersection Summary					
HCM 2000 Control Delay	64.5	HCM 2000 Level of Service		E	
HCM 2000 Volume to Capacity ratio	1.04				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		16.0	
Intersection Capacity Utilization	102.5%	ICU Level of Service		G	
Analysis Period (min)	15				

c Critical Lane Group

Timings
6: Kipling Ave. & Eglinton Ave. E.

Future Total - 2025 - PM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	230	1760	145	1675	130	750	150	60	525	55
Future Volume (vph)	230	1760	145	1675	130	750	150	60	525	55
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6	3	8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	3	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	33.0	6.0	33.0	6.0	29.0	29.0	29.0	29.0	29.0
Minimum Split (s)	10.0	40.0	10.0	40.0	10.0	36.0	36.0	36.0	36.0	36.0
Total Split (s)	15.0	72.0	10.0	67.0	10.0	46.0	46.0	36.0	36.0	36.0
Total Split (%)	11.7%	56.3%	7.8%	52.3%	7.8%	35.9%	35.9%	28.1%	28.1%	28.1%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	Min	Min	Min	Min	Min
Act Effct Green (s)	79.0	66.0	71.0	61.0	43.0	40.0	40.0	30.0	30.0	30.0
Actuated g/C Ratio	0.62	0.52	0.55	0.48	0.34	0.31	0.31	0.23	0.23	0.23
v/c Ratio	1.08	1.10	1.01	1.09	0.68	0.78	0.31	0.74	0.72	0.14
Control Delay	117.6	83.6	105.3	83.8	49.4	46.1	14.7	84.6	45.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	117.6	83.6	105.3	83.8	49.4	46.1	14.7	84.6	45.8	5.0
LOS	F	F	F	F	D	D	B	F	D	A
Approach Delay		87.4		85.5		41.9			46.0	
Approach LOS		F		F		D			D	

Intersection Summary		
Cycle Length: 128		
Actuated Cycle Length: 128		
Offset: 50 (39%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green		
Natural Cycle: 140		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.10		
Intersection Signal Delay: 73.7	Intersection LOS: E	
Intersection Capacity Utilization 128.3%	ICU Level of Service H	
Analysis Period (min) 15		

Splits and Phases: 6: Kipling Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
6: Kipling Ave. & Eglinton Ave. E.

Future Total - 2025 - PM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	1760	85	145	1675	80	130	750	150	60	525	55
Future Volume (vph)	230	1760	85	145	1675	80	130	750	150	60	525	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	*0.99		1.00	*1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.93	1.00	1.00	0.89
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.99	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1806	3500		1733	3549		1742	3323	1449	1645	3345	1397
Flt Permitted	0.06	1.00		0.07	1.00		0.22	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	114	3500		120	3549		406	3323	1449	378	3345	1397
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.95	0.95	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	247	1892	91	156	1763	84	140	806	161	65	565	59
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	70	0	0	45
Lane Group Flow (vph)	247	1980	0	156	1844	0	140	806	91	65	565	14
Confl. Peds. (#/hr)	20		82	82		20	58		40	40		58
Confl. Bikes (#/hr)			3						16			25
Heavy Vehicles (%)	3%	3%	2%	3%	3%	7%	2%	4%	2%	7%	5%	2%
Bus Blockages (#/hr)	0	10	0	0	12	0	0	16	0	0	8	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	75.0	65.0		66.0	60.0		39.0	39.0	39.0	29.0	29.0	29.0
Effective Green, g (s)	76.0	66.0		68.0	61.0		40.0	40.0	40.0	30.0	30.0	30.0
Actuated g/C Ratio	0.59	0.52		0.53	0.48		0.31	0.31	0.31	0.23	0.23	0.23
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	1804		151	1691		199	1038	452	88	783	327
v/s Ratio Prot	c0.10	c0.57		0.06	0.52		0.04	c0.24			0.17	
v/s Ratio Perm	0.55			0.49			0.18		0.06	0.17		0.01
v/c Ratio	1.09	1.10		1.03	1.09		0.70	0.78	0.20	0.74	0.72	0.04
Uniform Delay, d1	42.9	31.0		35.8	33.5		35.4	39.9	32.3	45.4	45.2	37.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.89	0.89	1.00
Incremental Delay, d2	86.9	53.2		82.3	51.1		10.7	3.7	0.2	26.4	3.2	0.1
Delay (s)	129.8	84.2		118.0	84.6		46.1	43.6	32.5	66.8	43.1	37.9
Level of Service	F	F		F	F		D	D	C	E	D	D
Approach Delay (s)		89.2			87.2			42.3			44.9	
Approach LOS		F			F			D			D	

Intersection Summary				
HCM 2000 Control Delay	74.9	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.03			
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	128.3%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

Timings
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Total - 2025 - PM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	90	80	25	65	50	930	75	60	720	75
Future Volume (vph)	90	80	25	65	50	930	75	60	720	75
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	26.0	26.0	26.0	26.0	17.0	17.0	17.0	17.0	17.0	17.0
Minimum Split (s)	34.0	34.0	34.0	34.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	34.0	34.0	94.0	94.0	94.0	94.0	94.0	94.0
Total Split (%)	26.6%	26.6%	26.6%	26.6%	73.4%	73.4%	73.4%	73.4%	73.4%	73.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		7.0		7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		28.5		28.5	87.5	87.5	87.5	87.5	87.5	87.5
Actuated g/C Ratio		0.22		0.22	0.68	0.68	0.68	0.68	0.68	0.68
v/c Ratio		0.66		0.34	0.12	0.40	0.07	0.18	0.32	0.07
Control Delay		54.2		40.2	10.3	11.9	6.1	9.5	8.8	3.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		54.2		40.2	10.3	11.9	6.1	9.5	8.8	3.2
LOS		D		D	B	B	A	A	A	A
Approach Delay		54.2		40.2		11.4			8.4	
Approach LOS		D		D		B			A	

Intersection Summary			
Cycle Length: 128			
Actuated Cycle Length: 128			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 15.7		Intersection LOS: B	
Intersection Capacity Utilization 75.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 9: Kipling Ave. & Widdicombe Hill Blvd.

HCM Signalized Intersection Capacity Analysis
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Total - 2025 - PM - Base

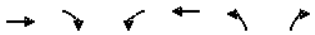
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	80	35	25	65	30	50	930	75	60	720	75
Future Volume (vph)	90	80	35	25	65	30	50	930	75	60	720	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		0.99			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00			0.99		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.98			0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1772			1757		1750	3466	1566	1785	3433	1597
Flt Permitted		0.78			0.89		0.34	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)		1415			1581		633	3466	1566	492	3433	1597
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	93	82	36	26	67	31	52	959	77	62	742	77
RTOR Reduction (vph)	0	5	0	0	9	0	0	0	14	0	0	16
Lane Group Flow (vph)	0	206	0	0	115	0	52	959	63	62	742	61
Confl. Peds. (#/hr)	5		35	35		5						
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%	2%	3%	2%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		27.5			27.5		86.5	86.5	86.5	86.5	86.5	86.5
Effective Green, g (s)		28.5			28.5		87.5	87.5	87.5	87.5	87.5	87.5
Actuated g/C Ratio		0.22			0.22		0.68	0.68	0.68	0.68	0.68	0.68
Clearance Time (s)		8.0			8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		315			352		432	2369	1070	336	2346	1091
v/s Ratio Prot								c0.28			0.22	
v/s Ratio Perm		c0.15			0.07		0.08		0.04	0.13		0.04
v/c Ratio		0.65			0.33		0.12	0.40	0.06	0.18	0.32	0.06
Uniform Delay, d1		45.2			41.7		7.0	8.9	6.7	7.3	8.2	6.7
Progression Factor		1.00			1.00		1.29	1.27	1.60	1.00	1.00	1.00
Incremental Delay, d2		4.8			0.5		0.3	0.2	0.0	1.2	0.4	0.1
Delay (s)		50.0			42.2		9.3	11.5	10.8	8.5	8.5	6.8
Level of Service		D			D		A	B	B	A	A	A
Approach Delay (s)		50.0			42.2			11.3			8.4	
Approach LOS		D			D			B			A	

Intersection Summary					
HCM 2000 Control Delay		15.4	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.47			
Actuated Cycle Length (s)		128.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization		75.7%	ICU Level of Service		D
Analysis Period (min)		15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
11: Widdicombe Hill Blvd. & Hunting Ridge

Future Total - 2025 - PM - Base



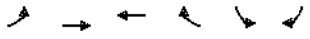
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	40	15	35	60	15	65
Future Volume (Veh/h)	40	15	35	60	15	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	46	17	40	69	17	75
Pedestrians				10		
Lane Width (m)				3.5		
Walking Speed (m/s)				1.2		
Percent Blockage				1		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			63		204	64
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			63		204	64
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		98	92
cM capacity (veh/h)			1533		769	997

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	63	109	92
Volume Left	0	40	17
Volume Right	17	0	75
cSH	1700	1533	945
Volume to Capacity	0.04	0.03	0.10
Queue Length 95th (m)	0.0	0.6	2.6
Control Delay (s)	0.0	2.8	9.2
Lane LOS		A	A
Approach Delay (s)	0.0	2.8	9.2
Approach LOS			A

Intersection Summary				
Average Delay		4.4		
Intersection Capacity Utilization		26.3%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
13: Eglinton Ave. E. & South Site Access

Future Total - 2025 - PM - Base



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1950	1125	80	0	145
Future Volume (Veh/h)	0	1950	1125	80	0	145
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	2010	1160	82	0	149
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)			107			
pX, platoon unblocked	0.69				0.69	0.69
vC, conflicting volume	1242				2206	621
vC1, stage 1 conf vol					1201	
vC2, stage 2 conf vol					1005	
vCu, unblocked vol	434				1841	0
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	80
cM capacity (veh/h)	774				256	741

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	1005	1005	773	469	149
Volume Left	0	0	0	0	0
Volume Right	0	0	0	82	149
cSH	1700	1700	1700	1700	741
Volume to Capacity	0.59	0.59	0.45	0.28	0.20
Queue Length 95th (m)	0.0	0.0	0.0	0.0	6.0
Control Delay (s)	0.0	0.0	0.0	0.0	11.1
Lane LOS					B
Approach Delay (s)	0.0		0.0		11.1
Approach LOS					B

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		57.2%	ICU Level of Service	B
Analysis Period (min)		15		

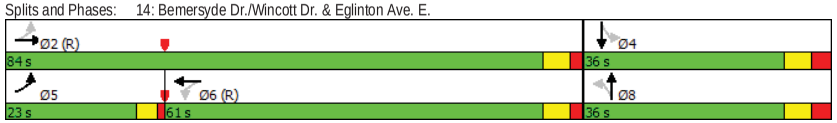
Timings
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2025 - PM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	260	1685	10	1120	15	130	175	125
Future Volume (vph)	260	1685	10	1120	15	130	175	125
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	6.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Minimum Split (s)	10.0	30.0	30.0	30.0	34.0	34.0	34.0	34.0
Total Split (s)	23.0	84.0	61.0	61.0	36.0	36.0	36.0	36.0
Total Split (%)	19.2%	70.0%	50.8%	50.8%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	5.0	5.0		6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	81.9	79.9	59.8	59.8		29.1	29.1	29.1
Actuated g/C Ratio	0.68	0.67	0.50	0.50		0.24	0.24	0.24
v/c Ratio	0.78	0.79	0.13	0.78		0.41	0.79	0.46
Control Delay	37.9	17.6	33.7	42.1		40.4	66.4	38.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	37.9	17.6	33.7	42.1		40.4	66.4	38.1
LOS	D	B	C	D		D	E	D
Approach Delay		20.3		42.1		40.4		51.7
Approach LOS		C		D		D		D

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 31.5		Intersection LOS: C	
Intersection Capacity Utilization 130.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2025 - PM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	1685	10	10	1120	105	15	130	20	175	125	65
Future Volume (vph)	260	1685	10	10	1120	105	15	130	20	175	125	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		5.0	5.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.97	1.00	
Frt	1.00	1.00		1.00	0.99			0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1785	3392		1777	3294			1790		1679	1746	
Flt Permitted	0.10	1.00		0.09	1.00			0.96		0.55	1.00	
Satd. Flow (perm)	183	3392		166	3294			1726		967	1746	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	274	1774	11	11	1179	111	16	137	21	184	132	68
RTOR Reduction (vph)	0	0	0	0	6	0	0	4	0	0	16	0
Lane Group Flow (vph)	274	1785	0	11	1284	0	0	170	0	184	184	0
Confl. Peds. (#/hr)	10		35	35		10	15		35	35		15
Heavy Vehicles (%)	0%	3%	0%	0%	4%	4%	6%	1%	5%	3%	0%	3%
Bus Blockages (#/hr)	0	10	0	0	12	0	0	0	0	0	0	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	78.9	78.9		58.9	58.9			28.1		28.1	28.1	
Effective Green, g (s)	79.9	79.9		59.9	59.9			29.1		29.1	29.1	
Actuated g/C Ratio	0.67	0.67		0.50	0.50			0.24		0.24	0.24	
Clearance Time (s)	4.0	6.0		6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	348	2258		82	1644			418		234	423	
v/s Ratio Prot	0.11	c0.53			0.39						0.11	
v/s Ratio Perm	0.41			0.07				0.10		c0.19		
v/c Ratio	0.79	0.79		0.13	0.78			0.41		0.79	0.44	
Uniform Delay, d1	28.0	14.1		16.1	24.7			38.2		42.5	38.5	
Progression Factor	1.00	1.00		1.61	1.57			1.00		1.00	1.00	
Incremental Delay, d2	11.2	2.9		1.5	1.6			0.6		15.8	0.7	
Delay (s)	39.2	17.1		27.4	40.3			38.8		58.4	39.2	
Level of Service	D	B		C	D			D		E	D	
Approach Delay (s)		20.0			40.2			38.8			48.4	
Approach LOS		C			D			D			D	

Intersection Summary					
HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.81				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0		
Intersection Capacity Utilization	130.2%	ICU Level of Service	H		
Analysis Period (min)	15				
c Critical Lane Group					

HCM Unsignalized Intersection Capacity Analysis
15: Wincott Dr. & Hunting Ridge

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	30	30	235	180	85
Future Volume (Veh/h)	90	30	30	235	180	85
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	96	32	32	250	191	90
Pedestrians	10					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				163		
pX, platoon unblocked						
vC, conflicting volume	560	246	291			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	560	246	291			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	80	96	97			
cM capacity (veh/h)	476	791	1255			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	128	282	281
Volume Left	96	32	0
Volume Right	32	0	90
cSH	529	1255	1700
Volume to Capacity	0.24	0.03	0.17
Queue Length 95th (m)	7.5	0.6	0.0
Control Delay (s)	14.0	1.1	0.0
Lane LOS	B	A	
Approach Delay (s)	14.0	1.1	0.0
Approach LOS	B		

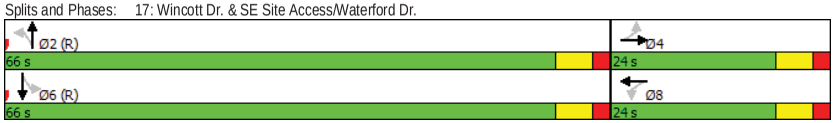
Intersection Summary				
Average Delay		3.0		
Intersection Capacity Utilization		45.8%	ICU Level of Service	A
Analysis Period (min)		15		

Timings
17: Wincott Dr. & SE Site Access/Waterford Dr.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	90	50	35	55	310	175	10	140
Future Volume (vph)	90	50	35	55	310	175	10	140
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	24.0	24.0	66.0	66.0	66.0	66.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)	20.1	20.1		20.1	59.9	59.9		59.9
Actuated g/C Ratio	0.22	0.22		0.22	0.67	0.67		0.67
v/c Ratio	0.38	0.57		0.49	0.50	0.19		0.24
Control Delay	33.7	14.2		35.6	11.0	5.9		5.1
Queue Delay	0.0	0.0		0.0	0.5	0.0		0.0
Total Delay	33.7	14.2		35.6	11.5	5.9		5.1
LOS	C	B		D	B	A		A
Approach Delay		19.3		35.6		9.3		5.1
Approach LOS		B		D		A		A

Intersection Summary		
Cycle Length: 90		
Actuated Cycle Length: 90		
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		
Natural Cycle: 60		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.57		
Intersection Signal Delay: 13.6	Intersection LOS: B	
Intersection Capacity Utilization 80.1%	ICU Level of Service D	
Analysis Period (min) 15		

Splits and Phases: 17: Wincott Dr. & SE Site Access/Waterford Dr.



HCM Signalized Intersection Capacity Analysis
17: Wincott Dr. & SE Site Access/Waterford Dr.

Future Total - 2025 - PM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	50	205	35	55	15	310	175	30	10	140	90
Future Volume (vph)	90	50	205	35	55	15	310	175	30	10	140	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.94			1.00		1.00	0.99			0.96	
Flpb, ped/bikes	1.00	1.00			0.99		0.94	1.00			1.00	
Frt	1.00	0.88			0.98		1.00	0.98			0.95	
Flt Protected	0.95	1.00			0.98		0.95	1.00			1.00	
Satd. Flow (prot)	1743	1557			1763		1678	1817			1685	
Flt Permitted	0.67	1.00			0.60		0.61	1.00			0.99	
Satd. Flow (perm)	1230	1557			1071		1071	1817			1668	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	103	57	236	40	63	17	356	201	34	11	161	103
RTOR Reduction (vph)	0	163	0	0	6	0	0	7	0	0	25	0
Lane Group Flow (vph)	103	130	0	0	114	0	356	228	0	0	250	0
Confl. Peds. (#/hr)	2		21	21		2	37		12	12		37
Heavy Vehicles (%)	2%	0%	0%	0%	3%	0%	0%	0%	3%	11%	0%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	19.1	19.1			19.1		58.9	58.9			58.9	
Effective Green, g (s)	20.1	20.1			20.1		59.9	59.9			59.9	
Actuated g/C Ratio	0.22	0.22			0.22		0.67	0.67			0.67	
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	274	347			239		712	1209			1110	
v/s Ratio Prot		0.08						0.13				
v/s Ratio Perm	0.08				c0.11		c0.33				0.15	
v/c Ratio	0.38	0.37			0.48		0.50	0.19			0.23	
Uniform Delay, d1	29.6	29.6			30.4		7.5	5.8			5.9	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.9	0.7			1.5		2.5	0.3			0.5	
Delay (s)	30.5	30.3			31.9		10.0	6.1			6.4	
Level of Service	C	C			C		B	A			A	
Approach Delay (s)		30.4			31.9			8.5			6.4	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.49			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	80.1%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
20: Bemersyde Dr. & Oldham Rd.

Future Total - 2025 - PM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	5	135	0	5	130
Future Volume (Veh/h)	0	5	135	0	5	130
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	5	145	0	5	140
Pedestrians	15					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						79
pX, platoon unblocked	0.94					
vC, conflicting volume	310	160			160	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	240	160			160	
tC, single (s)	6.4	6.5			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.6			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	700	809			1414	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	145	145
Volume Left	0	0	5
Volume Right	5	0	0
cSH	809	1700	1414
Volume to Capacity	0.01	0.09	0.00
Queue Length 95th (m)	0.1	0.0	0.1
Control Delay (s)	9.5	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	0.3
Approach LOS	A		

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	20.9%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
25: Wincott Dr. & NE Site Access

Future Total - 2025 - PM - Base

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	45	30	250	200	10
Future Volume (Veh/h)	20	45	30	250	200	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	21	47	32	263	211	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)				61		
pX, platoon unblocked	0.93					
vC, conflicting volume	544	216	222			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	470	216	222			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	94	98			
cM capacity (veh/h)	500	823	1347			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	68	295	222
Volume Left	21	32	0
Volume Right	47	0	11
cSH	687	1347	1700
Volume to Capacity	0.10	0.02	0.13
Queue Length 95th (m)	2.6	0.6	0.0
Control Delay (s)	10.8	1.0	0.0
Lane LOS	B	A	
Approach Delay (s)	10.8	1.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		1.8		
Intersection Capacity Utilization		39.8%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
26: Widdicombe Hill Blvd. & NW Site Access

Future Total - 2025 - PM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	85	20	60	120	15	35
Future Volume (Veh/h)	85	20	60	120	15	35
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	89	21	63	126	16	37
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			330			
pX, platoon unblocked						
vC, conflicting volume	195	126			189	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	195	126			189	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	98			99	
cM capacity (veh/h)	785	924			1385	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	110	189	53
Volume Left	89	0	16
Volume Right	21	126	0
cSH	808	1700	1385
Volume to Capacity	0.14	0.11	0.01
Queue Length 95th (m)	3.8	0.0	0.3
Control Delay (s)	10.2	0.0	2.4
Lane LOS	B		A
Approach Delay (s)	10.2	0.0	2.4
Approach LOS	B		

Intersection Summary				
Average Delay		3.5		
Intersection Capacity Utilization		27.7%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	0	480	15	10	360
Future Volume (Veh/h)	5	0	480	15	10	360
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	5	0	505	16	11	379
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			72			58
pX, platoon unblocked	0.87	0.87			0.87	
vC, conflicting volume	914	513			521	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	829	370			380	
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			99	
cM capacity (veh/h)	294	590			1030	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	521	390
Volume Left	5	0	11
Volume Right	0	16	0
cSH	294	1700	1030
Volume to Capacity	0.02	0.31	0.01
Queue Length 95th (m)	0.4	0.0	0.3
Control Delay (s)	17.4	0.0	0.4
Lane LOS	C		A
Approach Delay (s)	17.4	0.0	0.4
Approach LOS	C		

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		37.0%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	20	480	0	0	370
Future Volume (Veh/h)	10	20	480	0	0	370
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	21	505	0	0	389
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			28
pX, platoon unblocked	0.88	0.88			0.88	
vC, conflicting volume	894	505			505	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	815	375			375	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	96			100	
cM capacity (veh/h)	307	594			1047	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	32	505	389
Volume Left	11	0	0
Volume Right	21	0	0
cSH	449	1700	1047
Volume to Capacity	0.07	0.30	0.00
Queue Length 95th (m)	1.8	0.0	0.0
Control Delay (s)	13.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.6	0.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		35.3%	ICU Level of Service	A
Analysis Period (min)		15		

Timings
3: Islington Ave. & Eglinton Ave. E.

