683 - 685 Warden Avenue Mixed-Use Development City of Toronto

Zoning By-law Amendment Application
Urban Transportation Considerations

Prepared For: Choice Properties Limited Partnership

June 28, 2021

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

TABLE OF APPENDICES

1.0 INTRODUCTION

BA Group is retained by Choice Properties Limited Partnership to provide transportation consulting services, for a mixed-use development located at 683 - 685 Warden Avenue (also referred to herein as the "Site") in the former municipality of Scarborough, City of Toronto.

The Site is situated on the east side of Warden Avenue south of St. Clair Avenue East and, notably, Warden Station on the Line 2 Subway Line as illustrated in **Figure 1**. The Site has frontage on Warden Avenue to the west, the Bell Estate Road and Pilkington Drive residential areas to the east, and commercial properties to the north and south. The Site is currently vacant with vehicular access provided off Warden Avenue.

The Site location and context are illustrated in **Figure 1** and **Figure 2.**

1.1 DEVELOPMENT PROPOSAL OVERVIEW

A Zoning By-law Amendment Application is being made to the City of Toronto to modify the prevailing development permissions outlined for the Site to enable the development of a mixed-use residential / commercial development on the property.

1.1.1 Development Program

A total of 1,519 residential units are proposed together with approximately 995 sq. metres of retail space located on the grade level of the building. A new public park is also proposed on the eastern portions of the Site.

Vehicular parking for the development will be provided at the grade level within the building and within a two (2) level underground parking garage situated beneath the proposed buildings. Loading and cycling facilities are also provided.

A summary of the proposed building programme is provided in **Table 1**. Reduced scale architectural plans are provided in **Appendix A.**

1.1.2 New Public Street Network

A series of new public streets are proposed to support the development plan. A "C-shaped" new public street network is proposed running around the Site's northern, eastern and southern boundaries and connects to Warden Avenue at two locations. A basic 18.5 metre wide ultimate right-of-way is proposed for the new street network with a portion of the proposed right-of-ways for the east-west sections of street being provided – over time and as development occurs – by the neighbouring properties to the north and south of the Site. A

A traffic signal is proposed at the intersection of Warden Avenue and the southern leg of the proposed public road to provide for pedestrian / cycling crossing and vehicular access needs of the proposed development and for the community more broadly.

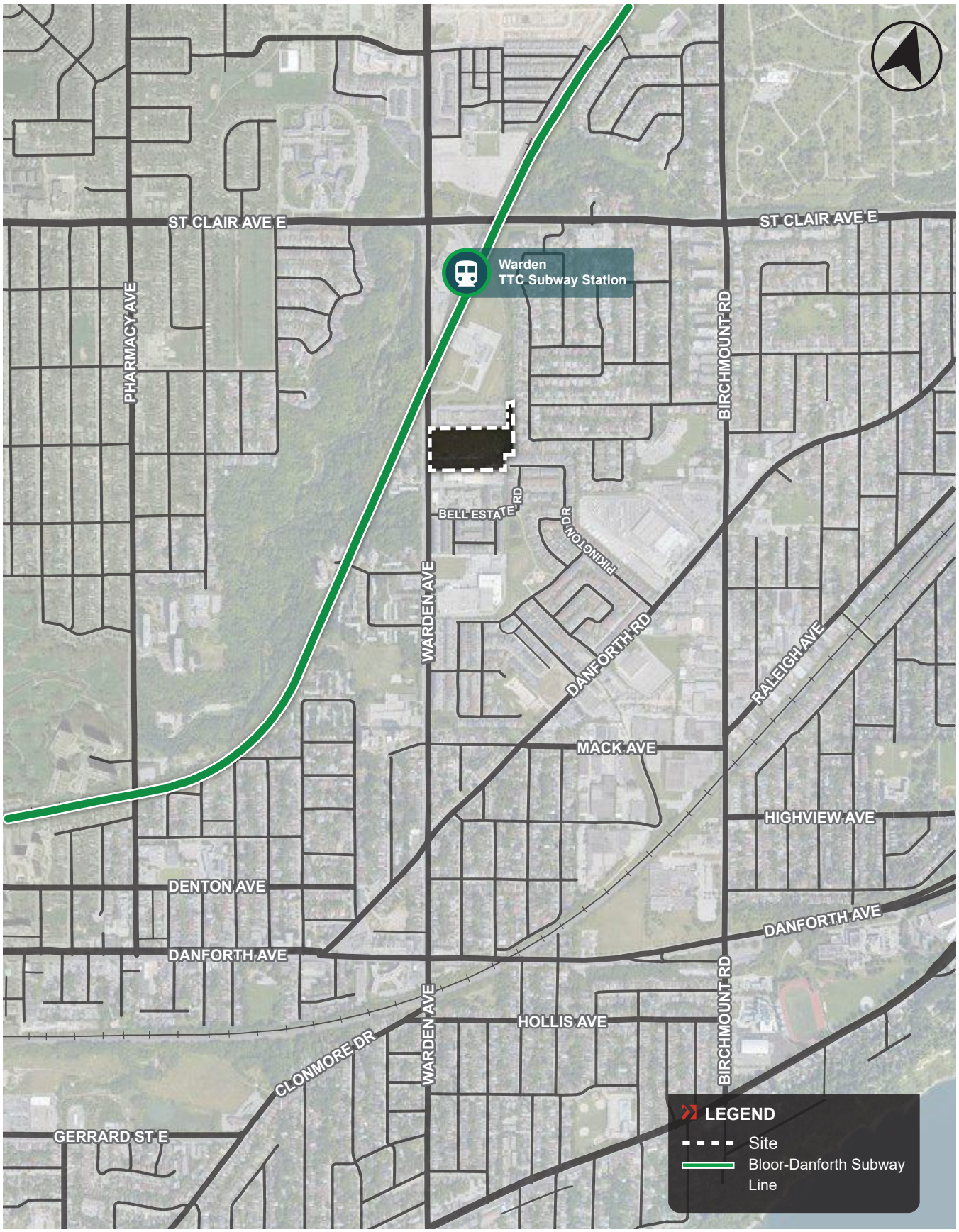

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FIGURE 1 SITE LOCATION

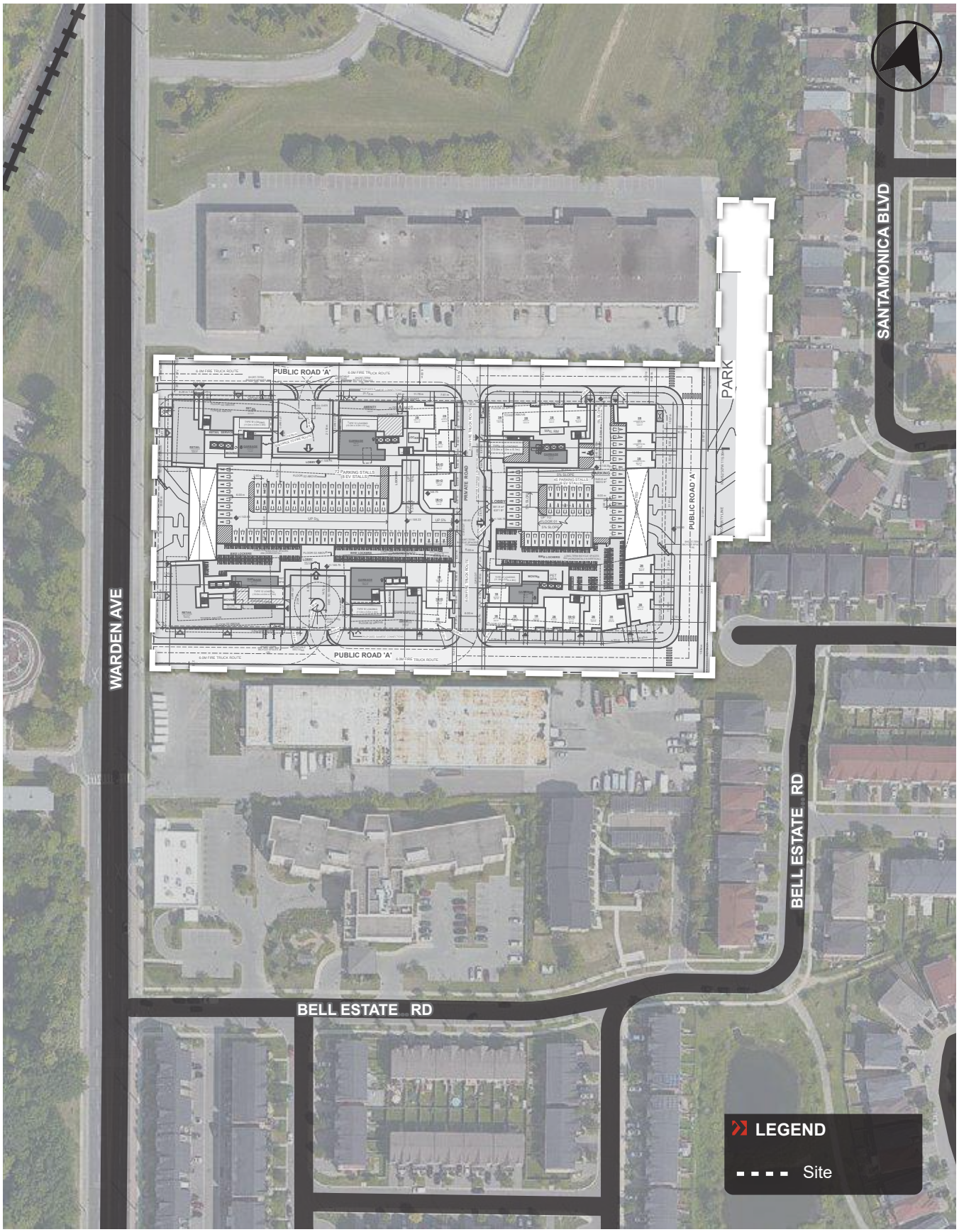

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FIGURE 2 SITE CONTEXT

TABLE 1 DEVELOPMENT PROPOSAL SUMMARY

Use		Development Proposal	
	**1, 519 Residential Units**	One-bedroom/ One-bedroom + Den	928 units
		Two-bedroom / Two-bedroom + Den	452 units
		Three-bedroom	139 units
	**993 m^2 GFA Retail Space**		
	**996 new parking spaces**	Residential	833 spaces
		Non-Residential	160 spaces
		Car Share	3 spaces
	**1,521 bicycle parking spaces**	Residential Long Term	1,369 spaces
		Non-Residential Short Term	152 spaces
	**6 new loading spaces for the proposed uses**	Three (3) Type '**G**' spaces, and three (3) Type '**B**' spaces	
	**At-Grade Pick-up / Drop-off**	Access to underground garage and loading facility provided via new public streets	