Future Total - 2025 - SAT - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	120	1515	105	1295	105	615	110	75	550	140
Future Volume (vph)	120	1515	105	1295	105	615	110	75	550	140
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	30.0	6.0	30.0	27.0	27.0	27.0	27.0	27.0	27.0
Minimum Split (s)	10.0	36.0	10.0	36.0	33.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	12.0	71.0	10.0	69.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	10.0%	59.2%	8.3%	57.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	None	C-Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	78.7	68.0	76.3	66.8	31.5	31.5	31.5	31.5	31.5	31.5
Actuated g/C Ratio	0.66	0.57	0.64	0.56	0.26	0.26	0.26	0.26	0.26	0.26
v/c Ratio	0.54	0.85	0.62	0.74	0.85	0.70	0.26	0.74	0.63	0.31
Control Delay	27.2	15.7	34.4	23.3	90.0	44.5	17.4	80.2	42.4	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	15.7	34.4	23.3	90.0	44.5	17.4	80.2	42.4	14.5
LOS	C	B	C	C	F	D	B	F	D	B
Approach Delay		16.5		24.1		46.7			41.0	
Approach LOS		B		C		D			D	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 28.0		Intersection LOS: C	
Intersection Capacity Utilization 111.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 3: Islington Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
3: Islington Ave. & Eglinton Ave. E.

Future Total - 2025 - SAT - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	1515	90	105	1295	70	105	615	110	75	550	140
Future Volume (vph)	120	1515	90	105	1295	70	105	615	110	75	550	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		3.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1733	3416		1767	3431		1755	3437	1486	1764	3417	1516
Flt Permitted	0.10	1.00		0.06	1.00		0.26	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)	177	3416		111	3431		487	3437	1486	396	3417	1516
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	124	1562	93	108	1335	72	108	634	113	77	567	144
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	47	0	0	71
Lane Group Flow (vph)	124	1652	0	108	1404	0	108	634	66	77	567	73
Confl. Peds. (#/hr)	10		15	15		10	15		30	30		15
Heavy Vehicles (%)	3%	2%	2%	1%	2%	0%	1%	2%	2%	0%	3%	2%
Bus Blockages (#/hr)	0	7	0	0	6	0	0	9	0	0	7	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	74.7	67.0		72.3	65.8		30.5	30.5	30.5	30.5	30.5	30.5
Effective Green, g (s)	76.7	68.0		74.3	66.8		31.5	31.5	31.5	31.5	31.5	31.5
Actuated g/C Ratio	0.64	0.57		0.62	0.56		0.26	0.26	0.26	0.26	0.26	0.26
Clearance Time (s)	4.0	6.0		4.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	225	1935		172	1909		127	902	390	103	896	397
v/s Ratio Prot	c0.04	c0.48		c0.04	0.41			0.18			0.17	
v/s Ratio Perm	0.31			0.35			c0.22		0.04	0.19		0.05
v/c Ratio	0.55	0.85		0.63	0.74		0.85	0.70	0.17	0.75	0.63	0.18
Uniform Delay, d1	15.6	21.8		20.9	20.0		42.0	40.0	34.1	40.6	39.1	34.3
Progression Factor	2.12	0.52		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	3.7		7.0	2.6		38.8	2.5	0.2	25.2	1.5	0.2
Delay (s)	35.2	15.1		27.9	22.5		80.8	42.5	34.4	65.8	40.6	34.5
Level of Service	D	B		C	C		F	D	C	E	D	C
Approach Delay (s)		16.5			22.9			46.3			42.0	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	111.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Timings
6: Kipling Ave. & Eglinton Ave. E.

Future Total - 2025 - SAT - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	160	1610	140	1365	105	420	110	35	360	60
Future Volume (vph)	160	1610	140	1365	105	420	110	35	360	60
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	33.0	6.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Minimum Split (s)	10.0	40.0	10.0	40.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (s)	10.0	74.0	10.0	74.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	8.3%	61.7%	8.3%	61.7%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	None	C-Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	78.0	68.0	78.0	68.0	30.0	30.0	30.0	30.0	30.0	30.0
Actuated g/C Ratio	0.65	0.57	0.65	0.57	0.25	0.25	0.25	0.25	0.25	0.25
v/c Ratio	1.09	1.01	0.95	0.84	0.65	0.56	0.28	0.25	0.48	0.16
Control Delay	122.5	48.3	85.3	18.6	58.0	42.2	16.1	35.2	33.8	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	122.5	48.3	85.3	18.6	58.0	42.2	16.1	35.2	33.8	5.1
LOS	F	D	F	B	E	D	B	D	C	A
Approach Delay		54.6		24.5		40.3			30.1	
Approach LOS		D		C		D			C	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 50 (42%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay: 39.7		Intersection LOS: D	
Intersection Capacity Utilization 122.7%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 6: Kipling Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
6: Kipling Ave. & Eglinton Ave. E.

Future Total - 2025 - SAT - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1610	115	140	1365	80	105	420	110	35	360	60
Future Volume (vph)	160	1610	115	140	1365	80	105	420	110	35	360	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1785	3468		1785	3494		1774	3458	1568	1780	3417	1558
Flt Permitted	0.06	1.00		0.06	1.00		0.40	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	111	3468		111	3494		748	3458	1568	631	3417	1558
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	184	1851	132	161	1569	92	121	483	126	40	414	69
RTOR Reduction (vph)	0	4	0	0	3	0	0	0	62	0	0	52
Lane Group Flow (vph)	184	1979	0	161	1658	0	121	483	65	40	414	17
Confl. Peds. (#/hr)	5		20	20		5	10		5	5		10
Heavy Vehicles (%)	0%	0%	4%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Bus Blockages (#/hr)	0	7	0	0	6	0	0	6	0	0	7	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	73.0	67.0		73.0	67.0		29.0	29.0	29.0	29.0	29.0	29.0
Effective Green, g (s)	75.0	68.0		75.0	68.0		30.0	30.0	30.0	30.0	30.0	30.0
Actuated g/C Ratio	0.62	0.57		0.62	0.57		0.25	0.25	0.25	0.25	0.25	0.25
Clearance Time (s)	4.0	7.0		4.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	167	1965		167	1979		187	864	392	157	854	389
v/s Ratio Prot	c0.06	0.57		0.06	0.47			0.14			0.12	
v/s Ratio Perm	c0.63			0.55			c0.16		0.04	0.06		0.01
v/c Ratio	1.10	1.01		0.96	0.84		0.65	0.56	0.16	0.25	0.48	0.04
Uniform Delay, d1	33.6	26.0		36.7	21.4		40.3	39.2	35.2	36.0	38.4	34.1
Progression Factor	1.00	1.00		1.60	0.71		1.00	1.00	1.00	0.84	0.82	0.58
Incremental Delay, d2	99.5	22.0		48.2	3.2		7.5	0.8	0.2	0.8	0.4	0.0
Delay (s)	133.2	48.0		106.8	18.3		47.7	40.0	35.4	31.1	32.0	19.9
Level of Service	F	D		F	B		D	D	D	C	C	B
Approach Delay (s)		55.2			26.1			40.5			30.3	
Approach LOS		E			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	40.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	122.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Timings
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Total - 2025 - SAT - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	50	35	30	45	35	545	70	55	420	45
Future Volume (vph)	50	35	30	45	35	545	70	55	420	45
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	26.0	26.0	26.0	26.0	17.0	17.0	17.0	17.0	17.0	17.0
Minimum Split (s)	34.0	34.0	34.0	34.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	34.0	34.0	86.0	86.0	86.0	86.0	86.0	86.0
Total Split (%)	28.3%	28.3%	28.3%	28.3%	71.7%	71.7%	71.7%	71.7%	71.7%	71.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		7.0		7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		27.0		27.0	81.0	81.0	81.0	81.0	81.0	81.0
Actuated g/C Ratio		0.22		0.22	0.68	0.68	0.68	0.68	0.68	0.68
v/c Ratio		0.40		0.38	0.07	0.27	0.08	0.13	0.21	0.05
Control Delay		40.2		35.4	2.7	3.1	0.1	7.7	7.6	1.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		40.2		35.4	2.7	3.1	0.1	7.7	7.6	1.9
LOS		D		D	A	A	A	A	A	A
Approach Delay		40.2		35.4		2.7			7.1	
Approach LOS		D		D		A			A	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.40			
Intersection Signal Delay: 10.2		Intersection LOS: B	
Intersection Capacity Utilization 65.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 9: Kipling Ave. & Widdicombe Hill Blvd.

HCM Signalized Intersection Capacity Analysis
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Total - 2025 - SAT - Base

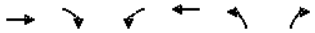
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	35	25	30	45	50	35	545	70	55	420	45
Future Volume (vph)	50	35	25	30	45	50	35	545	70	55	420	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		0.99			0.99		1.00	1.00	0.96	1.00	1.00	0.95
Flpb, ped/bikes		1.00			0.99		0.98	1.00	1.00	0.99	1.00	1.00
Frt		0.97			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1744			1735		1754	3500	1537	1773	3466	1510
Flt Permitted		0.76			0.90		0.47	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)		1362			1586		864	3500	1537	738	3466	1510
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	57	40	29	34	52	57	40	626	80	63	483	52
RTOR Reduction (vph)	0	9	0	0	20	0	0	0	21	0	0	17
Lane Group Flow (vph)	0	117	0	0	123	0	40	626	59	63	483	35
Confl. Peds. (#/hr)	5		20	20		5	10		5	5		10
Heavy Vehicles (%)	0%	0%	4%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		26.0			26.0		80.0	80.0	80.0	80.0	80.0	80.0
Effective Green, g (s)		27.0			27.0		81.0	81.0	81.0	81.0	81.0	81.0
Actuated g/C Ratio		0.22			0.22		0.68	0.68	0.68	0.68	0.68	0.68
Clearance Time (s)		8.0			8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		306			356		583	2362	1037	498	2339	1019
v/s Ratio Prot								c0.18			0.14	
v/s Ratio Perm		c0.09			0.08		0.05		0.04	0.09		0.02
v/c Ratio		0.38			0.35		0.07	0.27	0.06	0.13	0.21	0.03
Uniform Delay, d1		39.4			39.1		6.6	7.7	6.6	6.9	7.4	6.5
Progression Factor		1.00			1.00		0.38	0.37	0.00	1.00	1.00	1.00
Incremental Delay, d2		0.8			0.6		0.2	0.2	0.1	0.5	0.2	0.1
Delay (s)		40.2			39.7		2.7	3.1	0.1	7.5	7.6	6.6
Level of Service		D			D		A	A	A	A	A	A
Approach Delay (s)		40.2			39.7			2.7			7.5	
Approach LOS		D			D			A			A	

Intersection Summary					
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.29				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0		
Intersection Capacity Utilization	65.1%	ICU Level of Service	C		
Analysis Period (min)	15				

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
11: Widdicombe Hill Blvd. & Hunting Ridge

Future Total - 2025 - SAT - Base



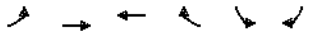
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	35	10	20	35	25	35
Future Volume (Veh/h)	35	10	20	35	25	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	45	13	26	45	32	45
Pedestrians						
Lane Width (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			58		148	52
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			58		148	52
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	96
cM capacity (veh/h)			1559		834	1022

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	58	71	77
Volume Left	0	26	32
Volume Right	13	0	45
cSH	1700	1559	935
Volume to Capacity	0.03	0.02	0.08
Queue Length 95th (m)	0.0	0.4	2.1
Control Delay (s)	0.0	2.8	9.2
Lane LOS		A	A
Approach Delay (s)	0.0	2.8	9.2
Approach LOS			A

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	19.8%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
13: Eglinton Ave. E. & South Site Access

Future Total - 2025 - SAT - Base



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1785	1410	105	0	195
Future Volume (Veh/h)	0	1785	1410	105	0	195
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	0	1821	1439	107	0	199
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)			107			
pX, platoon unblocked	0.56				0.56	0.56
vC, conflicting volume	1546				2403	773
vC1, stage 1 conf vol					1492	
vC2, stage 2 conf vol					910	
vCu, unblocked vol	416				1939	0
tC, single (s)	4.1				6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	68
cM capacity (veh/h)	649				249	614

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	910	910	959	587	199
Volume Left	0	0	0	0	0
Volume Right	0	0	0	107	199
cSH	1700	1700	1700	1700	614
Volume to Capacity	0.54	0.54	0.56	0.35	0.32
Queue Length 95th (m)	0.0	0.0	0.0	0.0	11.2
Control Delay (s)	0.0	0.0	0.0	0.0	13.7
Lane LOS					B
Approach Delay (s)	0.0		0.0		13.7
Approach LOS					B

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	61.1%	ICU Level of Service		B
Analysis Period (min)	15			

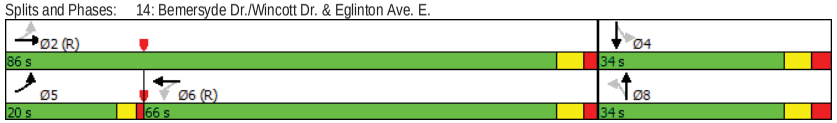
Timings
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2025 - SAT - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	255	1515	15	1415	15	50	200	75
Future Volume (vph)	255	1515	15	1415	15	50	200	75
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	6.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Minimum Split (s)	10.0	30.0	30.0	30.0	34.0	34.0	34.0	34.0
Total Split (s)	20.0	86.0	66.0	66.0	34.0	34.0	34.0	34.0
Total Split (%)	16.7%	71.7%	55.0%	55.0%	28.3%	28.3%	28.3%	28.3%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	5.0	5.0		6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	83.0	81.0	61.8	61.8		28.0	28.0	28.0
Actuated g/C Ratio	0.69	0.68	0.52	0.52		0.23	0.23	0.23
v/c Ratio	0.88	0.69	0.13	0.92		0.21	0.68	0.40
Control Delay	49.1	7.3	24.5	31.8		34.7	54.3	31.2
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	49.1	7.3	24.5	31.8		34.7	54.3	31.2
LOS	D	A	C	C		C	D	C
Approach Delay		13.2		31.7		34.7		43.8
Approach LOS		B		C		C		D

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 24.2		Intersection LOS: C	
Intersection Capacity Utilization 98.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2025 - SAT - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	1515	15	15	1415	135	15	50	15	200	75	90
Future Volume (vph)	255	1515	15	15	1415	135	15	50	15	200	75	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		5.0	5.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		0.99	1.00			1.00		0.98	1.00	
Frt	1.00	1.00		1.00	0.99			0.97		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1767	3443		1773	3403			1794		1737	1683	
Flt Permitted	0.06	1.00		0.13	1.00			0.93		0.72	1.00	
Satd. Flow (perm)	115	3443		247	3403			1677		1317	1683	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	266	1578	16	16	1474	141	16	52	16	208	78	94
RTOR Reduction (vph)	0	1	0	0	6	0	0	7	0	0	36	0
Lane Group Flow (vph)	266	1593	0	16	1609	0	0	77	0	208	136	0
Confl. Peds. (#/hr)	5		30	30		5	25		15	15		25
Heavy Vehicles (%)	1%	2%	0%	0%	2%	2%	0%	0%	0%	1%	0%	0%
Bus Blockages (#/hr)	0	7	0	0	6	0	0	0	0	0	0	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	80.0	80.0		60.8	60.8			27.0		27.0	27.0	
Effective Green, g (s)	81.0	81.0		61.8	61.8			28.0		28.0	28.0	
Actuated g/C Ratio	0.68	0.68		0.51	0.51			0.23		0.23	0.23	
Clearance Time (s)	4.0	6.0		6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	300	2324		127	1752			391		307	392	
v/s Ratio Prot	c0.12	0.46			0.47						0.08	
v/s Ratio Perm	c0.48			0.06				0.05		c0.16		
v/c Ratio	0.89	0.69		0.13	0.92			0.20		0.68	0.35	
Uniform Delay, d1	38.3	11.8		15.1	26.8			37.0		41.9	38.4	
Progression Factor	1.13	0.55		1.38	0.90			1.00		1.00	1.00	
Incremental Delay, d2	11.4	0.6		1.5	7.0			0.2		5.8	0.5	
Delay (s)	54.7	7.1		22.2	31.1			37.2		47.7	38.9	
Level of Service	D	A		C	C			D		D	D	
Approach Delay (s)		13.9			31.0			37.2			43.7	
Approach LOS		B			C			D			D	

Intersection Summary					
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.85				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0		
Intersection Capacity Utilization	98.2%	ICU Level of Service	F		
Analysis Period (min)	15				
c Critical Lane Group					

HCM Unsignalized Intersection Capacity Analysis
15: Wincott Dr. & Hunting Ridge

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	30	20	160	140	45
Future Volume (Veh/h)	45	30	20	160	140	45
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	49	33	22	176	154	49
Pedestrians	15					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				163		
pX, platoon unblocked	1.00					
vC, conflicting volume	414	194	218			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	413	194	218			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	96	98			
cM capacity (veh/h)	582	843	1347			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	82	198	203
Volume Left	49	22	0
Volume Right	33	0	49
cSH	665	1347	1700
Volume to Capacity	0.12	0.02	0.12
Queue Length 95th (m)	3.4	0.4	0.0
Control Delay (s)	11.2	1.0	0.0
Lane LOS	B	A	
Approach Delay (s)	11.2	1.0	0.0
Approach LOS	B		

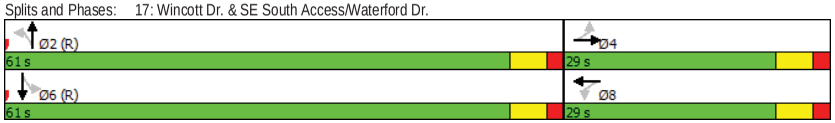
Intersection Summary				
Average Delay		2.3		
Intersection Capacity Utilization		35.5%	ICU Level of Service	A
Analysis Period (min)		15		

Timings
17: Wincott Dr. & SE South Access/Waterford Dr.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	95	55	30	50	320	90	10	105
Future Volume (vph)	95	55	30	50	320	90	10	105
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	29.0	29.0	29.0	29.0	61.0	61.0	61.0	61.0
Total Split (%)	32.2%	32.2%	32.2%	32.2%	67.8%	67.8%	67.8%	67.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)	19.4	19.4		19.4	60.6	60.6		60.6
Actuated g/C Ratio	0.22	0.22		0.22	0.67	0.67		0.67
v/c Ratio	0.35	0.60		0.41	0.45	0.10		0.20
Control Delay	33.7	14.6		35.3	9.3	4.4		3.8
Queue Delay	0.0	0.0		0.0	0.6	0.0		0.0
Total Delay	33.7	14.6		35.3	9.9	4.4		3.8
LOS	C	B		D	A	A		A
Approach Delay		19.3		35.3		8.5		3.8
Approach LOS		B		D		A		A

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 13.3		Intersection LOS: B	
Intersection Capacity Utilization 75.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 17: Wincott Dr. & SE South Access/Waterford Dr.



HCM Signalized Intersection Capacity Analysis
17: Wincott Dr. & SE South Access/Waterford Dr.