1.2 THIS STUDY

BA Group has undertaken a review of the key transportation related aspects (i.e. traffic, parking, loading and bicycles) of the proposed Zoning By-law Amendment application being submitted to the City of Toronto to permit the proposed development. Key transportation related aspects reviewed include:

Transportation Context

- A description of the existing transportation context of the Site considering the area road network, transit system and other non-automobile dependent travel options;
- A description of any future transportation related changes / improvements to the area context (i.e. transit improvements, other non-automobile dependent travel options, etc.);

Development Plan

- A review of the transportation elements of the proposed development plan including vehicular access and circulation, loading, and parking facilities;
- An overview of a Transportation Demand Management (TDM) Plan and area physical and operational transportation facilities that enable a minimization of automobile-dependent travel for prospective residents, and visitors while meeting the practical and operational needs of mixed-use development;

Site Planning

- A review of the adequacy of the vehicular parking supply provisions of the proposed development plans;
- A review of the adequacy of the loading space provisions for the proposed development plans;
- A review of the bicycle parking supply provisions for the proposed development plans;
- A review of the functionality and appropriateness of the proposed vehicular facilities incorporated into the Site plan including loading / garbage collection facility arrangements;

Travel Demand Forecasting

- An assessment of the transit, traffic and other trip generation characteristics of the proposed development;
- Assessment of the existing traffic activity patterns and volumes in the study area during the key weekday morning and afternoon peak periods;
- A comprehensive review of traffic changes that may occur in the area in the future with the development of a number of other area development projects; and

Traffic Operations Review

- A review of traffic operations at intersections in the area under existing and future conditions including an assessment of the operational impacts of the proposed development.

The findings of our report are summarized in the following sections.

2.0 TRANSPORTATION PLANNING AND POLICY CONTEXT

The Site is subject to a set of policies and initiatives that are supportive of transit oriented development and minimization of auto use and single occupancy trips.

An overview of the planning policy context related to new development across the City of Toronto and the Site – given its relationship to the Warden Subway Station and the connectivity afforded to the existing and planned higher-order transit network extending across the City - is provided in the following sections.

2.1 PROVINCIAL AND REGIONAL POLICY / DIRECTIVES

2.1.1 Places to Grow: Growth Plan for the Greater Golden Horseshoe

The Places to Grow Plan aims to foster economic growth, provide greater housing supply / options, increase employment, and build communities for a healthier and more affordable lifestyle within the Greater Golden Horseshoe. Specifically, the Plan is a long-term strategy that outlines the importance of reducing reliance on the automobile and promoting non-automobile travel modes.

Planning for growth along transit corridors, adopting minimum density targets in major station areas and integrating active transportation within the existing and planned street network (i.e. complete streets) are priorities that considers minimizing the provision of parking as an important strategy.

2.1.2 Metrolinx Regional Transportation Plan (2018)

The Metrolinx 2041 Regional Transportation Plan – an update to The Big Move (2008) – sets out the planned future transportation network for the GTA that best supports intensification in accordance with sustainable transportation objectives. It includes the development of additional rapid transit options for the City of Toronto and surrounding region, including heavy and light rail and bus rapid transit options.

The complete implementation of the 2041 Plan will create a more seamless and connected transportation system, including improved access to reliable and frequent transit and affordable travel through reduced car ownership / dependence.

The advancement of the broader transit plans by Metrolinx and the City provides considerable improvements in area transit connectivity and accessibility to the broad areas of the City including the Site and surrounding context. The expansion of commuter rail / R.E.R service on the Lakeshore East and Stouffville GO corridors – and the connections provided at the Kennedy GO / Subway station provides excellent travel options to central Toronto and beyond as well as across the broader Greater Toronto Area. The Eglinton Crosstown LRT that is under construction and nearing completion also runs across the City from Kennedy Station and provides – in addition to the existing subway and surface transit networks – excellent transit connectivity across the central areas of the City.

It is notable that Kennedy Station can be readily reached from the Site environs via Warden Subway Station and the Line 2 subway enabling prospective residents and visitors of the area surrounding the existing subway station to capitalize upon the significant investments being made in transit infrastructure and service across the eastern areas of the City.

2.2 LOCAL AREA PLANNING POLICIES

2.2.1 City of Toronto Official Plan

The City of Toronto Official Plan (OP) sets the planning policy framework to guide the future growth and development of the City. It recognizes that the City's settlement area is nearly built out and most of the future development in the City will occur through intensification.

Specifically, the OP implements provincial directions identified in the previous section and outlines City Council's goals and visions. The OP is intended to ensure that the City evolves, improves and realizes its full potential in areas such as transit, land use development, and the built and natural environment. Future growth will be steered by the OP to areas which are well served by transit and the existing road network.

The City of Toronto Official Plan is supportive of development occurring in transit supportive locations where automobile dependent travel can be reduced through the availability of a range of mobility options. Chapter 6 of the Official Plan contains a set of Secondary plans, which provide more detailed local development policies to guide growth and change in specific areas of the City of Toronto.

2.2.2 Warden Woods Community Secondary Plan

The Warden Woods Community Secondary Plan provides a framework that is intended to guide development and planning for new mixed-use and residential neighbourhoods within a 68 hectare area that extends along the east side of the Warden Avenue corridor from north of St. Clair Avenue East to Danforth Road / Mack Avenue in the south and is centred on the Warden (Line 2) Subway Station. The existing community comprises a mix of private and public lands of residential and employment uses, and is well-served by the Warden TTC Station.

The intent of the Secondary Plan is to provide for a diverse range of land uses to accommodate a variety of services and economic opportunities for its residents and that contribute to the vibrancy of the community. The Mixed Use Areas designation permits a broad range of commercial, residential and institutional uses, in single use or mixed-use buildings, as well as parks and open spaces and utilities. The Secondary Plan imagines a strong, liveable community and aims to support public and private investment in creating a new strong and liveable community that integrates residential, employment, and natural (i.e. ravine system) and communal amenities. It is likely that its goals of future development will positively affect the Site (i.e. connectivity and activity between the evolving neighbouring communities).

The Secondary Plan designates the 683 - 685 Warden Avenue property as Mixed Use. Within the vicinity of the Site, the Secondary Plan addresses linkages and connections including connections to arterial roads, linkages between neighbourhoods within Warden Woods, and to natural and open spaces, and pedestrian and bicycle routes.

The key linkages and connections within the Warden Woods Community Secondary Plan area, are illustrated in **Appendix B.**

3.0 EXISTING AND EVOLVING AREA TRANSPORTATION CONTEXT

An overview of the transportation context in the vicinity of the Site is provided in the following.

3.1 AREA ROAD NETWORK

The existing road classification system is illustrated in **Figure 3**. The area street lane configurations and intersection traffic controls is illustrated in **Figure 4**.

A description of the road network within the Site environs is provided in **Table 2** below:

TABLE 2 SUMMARY OF EXISTING AREA STREET NETWORK

Road Type	Name	Description
Major Arterial	St. Clair Avenue East	St. Clair Avenue East is an east-west oriented City of Toronto major arterial road extending between O'Connor Drive and Danforth Road. It has a basic four-lane cross-section with a posted speed limit of 50 km/h.
	Danforth Avenue	Danforth Avenue is a City of Toronto major arterial road that runs from the Prince Edward Viaduct (and Bloor Street) to Danforth Road, and a minor arterial road from Danforth Road to Kingston Road. It has a four-lane cross-section with a posted speed limit of 50 km/h.
Minor Arterial	Warden Avenue	Warden Avenue is a north-south City of Toronto minor arterial road in the immediate Site vicinity that runs northwards from Kingston Road to the Highway 401 corridor and beyond. Warden Avenue is a major arterial road north of St. Clair Avenue East. It has a basic four-lane cross-section in the Site vicinity with a posted speed limit of 50 km/h.
	Danforth Road	Danforth Road runs diagonally through the eastern portions of the City from Danforth Avenue in the south to McCowan Road in the east. In the vicinity of the Site, Danforth Road is a minor arterial road and has a basic four-lane cross-section with a posted speed limit of 50 km/h.
	Birchmount Road	Birchmount Road is a north-south City of Toronto minor arterial road extending northwards from Kingston Road to the Highway 401 corridor and beyond. In the Site vicinity, Birchmount Road has a basic four-lane cross-section and an assumed speed limit of 40 km/h.
Local	Pilkington Drive / Bell Estate Road / Etienne Street / Santamonica Boulevard	These streets are all City of Toronto local roads in the Site vicinity that provide access to the residential areas east of the Warden Avenue. Pilkington Drive and Bell Estate Road provide connections to Warden Avenue and Danforth Road. These streets have posted speed limits of 40 km/h.
	Firvalley Court / Cataraqui Crescent	These local streets provide access to the residential areas located on the west side of Warden Avenue just to the south of the Site. The Firvalley Court intersection with Warden Avenue is signalized.