Future Total - 2025 - SAT - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	55	230	30	50	5	320	90	25	10	105	100
Future Volume (vph)	95	55	230	30	50	5	320	90	25	10	105	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.95			1.00		1.00	0.99			0.96	
Flpb, ped/bikes	1.00	1.00			0.99		0.96	1.00			1.00	
Frt	1.00	0.88			0.99		1.00	0.97			0.94	
Flt Protected	0.95	1.00			0.98		0.95	1.00			1.00	
Satd. Flow (prot)	1781	1576			1818		1709	1777			1683	
Flt Permitted	0.72	1.00			0.56		0.64	1.00			0.99	
Satd. Flow (perm)	1356	1576			1043		1147	1777			1669	
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)	103	60	250	33	54	5	348	98	27	11	114	109
RTOR Reduction (vph)	0	178	0	0	2	0	0	9	0	0	30	0
Lane Group Flow (vph)	103	132	0	0	90	0	348	116	0	0	204	0
Confl. Peds. (#/hr)	1		15	15		1	24		5	5		24
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.4	18.4			18.4		59.6	59.6			59.6	
Effective Green, g (s)	19.4	19.4			19.4		60.6	60.6			60.6	
Actuated g/C Ratio	0.22	0.22			0.22		0.67	0.67			0.67	
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	292	339			224		772	1196			1123	
v/s Ratio Prot		0.08						0.07				
v/s Ratio Perm	0.08				c0.09		c0.30				0.12	
v/c Ratio	0.35	0.39			0.40		0.45	0.10			0.18	
Uniform Delay, d1	30.0	30.2			30.3		6.9	5.1			5.5	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.7	0.7			1.2		1.9	0.2			0.4	
Delay (s)	30.7	31.0			31.5		8.8	5.3			5.8	
Level of Service	C	C			C		A	A			A	
Approach Delay (s)		30.9			31.5			7.9			5.8	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.44			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	75.0%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
20: Bemersyde Dr. & Oldham Rd.

Future Total - 2025 - SAT - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	5	90	0	5	85
Future Volume (Veh/h)	0	5	90	0	5	85
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	6	103	0	6	98
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						79
pX, platoon unblocked						
vC, conflicting volume	213	103			103	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	213	103			103	
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	99			100	
cM capacity (veh/h)	777	957			1502	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	6	103	104
Volume Left	0	0	6
Volume Right	6	0	0
cSH	957	1700	1502
Volume to Capacity	0.01	0.06	0.00
Queue Length 95th (m)	0.2	0.0	0.1
Control Delay (s)	8.8	0.0	0.5
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	0.5
Approach LOS	A		

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	18.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
25: Wincott Dr. & NE Site Access

Future Total - 2025 - SAT - Base

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	35	30	160	155	20
Future Volume (Veh/h)	20	35	30	160	155	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	22	39	33	178	172	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				61		
pX, platoon unblocked	0.96					
vC, conflicting volume	427	183	194			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	378	183	194			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	95	98			
cM capacity (veh/h)	582	859	1379			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	61	211	194
Volume Left	22	33	0
Volume Right	39	0	22
cSH	733	1379	1700
Volume to Capacity	0.08	0.02	0.11
Queue Length 95th (m)	2.2	0.6	0.0
Control Delay (s)	10.4	1.4	0.0
Lane LOS	B	A	
Approach Delay (s)	10.4	1.4	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		2.0		
Intersection Capacity Utilization		32.8%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
26: Widdicombe Hill Blvd. & NW Site Access

Future Total - 2025 - SAT - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	85	20	40	115	10	20
Future Volume (Veh/h)	85	20	40	115	10	20
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	94	22	44	128	11	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			330			
pX, platoon unblocked						
vC, conflicting volume	152	108			172	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	152	108			172	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	98			99	
cM capacity (veh/h)	833	946			1405	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	116	172	33
Volume Left	94	0	11
Volume Right	22	128	0
cSH	852	1700	1405
Volume to Capacity	0.14	0.10	0.01
Queue Length 95th (m)	3.8	0.0	0.2
Control Delay (s)	9.9	0.0	2.6
Lane LOS	A		A
Approach Delay (s)	9.9	0.0	2.6
Approach LOS	A		

Intersection Summary				
Average Delay		3.8		
Intersection Capacity Utilization		22.5%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
29: Wincott Dr. & 265 Wincott Dr. Plaza South

Future Total - 2025 - SAT - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	5	415	25	15	355
Future Volume (Veh/h)	10	5	415	25	15	355
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	6	461	28	17	394
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			72			58
pX, platoon unblocked	0.94	0.94			0.94	
vC, conflicting volume	903	475			489	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	868	414			429	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	99			98	
cM capacity (veh/h)	300	602			1067	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	489	411
Volume Left	11	0	17
Volume Right	6	28	0
cSH	365	1700	1067
Volume to Capacity	0.05	0.29	0.02
Queue Length 95th (m)	1.2	0.0	0.4
Control Delay (s)	15.4	0.0	0.5
Lane LOS	C		A
Approach Delay (s)	15.4	0.0	0.5
Approach LOS	C		

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		40.9%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
31: Wincott Dr. & 265 Wincott Dr. Plaza North

Future Total - 2025 - SAT - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	20	420	0	5	345
Future Volume (Veh/h)	25	20	420	0	5	345
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	22	467	0	6	383
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			28
pX, platoon unblocked	0.95	0.95			0.95	
vC, conflicting volume	862	467			467	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	829	413			413	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	96			99	
cM capacity (veh/h)	322	607			1089	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	50	467	389
Volume Left	28	0	6
Volume Right	22	0	0
cSH	406	1700	1089
Volume to Capacity	0.12	0.27	0.01
Queue Length 95th (m)	3.3	0.0	0.1
Control Delay (s)	15.1	0.0	0.2
Lane LOS	C		A
Approach Delay (s)	15.1	0.0	0.2
Approach LOS	C		

Intersection Summary				
Average Delay		0.9		
Intersection Capacity Utilization		32.2%	ICU Level of Service	A
Analysis Period (min)		15		

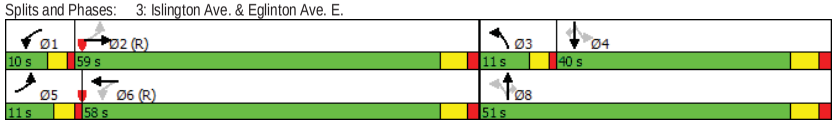
Timings
3: Islington Ave. & Eglinton Ave. E.

Future Total - 2030 - AM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	190	1510	155	1340	60	980	180	50	980	60
Future Volume (vph)	190	1510	155	1340	60	980	180	50	980	60
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6	3	8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	3	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	30.0	6.0	30.0	7.0	27.0	27.0	27.0	27.0	27.0
Minimum Split (s)	10.0	36.0	10.0	36.0	11.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	11.0	59.0	10.0	58.0	11.0	51.0	51.0	40.0	40.0	40.0
Total Split (%)	9.2%	49.2%	8.3%	48.3%	9.2%	42.5%	42.5%	33.3%	33.3%	33.3%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	Min	Min	Min	Min	Min
Act Effct Green (s)	64.9	54.0	62.9	53.0	47.1	45.1	45.1	36.3	36.3	36.3
Actuated g/C Ratio	0.54	0.45	0.52	0.44	0.39	0.38	0.38	0.30	0.30	0.30
v/c Ratio	1.01	1.01	0.91	0.99	0.36	0.80	0.32	0.67	0.97	0.12
Control Delay	80.3	51.7	74.6	53.8	28.7	39.1	18.5	79.5	62.7	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.3	51.7	74.6	53.8	28.7	39.1	18.5	79.5	62.7	2.3
LOS	F	D	E	D	C	D	B	E	E	A
Approach Delay		54.9		55.9		35.5			60.1	
Approach LOS		D		E		D			E	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 57 (48%), 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: 51.9		Intersection LOS: D	
Intersection Capacity Utilization 114.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 3: Islington Ave. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
3: Islington Ave. & Eglinton Ave. E.

Future Total - 2030 - AM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	1510	65	155	1340	55	60	980	180	50	980	60
Future Volume (vph)	190	1510	65	155	1340	55	60	980	180	50	980	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	*1.00		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.94	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1767	3472		1716	3331		1700	3390	1457	1639	3491	1457
Flt Permitted	0.08	1.00		0.08	1.00		0.10	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)	140	3472		138	3331		182	3390	1457	258	3491	1457
Peak-hour factor, PHF	0.96	1.00	1.00	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	198	1510	65	161	1396	57	62	1021	188	52	1021	62
RTOR Reduction (vph)	0	3	0	0	2	0	0	0	40	0	0	44
Lane Group Flow (vph)	198	1572	0	161	1451	0	63	1021	148	52	1021	19
Confl. Peds. (#/hr)	46		64	64		46	23		37	37		23
Heavy Vehicles (%)	1%	5%	11%	4%	4%	2%	5%	3%	3%	8%	0%	5%
Bus Blockages (#/hr)	0	12	0	0	11	0	0	11	0	0	11	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	60.1	52.2		58.1	51.2		44.9	44.9	44.9	35.3	35.3	35.3
Effective Green, g (s)	62.1	53.2		60.1	52.2		45.9	45.9	45.9	36.3	36.3	36.3
Actuated g/C Ratio	0.52	0.44		0.50	0.44		0.38	0.38	0.38	0.30	0.30	0.30
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	193	1539		173	1448		153	1296	557	78	1056	440
v/s Ratio Prot	c0.08	0.45		0.06	0.44		0.02	c0.30			c0.29	
v/s Ratio Perm	c0.45			0.40			0.13		0.10	0.20		0.01
v/c Ratio	1.03	1.02		0.93	1.00		0.41	0.79	0.27	0.67	0.97	0.04
Uniform Delay, d1	34.4	33.4		30.7	33.9		28.7	32.7	25.5	36.6	41.3	29.6
Progression Factor	0.89	0.97		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	58.0	23.8		48.5	24.1		1.8	3.3	0.3	19.4	19.9	0.0
Delay (s)	88.6	56.1		79.3	58.0		30.5	36.0	25.7	56.0	61.2	29.6
Level of Service	F	E		E	E		C	D	C	E	E	C
Approach Delay (s)		59.7			60.1			34.2			59.2	
Approach LOS		E			E			C			E	

Intersection Summary					
HCM 2000 Control Delay	54.1	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	1.00				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		16.0	
Intersection Capacity Utilization	114.1%	ICU Level of Service		H	
Analysis Period (min)	15				
c Critical Lane Group					

Timings
6: Kipling Ave. & Eglinton Ave. E.

Future Total - 2030 - AM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	195	1570	180	1545	125	715	160	70	485	35
Future Volume (vph)	195	1570	180	1545	125	715	160	70	485	35
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2	1	6	3	8		7	4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	6.0	33.0	6.0	33.0	6.0	29.0	29.0	6.0	29.0	29.0
Minimum Split (s)	10.0	40.0	10.0	40.0	10.0	36.0	36.0	10.0	36.0	36.0
Total Split (s)	15.0	81.0	15.0	81.0	10.0	38.0	38.0	10.0	38.0	38.0
Total Split (%)	10.4%	56.3%	10.4%	56.3%	6.9%	26.4%	26.4%	6.9%	26.4%	26.4%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	Min	Min	None	Min	Min
Act Effct Green (s)	90.0	75.0	90.0	75.0	42.0	32.0	32.0	42.0	32.0	32.0
Actuated g/C Ratio	0.62	0.52	0.62	0.52	0.29	0.22	0.22	0.29	0.22	0.22
v/c Ratio	1.08	1.01	1.02	1.04	0.69	1.06	0.46	0.60	0.72	0.11
Control Delay	124.4	58.2	108.3	66.7	58.3	102.5	27.0	68.8	58.6	8.4
Queue Delay	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	132.9	58.2	108.3	66.7	58.3	102.5	27.0	68.8	58.6	8.4
LOS	F	E	F	E	E	F	C	E	E	A
Approach Delay		66.2		70.7		84.9			56.8	
Approach LOS		E		E		F			E	

Intersection Summary			
Cycle Length: 144			
Actuated Cycle Length: 144			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 70.3		Intersection LOS: E	
Intersection Capacity Utilization 106.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 6: Kipling Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
6: Kipling Ave. & Eglinton Ave. E.

Future Total - 2030 - AM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	1570	60	180	1545	145	125	715	160	70	485	35
Future Volume (vph)	195	1570	60	180	1545	145	125	715	160	70	485	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0	6.0	3.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	0.90	1.00	1.00	0.83
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1716	3332		1684	3344		1745	3274	1355	1550	3272	1285
Flt Permitted	0.05	1.00		0.05	1.00		0.26	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)	96	3332		95	3344		469	3274	1355	204	3272	1285
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	210	1688	65	194	1661	156	134	769	172	75	522	38
RTOR Reduction (vph)	0	2	0	0	5	0	0	0	71	0	0	30
Lane Group Flow (vph)	210	1751	0	194	1812	0	134	769	101	75	522	8
Confl. Peds. (#/hr)	50		40	40		50	107		48	48		107
Confl. Bikes (#/hr)			5			2			21			4
Heavy Vehicles (%)	4%	6%	14%	6%	4%	12%	1%	6%	6%	15%	8%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	14	0	0	5	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	85.0	74.0		85.0	74.0		37.0	31.0	31.0	37.0	31.0	31.0
Effective Green, g (s)	87.0	75.0		87.0	75.0		39.0	32.0	32.0	39.0	32.0	32.0
Actuated g/C Ratio	0.60	0.52		0.60	0.52		0.27	0.22	0.22	0.27	0.22	0.22
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	193	1735		189	1741		189	727	301	120	727	285
v/s Ratio Prot	c0.09	0.53		0.09	0.54		c0.03	c0.23		0.03	0.16	
v/s Ratio Perm	c0.56			0.53			0.16		0.07	0.14		0.01
v/c Ratio	1.09	1.01		1.03	1.04		0.71	1.06	0.34	0.62	0.72	0.03
Uniform Delay, d1	49.1	34.5		48.5	34.5		44.9	56.0	47.1	42.8	51.8	43.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.32	1.01	1.00
Incremental Delay, d2	90.2	23.9		72.5	33.1		11.5	49.7	0.7	9.5	3.3	0.0
Delay (s)	139.3	58.4		121.0	67.6		56.4	105.7	47.7	66.2	55.6	43.9
Level of Service	F	E		F	E		E	F	D	E	E	D
Approach Delay (s)		67.1			72.7			90.3			56.2	
Approach LOS		E			E			F			E	

Intersection Summary				
HCM 2000 Control Delay	72.2	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.06			
Actuated Cycle Length (s)	144.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	106.2%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Timings
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Total - 2030 - AM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	85	45	30	100	45	1010	50	35	550	75
Future Volume (vph)	85	45	30	100	45	1010	50	35	550	75
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	26.0	26.0	26.0	26.0	17.0	17.0	17.0	17.0	17.0	17.0
Minimum Split (s)	34.0	34.0	34.0	34.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	34.0	34.0	110.0	110.0	110.0	110.0	110.0	110.0
Total Split (%)	23.6%	23.6%	23.6%	23.6%	76.4%	76.4%	76.4%	76.4%	76.4%	76.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		7.0		7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		35.3		35.3	96.7	96.7	96.7	96.7	96.7	96.7
Actuated g/C Ratio		0.25		0.25	0.67	0.67	0.67	0.67	0.67	0.67
v/c Ratio		0.68		0.48	0.11	0.49	0.05	0.17	0.27	0.09
Control Delay		58.1		47.1	3.7	5.4	0.1	12.6	10.5	3.1
Queue Delay		0.0		0.0	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay		58.1		47.1	3.7	5.9	0.1	12.6	10.5	3.1
LOS		E		D	A	A	A	B	B	A
Approach Delay		58.1		47.1		5.5			9.7	
Approach LOS		E		D		A			A	

Intersection Summary			
Cycle Length: 144			
Actuated Cycle Length: 144			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 14.6		Intersection LOS: B	
Intersection Capacity Utilization 70.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 9: Kipling Ave. & Widdicombe Hill Blvd.

HCM Signalized Intersection Capacity Analysis
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Total - 2030 - AM - Base

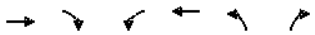
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	45	45	30	100	45	45	1010	50	35	550	75
Future Volume (vph)	85	45	45	30	100	45	45	1010	50	35	550	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		0.98			0.99		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00			0.99		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.97			0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1656			1733		1638	3400	1597	1500	3275	1401
Flt Permitted		0.66			0.91		0.40	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)		1118			1593		691	3400	1597	331	3275	1401
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	93	49	49	33	110	49	49	1110	55	38	604	82
RTOR Reduction (vph)	0	8	0	0	8	0	0	0	12	0	0	22
Lane Group Flow (vph)	0	183	0	0	184	0	49	1110	43	38	604	60
Confl. Peds. (#/hr)	5		30	30		5						
Heavy Vehicles (%)	5%	5%	5%	9%	2%	0%	9%	5%	0%	19%	9%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		34.3			34.3		95.7	95.7	95.7	95.7	95.7	95.7
Effective Green, g (s)		35.3			35.3		96.7	96.7	96.7	96.7	96.7	96.7
Actuated g/C Ratio		0.25			0.25		0.67	0.67	0.67	0.67	0.67	0.67
Clearance Time (s)		8.0			8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		274			390		464	2283	1072	222	2199	940
v/s Ratio Prot								c0.33			0.18	
v/s Ratio Perm		c0.16			0.12		0.07		0.03	0.11		0.04
v/c Ratio		0.67			0.47		0.11	0.49	0.04	0.17	0.27	0.06
Uniform Delay, d1		49.0			46.4		8.4	11.5	8.0	8.8	9.5	8.1
Progression Factor		1.00			1.00		0.37	0.43	0.02	1.00	1.00	1.00
Incremental Delay, d2		6.0			0.9		0.1	0.2	0.0	1.7	0.3	0.1
Delay (s)		55.1			47.3		3.2	5.1	0.1	10.4	9.8	8.2
Level of Service		E			D		A	A	A	B	A	A
Approach Delay (s)		55.1			47.3			4.8			9.7	
Approach LOS		E			D			A			A	

Intersection Summary					
HCM 2000 Control Delay		14.0	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.53			
Actuated Cycle Length (s)		144.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization		70.8%	ICU Level of Service		C
Analysis Period (min)		15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
11: Widdicombe Hill Blvd. & Hunting Ridge

Future Total - 2030 - AM - Base



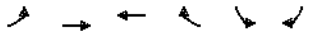
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	60	10	65	110	20	50
Future Volume (Veh/h)	60	10	65	110	20	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	66	11	71	121	22	55
Pedestrians				5		
Lane Width (m)				3.5		
Walking Speed (m/s)				1.2		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			77		334	76
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			77		334	76
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			95		96	94
cM capacity (veh/h)			1515		618	964

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	77	192	77
Volume Left	0	71	22
Volume Right	11	0	55
cSH	1700	1515	831
Volume to Capacity	0.05	0.05	0.09
Queue Length 95th (m)	0.0	1.2	2.4
Control Delay (s)	0.0	3.0	9.8
Lane LOS		A	A
Approach Delay (s)	0.0	3.0	9.8
Approach LOS			A

Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	28.6%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
13: Eglinton Ave. E. & South Site Access

Future Total - 2030 - AM - Base



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1730	1545	35	0	105
Future Volume (Veh/h)	0	1730	1545	35	0	105
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	1840	1644	37	0	112
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)			107			
pX, platoon unblocked	0.54				0.54	0.54
vC, conflicting volume	1681				2582	840
vC1, stage 1 conf vol					1662	
vC2, stage 2 conf vol					920	
vCu, unblocked vol	561				2228	0
tC, single (s)	4.2				6.8	7.2
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.4
p0 queue free %	100				100	80
cM capacity (veh/h)	541				219	564

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	920	920	1096	585	112
Volume Left	0	0	0	0	0
Volume Right	0	0	0	37	112
cSH	1700	1700	1700	1700	564
Volume to Capacity	0.54	0.54	0.64	0.34	0.20
Queue Length 95th (m)	0.0	0.0	0.0	0.0	5.9
Control Delay (s)	0.0	0.0	0.0	0.0	13.0
Lane LOS					B
Approach Delay (s)	0.0		0.0		13.0
Approach LOS					B

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	57.0%	ICU Level of Service		B
Analysis Period (min)	15			

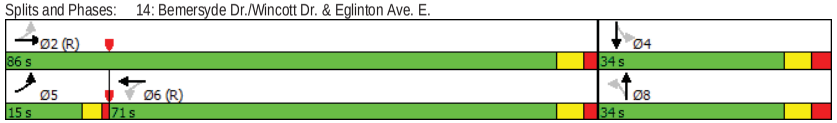
Timings
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2030 - AM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	160	1590	15	1485	20	100	130	150
Future Volume (vph)	160	1590	15	1485	20	100	130	150
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	6.0	24.0	27.0	27.0	27.0	27.0	27.0	27.0
Minimum Split (s)	10.0	30.0	33.0	33.0	34.0	34.0	34.0	34.0
Total Split (s)	15.0	86.0	71.0	71.0	34.0	34.0	34.0	34.0
Total Split (%)	12.5%	71.7%	59.2%	59.2%	28.3%	28.3%	28.3%	28.3%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	5.0	5.0		6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	83.0	81.0	66.9	66.9		28.0	28.0	28.0
Actuated g/C Ratio	0.69	0.68	0.56	0.56		0.23	0.23	0.23
v/c Ratio	0.75	0.78	0.16	0.91		0.42	0.55	0.62
Control Delay	46.0	16.8	14.5	32.2		41.4	49.9	44.8
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.1
Total Delay	46.0	16.8	14.5	32.2		41.4	49.9	44.9
LOS	D	B	B	C		D	D	D
Approach Delay		19.4		32.1		41.4		46.7
Approach LOS		B		C		D		D

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 28.0		Intersection LOS: C	
Intersection Capacity Utilization 104.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2030 - AM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1590	10	15	1485	70	20	100	20	130	150	90
Future Volume (vph)	160	1590	10	15	1485	70	20	100	20	130	150	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		5.0	5.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99			0.98		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1785	3253		1781	3299			1785		1777	1697	
Flt Permitted	0.06	1.00		0.10	1.00			0.86		0.58	1.00	
Satd. Flow (perm)	108	3253		180	3299			1539		1093	1697	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	172	1710	11	16	1597	75	22	108	22	140	161	97
RTOR Reduction (vph)	0	0	0	0	3	0	0	5	0	0	18	0
Lane Group Flow (vph)	172	1721	0	16	1669	0	0	147	0	140	240	0
Confl. Peds. (#/hr)	5		15	15		5	5		5	5		5
Heavy Vehicles (%)	0%	7%	0%	0%	5%	4%	0%	1%	10%	0%	6%	0%
Bus Blockages (#/hr)	0	12	0	0	11	0	0	0	0	0	0	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	80.0	80.0		65.9	65.9			27.0		27.0	27.0	
Effective Green, g (s)	81.0	81.0		66.9	66.9			28.0		28.0	28.0	
Actuated g/C Ratio	0.68	0.68		0.56	0.56			0.23		0.23	0.23	
Clearance Time (s)	4.0	6.0		6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	228	2195		100	1839			359		255	395	
v/s Ratio Prot	0.07	c0.53			c0.51						c0.14	
v/s Ratio Perm	0.44			0.09				0.10		0.13		
v/c Ratio	0.75	0.78		0.16	0.91			0.41		0.55	0.61	
Uniform Delay, d1	33.3	13.5		12.9	23.8			39.0		40.4	41.1	
Progression Factor	1.00	1.00		0.85	1.13			1.00		1.00	1.00	
Incremental Delay, d2	13.2	2.9		1.8	4.5			0.8		2.4	2.6	
Delay (s)	46.5	16.3		12.7	31.5			39.7		42.9	43.7	
Level of Service	D	B		B	C			D		D	D	
Approach Delay (s)		19.1			31.3			39.7			43.4	
Approach LOS		B			C			D			D	

Intersection Summary					
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.82				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0		
Intersection Capacity Utilization	104.0%	ICU Level of Service	G		
Analysis Period (min)	15				
c Critical Lane Group					

HCM Unsignalized Intersection Capacity Analysis
15: Wincott Dr. & Hunting Ridge

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	35	35	145	210	145
Future Volume (Veh/h)	85	35	35	145	210	145
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)	92	38	38	158	228	158
Pedestrians	10					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				163		
pX, platoon unblocked						
vC, conflicting volume	551	317	396			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	551	317	396			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	81	95	97			
cM capacity (veh/h)	479	718	1164			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	130	196	386
Volume Left	92	38	0
Volume Right	38	0	158
cSH	530	1164	1700
Volume to Capacity	0.25	0.03	0.23
Queue Length 95th (m)	7.6	0.8	0.0
Control Delay (s)	14.0	1.8	0.0
Lane LOS	B	A	
Approach Delay (s)	14.0	1.8	0.0
Approach LOS	B		

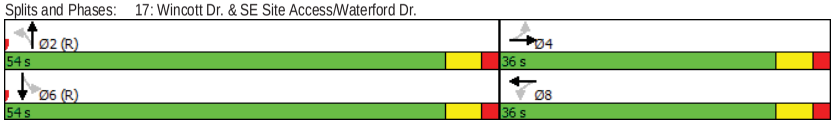
Intersection Summary				
Average Delay		3.1		
Intersection Capacity Utilization		46.7%	ICU Level of Service	A
Analysis Period (min)		15		

Timings
17: Wincott Dr. & SE Site Access/Waterford Dr.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	85	30	40	20	195	85	5	175
Future Volume (vph)	85	30	40	20	195	85	5	175
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	36.0	36.0	36.0	36.0	54.0	54.0	54.0	54.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)	19.0	19.0		19.0	61.0	61.0		61.0
Actuated g/C Ratio	0.21	0.21		0.21	0.68	0.68		0.68
v/c Ratio	0.40	0.50		0.46	0.36	0.15		0.27
Control Delay	35.4	11.1		34.0	7.9	4.1		5.8
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay	35.4	11.1		34.0	7.9	4.1		5.8
LOS	D	B		C	A	A		A
Approach Delay		18.8		34.0		6.4		5.8
Approach LOS		B		C		A		A

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 12.2		Intersection LOS: B	
Intersection Capacity Utilization 76.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 17: Wincott Dr. & SE Site Access/Waterford Dr.



HCM Signalized Intersection Capacity Analysis
17: Wincott Dr. & SE Site Access/Waterford Dr.

Future Total - 2030 - AM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	30	155	40	20	15	195	85	45	5	175	60
Future Volume (vph)	85	30	155	40	20	15	195	85	45	5	175	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.97			1.00		1.00	0.98			0.98	
Flpb, ped/bikes	1.00	1.00			0.99		0.97	1.00			1.00	
Frt	1.00	0.87			0.97		1.00	0.95			0.97	
Flt Protected	0.95	1.00			0.97		0.95	1.00			1.00	
Satd. Flow (prot)	1781	1539			1692		1731	1692			1731	
Flt Permitted	0.71	1.00			0.56		0.58	1.00			1.00	
Satd. Flow (perm)	1337	1539			967		1059	1692			1724	
Peak-hour factor, PHF	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Adj. Flow (vph)	112	39	204	53	26	20	257	112	59	7	230	79
RTOR Reduction (vph)	0	161	0	0	12	0	0	15	0	0	9	0
Lane Group Flow (vph)	112	82	0	0	87	0	257	156	0	0	307	0
Confl. Peds. (#/hr)	1		7	7		1	20		14	14		20
Heavy Vehicles (%)	0%	0%	4%	3%	5%	6%	0%	4%	2%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.0	18.0			18.0		60.0	60.0			60.0	
Effective Green, g (s)	19.0	19.0			19.0		61.0	61.0			61.0	
Actuated g/C Ratio	0.21	0.21			0.21		0.68	0.68			0.68	
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	282	324			204		717	1146			1168	
v/s Ratio Prot		0.05						0.09				
v/s Ratio Perm	0.08				c0.09		c0.24				0.18	
v/c Ratio	0.40	0.25			0.43		0.36	0.14			0.26	
Uniform Delay, d1	30.6	29.6			30.8		6.2	5.1			5.7	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.9	0.4			1.4		1.4	0.2			0.5	
Delay (s)	31.5	30.0			32.2		7.6	5.4			6.2	
Level of Service	C	C			C		A	A			A	
Approach Delay (s)		30.5			32.2			6.7			6.2	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.37			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	76.7%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
20: Bemersyde Dr. & Oldham Rd.

Future Total - 2030 - AM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	10	155	0	5	125
Future Volume (Veh/h)	5	10	155	0	5	125
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	11	170	0	5	137
Pedestrians	5					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						79
pX, platoon unblocked						
vC, conflicting volume	322	175			175	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	322	175			175	
tC, single (s)	6.4	6.3			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.4	
p0 queue free %	99	99			100	
cM capacity (veh/h)	670	842			1269	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	16	170	142
Volume Left	5	0	5
Volume Right	11	0	0
cSH	780	1700	1269
Volume to Capacity	0.02	0.10	0.00
Queue Length 95th (m)	0.5	0.0	0.1
Control Delay (s)	9.7	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	0.3
Approach LOS	A		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
25: Wincott Dr. & NE Site Access

Future Total - 2030 - AM - Base

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	20	25	160	225	20
Future Volume (Veh/h)	15	20	25	160	225	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	22	28	178	250	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				61		
pX, platoon unblocked	0.96					
vC, conflicting volume	495	261	272			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	454	261	272			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	97	98			
cM capacity (veh/h)	530	778	1291			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	39	206	272
Volume Left	17	28	0
Volume Right	22	0	22
cSH	646	1291	1700
Volume to Capacity	0.06	0.02	0.16
Queue Length 95th (m)	1.5	0.5	0.0
Control Delay (s)	10.9	1.2	0.0
Lane LOS	B	A	
Approach Delay (s)	10.9	1.2	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		1.3		
Intersection Capacity Utilization		36.2%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
26: Widdicombe Hill Blvd. & NW Site Access

Future Total - 2030 - AM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	70	20	50	95	15	60
Future Volume (Veh/h)	70	20	50	95	15	60
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	78	22	56	106	17	67
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			330			
pX, platoon unblocked						
vC, conflicting volume	210	109			162	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	210	109			162	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	98			99	
cM capacity (veh/h)	769	945			1417	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	100	162	84
Volume Left	78	0	17
Volume Right	22	106	0
cSH	802	1700	1417
Volume to Capacity	0.12	0.10	0.01
Queue Length 95th (m)	3.4	0.0	0.3
Control Delay (s)	10.1	0.0	1.6
Lane LOS	B		A
Approach Delay (s)	10.1	0.0	1.6
Approach LOS	B		

Intersection Summary				
Average Delay		3.3		
Intersection Capacity Utilization		27.5%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
29: Wincott Dr. & 265 Wincott Dr. Plaza South

Future Total - 2030 - AM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	0	310	20	15	370
Future Volume (Veh/h)	5	0	310	20	15	370
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	0	344	22	17	411
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			72			58
pX, platoon unblocked	0.93	0.92			0.92	
vC, conflicting volume	800	355			366	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	694	255			267	
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			99	
cM capacity (veh/h)	375	721			1193	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	6	366	428
Volume Left	6	0	17
Volume Right	0	22	0
cSH	375	1700	1193
Volume to Capacity	0.02	0.22	0.01
Queue Length 95th (m)	0.4	0.0	0.3
Control Delay (s)	14.8	0.0	0.5
Lane LOS	B		A
Approach Delay (s)	14.8	0.0	0.5
Approach LOS	B		

Intersection Summary				
Average Delay		0.4		
Intersection Capacity Utilization		41.6%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
31: Wincott Dr. & 265 Wincott Dr. Plaza North

Future Total - 2030 - AM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	15	310	0	5	370
Future Volume (Veh/h)	15	15	310	0	5	370
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	17	344	0	6	411
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			28
pX, platoon unblocked	0.96	0.94			0.94	
vC, conflicting volume	767	344			344	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	636	272			272	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	98			100	
cM capacity (veh/h)	424	722			1216	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	34	344	417
Volume Left	17	0	6
Volume Right	17	0	0
cSH	534	1700	1216
Volume to Capacity	0.06	0.20	0.00
Queue Length 95th (m)	1.6	0.0	0.1
Control Delay (s)	12.2	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	12.2	0.0	0.2
Approach LOS	B		

Intersection Summary				
Average Delay		0.6		
Intersection Capacity Utilization		33.5%	ICU Level of Service	A
Analysis Period (min)		15		

Timings
3: Islington Ave. & Eglinton Ave. E.

Future Total - 2030 - PM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	245	1610	135	1245	75	1050	165	70	870	105
Future Volume (vph)	245	1610	135	1245	75	1050	165	70	870	105
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2	1	6	3	8		7	4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	6.0	30.0	6.0	30.0	7.0	27.0	27.0	7.0	27.0	27.0
Minimum Split (s)	10.0	36.0	10.0	36.0	11.0	33.0	33.0	11.0	33.0	33.0
Total Split (s)	17.0	60.0	10.0	53.0	11.0	39.0	39.0	11.0	39.0	39.0
Total Split (%)	14.2%	50.0%	8.3%	44.2%	9.2%	32.5%	32.5%	9.2%	32.5%	32.5%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	Min	Min	None	Min	Min
Act Effct Green (s)	67.0	55.0	57.0	48.0	44.6	36.2	36.2	44.6	36.2	36.2
Actuated g/C Ratio	0.56	0.46	0.48	0.40	0.37	0.30	0.30	0.37	0.30	0.30
v/c Ratio	0.94	1.11	0.83	1.01	0.44	1.03	0.31	0.40	0.87	0.20
Control Delay	71.3	84.8	59.9	62.2	31.2	78.6	10.4	29.9	50.3	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.3	84.8	59.9	62.2	31.2	78.6	10.4	29.9	50.3	3.6
LOS	E	F	E	E	C	E	B	C	D	A
Approach Delay		83.1		62.0		67.1			44.3	
Approach LOS		F		E		E			D	

Intersection Summary		
Cycle Length: 120		
Actuated Cycle Length: 120		
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green		
Natural Cycle: 140		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.11		
Intersection Signal Delay: 67.0	Intersection LOS: E	
Intersection Capacity Utilization 104.4%	ICU Level of Service G	
Analysis Period (min) 15		

Splits and Phases: 3: Islington Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
3: Islington Ave. & Eglinton Ave. E.

Future Total - 2030 - PM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	1610	75	135	1245	55	75	1050	165	70	870	105
Future Volume (vph)	245	1610	75	135	1245	55	75	1050	165	70	870	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3400		1750	3327		1749	3471	1526	1785	3437	1503
Flt Permitted	0.08	1.00		0.08	1.00		0.11	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	147	3400		156	3327		203	3471	1526	208	3437	1503
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	253	1660	77	139	1284	57	77	1082	170	72	897	108
RTOR Reduction (vph)	0	3	0	0	2	0	0	0	95	0	0	75
Lane Group Flow (vph)	253	1734	0	139	1339	0	77	1082	75	72	897	33
Confl. Peds. (#/hr)	18		45	45		18	36		25	25		36
Heavy Vehicles (%)	2%	2%	0%	2%	4%	2%	2%	1%	0%	0%	2%	0%
Bus Blockages (#/hr)	0	10	0	0	12	0	0	9	0	0	9	0
Parking (#/hr)			0									
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	63.2	53.2		52.2	46.2		40.8	35.2	35.2	40.8	35.2	35.2
Effective Green, g (s)	64.2	54.2		54.2	47.2		42.8	36.2	36.2	42.8	36.2	36.2
Actuated g/C Ratio	0.54	0.45		0.45	0.39		0.36	0.30	0.30	0.36	0.30	0.30
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	265	1535		163	1308		157	1047	460	160	1036	453
v/s Ratio Prot	c0.11	c0.51		0.05	0.40		c0.03	c0.31		0.02	0.26	
v/s Ratio Perm	0.40			0.33			0.15		0.05	0.14		0.02
v/c Ratio	0.95	1.13		0.85	1.02		0.49	1.03	0.16	0.45	0.87	0.07
Uniform Delay, d1	36.8	32.9		28.0	36.4		28.9	41.9	30.8	30.4	39.6	29.9
Progression Factor	1.45	0.86		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	30.1	63.7		32.6	31.0		2.4	36.8	0.2	2.0	7.7	0.1
Delay (s)	83.6	91.8		60.6	67.4		31.3	78.7	30.9	32.4	47.3	30.0
Level of Service	F	F		E	E		C	E	C	C	D	C
Approach Delay (s)		90.8			66.7			69.8			44.6	
Approach LOS		F			E			E			D	

Intersection Summary				
HCM 2000 Control Delay	71.5	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.06			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	104.4%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Timings
6: Kipling Ave. & Eglinton Ave. E.

Future Total - 2030 - PM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	230	1805	150	1720	130	750	155	60	525	55
Future Volume (vph)	230	1805	150	1720	130	750	155	60	525	55
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6	3	8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	3	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	33.0	6.0	33.0	6.0	29.0	29.0	29.0	29.0	29.0
Minimum Split (s)	10.0	40.0	10.0	40.0	10.0	36.0	36.0	36.0	36.0	36.0
Total Split (s)	15.0	72.0	10.0	67.0	10.0	46.0	46.0	36.0	36.0	36.0
Total Split (%)	11.7%	56.3%	7.8%	52.3%	7.8%	35.9%	35.9%	28.1%	28.1%	28.1%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	Min	Min	Min	Min	Min
Act Effct Green (s)	79.0	66.0	71.0	61.0	43.0	40.0	40.0	30.0	30.0	30.0
Actuated g/C Ratio	0.62	0.52	0.55	0.48	0.34	0.31	0.31	0.23	0.23	0.23
v/c Ratio	1.08	1.10	1.05	1.09	0.68	0.78	0.32	0.74	0.72	0.14
Control Delay	117.6	85.2	114.2	84.0	49.4	46.1	15.4	84.6	45.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	117.6	85.2	114.2	84.0	49.4	46.1	15.4	84.6	45.8	5.0
LOS	F	F	F	F	D	D	B	F	D	A
Approach Delay		88.7		86.4		41.9			46.0	
Approach LOS		F		F		D			D	

Intersection Summary		
Cycle Length: 128		
Actuated Cycle Length: 128		
Offset: 50 (39%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green		
Natural Cycle: 140		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.10		
Intersection Signal Delay: 74.6	Intersection LOS: E	
Intersection Capacity Utilization 129.6%	ICU Level of Service H	
Analysis Period (min) 15		

Splits and Phases: 6: Kipling Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
6: Kipling Ave. & Eglinton Ave. E.

Future Total - 2030 - PM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	1805	85	150	1720	80	130	750	155	60	525	55
Future Volume (vph)	230	1805	85	150	1720	80	130	750	155	60	525	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	*0.99		1.00	*1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.93	1.00	1.00	0.89
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.99	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1806	3572		1733	3636		1742	3323	1449	1645	3345	1397
Flt Permitted	0.06	1.00		0.07	1.00		0.22	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	114	3572		120	3636		406	3323	1449	378	3345	1397
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.95	0.95	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	247	1941	91	161	1811	84	140	806	167	65	565	59
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	70	0	0	45
Lane Group Flow (vph)	247	2029	0	161	1892	0	140	806	97	65	565	14
Confl. Peds. (#/hr)	20		82	82		20	58		40	40		58
Confl. Bikes (#/hr)			3						16			25
Heavy Vehicles (%)	3%	3%	2%	3%	3%	7%	2%	4%	2%	7%	5%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	16	0	0	8	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	75.0	65.0		66.0	60.0		39.0	39.0	39.0	29.0	29.0	29.0
Effective Green, g (s)	76.0	66.0		68.0	61.0		40.0	40.0	40.0	30.0	30.0	30.0
Actuated g/C Ratio	0.59	0.52		0.53	0.48		0.31	0.31	0.31	0.23	0.23	0.23
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	1841		151	1732		199	1038	452	88	783	327
v/s Ratio Prot	c0.10	c0.57		0.06	0.52		0.04	c0.24			0.17	
v/s Ratio Perm	0.55			0.51			0.18		0.07	0.17		0.01
v/c Ratio	1.09	1.10		1.07	1.09		0.70	0.78	0.21	0.74	0.72	0.04
Uniform Delay, d1	42.9	31.0		35.8	33.5		35.4	39.9	32.4	45.4	45.2	37.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.89	0.89	1.00
Incremental Delay, d2	86.9	54.8		92.0	51.6		10.7	3.7	0.2	26.4	3.2	0.1
Delay (s)	129.8	85.8		127.7	85.1		46.1	43.6	32.7	66.8	43.1	37.9
Level of Service	F	F		F	F		D	D	C	E	D	D
Approach Delay (s)		90.6			88.4			42.3			44.9	
Approach LOS		F			F			D			D	

Intersection Summary				
HCM 2000 Control Delay	76.0	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.04			
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	129.6%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

Timings
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Total - 2030 - PM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	90	80	25	65	50	930	75	65	720	75
Future Volume (vph)	90	80	25	65	50	930	75	65	720	75
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	26.0	26.0	26.0	26.0	17.0	17.0	17.0	17.0	17.0	17.0
Minimum Split (s)	34.0	34.0	34.0	34.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	34.0	34.0	94.0	94.0	94.0	94.0	94.0	94.0
Total Split (%)	26.6%	26.6%	26.6%	26.6%	73.4%	73.4%	73.4%	73.4%	73.4%	73.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		7.0		7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		28.5		28.5	87.5	87.5	87.5	87.5	87.5	87.5
Actuated g/C Ratio		0.22		0.22	0.68	0.68	0.68	0.68	0.68	0.68
v/c Ratio		0.66		0.34	0.12	0.40	0.07	0.20	0.32	0.07
Control Delay		54.2		40.2	10.3	11.9	6.1	9.7	8.8	3.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		54.2		40.2	10.3	11.9	6.1	9.7	8.8	3.2
LOS		D		D	B	B	A	A	A	A
Approach Delay		54.2		40.2		11.4			8.4	
Approach LOS		D		D		B			A	

Intersection Summary			
Cycle Length: 128			
Actuated Cycle Length: 128			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 15.7		Intersection LOS: B	
Intersection Capacity Utilization 75.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 9: Kipling Ave. & Widdicombe Hill Blvd.