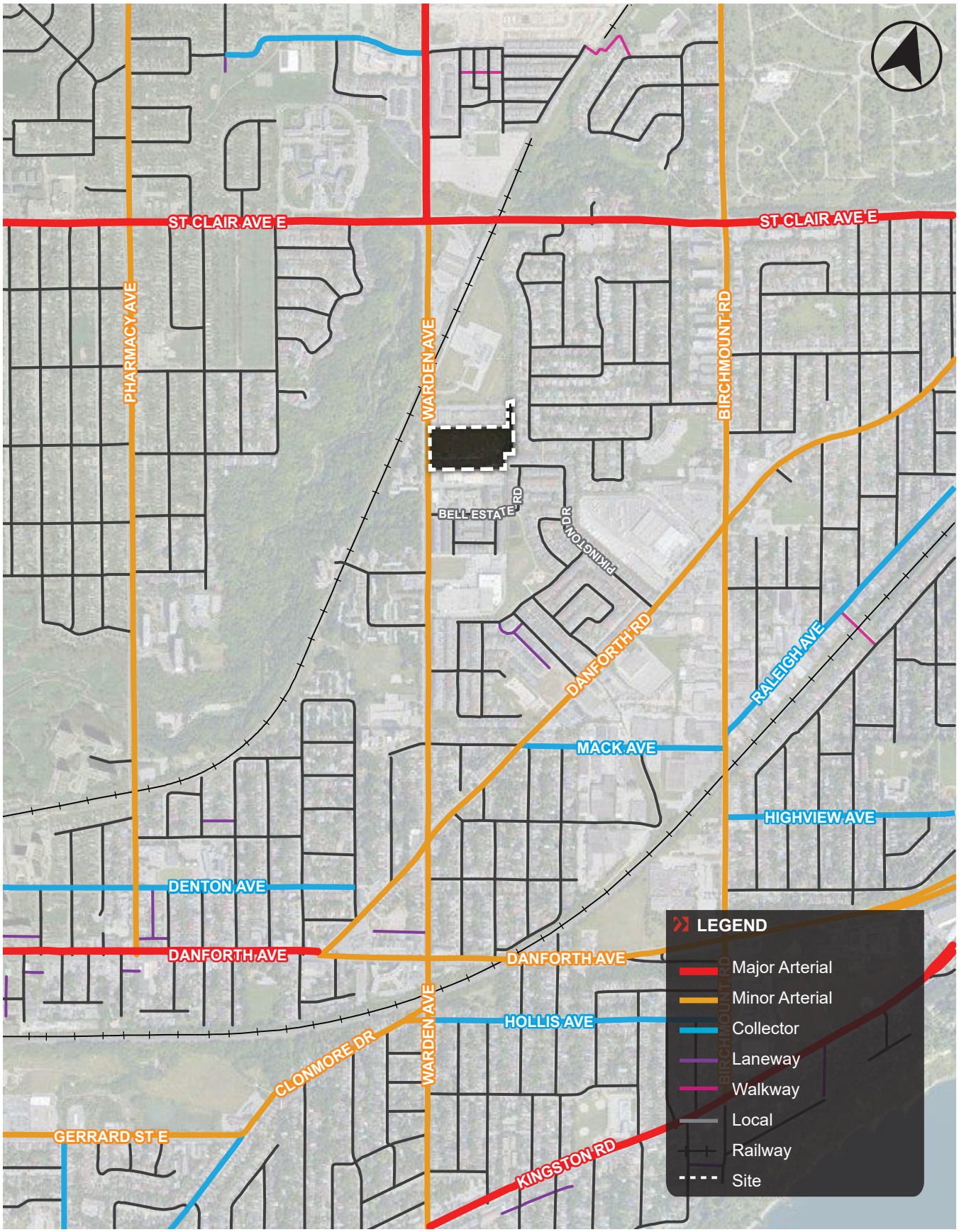

FIGURE 3 AREA ROAD NETWORK

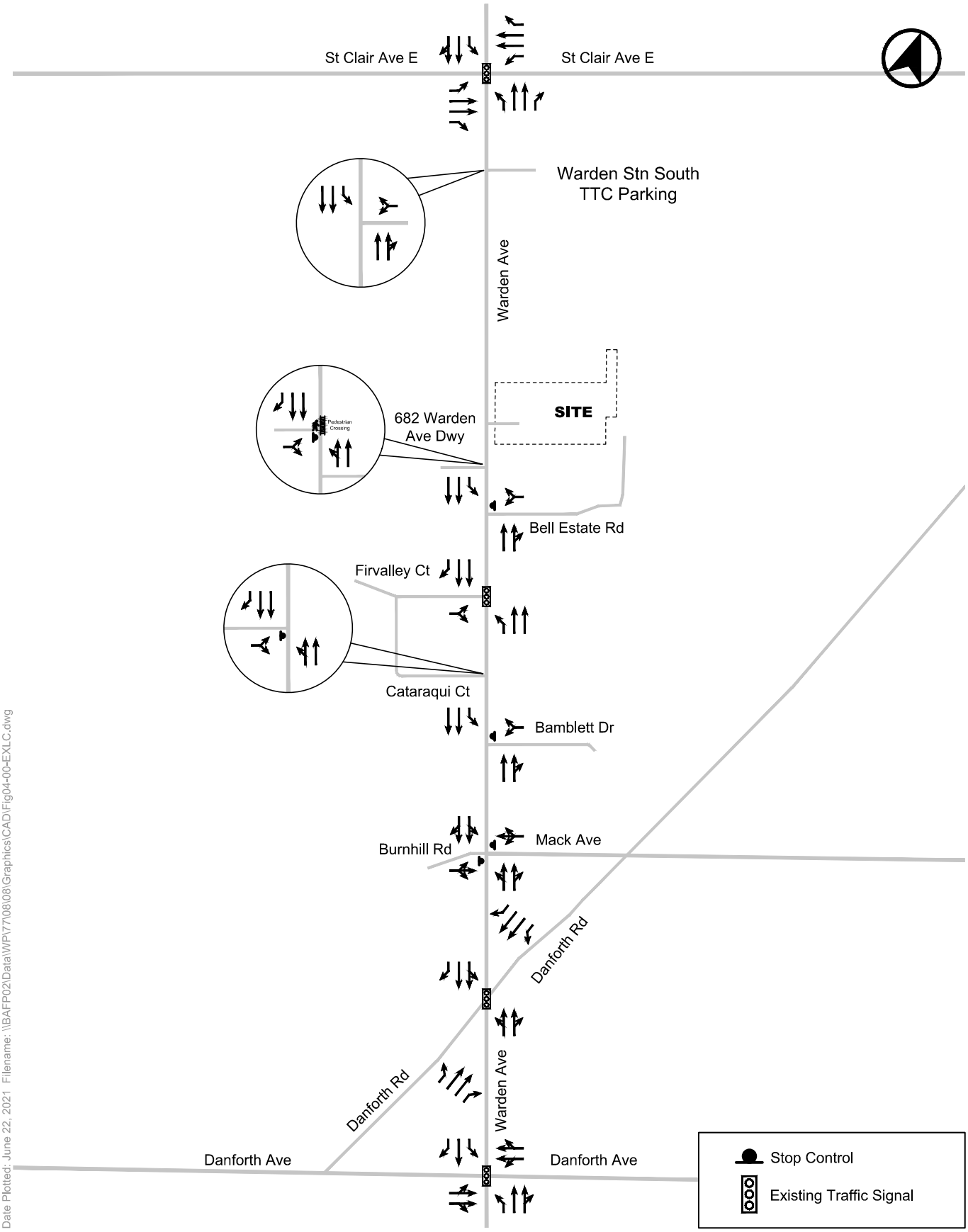

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FIGURE 4 EXISTING AREA LANE CONFIGURATION & TRAFFIC CONTROL

3.2 AREA TRANSIT CONTEXT

3.2.1 Existing Transit

The Site is well served by existing area transit services including several Toronto Transit Commission (TTC) surface transit routes that provide the Site and the surrounding neighbourhood connections to higher order transit services, including GO Transit and other TTC services.

Most notably, the Site is well served by the Warden Subway Station which is conveniently located approximately 500 metres north of the Site (a 7-8 minute walk or 2-3 minute bus ride). Warden Station provides access to the Bloor-Danforth Line 2 subway corridor which provides direct connections across the City of Toronto including the central and downtown areas to the west and the eastern parts of the City to the east.

Notably, Line 2 also provides connections to the Kennedy Subway Station to the east (located approximately 3.75 kilometres north of the Site) which offers access to the Line 3 Scarborough LRT service, the Kennedy GO Station and the future easterly terminus of the Eglinton Crosstown LRT.

The Site is also located approximately 2.5 kilometres of the Scarborough GO Station with access provided via frequent surface transit services across St. Clair Avenue East. Two (2) regional rail routes – the Lakeshore East and Stouffville GO lines - serve the Scarborough GO Station and is noteworthy that the Stouffville service also provides access to the Kennedy GO Station. These GO commuter rail services provide direct access to, and across, the central areas of the City including Union Station, Canada's busiest multimodal transportation hub, and a range of existing and evolving employment and destination nodes across the City. Union Station is an approximate 18 to 20 minute train ride from Scarborough GO Station.

The nearest TTC bus routes are easily accessible from the Site's location, including several routes operating directly adjacent to the Site along the Warden Avenue and St Clair Avenue East corridors. An overview of the existing area transit is summarized in **Table 3** and illustrated in **Figure 5.**

TABLE 3 AREA TRANSIT SERVICES

	Route	Closest Stop [1]	Headways	Description
TTC BUS	**9 Bellamy**	(~ 500 m Warden Station)	Approx.15-24 minutes	The 9 Bellamy bus route operates in a north-south direction, between Warden Station Scarborough Centre Station on the Line 3 Scarborough RT.
	16 McCowan	(~ 500 m Warden Station)	Approx. 10 minutes during peak	The 16 McCowan bus route operates in a north-south direction, between Warden Station and Scarborough Centre Station on the Scarborough RT.
	17 Birchmount	(~ 500 m Warden Station)	Approx.7 – 35 minutes	The 17 Birchmount bus route operates in a north-south direction, between Warden Station, the area of Birchmount Road and Steeles Avenue East, and the area of Birchmount Road and Highway 7 in the Town of Markham.
	20 Cliffside	(~ 1.3 km Danforth Avenue)	Approx. 11 to 24 minutes	The 20 Cliffside bus route operates in an east-west direction, between Main Street Station and Kennedy Station on the Bloor-Danforth subway (line 2). The Cliffside service runs on Danforth Avenue to the south of the Site.