HCM Signalized Intersection Capacity Analysis
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Total - 2030 - PM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	80	35	25	65	30	50	930	75	65	720	75
Future Volume (vph)	90	80	35	25	65	30	50	930	75	65	720	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		0.99			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00			0.99		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.98			0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1772			1757		1750	3466	1566	1785	3433	1597
Flt Permitted		0.78			0.89		0.34	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)		1415			1581		633	3466	1566	492	3433	1597
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	93	82	36	26	67	31	52	959	77	67	742	77
RTOR Reduction (vph)	0	5	0	0	9	0	0	0	14	0	0	16
Lane Group Flow (vph)	0	206	0	0	115	0	52	959	63	67	742	61
Confl. Peds. (#/hr)	5		35	35		5						
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%	2%	3%	2%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		27.5			27.5		86.5	86.5	86.5	86.5	86.5	86.5
Effective Green, g (s)		28.5			28.5		87.5	87.5	87.5	87.5	87.5	87.5
Actuated g/C Ratio		0.22			0.22		0.68	0.68	0.68	0.68	0.68	0.68
Clearance Time (s)		8.0			8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		315			352		432	2369	1070	336	2346	1091
v/s Ratio Prot								c0.28			0.22	
v/s Ratio Perm		c0.15			0.07		0.08		0.04	0.14		0.04
v/c Ratio		0.65			0.33		0.12	0.40	0.06	0.20	0.32	0.06
Uniform Delay, d1		45.2			41.7		7.0	8.9	6.7	7.4	8.2	6.7
Progression Factor		1.00			1.00		1.29	1.27	1.60	1.00	1.00	1.00
Incremental Delay, d2		4.8			0.5		0.3	0.2	0.0	1.3	0.4	0.1
Delay (s)		50.0			42.2		9.3	11.5	10.8	8.7	8.5	6.8
Level of Service		D			D		A	B	B	A	A	A
Approach Delay (s)		50.0			42.2			11.3			8.4	
Approach LOS		D			D			B			A	

Intersection Summary					
HCM 2000 Control Delay		15.4	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.47			
Actuated Cycle Length (s)		128.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization		75.7%	ICU Level of Service		D
Analysis Period (min)		15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
11: Widdicombe Hill Blvd. & Hunting Ridge

Future Total - 2030 - PM - Base

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	40	15	35	60	15	65
Future Volume (Veh/h)	40	15	35	60	15	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	46	17	40	69	17	75
Pedestrians				10		
Lane Width (m)				3.5		
Walking Speed (m/s)				1.2		
Percent Blockage				1		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			63		204	64
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			63		204	64
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		98	92
cM capacity (veh/h)			1533		769	997

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	63	109	92
Volume Left	0	40	17
Volume Right	17	0	75
cSH	1700	1533	945
Volume to Capacity	0.04	0.03	0.10
Queue Length 95th (m)	0.0	0.6	2.6
Control Delay (s)	0.0	2.8	9.2
Lane LOS		A	A
Approach Delay (s)	0.0	2.8	9.2
Approach LOS			A

Intersection Summary				
Average Delay		4.4		
Intersection Capacity Utilization		26.3%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
13: Eglinton Ave. E. & South Site Access

Future Total - 2030 - PM - Base

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2000	1165	85	0	155
Future Volume (Veh/h)	0	2000	1165	85	0	155
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	2062	1201	88	0	160
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)			107			
pX, platoon unblocked	0.66				0.66	0.66
vC, conflicting volume	1289				2276	644
vC1, stage 1 conf vol					1245	
vC2, stage 2 conf vol					1031	
vCu, unblocked vol	411				1904	0
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	78
cM capacity (veh/h)	761				249	714

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	1031	1031	801	488	160
Volume Left	0	0	0	0	0
Volume Right	0	0	0	88	160
cSH	1700	1700	1700	1700	714
Volume to Capacity	0.61	0.61	0.47	0.29	0.22
Queue Length 95th (m)	0.0	0.0	0.0	0.0	6.8
Control Delay (s)	0.0	0.0	0.0	0.0	11.5
Lane LOS					B
Approach Delay (s)	0.0		0.0		11.5
Approach LOS					B

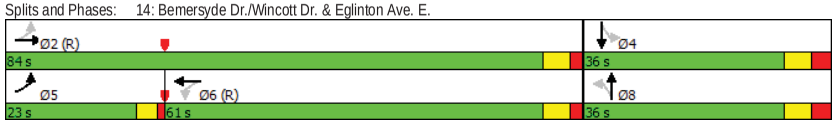
Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		58.6%	ICU Level of Service	B
Analysis Period (min)		15		

Timings
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	270	1725	10	1155	15	140	180	130
Future Volume (vph)	270	1725	10	1155	15	140	180	130
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	6.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Minimum Split (s)	10.0	30.0	30.0	30.0	34.0	34.0	34.0	34.0
Total Split (s)	23.0	84.0	61.0	61.0	36.0	36.0	36.0	36.0
Total Split (%)	19.2%	70.0%	50.8%	50.8%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	5.0	5.0		6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	81.8	79.8	58.8	58.8		29.2	29.2	29.2
Actuated g/C Ratio	0.68	0.66	0.49	0.49		0.24	0.24	0.24
v/c Ratio	0.81	0.81	0.15	0.82		0.43	0.83	0.49
Control Delay	45.3	18.5	33.4	41.9		40.8	72.1	38.9
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	45.3	18.5	33.4	41.9		40.8	72.1	38.9
LOS	D	B	C	D		D	E	D
Approach Delay		22.1		41.9		40.8		54.4
Approach LOS		C		D		D		D

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 32.8		Intersection LOS: C	
Intersection Capacity Utilization 131.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	1725	10	10	1155	110	15	140	20	180	130	75
Future Volume (vph)	270	1725	10	10	1155	110	15	140	20	180	130	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		5.0	5.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.97	1.00	
Frt	1.00	1.00		1.00	0.99			0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1785	3392		1778	3294			1794		1680	1736	
Flt Permitted	0.08	1.00		0.08	1.00			0.96		0.53	1.00	
Satd. Flow (perm)	155	3392		153	3294			1730		939	1736	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	284	1816	11	11	1216	116	16	147	21	189	137	79
RTOR Reduction (vph)	0	0	0	0	6	0	0	4	0	0	17	0
Lane Group Flow (vph)	284	1827	0	11	1326	0	0	180	0	189	199	0
Confl. Peds. (#/hr)	10		35	35		10	15		35	35		15
Heavy Vehicles (%)	0%	3%	0%	0%	4%	4%	6%	1%	5%	3%	0%	3%
Bus Blockages (#/hr)	0	10	0	0	12	0	0	0	0	0	0	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	78.8	78.8		57.8	57.8			28.2		28.2	28.2	
Effective Green, g (s)	79.8	79.8		58.8	58.8			29.2		29.2	29.2	
Actuated g/C Ratio	0.66	0.66		0.49	0.49			0.24		0.24	0.24	
Clearance Time (s)	4.0	6.0		6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	347	2255		74	1614			420		228	422	
v/s Ratio Prot	0.12	c0.54			0.40						0.11	
v/s Ratio Perm	c0.42			0.07				0.10		c0.20		
v/c Ratio	0.82	0.81		0.15	0.82			0.43		0.83	0.47	
Uniform Delay, d1	32.3	14.6		16.8	26.1			38.4		43.0	38.8	
Progression Factor	1.00	1.00		1.55	1.48			1.00		1.00	1.00	
Incremental Delay, d2	13.9	3.3		1.6	1.9			0.7		21.3	0.8	
Delay (s)	46.2	17.9		27.6	40.7			39.1		64.4	39.6	
Level of Service	D	B		C	D			D		E	D	
Approach Delay (s)		21.7			40.6			39.1			51.2	
Approach LOS		C			D			D			D	

Intersection Summary					
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.84				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0		
Intersection Capacity Utilization	131.4%	ICU Level of Service	H		
Analysis Period (min)	15				
c Critical Lane Group					

HCM Unsignalized Intersection Capacity Analysis
15: Wincott Dr. & Hunting Ridge

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	30	30	245	180	85
Future Volume (Veh/h)	90	30	30	245	180	85
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	96	32	32	261	191	90
Pedestrians	10					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				163		
pX, platoon unblocked	1.00					
vC, conflicting volume	571	246	291			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	567	246	291			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	80	96	97			
cM capacity (veh/h)	470	791	1255			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	128	293	281
Volume Left	96	32	0
Volume Right	32	0	90
cSH	523	1255	1700
Volume to Capacity	0.24	0.03	0.17
Queue Length 95th (m)	7.6	0.6	0.0
Control Delay (s)	14.1	1.1	0.0
Lane LOS	B	A	
Approach Delay (s)	14.1	1.1	0.0
Approach LOS	B		

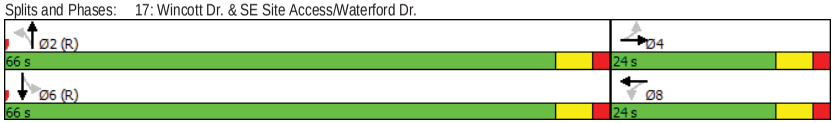
Intersection Summary				
Average Delay		3.0		
Intersection Capacity Utilization		46.4%	ICU Level of Service	A
Analysis Period (min)		15		

Timings
17: Wincott Dr. & SE Site Access/Waterford Dr.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	100	50	35	55	335	175	10	140
Future Volume (vph)	100	50	35	55	335	175	10	140
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	24.0	24.0	66.0	66.0	66.0	66.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)	20.8	20.8		20.8	59.2	59.2		59.2
Actuated g/C Ratio	0.23	0.23		0.23	0.66	0.66		0.66
v/c Ratio	0.40	0.59		0.50	0.55	0.20		0.25
Control Delay	33.4	13.6		35.1	12.6	6.4		5.5
Queue Delay	0.0	0.0		0.0	0.6	0.0		0.0
Total Delay	33.4	13.6		35.1	13.2	6.4		5.5
LOS	C	B		D	B	A		A
Approach Delay		18.9		35.1		10.6		5.5
Approach LOS		B		D		B		A

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 14.1 — Intersection LOS: B
Intersection Capacity Utilization 81.5% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 17: Wincott Dr. & SE Site Access/Waterford Dr.



HCM Signalized Intersection Capacity Analysis
17: Wincott Dr. & SE Site Access/Waterford Dr.

Future Total - 2030 - PM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	50	225	35	55	15	335	175	30	10	140	90
Future Volume (vph)	100	50	225	35	55	15	335	175	30	10	140	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.94			1.00		1.00	0.99			0.96	
Flpb, ped/bikes	1.00	1.00			0.99		0.94	1.00			1.00	
Frt	1.00	0.88			0.98		1.00	0.98			0.95	
Flt Protected	0.95	1.00			0.98		0.95	1.00			1.00	
Satd. Flow (prot)	1743	1551			1764		1678	1817			1685	
Flt Permitted	0.67	1.00			0.57		0.61	1.00			0.99	
Satd. Flow (perm)	1234	1551			1023		1069	1817			1668	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	115	57	259	40	63	17	385	201	34	11	161	103
RTOR Reduction (vph)	0	177	0	0	6	0	0	7	0	0	25	0
Lane Group Flow (vph)	115	139	0	0	114	0	385	228	0	0	250	0
Confl. Peds. (#/hr)	2		21	21		2	37		12	12		37
Heavy Vehicles (%)	2%	0%	0%	0%	3%	0%	0%	0%	3%	11%	0%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	19.8	19.8			19.8		58.2	58.2			58.2	
Effective Green, g (s)	20.8	20.8			20.8		59.2	59.2			59.2	
Actuated g/C Ratio	0.23	0.23			0.23		0.66	0.66			0.66	
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	285	358			236		703	1195			1097	
v/s Ratio Prot		0.09						0.13				
v/s Ratio Perm	0.09				c0.11		c0.36				0.15	
v/c Ratio	0.40	0.39			0.48		0.55	0.19			0.23	
Uniform Delay, d1	29.3	29.2			29.9		8.2	6.0			6.2	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.9	0.7			1.6		3.1	0.4			0.5	
Delay (s)	30.3	29.9			31.5		11.3	6.4			6.7	
Level of Service	C	C			C		B	A			A	
Approach Delay (s)		30.0			31.5			9.4			6.7	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.53			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	81.5%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
20: Bemersyde Dr. & Oldham Rd.

Future Total - 2030 - PM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	5	135	0	5	130
Future Volume (Veh/h)	0	5	135	0	5	130
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	5	145	0	5	140
Pedestrians	15					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						79
pX, platoon unblocked	0.99					
vC, conflicting volume	310	160			160	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	296	160			160	
tC, single (s)	6.4	6.5			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.6			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	680	809			1414	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	145	145
Volume Left	0	0	5
Volume Right	5	0	0
cSH	809	1700	1414
Volume to Capacity	0.01	0.09	0.00
Queue Length 95th (m)	0.1	0.0	0.1
Control Delay (s)	9.5	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	0.3
Approach LOS	A		

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	20.9%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
25: Wincott Dr. & NE Site Access

Future Total - 2030 - PM - Base

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	45	30	260	200	10
Future Volume (Veh/h)	20	45	30	260	200	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	21	47	32	274	211	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)				61		
pX, platoon unblocked	0.92					
vC, conflicting volume	554	216	222			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	474	216	222			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	94	98			
cM capacity (veh/h)	494	823	1347			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	68	306	222
Volume Left	21	32	0
Volume Right	47	0	11
cSH	683	1347	1700
Volume to Capacity	0.10	0.02	0.13
Queue Length 95th (m)	2.6	0.6	0.0
Control Delay (s)	10.9	1.0	0.0
Lane LOS	B	A	
Approach Delay (s)	10.9	1.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		1.8		
Intersection Capacity Utilization		40.4%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
26: Widdicombe Hill Blvd. & NW Site Access

Future Total - 2030 - PM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	85	20	60	125	15	35
Future Volume (Veh/h)	85	20	60	125	15	35
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	89	21	63	132	16	37
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			330			
pX, platoon unblocked						
vC, conflicting volume	198	129			195	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	198	129			195	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	98			99	
cM capacity (veh/h)	781	921			1378	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	110	195	53
Volume Left	89	0	16
Volume Right	21	132	0
cSH	805	1700	1378
Volume to Capacity	0.14	0.11	0.01
Queue Length 95th (m)	3.8	0.0	0.3
Control Delay (s)	10.2	0.0	2.4
Lane LOS	B		A
Approach Delay (s)	10.2	0.0	2.4
Approach LOS	B		

Intersection Summary				
Average Delay		3.5		
Intersection Capacity Utilization		27.7%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
29: Wincott Dr. & 265 Wincott Dr. Plaza South

Future Total - 2030 - PM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	0	505	15	10	380
Future Volume (Veh/h)	5	0	505	15	10	380
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	5	0	532	16	11	400
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			72			58
pX, platoon unblocked	0.86	0.86			0.86	
vC, conflicting volume	962	540			548	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	878	390			399	
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			99	
cM capacity (veh/h)	272	569			1003	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	548	411
Volume Left	5	0	11
Volume Right	0	16	0
cSH	272	1700	1003
Volume to Capacity	0.02	0.32	0.01
Queue Length 95th (m)	0.4	0.0	0.3
Control Delay (s)	18.5	0.0	0.4
Lane LOS	C		A
Approach Delay (s)	18.5	0.0	0.4
Approach LOS	C		

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		38.0%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
31: Wincott Dr. & 265 Wincott Dr. Plaza North

Future Total - 2030 - PM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	20	505	0	0	390
Future Volume (Veh/h)	10	20	505	0	0	390
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	21	532	0	0	411
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			28
pX, platoon unblocked	0.87	0.87			0.87	
vC, conflicting volume	943	532			532	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	863	393			393	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	96			100	
cM capacity (veh/h)	284	574			1019	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	32	532	411
Volume Left	11	0	0
Volume Right	21	0	0
cSH	425	1700	1019
Volume to Capacity	0.08	0.31	0.00
Queue Length 95th (m)	1.9	0.0	0.0
Control Delay (s)	14.2	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.2	0.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		36.6%	ICU Level of Service	A
Analysis Period (min)		15		

Timings
3: Islington Ave. & Eglinton Ave. E.

Future Total - 2030 - PM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	120	1550	105	1325	110	630	110	75	565	140
Future Volume (vph)	120	1550	105	1325	110	630	110	75	565	140
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	30.0	6.0	30.0	27.0	27.0	27.0	27.0	27.0	27.0
Minimum Split (s)	10.0	36.0	10.0	36.0	33.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	12.0	71.0	10.0	69.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	10.0%	59.2%	8.3%	57.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	None	C-Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	78.2	67.6	75.7	66.3	32.1	32.1	32.1	32.1	32.1	32.1
Actuated g/C Ratio	0.65	0.56	0.63	0.55	0.27	0.27	0.27	0.27	0.27	0.27
v/c Ratio	0.57	0.88	0.63	0.76	0.90	0.71	0.26	0.75	0.64	0.30
Control Delay	30.4	16.8	35.1	24.3	99.5	44.3	17.3	81.1	42.2	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	16.8	35.1	24.3	99.5	44.3	17.3	81.1	42.2	14.8
LOS	C	B	D	C	F	D	B	F	D	B
Approach Delay		17.7		25.1		47.9			41.0	
Approach LOS		B		C		D			D	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 28.9		Intersection LOS: C	
Intersection Capacity Utilization 112.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 3: Islington Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
3: Islington Ave. & Eglinton Ave. E.

Future Total - 2030 - PM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	1550	95	105	1325	70	110	630	110	75	565	140
Future Volume (vph)	120	1550	95	105	1325	70	110	630	110	75	565	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		3.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1733	3415		1767	3431		1755	3437	1486	1764	3417	1516
Flt Permitted	0.09	1.00		0.06	1.00		0.26	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)	161	3415		112	3431		475	3437	1486	387	3417	1516
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	124	1598	98	108	1366	72	113	649	113	77	582	144
RTOR Reduction (vph)	0	4	0	0	3	0	0	0	47	0	0	69
Lane Group Flow (vph)	124	1693	0	108	1435	0	113	649	66	77	582	75
Confl. Peds. (#/hr)	10		15	15		10	15		30	30		15
Heavy Vehicles (%)	3%	2%	2%	1%	2%	0%	1%	2%	2%	0%	3%	2%
Bus Blockages (#/hr)	0	7	0	0	6	0	0	9	0	0	7	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	74.1	66.5		71.7	65.3		31.1	31.1	31.1	31.1	31.1	31.1
Effective Green, g (s)	76.1	67.5		73.7	66.3		32.1	32.1	32.1	32.1	32.1	32.1
Actuated g/C Ratio	0.63	0.56		0.61	0.55		0.27	0.27	0.27	0.27	0.27	0.27
Clearance Time (s)	4.0	6.0		4.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	214	1920		170	1895		127	919	397	103	914	405
v/s Ratio Prot	c0.04	c0.50		c0.04	0.42			0.19			0.17	
v/s Ratio Perm	0.32			0.35			c0.24		0.04	0.20		0.05
v/c Ratio	0.58	0.88		0.64	0.76		0.89	0.71	0.17	0.75	0.64	0.19
Uniform Delay, d1	16.8	22.8		21.9	20.7		42.2	39.7	33.7	40.2	38.8	33.9
Progression Factor	2.05	0.51		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.7	4.5		7.5	2.9		47.3	2.5	0.2	25.2	1.5	0.2
Delay (s)	37.2	16.0		29.4	23.5		89.6	42.2	33.9	65.5	40.3	34.1
Level of Service	D	B		C	C		F	D	C	E	D	C
Approach Delay (s)		17.5			24.0			47.2			41.6	
Approach LOS		B			C			D			D	

Intersection Summary					
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.87				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		13.0	
Intersection Capacity Utilization	112.6%	ICU Level of Service		H	
Analysis Period (min)	15				
c Critical Lane Group					

Timings
6: Kipling Ave. & Eglinton Ave. E.

Future Total - 2030 - PM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	160	1655	145	1395	105	420	120	35	360	60
Future Volume (vph)	160	1655	145	1395	105	420	120	35	360	60
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases	2		6		8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	33.0	6.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Minimum Split (s)	10.0	40.0	10.0	40.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (s)	10.0	74.0	10.0	74.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	8.3%	61.7%	8.3%	61.7%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	None	C-Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	78.0	68.0	78.0	68.0	30.0	30.0	30.0	30.0	30.0	30.0
Actuated g/C Ratio	0.65	0.57	0.65	0.57	0.25	0.25	0.25	0.25	0.25	0.25
v/c Ratio	1.09	1.02	0.99	0.84	0.65	0.56	0.30	0.25	0.48	0.16
Control Delay	122.5	51.2	92.7	17.7	58.0	42.2	16.0	35.2	33.8	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	122.5	51.2	92.7	17.7	58.0	42.2	16.0	35.2	33.8	5.1
LOS	F	D	F	B	E	D	B	D	C	A
Approach Delay		57.1		24.4		39.9			30.1	
Approach LOS		E		C		D			C	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 50 (42%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay: 40.7		Intersection LOS: D	
Intersection Capacity Utilization 124.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 6: Kipling Ave. & Eglinton Ave. E.

HCM Signalized Intersection Capacity Analysis
6: Kipling Ave. & Eglinton Ave. E.