	Route	Closest Stop [1]	Headways	Description
	68 Warden	(~ 500 m Warden Station)	15 minutes (5 minutes during peak)	The 68 Warden bus route operates in a north-south direction, between Warden Station and the area of Warden Avenue and Steeles Avenue East, and the area of Warden Avenue and Major Mackenzie Drive East in the Town of Markham.
	69 Warden South	(~ 55 m Bus stops on Warden Avenue just south of the Site)	Approx. 11 to 20 minutes	The 69 Warden South bus route operates in a north-south direction, between Warden Station and the area of Kingston Road and Birchmount Road.
	70 O'Connor	(~ 500 m Warden Station)	Approx. 9 minutes during peak periods	The 70 O'Connor bus route operates in an east-west direction, between Coxwell Station and Warden Station on the Bloor-Danforth subway (line 2), and between Coxwell Station and the area of Eglinton Avenue East and Pharmacy Avenue.
	102 Markham Road	(~ 500 m Warden Station)	Approx. 20 minutes	The 102 Markham Road bus route operates in a north-south direction, between Warden Station, the Centennial College Progress Campus, the area of Markham Road and Steeles Avenues, and the area of Highway 48 (Markham Road), and Castlemore Avenue in the City of Markham.
	113 Danforth	(~ 1 km Danforth Road)	Approx. 12 – 23 minutes during weekday peak periods	The 113 Danforth bus route operates in an east-west direction on Danforth Road in the Site vicinity, between Main Street Station and Kennedy Station on the Bloor-Danforth Subway (line 2).
TTC Subway	**Line 2 – Bloor/ Danforth**	Warden Station (~ 500 m north of the Site – 7 minute walk)	Approx. 5 – 6 minutes (2 – 3 minutes during peak)	The Line 2 subway has a total of 31 stations, generally running in an east west direction. The line operates from Kennedy Road at Eglinton Avenue East, westwards along Danforth Avenue / Bloor Street West to Kipling Avenue. Line 2 also connects with the Yonge-University-Spadina Subway (Line 1) at two different stops (Bloor-Yonge and St. George / Spadina). There's an additional connections at Kennedy Station on the Scarborough Subway line.
Metrolinx (GO)	**Scarborough GO**	Approx. 2.5 km	**Lakeshore East:** 15 min. during weekday peak periods 30 min. during off peak periods **Stouffville:** 35 min. during weekday peak periods 60 min. during off peak periods	Scarborough GO is approximately 3.7 kilometre east of the Site, on the Lakeshore East and Stouffville lines. Located in Scarborough, Toronto at St Clair Avenue East and Midland Avenue.

Notes:

1. Straight line distance.

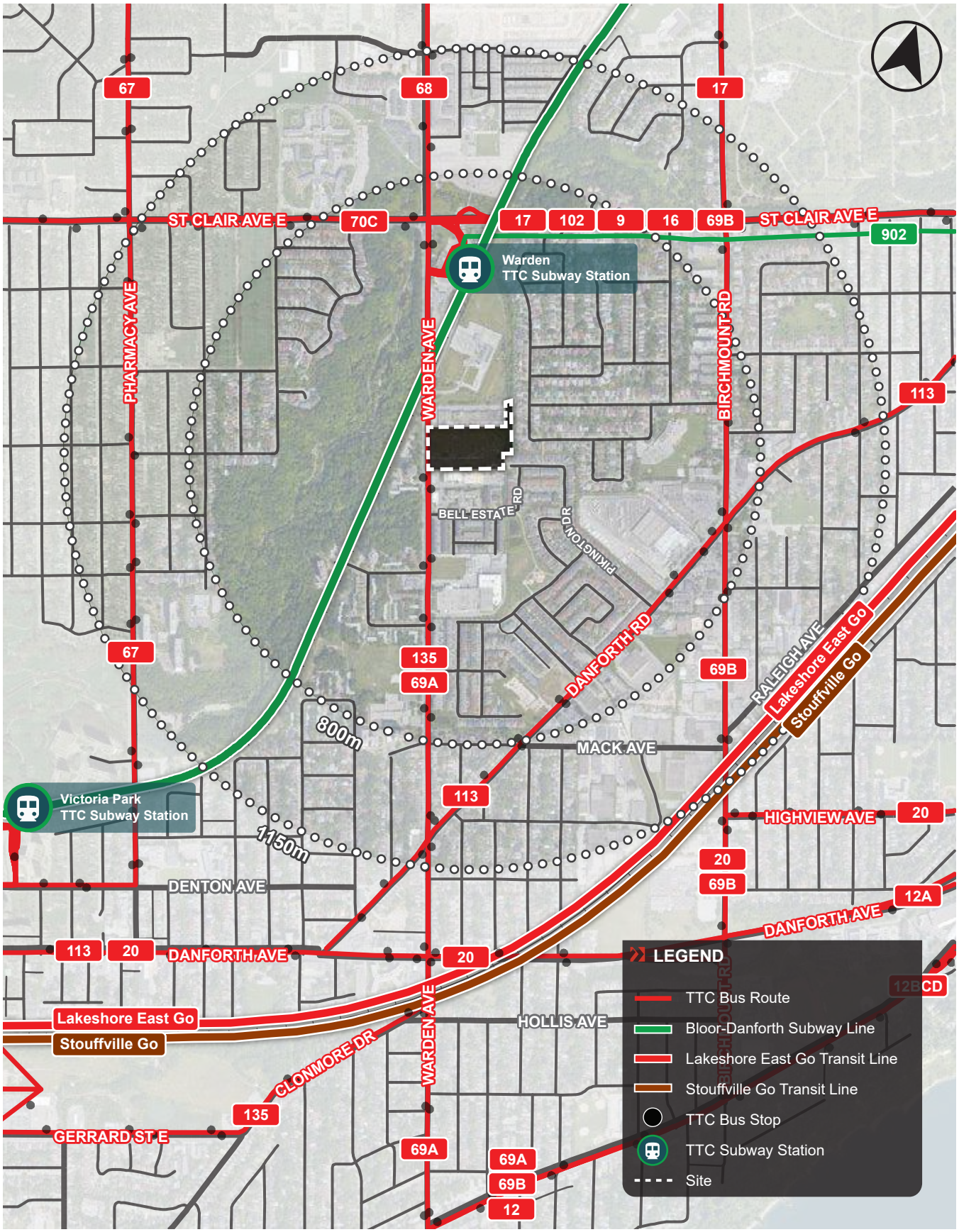

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FIGURE 5 EXISTING TRANSIT NETWORK

3.2.2 Future Transit Network

While the existing level of transit accessibility afforded to the Site today provides convenient connectivity across the City of Toronto today, planned investments in public transit services will further improve the transit options for future residents and visitors of the Site and surrounding area.

These include a range of large scale service improvements planned by Metrolinx as part of the R.E.R commuter rail programme, new / improved transit line facilities such as the Eglinton Crosstown LRT and the Scarborough subway extension and local station improvements at Warden Subway Station. The prospective construction the Ontario Line that is proposed to extend from a connection to the Eglinton Crosstown LRT into and across central and downtown Toronto will also serve to expand transit opportunities for new development in transit accessible areas (such as the Site) across the eastern areas of the City of Toronto.

A summary of the various area transit improvements is provided in the following sections. The future transit context is illustrated in **Figure 6.**

3.2.2.1 Warden Station Upgrades

Earlier this year, the TTC provided details of plans to renovate Warden Station, to revitalize the Hub and make the facility, specifically bus platforms, accessible for all users. The revitalization plan is part of a broader redevelopment project that will add mixed-income housing to a former commuter parking lot, and revitalized park and public realm spaces near Taylor Massey Creek.

The Warden Station revitalization plan will introduce new entrances with elevators to the existing building to create a fully accessible station, in compliance with AODA accessibility criteria and TTC's Easier Access program. The existing facility will be replaced with a new bus terminal, concourse and subway platform access.

Warden Station will continue to operate throughout the development of the new Hub, which is scheduled to be completed by 2024.

3.2.2.2 Scarborough Subway Extension

The Scarborough Subway Extension plans to extend the TTC's Line 2 (Bloor-Danforth) subway service eastwards from Kennedy Station by way of providing eight (8) kilometres of new rail, and three (3) new subway stations further into Scarborough. The Line 2 extension will replace the current Line 3 Scarborough LRT.

The three (3) stations proposed will be located east of Kennedy Station providing connections across Scarborough and, importantly, future connectivity to transit improvements (Sheppard Line 4 Subway Extension or LRT) on Sheppard Avenue East:

- Lawrence Avenue / McCowan Road;
- Scarborough Centre; and
- Sheppard Avenue / McCowan Road.

The proposal aims to integrate with other transit systems and provide quality transit service throughout the eastern portions of the City of Toronto. Estimated project completion is currently scheduled for 2029-2030 and will afford direct subway access to extended regional and local travel options from Warden Station, Kennedy Station – GO transit, Eglinton Crosstown LRT, and the broader TTC surface transit network (i.e. existing buses, subway lines, and future Sheppard Subway Extension).

3.2.2.3 Planned Eglinton Crosstown LRT

The Eglinton Crosstown LRT is a light rail transit that stretches over 19 kilometres along Eglinton Avenue, between Mount Dennis in the west and Kennedy Station in the east.

Construction of this significant transit line is underway and is expected to be completed in 2021 / 2022. Based on the Eglinton Crosstown Light Rail Transit Environmental Project Report completed by the City of Toronto and TTC in 2010, the Crosstown vehicles will run, on average, at 28 kilometres per hour, which is faster than the average speed of a downtown subway. Vehicles will operate at a 4-minute headway. The projected peak ridership in 2031 is set to 5,400 passengers / hour with annual ridership exceeding 50 million passengers. **Appendix C** shows the Eglinton Crosstown LRT plan.

Kennedy Station will be the terminal station at the eastern end of the Eglinton Crosstown LRT line, and will serve as an interchange station with the TTC Line 2 Bloor-Danforth subway line. The enhanced transit connectivity and accessibility afforded by the Eglinton Crosstown LRT via Line 2 and Kennedy Station offers significant benefit to prospective residents and visitors of the Site and surrounding areas.

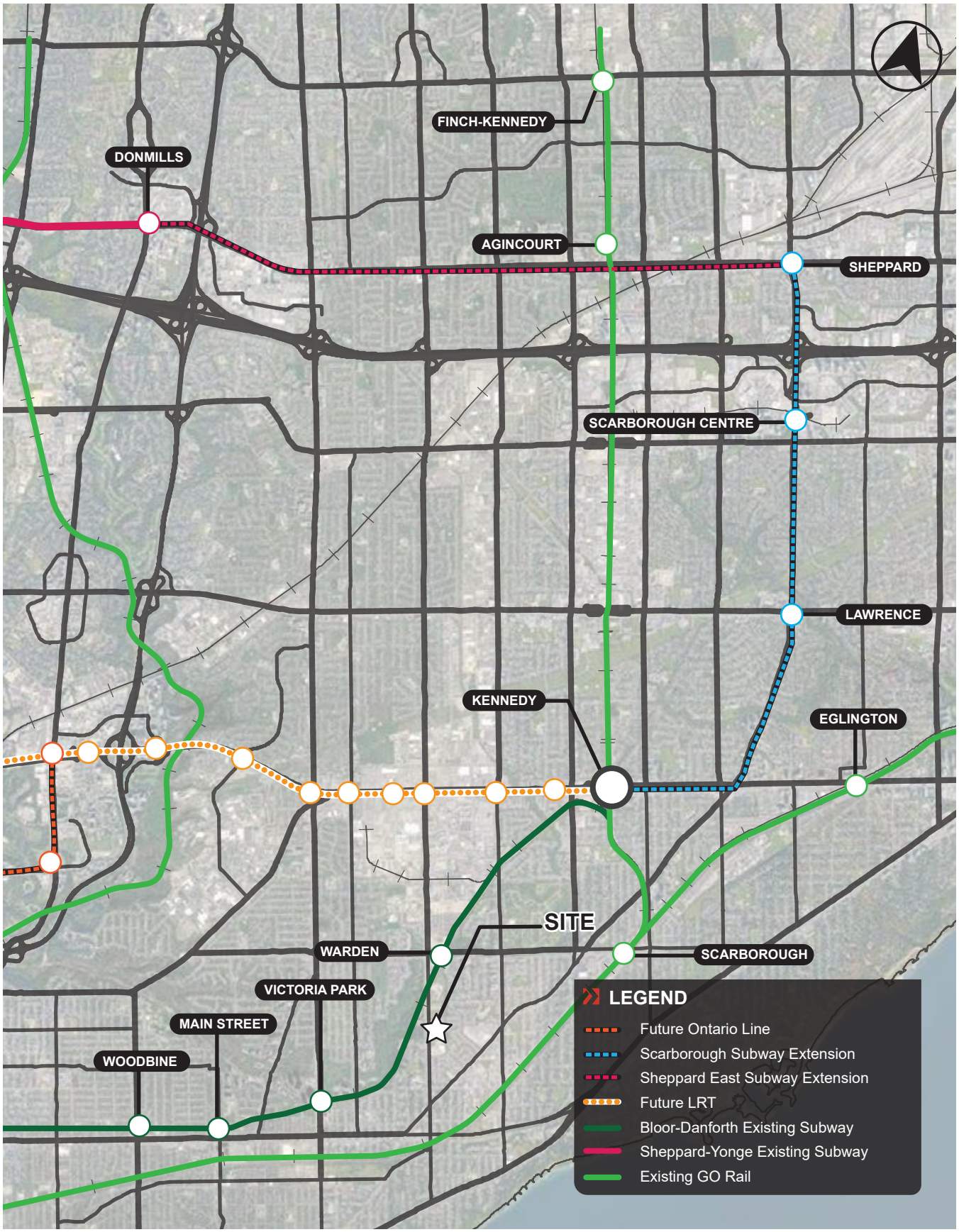

FIGURE 6 FUTURE TRANSIT NETWORK

3.3 AREA PEDESTRIAN NETWORK

The existing and potential future area pedestrian network is illustrated in **Figure 7.**

3.3.1 Existing Pedestrian Network

The extent and quality of the existing area pedestrian environment and network is relatively limited in the Site area and is limited to sidewalk facilities provided on Warden Avenue and St. Clair Avenue East with only a few access points provided to nearby residential neighbourhoods, the Warden TTC Station and adjacent area retail / commercial outlets. The Warden Subway Station is located approximately 500 metres north of the Site and can be reached within a 6 to 8 minute walk using the pedestrian sidewalks on Warden Avenue.

There is, notably, a network of ravine / park trail routings provided by the Gus Harris Trail and other trails along the Taylor-Massey ravine / Warden Woods both west of Warden Avenue and north of St. Clair Avenue East.

Although there is a cross walk adjacent to the Site over Warden Avenue, large signal spacing distances on both St. Clair Avenue East and Warden Avenue limit crossing opportunities for pedestrians and limit the attractiveness and convenience of pedestrian travel in the area including to / from the Warden Subway Station.

3.3.2 Future Pedestrian Context

The Warden Woods Community Secondary Plan outlines key pedestrian connections and linkages that aim to support integrated and connected communities, while creating a pedestrian friendly and transit supportive environment. The potential linkages that relate to the proposed Site include:

Neighborhood Linkages

- Public street linkages between the mixed use area north of the Bell Estate and the neighbourhoods abutting Danforth Road; and
- Public street linkages between the neighbourhoods abutting Warden Avenue and those abutting Danforth Road.

Connections to Existing Streets

- Street connection to Warden Avenue opposite the driveway of 684 Warden Avenue;
- A cycling trail between Birchmount Road and Warden Avenue as shown in the Toronto Bike Plan
- Street connection(s) from Warden Avenue to the TTC Warden Station site; and
- Street connection to Warden Avenue opposite Firvalley Woods Park, leading to the Bell Estate building.

Connections to TTC Services and Stops

- Linkages between the developments north and south of St. Clair Avenue and the TTC Warden Station, and the green pedestrian corridor; and
- A well-integrated pedestrian link through the development at the southeast corner of Warden Avenue and St. Clair Avenue East, and the TTC Warden Subway Station.

These series of potential improvements would be advanced by the City as opportunity arises and as planning in the area evolves with further input. Potential pedestrian linkages based upon the Warden Woods Secondary Plan concepts are illustrated in **Figure 7.**

3.4 AREA CYCLING NETWORK

The existing and planned area cycling network is also illustrated in **Figure 7.**

There is limited formal bicycle infrastructure and linkages provided in the Site and surrounding area with cyclists travelling along Warden Avenue and St. Clair Avenue East required to use the vehicular travel lanes on a shared basis with vehicular traffic.

Nearby Warden Woods has an extensive multi-use trail system, otherwise known as Gus Harris Trail, which connects to a network of trails to the north and west of the Site. The trail is utilized by pedestrians and cyclists, and follows the course of the Taylor-Massey Creek. The trail access is adjacent to the Site, with its nearest access point being 550 metres (a 6 minute walk or short cycle ride) west of the Site.

3.4.1 Planned Cycling Network Improvements

Planned improvements to cycling infrastructure within the City of Toronto are outlined within the City's *Cycling Network Ten Year Plan (2016),* a policy document that outlines proposed cycling infrastructure improvements in Toronto over a ten year period (2016-2025). The Ten Year Plan intends to connect gaps within the existing cycling network, expand the network to new areas of the City, and to renew existing routes by improving their quality. An update to the Ten Year Plan was approved in 2019, highlighting key improvements over a three year period (2019-2021).

The Cycling Network Plan will build on the City's existing network of cycling routes by identifying potential cycling network projects based on the following;

- Current cycling demand;
- Potential future cycling demand;
- Connect the gaps in the City's existing cycling network and identify routes that help people get across barriers such as highways, rivers and railways; and
- Routes that facilitate people travelling to and from transit stations.

The Cycling Network Plan update detailed a three year rolling implementation plan, currently for the 2019-2021 horizon that have undergone a feasibility analysis and can be implemented in the near term. Routes include a variety of different bikeway infrastructure including on-street bicycle lanes or cycle tracks, sidewalk-level boulevard trails and cycling routes. In the longer term (2022 onward) the City of Toronto will undertake studies and consultations for cycling routes identified on the Ten Year Cycling Network Plan map not included in the near term update.

Despite the extent of the Ten Year cycling plan, there are only limited improvements being proposed to the cycling network within the vicinity of the Site and the surrounding area. While, formal cycling infrastructure elements are not currently planned by the City, the development proposal will seek to maximize its support for cycling as a recreational and commuter travel option (i.e. to / from Warden Subway Station as a "last-mile" travel option), by supporting cycling trips for both residents and visitors to the Site through initiatives including the provision of bicycle parking spaces, repair facilities and internal connectivity.