Future Total - 2030 - PM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1655	115	145	1395	80	105	420	120	35	360	60
Future Volume (vph)	160	1655	115	145	1395	80	105	420	120	35	360	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1785	3518		1785	3537		1774	3458	1568	1780	3417	1558
Flt Permitted	0.06	1.00		0.06	1.00		0.40	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	111	3518		111	3537		748	3458	1568	631	3417	1558
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	184	1902	132	167	1603	92	121	483	138	40	414	69
RTOR Reduction (vph)	0	4	0	0	3	0	0	0	68	0	0	52
Lane Group Flow (vph)	184	2030	0	167	1692	0	121	483	71	40	414	17
Confl. Peds. (#/hr)	5		20	20		5	10		5	5		10
Heavy Vehicles (%)	0%	0%	4%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	6	0	0	7	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	73.0	67.0		73.0	67.0		29.0	29.0	29.0	29.0	29.0	29.0
Effective Green, g (s)	75.0	68.0		75.0	68.0		30.0	30.0	30.0	30.0	30.0	30.0
Actuated g/C Ratio	0.62	0.57		0.62	0.57		0.25	0.25	0.25	0.25	0.25	0.25
Clearance Time (s)	4.0	7.0		4.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	167	1993		167	2004		187	864	392	157	854	389
v/s Ratio Prot	c0.06	0.58		0.06	0.48			0.14			0.12	
v/s Ratio Perm	c0.63			0.57			c0.16		0.04	0.06		0.01
v/c Ratio	1.10	1.02		1.00	0.84		0.65	0.56	0.18	0.25	0.48	0.04
Uniform Delay, d1	34.0	26.0		37.6	21.6		40.3	39.2	35.3	36.0	38.4	34.1
Progression Factor	1.00	1.00		1.56	0.66		1.00	1.00	1.00	0.84	0.82	0.58
Incremental Delay, d2	99.5	24.9		57.6	3.2		7.5	0.8	0.2	0.8	0.4	0.0
Delay (s)	133.5	50.9		116.2	17.4		47.7	40.0	35.6	31.1	32.0	19.9
Level of Service	F	D		F	B		D	D	D	C	C	B
Approach Delay (s)		57.8			26.3			40.5			30.3	
Approach LOS		E			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	41.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	124.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Timings
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Total - 2030 - PM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	50	35	30	45	35	545	70	55	420	45
Future Volume (vph)	50	35	30	45	35	545	70	55	420	45
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	26.0	26.0	26.0	26.0	17.0	17.0	17.0	17.0	17.0	17.0
Minimum Split (s)	34.0	34.0	34.0	34.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	34.0	34.0	86.0	86.0	86.0	86.0	86.0	86.0
Total Split (%)	28.3%	28.3%	28.3%	28.3%	71.7%	71.7%	71.7%	71.7%	71.7%	71.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		7.0		7.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		27.0		27.0	81.0	81.0	81.0	81.0	81.0	81.0
Actuated g/C Ratio		0.22		0.22	0.68	0.68	0.68	0.68	0.68	0.68
v/c Ratio		0.40		0.38	0.07	0.27	0.08	0.13	0.21	0.05
Control Delay		40.2		35.4	2.7	3.1	0.1	7.7	7.6	1.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		40.2		35.4	2.7	3.1	0.1	7.7	7.6	1.9
LOS		D		D	A	A	A	A	A	A
Approach Delay		40.2		35.4		2.7			7.1	
Approach LOS		D		D		A			A	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.40			
Intersection Signal Delay: 10.2		Intersection LOS: B	
Intersection Capacity Utilization 65.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 9: Kipling Ave. & Widdicombe Hill Blvd.

HCM Signalized Intersection Capacity Analysis
9: Kipling Ave. & Widdicombe Hill Blvd.

Future Total - 2030 - PM - Base

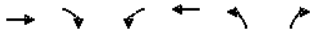
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	35	25	30	45	50	35	545	70	55	420	45
Future Volume (vph)	50	35	25	30	45	50	35	545	70	55	420	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		0.99			0.99		1.00	1.00	0.96	1.00	1.00	0.95
Flpb, ped/bikes		1.00			0.99		0.98	1.00	1.00	0.99	1.00	1.00
Frt		0.97			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1744			1735		1754	3500	1537	1773	3466	1510
Flt Permitted		0.76			0.90		0.47	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)		1362			1586		864	3500	1537	738	3466	1510
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	57	40	29	34	52	57	40	626	80	63	483	52
RTOR Reduction (vph)	0	9	0	0	20	0	0	0	21	0	0	17
Lane Group Flow (vph)	0	117	0	0	123	0	40	626	59	63	483	35
Confl. Peds. (#/hr)	5		20	20		5	10		5	5		10
Heavy Vehicles (%)	0%	0%	4%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		26.0			26.0		80.0	80.0	80.0	80.0	80.0	80.0
Effective Green, g (s)		27.0			27.0		81.0	81.0	81.0	81.0	81.0	81.0
Actuated g/C Ratio		0.22			0.22		0.68	0.68	0.68	0.68	0.68	0.68
Clearance Time (s)		8.0			8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		306			356		583	2362	1037	498	2339	1019
v/s Ratio Prot								c0.18			0.14	
v/s Ratio Perm		c0.09			0.08		0.05		0.04	0.09		0.02
v/c Ratio		0.38			0.35		0.07	0.27	0.06	0.13	0.21	0.03
Uniform Delay, d1		39.4			39.1		6.6	7.7	6.6	6.9	7.4	6.5
Progression Factor		1.00			1.00		0.38	0.37	0.00	1.00	1.00	1.00
Incremental Delay, d2		0.8			0.6		0.2	0.2	0.1	0.5	0.2	0.1
Delay (s)		40.2			39.7		2.7	3.0	0.1	7.5	7.6	6.6
Level of Service		D			D		A	A	A	A	A	A
Approach Delay (s)		40.2			39.7			2.7			7.5	
Approach LOS		D			D			A			A	

Intersection Summary					
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.29				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0		
Intersection Capacity Utilization	65.1%	ICU Level of Service	C		
Analysis Period (min)	15				

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
11: Widdicombe Hill Blvd. & Hunting Ridge

Future Total - 2030 - PM - Base



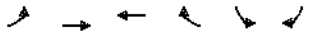
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	35	10	20	35	25	35
Future Volume (Veh/h)	35	10	20	35	25	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	45	13	26	45	32	45
Pedestrians						
Lane Width (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			58		148	52
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			58		148	52
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	96
cM capacity (veh/h)			1559		834	1022

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	58	71	77
Volume Left	0	26	32
Volume Right	13	0	45
cSH	1700	1559	935
Volume to Capacity	0.03	0.02	0.08
Queue Length 95th (m)	0.0	0.4	2.1
Control Delay (s)	0.0	2.8	9.2
Lane LOS		A	A
Approach Delay (s)	0.0	2.8	9.2
Approach LOS			A

Intersection Summary				
Average Delay			4.4	
Intersection Capacity Utilization			19.8%	ICU Level of Service A
Analysis Period (min)			15	

HCM Unsignalized Intersection Capacity Analysis
13: Eglinton Ave. E. & South Site Access

Future Total - 2030 - PM - Base



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1840	1440	110	0	205
Future Volume (Veh/h)	0	1840	1440	110	0	205
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	0	1878	1469	112	0	209
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)			107			
pX, platoon unblocked	0.54				0.54	0.54
vC, conflicting volume	1581				2464	790
vC1, stage 1 conf vol					1525	
vC2, stage 2 conf vol					939	
vCu, unblocked vol	364				2004	0
tC, single (s)	4.1				6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	64
cM capacity (veh/h)	649				246	587

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	939	939	979	602	209
Volume Left	0	0	0	0	0
Volume Right	0	0	0	112	209
cSH	1700	1700	1700	1700	587
Volume to Capacity	0.55	0.55	0.58	0.35	0.36
Queue Length 95th (m)	0.0	0.0	0.0	0.0	12.8
Control Delay (s)	0.0	0.0	0.0	0.0	14.5
Lane LOS					B
Approach Delay (s)	0.0		0.0		14.5
Approach LOS					B

Intersection Summary				
Average Delay			0.8	
Intersection Capacity Utilization			62.7%	ICU Level of Service B
Analysis Period (min)			15	

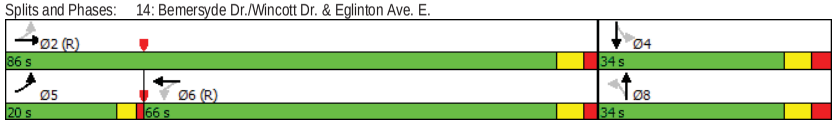
Timings
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2030 - PM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	275	1550	15	1445	15	50	210	85
Future Volume (vph)	275	1550	15	1445	15	50	210	85
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	6.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Minimum Split (s)	10.0	30.0	30.0	30.0	34.0	34.0	34.0	34.0
Total Split (s)	20.0	86.0	66.0	66.0	34.0	34.0	34.0	34.0
Total Split (%)	16.7%	71.7%	55.0%	55.0%	28.3%	28.3%	28.3%	28.3%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	5.0	5.0	5.0		6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	83.0	81.0	61.2	61.2		28.0	28.0	28.0
Actuated g/C Ratio	0.69	0.68	0.51	0.51		0.23	0.23	0.23
v/c Ratio	0.92	0.70	0.14	0.95		0.21	0.71	0.44
Control Delay	53.4	8.0	25.0	35.0		34.7	56.6	33.5
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	53.4	8.0	25.0	35.0		34.7	56.6	33.5
LOS	D	A	C	C		C	E	C
Approach Delay		14.8		34.9		34.7		45.9
Approach LOS		B		C		C		D

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 26.5		Intersection LOS: C	
Intersection Capacity Utilization 99.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.



HCM Signalized Intersection Capacity Analysis
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2030 - PM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	1550	15	15	1445	140	15	50	15	210	85	95
Future Volume (vph)	275	1550	15	15	1445	140	15	50	15	210	85	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0		5.0	5.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		0.99	1.00			1.00		0.98	1.00	
Frt	1.00	1.00		1.00	0.99			0.97		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1767	3443		1774	3402			1794		1737	1690	
Flt Permitted	0.06	1.00		0.13	1.00			0.92		0.72	1.00	
Satd. Flow (perm)	116	3443		234	3402			1672		1317	1690	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	286	1615	16	16	1505	146	16	52	16	219	89	99
RTOR Reduction (vph)	0	1	0	0	6	0	0	7	0	0	34	0
Lane Group Flow (vph)	286	1630	0	16	1645	0	0	77	0	219	154	0
Confl. Peds. (#/hr)	5		30	30		5	25		15	15		25
Heavy Vehicles (%)	1%	2%	0%	0%	2%	2%	0%	0%	0%	1%	0%	0%
Bus Blockages (#/hr)	0	7	0	0	6	0	0	0	0	0	0	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	80.0	80.0		60.2	60.2			27.0		27.0	27.0	
Effective Green, g (s)	81.0	81.0		61.2	61.2			28.0		28.0	28.0	
Actuated g/C Ratio	0.68	0.68		0.51	0.51			0.23		0.23	0.23	
Clearance Time (s)	4.0	6.0		6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	309	2324		119	1735			390		307	394	
v/s Ratio Prot	c0.13	0.47			0.48						0.09	
v/s Ratio Perm	c0.49			0.07				0.05		c0.17		
v/c Ratio	0.93	0.70		0.13	0.95			0.20		0.71	0.39	
Uniform Delay, d1	39.5	12.0		15.5	27.9			37.0		42.3	38.8	
Progression Factor	1.10	0.60		1.38	0.90			1.00		1.00	1.00	
Incremental Delay, d2	15.1	0.6		1.6	9.4			0.3		7.6	0.6	
Delay (s)	58.6	7.8		23.0	34.5			37.2		49.9	39.5	
Level of Service	E	A		C	C			D		D	D	
Approach Delay (s)		15.4			34.4			37.2			45.1	
Approach LOS		B			C			D			D	

Intersection Summary					
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.89				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0		
Intersection Capacity Utilization	99.2%	ICU Level of Service	F		
Analysis Period (min)	15				
c Critical Lane Group					

HCM Unsignalized Intersection Capacity Analysis
15: Wincott Dr. & Hunting Ridge

Future Total - 2030 - PM - Base

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	30	20	165	140	45
Future Volume (Veh/h)	45	30	20	165	140	45
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	49	33	22	181	154	49
Pedestrians	15					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				163		
pX, platoon unblocked	0.99					
vC, conflicting volume	418	194	218			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	412	194	218			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	96	98			
cM capacity (veh/h)	580	843	1347			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	82	203	203
Volume Left	49	22	0
Volume Right	33	0	49
cSH	663	1347	1700
Volume to Capacity	0.12	0.02	0.12
Queue Length 95th (m)	3.4	0.4	0.0
Control Delay (s)	11.2	1.0	0.0
Lane LOS	B	A	
Approach Delay (s)	11.2	1.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		2.3		
Intersection Capacity Utilization		35.7%	ICU Level of Service	A
Analysis Period (min)		15		

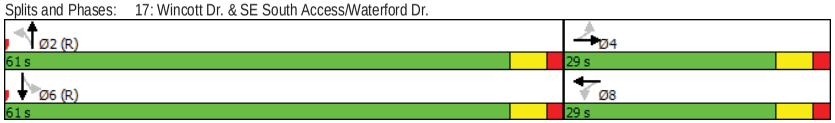
Timings
17: Wincott Dr. & SE South Access/Waterford Dr.

Future Total - 2030 - PM - Base

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	100	55	30	55	345	90	10	105
Future Volume (vph)	100	55	30	55	345	90	10	105
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	29.0	29.0	29.0	29.0	61.0	61.0	61.0	61.0
Total Split (%)	32.2%	32.2%	32.2%	32.2%	67.8%	67.8%	67.8%	67.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)	19.7	19.7		19.7	60.3	60.3		60.3
Actuated g/C Ratio	0.22	0.22		0.22	0.67	0.67		0.67
v/c Ratio	0.37	0.62		0.45	0.49	0.10		0.20
Control Delay	33.8	14.3		36.8	10.2	4.6		4.0
Queue Delay	0.0	0.0		0.0	0.7	0.0		0.0
Total Delay	33.8	14.3		36.8	10.9	4.6		4.0
LOS	C	B		D	B	A		A
Approach Delay		19.1		36.8		9.3		4.0
Approach LOS		B		D		A		A

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 13.8		Intersection LOS: B	
Intersection Capacity Utilization 76.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 17: Wincott Dr. & SE South Access/Waterford Dr.



HCM Signalized Intersection Capacity Analysis
17: Wincott Dr. & SE South Access/Waterford Dr.

Future Total - 2030 - PM - Base

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	55	250	30	55	5	345	90	25	10	105	100
Future Volume (vph)	100	55	250	30	55	5	345	90	25	10	105	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.95			1.00		1.00	0.99			0.96	
Flpb, ped/bikes	1.00	1.00			0.99		0.96	1.00			1.00	
Frt	1.00	0.88			0.99		1.00	0.97			0.94	
Flt Protected	0.95	1.00			0.98		0.95	1.00			1.00	
Satd. Flow (prot)	1781	1571			1823		1709	1777			1683	
Flt Permitted	0.71	1.00			0.53		0.64	1.00			0.99	
Satd. Flow (perm)	1334	1571			979		1146	1777			1669	
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)	109	60	272	33	60	5	375	98	27	11	114	109
RTOR Reduction (vph)	0	193	0	0	2	0	0	9	0	0	30	0
Lane Group Flow (vph)	109	139	0	0	96	0	375	116	0	0	204	0
Confl. Peds. (#/hr)	1		15	15		1	24		5	5		24
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.7	18.7			18.7		59.3	59.3			59.3	
Effective Green, g (s)	19.7	19.7			19.7		60.3	60.3			60.3	
Actuated g/C Ratio	0.22	0.22			0.22		0.67	0.67			0.67	
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	291	343			214		767	1190			1118	
v/s Ratio Prot		0.09						0.07				
v/s Ratio Perm	0.08				c0.10		c0.33				0.12	
v/c Ratio	0.37	0.41			0.45		0.49	0.10			0.18	
Uniform Delay, d1	29.9	30.1			30.4		7.3	5.2			5.6	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.8	0.8			1.5		2.2	0.2			0.4	
Delay (s)	30.7	30.9			31.9		9.5	5.4			5.9	
Level of Service	C	C			C		A	A			A	
Approach Delay (s)		30.9			31.9			8.5			5.9	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	76.6%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
20: Bemersyde Dr. & Oldham Rd.

Future Total - 2030 - PM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	5	90	0	5	85
Future Volume (Veh/h)	0	5	90	0	5	85
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	6	103	0	6	98
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						79
pX, platoon unblocked						
vC, conflicting volume	213	103			103	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	213	103			103	
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	99			100	
cM capacity (veh/h)	777	957			1502	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	6	103	104
Volume Left	0	0	6
Volume Right	6	0	0
cSH	957	1700	1502
Volume to Capacity	0.01	0.06	0.00
Queue Length 95th (m)	0.2	0.0	0.1
Control Delay (s)	8.8	0.0	0.5
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	0.5
Approach LOS	A		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
25: Wincott Dr. & NE Site Access

Future Total - 2030 - PM - Base

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	35	30	165	155	20
Future Volume (Veh/h)	20	35	30	165	155	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	22	39	33	183	172	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				61		
pX, platoon unblocked	0.95					
vC, conflicting volume	432	183	194			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	379	183	194			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	95	98			
cM capacity (veh/h)	579	859	1379			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	61	216	194
Volume Left	22	33	0
Volume Right	39	0	22
cSH	732	1379	1700
Volume to Capacity	0.08	0.02	0.11
Queue Length 95th (m)	2.2	0.6	0.0
Control Delay (s)	10.4	1.3	0.0
Lane LOS	B	A	
Approach Delay (s)	10.4	1.3	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		2.0		
Intersection Capacity Utilization		33.0%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
26: Widdicombe Hill Blvd. & NW Site Access

Future Total - 2030 - PM - Base

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	85	20	40	115	10	20
Future Volume (Veh/h)	85	20	40	115	10	20
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	94	22	44	128	11	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			330			
pX, platoon unblocked						
vC, conflicting volume	152	108			172	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	152	108			172	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	98			99	
cM capacity (veh/h)	833	946			1405	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	116	172	33
Volume Left	94	0	11
Volume Right	22	128	0
cSH	852	1700	1405
Volume to Capacity	0.14	0.10	0.01
Queue Length 95th (m)	3.8	0.0	0.2
Control Delay (s)	9.9	0.0	2.6
Lane LOS	A		A
Approach Delay (s)	9.9	0.0	2.6
Approach LOS	A		

Intersection Summary				
Average Delay		3.8		
Intersection Capacity Utilization		22.5%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	5	440	25	15	380
Future Volume (Veh/h)	10	5	440	25	15	380
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	6	489	28	17	422
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			72			58
pX, platoon unblocked	0.94	0.94			0.94	
vC, conflicting volume	959	503			517	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	923	438			452	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	99			98	
cM capacity (veh/h)	276	581			1040	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	517	439
Volume Left	11	0	17
Volume Right	6	28	0
cSH	339	1700	1040
Volume to Capacity	0.05	0.30	0.02
Queue Length 95th (m)	1.3	0.0	0.4
Control Delay (s)	16.2	0.0	0.5
Lane LOS	C		A
Approach Delay (s)	16.2	0.0	0.5
Approach LOS	C		

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		42.2%	ICU Level of Service	A
Analysis Period (min)		15		

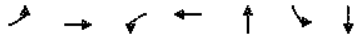
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	20	445	0	5	370
Future Volume (Veh/h)	25	20	445	0	5	370
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	22	494	0	6	411
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			28
pX, platoon unblocked	0.94	0.94			0.94	
vC, conflicting volume	917	494			494	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	883	435			435	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	96			99	
cM capacity (veh/h)	297	587			1062	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	50	494	417
Volume Left	28	0	6
Volume Right	22	0	0
cSH	380	1700	1062
Volume to Capacity	0.13	0.29	0.01
Queue Length 95th (m)	3.6	0.0	0.1
Control Delay (s)	15.9	0.0	0.2
Lane LOS	C		A
Approach Delay (s)	15.9	0.0	0.2
Approach LOS	C		

Intersection Summary				
Average Delay		0.9		
Intersection Capacity Utilization		33.5%	ICU Level of Service	A
Analysis Period (min)		15		

Queues
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Existing - AM



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	54	1597	16	1419	125	70	188
v/c Ratio	0.31	0.73	0.12	0.64	0.32	0.25	0.46
Control Delay	14.0	14.9	19.8	29.4	38.3	40.4	39.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.0	14.9	19.8	29.4	38.3	40.4	39.7
Queue Length 50th (m)	5.0	121.1	3.0	187.4	24.1	14.2	36.3
Queue Length 95th (m)	13.8	148.3	m3.9	m145.2	42.4	28.1	59.9
Internal Link Dist (m)		83.3		468.0	54.5		47.7
Turn Bay Length (m)	35.0		40.0			15.0	
Base Capacity (vph)	172	2196	128	2233	389	277	412
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.73	0.13	0.64	0.32	0.25	0.46