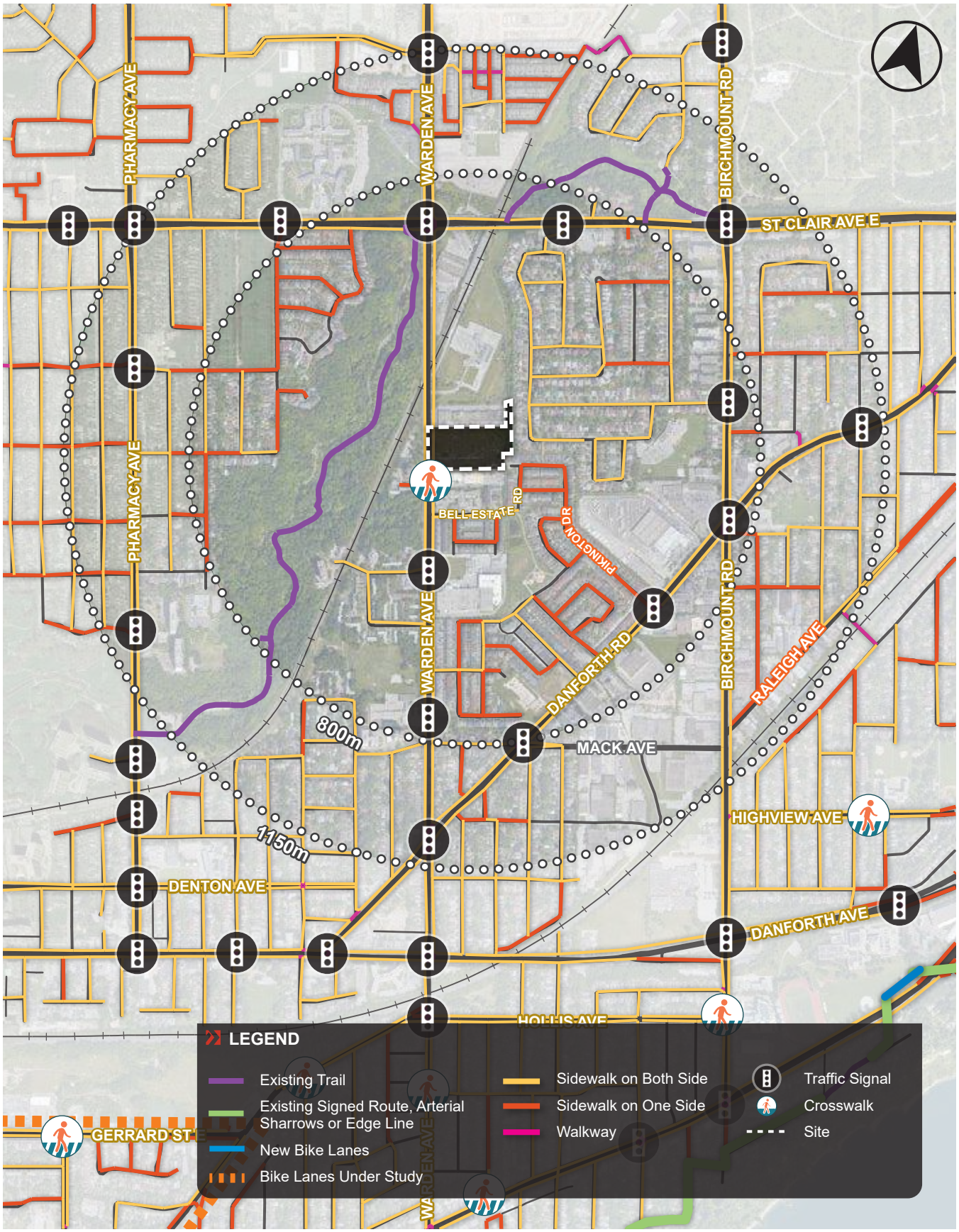

FIGURE 7 EXISTING AND PLANNED PEDESTRIAN AND CYCLING NETWORK

3.5 EXISTING AREA TRAVEL CHARACTERISTICS

A review of the area travel mode information from the 2016 Transportation Tomorrow Survey (TTS) data was used to derive the existing modal choice characteristics for area resident travel today.

Table 4 summarizes the existing travel mode characteristics in the area.

It is noted that the Site and surrounding area is well located relative to the Warden TTC Subway Station and its significant large bus terminus facility which supports a broad number of surface transit routes as well as the Line 2 services. This facility and connectivity has a significant (and positive) influence on existing travel characteristics today.

TABLE 4 EXISTING SITE TRAVEL DEMAND

Travel Modes	Inbound	Outbound
Auto (Driver)	38%	35%
Auto (Passenger)	11%	10%
Paid rideshare	1%	0%
Transit	39%	44%
Cycle	1%	1%
Walk	10%	9%
Total Site Trips	**100%**	**100%**

Notes:
1. Data obtained using 2016 TTS information for 2006 GTA zones 528, 534, 536, 537 and 538.

Based on 2016 TTS travel characteristics data, the existing mode split patterns indicate that approximately 39 to 44 percent of residential trips to and from the surrounding area occur via transit (primarily TTC). As such, a strong level of transit usage ridership exists today and provides a significant travel option for a significant proportion of people in the area during both the AM and PM peak periods.

In the order of 45 – 49 percent of all trips are currently made using an automobile (auto-driver and passenger) with the balance of all travel primarily occurring on-foot or via cycling.

There is a strong potential, recognizing the high level of local accessibility afforded to higher-order transit services in the immediate area surrounding the Warden Subway Station and the range of network improvements planned, that future travel demand mode split characteristics can strongly reduce the current (already relatively low) level of reliance on automobile travel as the area develops over-time.

4.0 THE PROPOSED DEVELOPMENT PLAN

The Site is currently vacant. Vehicular access is presently provided via a single asphalt driveway off of Warden Avenue although this driveway is not in regular usage at the current time.

The development plans for the Site propose to introduce residential uses on the property supported by ancillary retail uses located at the grade level of the proposed buildings. The development plans propose to improve the transportation network in the area and to support multi-modal mobility options within the Site and the surrounding area.

The development plans are organized around the provision of the following from a transportation perspective:

- A new internal public road network that will facilitate vehicular, pedestrian and cycling mobility within and through the Site as well as facilitating future connectivity to the adjacent properties should they redevelop over time;
- A new traffic signal at the intersection of the southerly public street segment and Warden Avenue that will add formalized pedestrian connectivity across Warden Avenue (replacing the existing PXO facility) as well as accommodating vehicular traffic needs; and
- An extensive public realm throughout the building plan and a public park to be dedicated to the City.

A further review of the key building programme and the transportation related site plan elements of the proposed site plans is provided in the following.

4.1 DEVELOPMENT PROGRAMME

The proposed development programme comprises of the following uses and statistics:

- 1,519 residential units; and
- 993 m² GFA of grade related retail uses.

Residential Uses
Residential uses are proposed in six (6) buildings (Buildings A to F) across the Site, providing a total of 1,519 new residential condominium units. A breakdown of the proposed unit mix composition is provided in **Table 5**.

Retail Uses
Retail uses are proposed at-grade beneath two (2) of the residential towers (Towers C and F). Overall, a total of 993 m^2 of retail GFA is proposed on the Site.

Public Park
A public park is proposed in the northeastern corner of the Site adjacent to the proposed north-south segment of the public road with an approximate 65 metre frontage.

TABLE 5 PROPOSED UNIT BREAKDOWN

Building	Residential (No. of Units)			
	1-Bdrm	2-Bdrm	3-Bdrm	Total
A	130	48	20	198
B	91	45	33	169
C	280	158	32	470
D	257	108	54	419
E	94	51	0	145
F	76	42	0	118
Total	**928**	**452**	**139**	**1,519**

New Public Streets

A "C-shaped" arrangement of new public streets are proposed running around the southern, eastern and northern Site boundaries. Further details are provided in **Section 4.2.**

Pedestrian Linkages and Connections

In addition to providing pedestrian clearways along all of the new streets proposed on the Site, an east-west pedestrian connection is proposed through the centre of the Site rising up from the Warden Avenue frontage up and then over the centrally located driveway serving the main parking and loading areas before descending again to the east to link back to the proposed north-south street segment on the adjacent to the eastern Site boundary.

Vehicular Access Arrangements

A total of six (6) vehicular accesses are proposed off the public and private road segments to access loading, parking and pick-up / drop-off facilities. These driveways will be further discussed in relation to the towers / buildings in which they are servicing:

- **Eastern Block (Buildings A and B)** are served by access driveways onto a centrally located north-south private driveway and from the northern public road segment. Vehicular access to parking is provided via the northerly access off the public road which extends to the shared below-grade parking facility that serves all buildings. Pick-up and drop-off activity for these buildings will be accommodated in the form of a lay-by located on the private driveway adjacent to lobby entrance. The loading facilities in each building are accessed directly from the private driveway.

- **Western Block (Towers C, E, D and F)** is served by access driveways onto the northern and southern public street segments and the central private driveway. The driveway accessed from the northern public road is located approximately 65 metres east of Warden Avenue and provides access to the courtyard area between Towers C and E that provides for building loading and front door pick-up / drop-off activity. The driveway accessed from the southern public road is located approximately 70 metres east of Warden Avenue and provides access to the courtyard between Towers D and F which will afford access to those buildings' loading facilities and accommodates front door pick-up / drop-off activity. The central driveway access provides access to the shared below-grade parking facility.

Vehicular Parking Provisions

Parking is to be proposed within a 2 level underground parking garage and parking areas located at-grade within the central portions of the buildings. As part of the overall strategy to minimize vehicular travel demands generated by the proposed development, a reduced resident parking supply standard compared the prevailing Zoning By-law requirements has been adopted for the project. This is discussed further in **Section 5.0**.

The proposed parking supply is 996 parking spaces, of which 833 parking spaces are dedicated for resident use and 163 parking spaces are allocated for non-resident uses (including residential visitor, retail, and 3 car-share spaces). The parking supply will be provided in a shared parking facility accessed from the eastern and western blocks.

All resident parking is to be provided below-grade. There are, as noted above, a number of parking spaces provided at-grade that will be internalized and covered within the proposed building envelopes and are intended to mainly serve non-resident users.

Bicycle Parking Provisions

As part of the overall strategy to reduce vehicular travel demand of the proposed development, bicycle parking is to be provided to exceed the applicable Zoning By-law and Toronto Green Standard (TGS) requirements for this area. It is proposed to meet the Zone 1 bicycle parking requirements which requires – in total – 1 bicycle parking space to be provided for each residential unit.

A total of 1,521 bicycle spaces are provided to support the proposed development, of which 1,369 bicycle spaces are allocated for long-term use, and 152 bicycle spaces for short-term use.

Bicycle parking supply provisions are proposed on the ground floor of the building and within the parking levels. Access to the bicycle parking facilities are provided via the parking driveways / parking ramps and elevators.

Loading Provisions

A total of six (6) loading spaces are proposed, consisting of three (3) Type ‘G’ and three (3) Type ‘B’ loading spaces. The loading supply is distributed among the buildings / towers within the respective at-grade loading facilities located in each building. The loading facilities will service the waste and recycling collection and delivery activities related to the residential and retail of the newly constructed portion of the proposed development.

- **Buildings A and B** incorporate two (2) loading spaces, consisting of one (1) Type ‘G’ and one (1) Type ‘B’ loading spaces located in separate loading facilities. The Type ‘G’ loading facility is located in Building A to service the residential waste collection associated with buildings A and B, and the moving and delivery activity associated with Building A. The Type ‘B’ loading facility is proposed in Building B to facilitate the residential moving and delivery activity associated with Building B. Appropriate bin staging will be provided adjacent to the Type ‘G’ loading space to accommodate the required staging area for the two residential buildings.

- **Towers C and E** incorporate two (2) loading spaces, consisting of one (1) Type ‘G’ and one (1) Type ‘B’ loading spaces located in separate loading facilities. The Type ‘G’ loading facility is located in Tower C to service the residential waste collection associated with towers C and E, and the moving and delivery activity associated with Tower C. The Type ‘B’ loading facility is proposed in Tower E to facilitate the residential moving and delivery activity associated with said tower. Appropriate bin staging will be provided adjacent to the Type ‘G’ loading space to accommodate the required staging area for the two residential towers.

- **Towers D and F** incorporate two (2) loading spaces, consisting of one (1) Type ‘G’ and one (1) Type ‘B’ loading spaces located in separate loading facilities. The Type ‘G’ loading facility is located in Tower F to service the residential waste collection associated with towers D and F, and the moving and delivery activity associated with Tower F. The Type ‘B’ loading facility is proposed in Tower D to facilitate the residential moving and delivery activity associated with said tower. Appropriate bin staging will be provided adjacent to the Type ‘G’ loading space to accommodate the required staging area for the two residential towers.

Future area lane configurations with the introduction of the proposed development plans are illustrated on **Figure 8.** The aforementioned components are outlined in the proposed block plan in **Figure 9.**

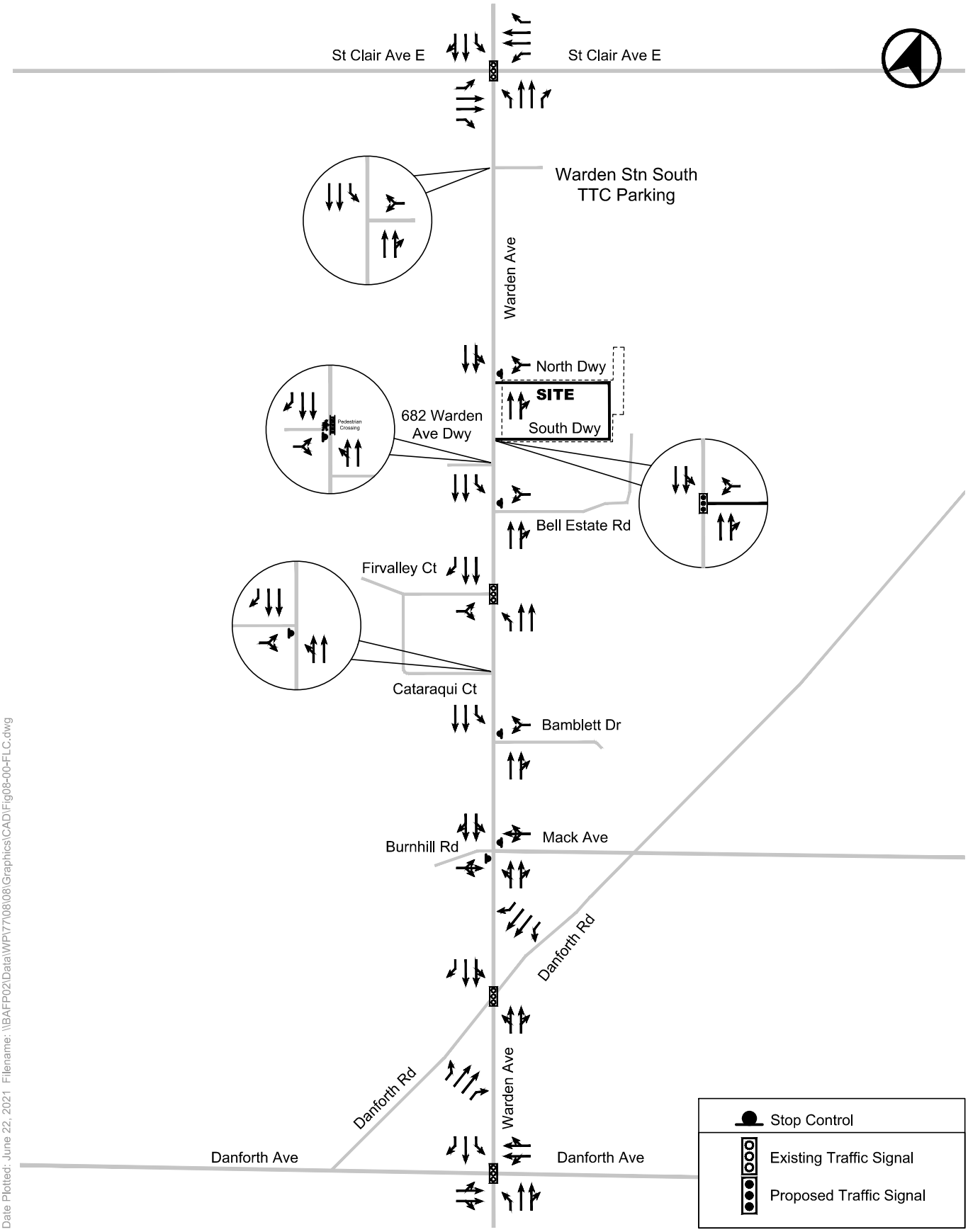

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FIGURE 8 FUTURE LANE CONFIGURATIONS & STOP CONTROL

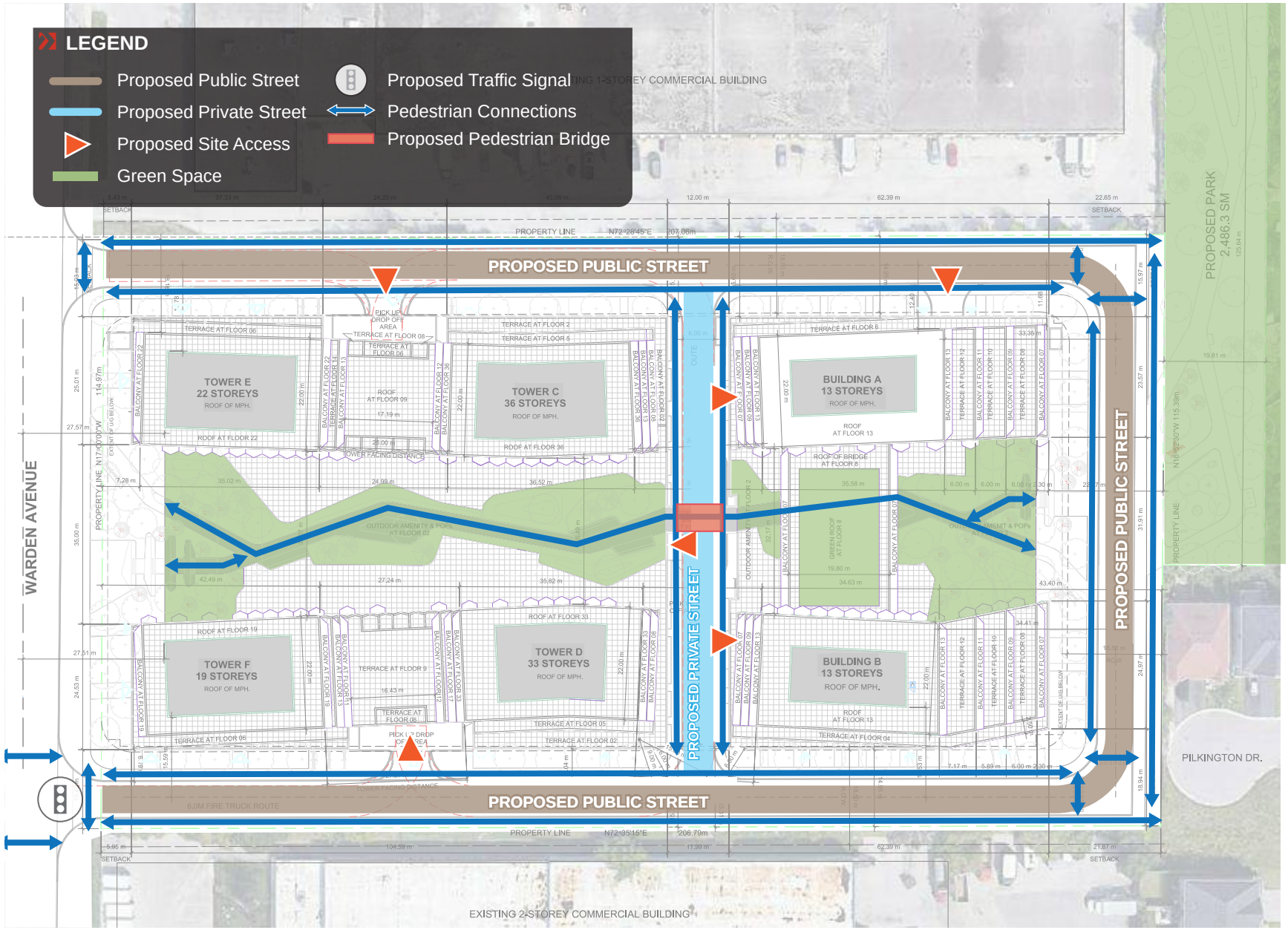

FIGURE 9 PROPOSED BLOCK PLAN

4.2 PROPOSED STREET PLAN

The proposed development plan creates a new public street network that will improve connectivity through and around the Site for all users (including cyclists, pedestrians and vehicles).

The new street network is proposed with three (3) street segments running along the northern, eastern and southern Site boundaries forming a “C-shaped” network with two connections to Warden Avenue, the major arterial road adjacent to the Site.

It is proposed to signalize the new intersection where the new southern public street intersects with Warden Avenue. This signal will provide formalized and fully accessible pedestrian crossing facilities and will, logically, require the removal of the existing PXO facility located just to the south of the Site on Warden Avenue. The intersection of the northerly street segment with Warden Avenue is proposed to operate under side-street STOP control.

In addition to the proposed public street network, an additional north-south private driveway is proposed connecting through the proposed buildings between the new east-west public street segments. The private driveway is located approximately 130 metres east of Warden Avenue.