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Existing - PM

Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	74	1643	11	1116	153	74	184
v/c Ratio	0.28	0.72	0.09	0.50	0.38	0.31	0.44
Control Delay	11.0	14.6	20.8	27.5	40.4	42.4	37.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	14.6	20.8	27.5	40.4	42.4	37.9
Queue Length 50th (m)	6.7	123.0	2.1	149.0	30.8	15.3	34.1
Queue Length 95th (m)	15.4	149.2	m2.8	123.5	51.4	30.3	56.9
Internal Link Dist (m)		83.3		468.0	54.5		47.7
Turn Bay Length (m)	35.0		40.0			15.0	
Base Capacity (vph)	267	2289	116	2234	403	238	422
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.72	0.09	0.50	0.38	0.31	0.44

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - Phase 1- Base - SAT

Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	73	1401	16	1417	74	78	152
v/c Ratio	0.58	0.69	0.12	0.70	0.15	0.21	0.29
Control Delay	35.4	15.5	6.1	11.8	21.6	27.5	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	15.5	6.1	11.8	21.6	27.5	18.4
Queue Length 50th (m)	8.2	91.1	0.7	110.3	8.4	11.4	14.3
Queue Length 95th (m)	#32.8	115.2	m0.8	140.5	19.4	23.4	30.6
Internal Link Dist (m)		83.3		468.0	54.5		47.7
Turn Bay Length (m)	35.0		40.0			15.0	
Base Capacity (vph)	125	2044	130	2033	498	379	526
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.69	0.12	0.70	0.15	0.21	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Background_AM

Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	108	1683	16	1607	125	86	188
v/c Ratio	0.86	0.77	0.15	0.72	0.32	0.31	0.46
Control Delay	72.0	16.1	17.8	25.4	38.3	41.7	39.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.0	16.1	17.8	25.4	38.3	41.7	39.7
Queue Length 50th (m)	18.9	134.6	2.3	128.6	24.1	17.7	36.3
Queue Length 95th (m)	#61.5	165.2	m3.4	m146.5	42.4	33.6	59.9
Internal Link Dist (m)		83.3		468.0	54.5		47.7
Turn Bay Length (m)	35.0		40.0			15.0	
Base Capacity (vph)	125	2196	109	2236	389	277	412
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.77	0.15	0.72	0.32	0.31	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Background - PM

Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	179	1843	11	1247	153	84	184
v/c Ratio	0.81	0.81	0.14	0.56	0.38	0.35	0.44
Control Delay	44.0	17.5	2.4	1.5	40.4	43.5	37.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	17.5	2.4	1.5	40.4	43.5	37.9
Queue Length 50th (m)	28.8	155.6	0.1	4.5	30.8	17.5	34.1
Queue Length 95th (m)	#81.8	189.5	m0.1	m4.3	51.4	33.6	56.9
Internal Link Dist (m)		83.3		468.0	54.5		47.7
Turn Bay Length (m)	35.0		40.0			15.0	
Base Capacity (vph)	222	2289	77	2236	403	238	422
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.81	0.14	0.56	0.38	0.35	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Background - SAT

Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	167	1641	16	1563	74	109	152
v/c Ratio	1.84	0.80	0.21	0.77	0.15	0.29	0.30
Control Delay	436.2	19.0	16.8	17.7	21.6	28.9	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	436.2	19.0	16.8	17.7	21.6	28.9	21.4
Queue Length 50th (m)	~32.1	120.9	1.4	110.2	8.4	16.4	16.9
Queue Length 95th (m)	#73.9	153.1	5.9	139.8	19.4	31.2	33.4
Internal Link Dist (m)		83.3		468.0	54.5		47.7
Turn Bay Length (m)	35.0		40.0			15.0	
Base Capacity (vph)	91	2046	78	2034	498	379	515
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.84	0.80	0.21	0.77	0.15	0.29	0.30

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2025 - AM - Base

Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	167	1683	16	1640	146	129	247
v/c Ratio	0.74	0.77	0.15	0.89	0.39	0.50	0.60
Control Delay	44.2	16.1	13.6	30.4	40.6	47.6	44.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	16.1	13.6	30.4	40.6	47.6	44.3
Queue Length 50th (m)	23.1	134.6	2.2	225.4	29.2	27.9	50.2
Queue Length 95th (m)	#52.4	165.2	m3.2	m236.6	49.8	48.9	78.8
Internal Link Dist (m)		83.3		468.0	54.5		47.7
Turn Bay Length (m)	35.0		40.0			15.0	
Base Capacity (vph)	241	2196	109	1846	374	259	413
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.77	0.15	0.89	0.39	0.50	0.60

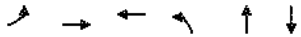
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
17: Wincott Dr. & SE Site Access/Waterford Dr.

Future Total - 2025 - AM - Base

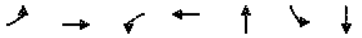


Lane Group	EBL	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	92	217	99	237	171	316
v/c Ratio	0.33	0.46	0.42	0.33	0.15	0.27
Control Delay	33.9	11.4	32.2	7.5	4.1	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	11.4	32.2	7.5	4.1	5.8
Queue Length 50th (m)	14.3	5.8	13.2	15.6	6.9	17.6
Queue Length 95th (m)	23.7	15.9	23.2	21.6	10.7	22.7
Internal Link Dist (m)		35.0	232.6		4.2	37.0
Turn Bay Length (m)	20.0			70.0		
Base Capacity (vph)	460	649	378	719	1161	1177
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.33	0.26	0.33	0.15	0.27

Intersection Summary

Queues
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2025 - PM - Base



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	274	1785	11	1290	174	184	200
v/c Ratio	0.78	0.79	0.13	0.78	0.41	0.79	0.46
Control Delay	37.9	17.6	33.7	42.1	40.4	66.4	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	17.6	33.7	42.1	40.4	66.4	38.1
Queue Length 50th (m)	38.5	152.4	2.0	123.3	35.2	42.6	37.6
Queue Length 95th (m)	69.9	187.6	m2.3	m113.5	57.0	#79.5	61.0
Internal Link Dist (m)		83.3		468.0	54.5		47.7
Turn Bay Length (m)	35.0		40.0			15.0	
Base Capacity (vph)	391	2258	82	1648	435	241	452
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.79	0.13	0.78	0.40	0.76	0.44

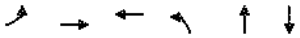
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
17: Wincott Dr. & SE Site Access/Waterford Dr.

Future Total - 2025 - PM - Base



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	103	293	120	356	235	275
v/c Ratio	0.38	0.57	0.49	0.50	0.19	0.24
Control Delay	33.7	14.2	35.6	11.0	5.9	5.1
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay	33.7	14.2	35.6	11.5	5.9	5.1
Queue Length 50th (m)	16.2	12.7	18.1	27.3	12.4	11.7
Queue Length 95th (m)	28.5	32.5	32.2	53.9	24.3	24.3
Internal Link Dist (m)		35.0	232.6		4.2	37.0
Turn Bay Length (m)	20.0			70.0		
Base Capacity (vph)	274	510	245	725	1238	1153
Starvation Cap Reductn	0	0	0	117	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.57	0.49	0.59	0.19	0.24

Intersection Summary

Queues
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2025 - SAT - Base

Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	266	1594	16	1615	84	208	172
v/c Ratio	0.88	0.69	0.13	0.92	0.21	0.68	0.40
Control Delay	49.1	7.3	24.5	31.8	34.7	54.3	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	7.3	24.5	31.8	34.7	54.3	31.2
Queue Length 50th (m)	42.4	108.6	2.0	123.7	15.0	47.2	25.9
Queue Length 95th (m)	m45.2	m105.3	m3.7	#162.3	29.4	75.6	47.7
Internal Link Dist (m)		83.3		468.0	54.5		47.7
Turn Bay Length (m)	35.0		40.0			15.0	
Base Capacity (vph)	313	2323	126	1757	398	307	428
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.69	0.13	0.92	0.21	0.68	0.40

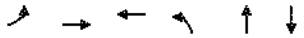
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
17: Wincott Dr. & SE South Access/Waterford Dr.

Future Total - 2025 - SAT - Base

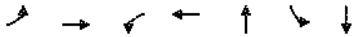


Lane Group	EBL	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	103	310	92	348	125	234
v/c Ratio	0.35	0.60	0.41	0.45	0.10	0.20
Control Delay	33.7	14.6	35.3	9.3	4.4	3.8
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	33.7	14.6	35.3	9.9	4.4	3.8
Queue Length 50th (m)	16.1	12.7	14.1	25.6	5.3	7.9
Queue Length 95th (m)	30.4	38.0	28.4	47.6	11.9	17.4
Internal Link Dist (m)		35.0	232.6		4.2	37.0
Turn Bay Length (m)	20.0			70.0		
Base Capacity (vph)	361	586	280	772	1204	1152
Starvation Cap Reductn	0	0	0	162	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.53	0.33	0.57	0.10	0.20

Intersection Summary

Queues
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2030 - AM - Base



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	172	1721	16	1672	152	140	258
v/c Ratio	0.75	0.78	0.16	0.91	0.42	0.55	0.62
Control Delay	46.0	16.8	14.5	32.2	41.4	49.9	44.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	46.0	16.8	14.5	32.2	41.4	49.9	44.9
Queue Length 50th (m)	24.5	141.1	2.2	230.2	30.7	30.7	52.4
Queue Length 95th (m)	#55.5	173.2	m3.1	m237.8	51.8	53.3	82.0
Internal Link Dist (m)		83.3		468.0	54.5		47.7
Turn Bay Length (m)	35.0		40.0			15.0	
Base Capacity (vph)	241	2196	100	1840	364	254	414
Starvation Cap Reductn	0	0	0	0	0	0	5
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.78	0.16	0.91	0.42	0.55	0.63

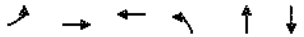
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
17: Wincott Dr. & SE Site Access/Waterford Dr.

Future Total - 2030 - AM - Base

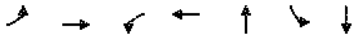


Lane Group	EBL	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	112	243	99	257	171	316
v/c Ratio	0.40	0.50	0.46	0.36	0.15	0.27
Control Delay	35.4	11.1	34.0	7.9	4.1	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	11.1	34.0	7.9	4.1	5.8
Queue Length 50th (m)	17.7	5.8	13.3	17.3	6.9	17.6
Queue Length 95th (m)	27.9	16.1	23.6	23.9	10.9	22.8
Internal Link Dist (m)		35.0	232.6		4.2	37.0
Turn Bay Length (m)	20.0			70.0		
Base Capacity (vph)	460	663	343	719	1160	1176
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.37	0.29	0.36	0.15	0.27

Intersection Summary

Queues
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2030 - PM - Base



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	284	1827	11	1332	184	189	216
v/c Ratio	0.81	0.81	0.15	0.82	0.43	0.83	0.49
Control Delay	45.3	18.5	33.4	41.9	40.8	72.1	38.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.3	18.5	33.4	41.9	40.8	72.1	38.9
Queue Length 50th (m)	45.7	162.0	1.8	112.3	37.3	44.2	40.8
Queue Length 95th (m)	#84.6	197.5	m2.3	m114.6	59.9	#84.9	65.7
Internal Link Dist (m)		83.3		468.0	54.5		47.7
Turn Bay Length (m)	35.0		40.0			15.0	
Base Capacity (vph)	376	2255	75	1619	436	234	451
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.81	0.15	0.82	0.42	0.81	0.48

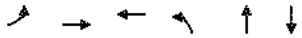
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
17: Wincott Dr. & SE Site Access/Waterford Dr.

Future Total - 2030 - PM - Base

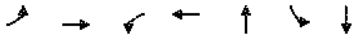


Lane Group	EBL	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	115	316	120	385	235	275
v/c Ratio	0.40	0.59	0.50	0.55	0.20	0.25
Control Delay	33.4	13.6	35.1	12.6	6.4	5.5
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	33.4	13.6	35.1	13.2	6.4	5.5
Queue Length 50th (m)	18.3	13.2	18.2	30.8	12.4	11.7
Queue Length 95th (m)	30.4	32.9	31.6	64.9	25.8	26.0
Internal Link Dist (m)		35.0	232.6		4.2	37.0
Turn Bay Length (m)	20.0			70.0		
Base Capacity (vph)	285	535	242	723	1238	1153
Starvation Cap Reductn	0	0	0	107	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.59	0.50	0.63	0.19	0.24

Intersection Summary

Queues
14: Bemersyde Dr./Wincott Dr. & Eglinton Ave. E.

Future Total - 2030 - PM - Base



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	286	1631	16	1651	84	219	188
v/c Ratio	0.92	0.70	0.14	0.95	0.21	0.71	0.44
Control Delay	53.4	8.0	25.0	35.0	34.7	56.6	33.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.4	8.0	25.0	35.0	34.7	56.6	33.5
Queue Length 50th (m)	48.3	120.0	2.1	128.9	15.0	50.2	30.4
Queue Length 95th (m)	m50.7	m109.6	m3.6	#250.9	29.5	#84.3	53.6
Internal Link Dist (m)		83.3		468.0	54.5		47.7
Turn Bay Length (m)	35.0		40.0			15.0	
Base Capacity (vph)	313	2326	118	1741	396	307	428
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.70	0.14	0.95	0.21	0.71	0.44

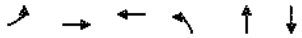
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
17: Wincott Dr. & SE South Access/Waterford Dr.

Future Total - 2030 - PM - Base



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	109	332	98	375	125	234
v/c Ratio	0.37	0.62	0.45	0.49	0.10	0.20
Control Delay	33.8	14.3	36.8	10.2	4.6	4.0
Queue Delay	0.0	0.0	0.0	0.7	0.0	0.0
Total Delay	33.8	14.3	36.8	10.9	4.6	4.0
Queue Length 50th (m)	17.2	13.0	15.2	28.5	5.3	7.9
Queue Length 95th (m)	31.3	38.7	29.7	56.0	12.6	18.5
Internal Link Dist (m)		35.0	232.6		4.2	37.0
Turn Bay Length (m)	20.0			70.0		
Base Capacity (vph)	355	600	263	768	1199	1147
Starvation Cap Reductn	0	0	0	153	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.55	0.37	0.61	0.10	0.20

Intersection Summary

APPENDIX H:
Signal Timing Plans

CITY OF TORONTO - TRANSPORTATION SERVICES
ITS OPERATIONS - TRAFFIC SIGNALS
703 Don Mills Rd, Toronto ON M3C 3N3
Phone: (416)-397 5770, Fax (416)-397 5777

CURRENT SIGNAL TIMING INFORMATION

Location: Eglinton Avenue West & Wincott Drive/Bemersyde Drive
PX/SCN: 0974/55331
Our Ref: 2016_0019
Staff: ZZ/SQ
Date: May 24, 2016
Controller Type: Novax L7N2/M
Mode of Control: SA2 - VMG with Walk Rest Modifier
Design Walk Speed: 1.0 m/s (FDW based on full crossing @ 1.2 m/s)
E/W FDW Duration: 17 seconds
N/S FDW Duration: 20 seconds
Issued to: Marie Y. Wong (BA Consulting Group Ltd.)

Control Level	**TYPICAL**			**SCOOT**		
Plan	**A.M. Peak**	**OFF Peak**	**P.M. Peak**	**A.M. Peak**	**OFF Peak**	**P.M. Peak**
Time of Operation	06:30-09:30, M-F	All Other Times	15:30-19:00, M-F	06:30-09:30, M-F	All Other Times	15:30-19:00 M-F
Signal Aspect						
East-West Phase						
EWG/EWWK	63	39	63	7 - 63	7 - 63	7 - 63
EWG/EWFD	17	17	17	17	17	17
EWY/EWDW	4	4	4	4	4	4
ALLR	2	2	2	2	2	2
North-South Phase						
*NSG/NSDW or NSG/NSWK	7	7	7	7	7	7
NSG/NSDW or NSG/NSFD	20	20	20	20	20	20
NSY/NSDW	4	4	4	4	4	4
ALLR	3	3	3	3	3	3
Cycle Length/Range	120	96	120	112 - 120	96 - 120	112 - 120

NOTES:

* NSG phase is callable by vehicle or pedestrian actuation, unused time is given to EWG.
The NSWK & NSFD are only displayed on the pedestrian signal heads if a pedestrian call is received.
EWFD reverts to EWWK if there is no side-street demand at the end of the EWFD.
SCOOT cycle lengths between 32-64 may change by 4 second increments, between 64-128 by 8 second increments and above 128 by 16 second increments.
SCOOT may change the cycle length by one increment at a time every 150 seconds.

CITY OF TORONTO - TRANSPORTATION SERVICES
ITS OPERATIONS - TRAFFIC SIGNALS
703 Don Mills Rd, Fifth Floor, Toronto ON M3C 3N3
Telephone: 416-397-5770, Fax: 416-397-5777

CURRENT SIGNAL TIMING INFORMATION

Location: Eglinton Ave W & Islington Ave
PX/SCN: 709/55321
Our Ref: 2016_0019
Staff: SM/RI
Preparation Date: May 24, 2016
Controller Type: Econolite ASC/3-2100
Mode of Control: FXT - Fire Hall PE - (NBLA)
Design Walk Speed: 1.0m/s (FDW based on full crossing at 1.2m/s)
N/S FDW Duration: 20 seconds
E/W FDW Duration: 23 seconds
Issued To: BA Consulting Group Ltd. (Marie Y. Wong)

Control Level	TYPICAL			SCOOT		
Plan	AM	OFF	PM	AM	OFF	PM
Time of Operation	06:30 -09:15, M-F	Other Times	15:30 - 18:45, M-F	06:30 -09:15, M-F	All Other Times	15:30 - 18:45, M-F
Signal Aspect						
East-West Phase						
*EBLA/EBG/EWWK(South Side) or WBLA/WBG/EWWK(North Side) or EWLA/EWDW	7	-	8	6 - 36	-	6 - 36
*EBYA/EBG/EWWK(South Side) or WBYA/WBG/EWWK(North Side) or EWYA/EWDW	3	-	3	3	-	3
*EBG/EWWK(South Side) or WBG/EWWK(North Side) or ALLR/EWDW	1	-	1	1	-	1
EWG / EWWK	15	23	24	7 - 37	7 - 58	7 - 37
EWG / EWFD	23	23	23	23	23	23
EWY/EWDW	4	4	4	4	4	4
ALLR	2	2	2	2	2	2
North-South Phase						
**NBLA/NBG/NBWK	15	-	8	7 - 37	-	7 - 37
**BYA/NBG/NBWK	3	-	3	3	-	3
**NBG / NWK or ALLR/NDW	1	-	1	1	-	1
NSG / NSWK	20	18	17	7 - 37	7 - 58	7 - 37
NSG / NSFD	20	20	20	20	20	20
NSY/NSDW	4	4	4	4	4	4
ALLR	2	2	2	2	2	2
Cycle Length/Range	120	96	120	112 - 120	96 - 120	112 - 120

NOTES
* EBLA & WBLA callable by setback loop during 06:30 - 09:15 & 15:30 - 18:45, M-F. Unused time allocated to EWG/EWWK.
**NBLA callable by setback loop during 06:30 - 09:15 & 15:30 - 18:45, M-F. Unused time allocated to NSG/NSWK.
SCOOT cycle lengths between 32-64 may change by 4 second increments, between 64-128 by 8 second increments and above 128 by 16 second increments.
SCOOT may change the cycle length by one increment at a time every 150 seconds.
Intersection is equipped with Firehall Pre-Emption (which uses a NBLA).

CITY OF TORONTO - TRANSPORTATION SERVICES
ITS OPERATIONS - TRAFFIC SIGNALS
703 Don Mills Rd, Toronto ON M3C 3N3
Phone: (416) 397 5770, Fax (416) 397 5777

CURRENT SIGNAL TIMING INFORMATION

Location: Eglinton Ave W & Kipling Ave
PX/SCN: 729/55211
Our Ref: 2016_0019
Staff: SM/RI
Date: May 24, 2016
Controller Type: Peek ATC-1000/TS2T1
Mode of Control: FXT with 2-wire Polara APS
Design Walk Speed: 1.0m/s (FDW based on full crossing at 1.2m/s)
E/W FDW Duration: 26 seconds
N/S FDW Duration: 22 seconds
Issued To: BA Consulting Group Ltd. (Marie Y. Wong)

Control Level	**TYPICAL**			**SCOOT**		
Plan	**A.M. Peak**	**P.M. Peak**	**OFF Peak**	**A.M. Peak**	**P.M. Peak**	**OFF Peak**
Time of Operation	06:30-9:15, M-F.	15:00-19:00 M-F.	All other times	06:30-9:15, M-F.	15:30-18:45 M-F.	All other times.
Signal Aspect						
East-West Phase						
*EBG/EBLA/EWWK (South S.) or WBG/WBLA/EWWK (North S.) or EWLA/EWDW	6	6	6	6-54	6-38	6-48
*EBG/EBYA/EWWK (South S.) or WBG/WBYA/EWWK (North S.) or EWYA/EWDW	3	3	3	3	3	3
*EBG/EWWK (South S.) or WBG/EWWK (North S.) or ALLR	1	1	1	1	1	1
EWG/EWWK	51	37	41	7-55	7-39	7-49
EWG/EWFD	26	26	26	26	26	26
EWY/EWDW	4	4	4	4	4	4
ALLR	3	3	3	3	3	3
North-South Phase						
**NBG/NBLA/NSWK (East S.) or NSG/NSWK	6	6	-	6-54	6-38	-
**NBG/NBYA/NSWK (East S.) or NSG/NSWK	3	3	-	3	3	-
**NBG/NSWK (East S.) or NSG/NSWK	1	1	-	1	1	-
NSG/NSWK	11	9	7	7-55	7-39	7-49
NSG/NSFD	22	22	22	22	22	22
NSY/NSDW	4	4	4	4	4	4
ALLR	3	3	3	3	3	3
Cycle Length/Range	144	128	120	128-144	128	120-128

NOTES:
*EBLA & WBLA Callable 24 hrs. Unused time allocated to EWG/EWWK.
**NBLA Callable 06:30 - 09:15 and 15:45 - 18:30, M-F. Unused time allocated to NSG/NSWK.
SCOOT cycle lengths between 32-64 may change by 4 second increments, between 64-128 by 8 second increments and above 128 by 16 second increments. SCOOT may change the cycle length by one increment at a time every 150 seconds.

CITY OF TORONTO - TRANSPORTATION SERVICES
ITS OPERATIONS - TRAFFIC SIGNALS
703 Don Mills Rd, Toronto ON M3C 3N3
Phone: (416) 397 5770, Fax (416) 397 5777

CURRENT SIGNAL TIMING INFORMATION

Location: Kipling Ave & Widdicombe Hill Blvd
PX/SCN: 1359/55221
Our Ref: 2016_0019
Staff: ZZ/SQ
Date: May 30, 2016
Controller Type: PEEK ATC-1000 / TS2T1
Mode of Control: SAP
Design Walk Speed: 1.0 m/s (FDW based on full crossing @ 1.2 m/s)
E/W FDW Duration: 19 seconds
N/S FDW Duration: 10 seconds
Issued To: Marie Y. Wong (BA Consulting Group Ltd.)

Control Level	**Typical**			**SCOOT**		
Plan	**A.M. Peak**	**OFF Peak**	**P.M. Peak**	**A.M. Peak**	**OFF Peak**	**P.M. Peak**
Time of Operation	06:30-9:30, M-F.	All other times	15:00-19:00, M-F.	06:30-9:30, M-F.	All other times	15:00-19:00, M-F.
Signal Aspect						
North-South Phase						
NSG/NSWK	94	70	78	8 - 94	8 - 78	8 - 78
NSG/NSFD	10	10	10	10	10	10
NSY/NSDW	4	4	4	4	4	4
ALLR	2	2	2	2	2	2
East-West Phase						
EWG/EWWK	7	7	7	7	7	7
EWG/EWFD	19	19	19	19	19	19
EWY/EWDW	4	4	4	4	4	4
ALLR	4	4	4	4	4	4
Cycle Length/Range	144	120	128	128 - 144	120 - 128	128

NOTES:

EW phase is callable by vehicle and/or pedestrian actuation. Unused time allocated to NSG/NSWK.

SCOOT cycle lengths between 32-64 may change by 4 second increments, between 64-128 by 8 second increments and above 128 by 16 second increments.

APPENDIX I:
Signal Warrant Review

Project Name : Richview Plaza
Project No. 6571-26
Intersection: Wincott Drive / Waterford Drive

Southbound			Northbound			Average			
Start Time	End Time	Volume	Start Time	End Time	Volume	Start Time	End Time	Volume	
7:00	8:00	39	7:00	8:00	34	7:00	8:00	73	54%
8:00	9:00	76	8:00	9:00	59	8:00	9:00	135	100%
9:00	10:00	58	9:00	10:00	34	9:00	10:00	92	68%
10:00	11:00	64	10:00	11:00	61	10:00	11:00	125	93%
11:00	12:00	68	11:00	12:00	60	11:00	12:00	128	95%
							Max	135	

Southbound			Northbound			Average			
Start Time	End Time	Volume	Start Time	End Time	Volume	Start Time	End Time	Volume	
12:00	13:00	75	12:00	13:00	72	12:00	13:00	147	82%
13:00	14:00	61	13:00	14:00	65	13:00	14:00	126	70%
14:00	15:00	61	14:00	15:00	79	14:00	15:00	140	78%
15:00	16:00	67	15:00	16:00	90	15:00	16:00	157	88%
16:00	17:00	68	16:00	17:00	99	16:00	17:00	167	93%
17:00	18:00	79	17:00	18:00	100	17:00	18:00	179	100%
18:00	19:00	66	18:00	19:00	63	18:00	19:00	129	72%
19:00	20:00	35	19:00	20:00	52	19:00	20:00	87	49%
20:00	21:00	42	20:00	21:00	31	20:00	21:00	73	41%
21:00	22:00	10	21:00	22:00	22	21:00	22:00	32	18%
22:00	23:00	9	22:00	23:00	7	22:00	23:00	16	9%
23:00	0:00	2	23:00	0:00	2	23:00	0:00	4	2%
							Max	179	

Morning Peak Hour Minor Street Temporal Distribution

Site Traffic														
AM Outbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	**AM OUT**	95					45	50	15	105		10		**Time (Hour Ending)**
8:00	54%	51	0	0	0	0	24	27	8	57	0	5	0	8:00
9:00	100%	95	0	0	0	0	45	50	15	105	0	10	0	9:00
10:00	68%	65	0	0	0	0	31	34	10	72	0	7	0	10:00
11:00	93%	88	0	0	0	0	42	46	14	97	0	9	0	11:00
12:00	95%	90	0	0	0	0	43	47	14	100	0	9	0	12:00

Background Volumes														
AM Outbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	**AM OUT**	0	0	0	0	0	0	0	0	0	0	0	0	**Time (Hour Ending)**
8:00	54%	0	0	0	0	0	0	0	0	0	0	0	0	8:00
9:00	100%	0	0	0	0	0	0	0	0	0	0	0	0	9:00
10:00	68%	0	0	0	0	0	0	0	0	0	0	0	0	10:00
11:00	93%	0	0	0	0	0	0	0	0	0	0	0	0	11:00
12:00	95%	0	0	0	0	0	0	0	0	0	0	0	0	12:00

Existing Retail Removal														
AM Outbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	**AM OUT**	-15					-15	-15	-15	-10		-10		**Time (Hour Ending)**
8:00	54%	-8	0	0	0	0	-8	-8	-8	-5	0	-5	0	8:00
9:00	100%	-15	0	0	0	0	-15	-15	-15	-10	0	-10	0	9:00
10:00	68%	-10	0	0	0	0	-10	-10	-10	-7	0	-7	0	10:00
11:00	93%	-14	0	0	0	0	-14	-14	-14	-9	0	-9	0	11:00
12:00	95%	-14	0	0	0	0	-14	-14	-14	-9	0	-9	0	12:00

Sum														
AM Outbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	**AM OUT**	80	0	0	0	0	30	35	0	95	0	0	0	**Time (Hour Ending)**
8:00	54%	43	0	0	0	0	16	19	0	51	0	0	0	8:00
9:00	100%	80	0	0	0	0	30	35	0	95	0	0	0	9:00
10:00	68%	55	0	0	0	0	20	24	0	65	0	0	0	10:00
11:00	93%	74	0	0	0	0	28	32	0	88	0	0	0	11:00
12:00	95%	76	0	0	0	0	28	33	0	90	0	0	0	12:00

Morning Peak Hour Minor Street Temporal Distribution

Site Traffic

PM Inbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	**PM IN**	145	0	0	0	0	55	50	20	90	0	30	0	**Time (Hour Ending)**
13:30	82%	119	0	0	0	0	45	41	16	74	0	25	0	13:00
14:30	70%	102	0	0	0	0	39	35	14	63	0	21	0	14:00
15:30	78%	113	0	0	0	0	43	39	16	70	0	23	0	15:00
16:30	88%	127	0	0	0	0	48	44	18	79	0	26	0	16:00
17:30	93%	135	0	0	0	0	51	47	19	84	0	28	0	17:00
18:30	100%	145	0	0	0	0	55	50	20	90	0	30	0	18:00
19:00	72%	104	0	0	0	0	40	36	14	65	0	22	0	19:00

Background Volumes

PM Inbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	**PM IN**	0	0	0	0	0	0	0	0	0	0	0	0	**Time (Hour Ending)**
13:30	82%	0	0	0	0	0	0	0	0	0	0	0	0	13:00
14:30	70%	0	0	0	0	0	0	0	0	0	0	0	0	14:00
15:30	78%	0	0	0	0	0	0	0	0	0	0	0	0	15:00
16:30	88%	0	0	0	0	0	0	0	0	0	0	0	0	16:00
17:30	93%	0	0	0	0	0	0	0	0	0	0	0	0	17:00
18:30	100%	0	0	0	0	0	0	0	0	0	0	0	0	18:00
19:00	72%	0	0	0	0	0	0	0	0	0	0	0	0	19:00

Existing Retail Removal

PM Inbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	**PM IN**	-25					-20	-25	-20	-35		-15		**Time (Hour Ending)**
13:30	82%	-21	0	0	0	0	-16	-21	-16	-29	0	-12	0	13:00
14:30	70%	-18	0	0	0	0	-14	-18	-14	-25	0	-11	0	14:00
15:30	78%	-20	0	0	0	0	-16	-20	-16	-27	0	-12	0	15:00
16:30	88%	-22	0	0	0	0	-18	-22	-18	-31	0	-13	0	16:00
17:30	93%	-23	0	0	0	0	-19	-23	-19	-33	0	-14	0	17:00
18:30	100%	-25	0	0	0	0	-20	-25	-20	-35	0	-15	0	18:00
19:00	72%	-18	0	0	0	0	-14	-18	-14	-25	0	-11	0	19:00

Retail Pass-By

PM Inbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	**PM IN**	65	-10			-5	5	10		60				**Time (Hour Ending)**
13:30	82%	53	-8	0	0	-4	4	8	0	49	0	0	0	13:00
14:30	70%	46	-7	0	0	-4	4	7	0	42	0	0	0	14:00
15:30	78%	51	-8	0	0	-4	4	8	0	47	0	0	0	15:00
16:30	88%	57	-9	0	0	-4	4	9	0	53	0	0	0	16:00
17:30	93%	61	-9	0	0	-5	5	9	0	56	0	0	0	17:00
18:30	100%	65	-10	0	0	-5	5	10	0	60	0	0	0	18:00
19:00	72%	47	-7	0	0	-4	4	7	0	43	0	0	0	19:00

Sum

PM Inbound		North Bound			South Bound			East Bound			West Bound			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Time (hour ending)	**PM IN**	185	-10	0	0	-5	40	35	0	115	0	15	0	**Time (Hour Ending)**
13:30	82%	152	-8	0	0	-4	33	29	0	94	0	12	0	13:00
14:30	70%	130	-7	0	0	-4	28	25	0	81	0	11	0	14:00
15:30	78%	145	-8	0	0	-4	31	27	0	90	0	12	0	15:00
16:30	88%	162	-9	0	0	-4	35	31	0	101	0	13	0	16:00
17:30	93%	173	-9	0	0	-5	37	33	0	107	0	14	0	17:00
18:30	100%	185	-10	0	0	-5	40	35	0	115	0	15	0	18:00
19:00	72%	133	-7	0	0	-4	29	25	0	83	0	11	0	19:00

Sum of AM Outbound & PM Inbound Volume

	North Bound			South Bound			East Bound			West Bound		
Ending Time (Hour)	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
8:00	43	0	0	0	0	16	19	0	51	0	0	0
9:00	80	0	0	0	0	30	35	0	95	0	0	0
10:00	55	0	0	0	0	20	24	0	65	0	0	0
11:00	74	0	0	0	0	28	32	0	88	0	0	0
12:00	76	0	0	0	0	28	33	0	90	0	0	0
13:00	152	-8	0	0	-4	33	29	0	94	0	12	0
14:00	130	-7	0	0	-4	28	25	0	81	0	11	0
15:00	145	-8	0	0	-4	31	27	0	90	0	12	0
16:00	162	-9	0	0	-4	35	31	0	101	0	13	0
17:00	173	-9	0	0	-5	37	33	0	107	0	14	0
18:00	185	-10	0	0	-5	40	35	0	115	0	15	0
19:00	133	-7	0	0	-4	29	25	0	83	0	11	0

Major Street Temporal Distribution

	Wincott Southbound				Waterford Westbound				Wincott Northbound				Site Driveway Eastbound				
Time Ending	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Total
7:00 AM	1	12	0		0	2	4		4	16	1		2	0	0		
7:15 AM	3	27	0		2	0	7		0	19	1		1	0	1		
7:30 AM	0	26	4		2	2	5		5	18	2		1	3	3		
7:45 AM	1	36	1		3	3	5		8	15	1		4	1	4		
8:00 AM	**5**	**101**	**5**	**0**	**7**	**7**	**21**	**0**	**17**	**68**	**5**	**0**	**8**	**4**	**8**	**0**	256
8:00 AM	7	32	8		2	1	12		5	23	8		3	4	5		
8:15 AM	5	23	0		2	2	17		2	31	3		6	2	1		
8:30 AM	4	53	1		5	5	9		14	40	6		4	6	11		
8:45 AM	10	38	3		7	4	15		21	53	10		9	11	7		
9:00 AM	**26**	**146**	**12**	**0**	**16**	**12**	**53**	**0**	**42**	**147**	**27**	**0**	**22**	**23**	**24**	**0**	550
9:00 AM	9	32	1		4	7	10		7	26	9		6	6	10		
9:15 AM	5	22	2		1	6	4		5	27	12		8	5	6		
9:30 AM	9	33	2		1	3	3		3	22	10		2	8	6		
9:45 AM	12	23	0		3	4	4		4	11	16		6	2	9		
10:00 AM	**35**	**110**	**5**	**0**	**9**	**20**	**21**	**0**	**19**	**86**	**47**	**0**	**22**	**21**	**31**	**0**	426
10:00 AM	5	19	0		1	7	5		5	17	9		13	3	8		
10:15 AM	8	18	2		1	5	4		5	11	12		12	1	7		
10:30 AM	13	29	1		1	5	4		2	23	8		6	10	4		
10:45 AM	11	20	0		3	7	1		2	18	15		11	5	7		
11:00 AM	**37**	**86**	**3**	**0**	**6**	**24**	**14**	**0**	**14**	**69**	**44**	**0**	**42**	**19**	**26**	**0**	384
11:00 AM	10	23	1		1	9	5		1	18	12		13	5	15		
11:15 AM	10	15	1		0	7	2		6	18	17		13	10	13		
11:30 AM	12	27	0		1	14	4		7	29	20		22	8	10		
11:45 AM	4	30	0		1	8	6		7	20	14		23	6	9		
12:00 PM	**36**	**95**	**2**	**0**	**3**	**38**	**17**	**0**	**21**	**85**	**63**	**0**	**71**	**29**	**47**	**0**	507
12:00 PM	17	22	0		0	11	7		10	23	11		19	7	6		
12:15 PM	17	23	2		5	13	4		8	11	15		8	7	16		
12:30 PM	18	21	1		3	9	4		6	24	21		19	7	13		
12:45 PM	11	22	0		0	11	7		7	23	17		17	12	11		
1:00 PM	**63**	**88**	**3**	**0**	**8**	**44**	**22**	**0**	**31**	**81**	**64**	**0**	**63**	**33**	**46**	**0**	546
1:00 PM	16	23	3		2	6	11		2	23	19		20	9	13		
1:15 PM	17	15	7		4	12	2		10	26	16		22	9	11		
1:30 PM	16	14	2		1	9	7		6	15	22		23	9	11		
1:45 PM	9	19	0		0	10	4		6	21	13		10	12	12		
2:00 PM	**58**	**71**	**12**	**0**	**7**	**37**	**24**	**0**	**24**	**85**	**70**	**0**	**75**	**39**	**47**	**0**	549
2:00 PM	9	28	2		3	15	5		4	17	7		15	10	11		
2:15 PM	12	23	2		3	7	9		6	21	17		9	9	14		
2:30 PM	12	34	3		3	7	13		8	24	16		19	12	9		
2:45 PM	6	17	2		3	7	11		7	31	16		12	12	10		
3:00 PM	**39**	**102**	**9**	**0**	**12**	**36**	**38**	**0**	**25**	**93**	**56**	**0**	**55**	**43**	**44**	**0**	552
3:00 PM	9	28	0		0	7	12		10	30	17		15	14	12		
3:15 PM	13	28	2		1	7	11		13	41	15		24	18	11		
3:30 PM	8	37	2		5	8	8		26	29	16		16	11	17		
3:45 PM	10	34	1		5	8	5		8	26	18		10	9	11		
4:00 PM	**40**	**127**	**5**	**0**	**11**	**30**	**36**	**0**	**57**	**126**	**66**	**0**	**65**	**52**	**51**	**0**	666
4:00 PM	17	26	3		3	13	6		9	26	20		17	12	20		
4:15 PM	18	27	0		6	12	8		9	46	18		21	12	12		
4:30 PM	9	29	2		2	7	12		8	29	13		26	14	14		
4:45 PM	8	27	4		3	8	7		6	22	12		16	11	8		
5:00 PM	**52**	**109**	**9**	**0**	**14**	**40**	**33**	**0**	**32**	**123**	**63**	**0**	**80**	**49**	**54**	**0**	658
5:00 PM	12	22	1		1	5	6		9	32	22		21	16	13		
5:15 PM	5	24	4		3	10	11		7	23	15		26	7	16		
5:30 PM	3	26	1		1	4	10		5	22	12		15	13	8		
5:45 PM	9	25	1		3	12	2		5	27	18		18	7	11		
6:00 PM	**29**	**97**	**7**	**0**	**8**	**31**	**29**	**0**	**26**	**104**	**67**	**0**	**80**	**43**	**48**	**0**	569
6:00 PM																	
6:15 PM																	
6:30 PM																	
6:45 PM																	
7:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0

8-Hour Summary - Wincott Drive / Waterford Drive

	East Bound			West Bound			North Bound			South Bound			
Tim (Ending Hour)	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Total**
8:00	27	4	59	21	7	7	48	68	17	5	101	21	385
9:00	59	23	117	53	12	16	107	147	42	12	146	56	**790**
10:00	55	21	87	21	20	9	102	86	19	5	110	55	590
11:00	58	19	130	14	24	6	118	69	14	3	86	65	606
12:00	80	29	161	17	38	3	139	85	21	2	95	64	**734**
13:00	75	33	157	22	56	8	216	73	31	3	84	96	**854**
14:00	72	39	156	24	48	7	200	78	24	12	67	86	**813**
15:00	71	43	145	38	48	12	201	85	25	9	98	70	**845**
16:00	82	52	166	36	43	11	228	117	57	5	123	75	**995**
17:00	87	49	187	33	54	14	236	114	32	9	104	89	**1008**
18:00	83	43	195	29	46	8	252	94	26	7	92	69	**944**
Total of Max 8 Hours	**539**	**268**	**1113**	**253**	**286**	**85**	**1390**	**784**	**249**	**55**	**858**	**531**	**6411**

Input Data Sheet

Analysis Sheet | Results Sheet | Proposed Collision

GO TO Justification:

What are the intersecting roadways? Wincott Drive / Waterford Drive - Site Access

What is the direction of the Main Road street? North-South

When was the data collected?

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road? 1

b.- Number of lanes on the Minor Road? 1

c.- How many approaches? 4

d.- What is the operating environment? Urban **Population >= 10,000** **AND** **Speed < 70 km/hr**

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
9:00	107	147	42	59	23	117	12	146	56	53	12	16	17
12:00	139	85	21	80	29	161	2	95	64	17	38	3	6
13:00	216	73	31	75	33	157	3	84	96	22	56	8	53
14:00	200	78	24	72	39	156	12	67	86	24	48	7	10
15:00	201	85	25	71	43	145	9	98	70	38	48	12	22
16:00	228	117	57	82	52	166	5	123	75	36	43	11	43
17:00	236	114	32	87	49	187	9	104	89	33	54	14	23
18:00	252	94	26	83	43	195	7	92	69	29	46	8	23
Total	**1,579**	**793**	**258**	**609**	**311**	**1,284**	**59**	**809**	**605**	**252**	**345**	**79**	**197**

Results Sheet

Input Sheet | Analysis Sheet | Proposed Collision

Intersection: Wincott Drive / Waterford Drive - Site Access Count Date:

Summary Results

Justification			Compliance		Signal Justified? YES	Signal Justified? NO
1. Minimum Vehicular Volume	A	Total Volume	100	%	☑	☐
	B	Crossing Volume	100	%		
2. Delay to Cross Traffic	A	Main Road	71	%	☐	☑
	B	Crossing Road	100	%		
3. Combination	A	Justificaton 1	100	%	☐	☑
	B	Justification 2	71	%		
4. 4-Hr Volume			94	%	☐	☑
5. Collision Experience			0	%	☐	☑
6. Pedestrians	A	Volume	Justification met		☐	☑
	B	Delay	Justification not met			

Input Sheet | Analysis Sheet | Proposed Collision