The proposed public street functional plan is illustrated in **Figure 10**. The full sized functional plan is attached in **Appendix D.**

4.2.1 Proposed Public Streets

The proposed public road follows a “C-shaped” configuration, where it runs parallel and adjacent to the northern, eastern and southern property limits of the Site, connecting to Warden Avenue at two locations. The proposed street will have a basic two-lane cross section with a total pavement and ultimate right-of-way width of 7.0 and 18.5 metres, respectively.

- North Section

The northern street segment is approximately 210 metres in length and intersects with Warden Avenue and the eastern road segment at the western and eastern limits of the street, respectively. The proposed street intersection with Warden Avenue is proposed to operate under side-street STOP control and its intersection with the eastern segment of the proposed street network is proposed to operate under All-Way STOP control to provide for pedestrian crossing facilities.

The northerly public street segment is proposed to be primarily constructed on the Site, with the exception of 3.55 metres of the northern boulevard which is proposed to be provided at a later time on the neighbouring property to the north should it redevelop. As such, it is proposed that an interim right-of-way of 14.95 metres be provided from the proposed Site which enables the full construction of the southern boulevard (sidewalk and landscape treatments), the entire driveable section of the street and a 2.0 metre buffer north of the street adjacent to the property boundary. The remaining northern boulevard will be constructed / completed should the adjacent property re-develop over-time to complete the ultimate 18.5 metre wide right-of-way for this local street.

This staging of the construction / dedication of the proposed street right-of-way recognizes the extent of public street being provided and constructed as part of the proposed development, the connectivity these street

linkages will afford and, importantly, the ability for the adjacent properties to also use these streets to support any future redevelopment of the adjacent properties.

- East Section
The eastern street segment is approximately 105 metres in length and connects between the proposed northern and southern public street segments along the eastern property boundary. The intersections at both the northern and southern street segments are proposed to operate as all-way STOP controlled intersections to offer formal pedestrian crossing facilities at these locations. It is proposed for the entirety of this section of the proposed street network to be constructed within the Site.

- South Section
The southern street segment is approximately 210 metres in length and intersects with Warden Avenue and the proposed easterly section of the C-shaped public street at its western and eastern limits, respectively.

The intersection with Warden Avenue is proposed to be signalized as noted previously, while the intersection with the eastern street segment will operate under All-Way STOP controlled intersection.

Similar to the northern street section, the southern street is proposed to be primarily constructed on the Site, with the exception of 3.55 metres of the southern boulevard, which is proposed to be provided in the future on the neighbouring property to the south should it redevelop. An interim right-of-way width of 14.95 metres is proposed to be provided which – as for the northern section – provides for the full construction of the northern boulevard, the entire street pavement and a 2.0 metre buffer along the southern Site boundary. The remainder of the southern boulevard will be constructed when / if the adjacent property re-develops to complete the full 18.5 metre wide public street right-of-way.

- Multi-Modal Considerations
The proposed public street network will – ultimately – provide 2.1 metre sidewalks along both sides of the street complemented by landscape and other features within the proposed boulevard spaces. It is noted that – due to the phased construction of the northerly and southerly sections of the street network – sidewalk and complete boulevards will only be constructed on one side of these streets with development of the proposed buildings.

An interim 2.0 metre wide buffer is proposed on the “other” side of these street segments that will accommodate any fencing, poles or other street furniture, snow storage, temporary landscaping or grading required to facilitate construction of these street segments. No sidewalks are proposed within these interim buffer areas given that there will be no facing uses on those sides of the street until future development occurs on the adjacent properties. These boulevards would be completed upon redevelopment of the adjacent properties with a further dedication of 3.55 metres of land to the City to complete the boulevard.

4.2.2 New North-South Private Driveway

The proposed north-south private driveway is to be designed as a publicly accessible connection extending between the north and south public street sections approximately 130 metres east of Warden Avenue.

The proposed driveway divides the eastern and western development blocks and will have a basic two (2) lane cross section (e.g. one lane in each direction) with a total pavement width of 6.0 metres that is widened to 8.5 metres where a lay-by is provided adjacent to the eastern block building lobby. It is intended for the private

driveway to operate as a service connection for the eastern and western blocks, providing access to the shared parking facility, short-term lay-bys and a number of loading facilities.

There are two (2) intersections formed by the private driveway with the public street network. It is proposed that the private driveway will operate under side street STOP control.

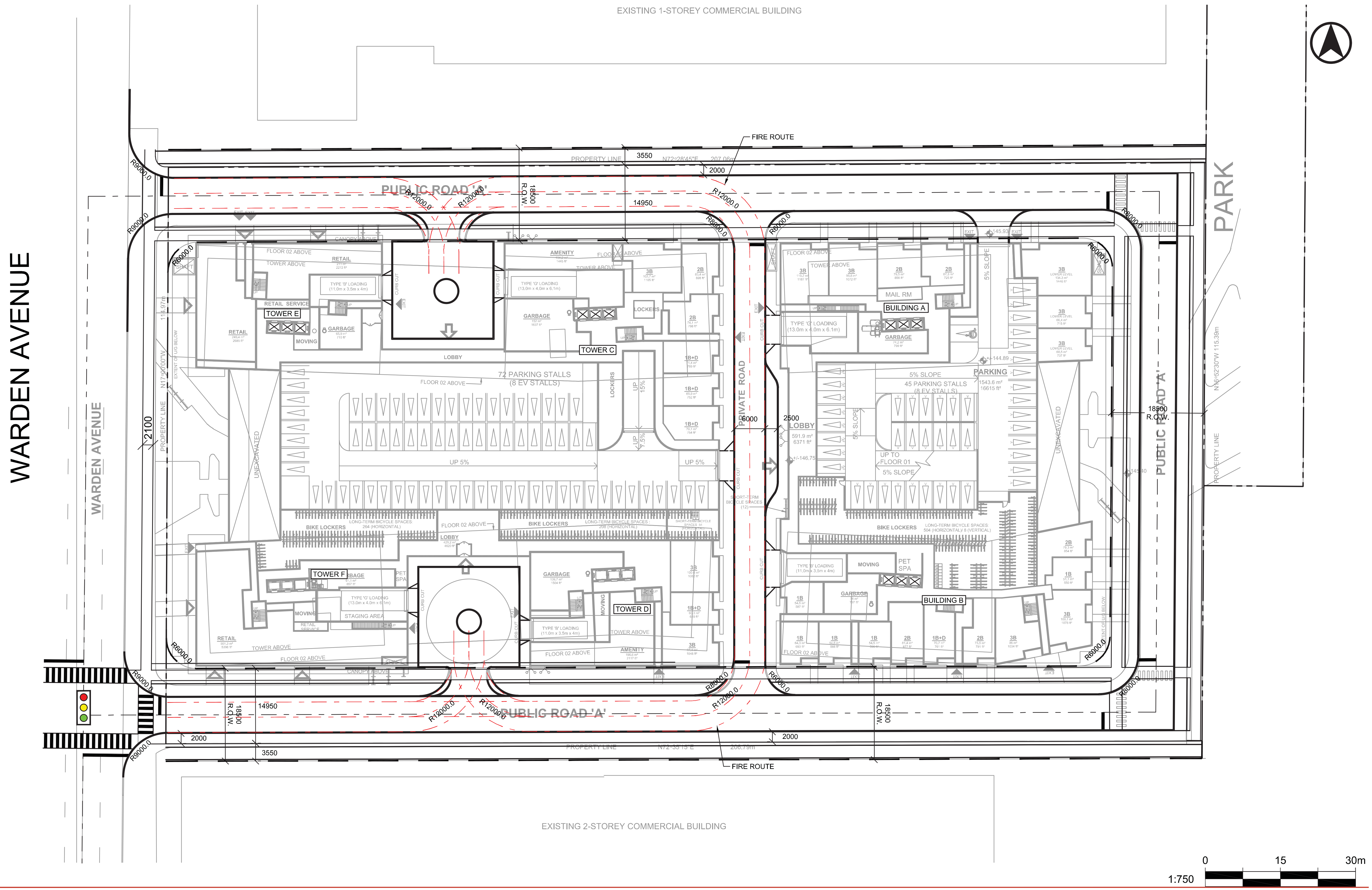

FIGURE 10 FUNCTIONAL ROAD PLAN

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5.0 VEHICULAR PARKING CONSIDERATIONS

The Site is subject to the former City of Scarborough Zoning By-law No. 24982 (Oakridge), and is located within the "All Other Areas" of the City's consolidated Zoning By-law 569-2013.

The minimum parking supply requirements of the parking standards outlined in Zoning By-law No. 24982 and By-law 569-2013 "All Other Areas" are outlined in **Table 6** and **Table 7**, respectively. The minimum parking requirements of the Policy Area 3 (PA3) parking standards outlined in By-law 569-2013 which apply typically to areas along subway accessible corridors are also provided in **Table 8** for reference purposes.

5.1 ZONING BY-LAW REQUIREMENTS

5.1.1 Former City of Scarborough Zoning By-law No. 24982

Application of the Former City of Scarborough By-law No. 24982 to the development programme requires a total of 1,851 parking spaces, comprised of 1,519 resident parking spaces and 332 non-residential parking spaces.

A summary of the minimum vehicular parking requirements with application of the By-law No. 24982 standards is summarized In **Table 6.**

TABLE 6 FORMER CITY OF SCARBOROUGH ZONING BY-LAW NO. 24982 MINIMUM PARKING REQUIREMENTS

Land Use	Units / GFA[1]	Standard	Parking Requirements
Resident Parking			
1-Bedroom	928 units	1.0 spaces / unit	928 spaces
2-Bedroom	452 units	1.0 spaces / unit	452 spaces
3-Bedroom	139 units	1.0 spaces / unit	139 spaces
Subtotal			**1,519 spaces** *(effective supply of 1.0 space / unit)*
Non-Resident Parking			
Residential Visitor	1,519 units	0.2 spaces / unit	303 spaces
Retail	993 sq. metres	3.0 spaces / 100 sq. metres	29 spaces
Subtotal			**332 spaces**
Site Total (Scarborough By-law 24982)s			**1,851 spaces**

Notes:
1. Site statistics are based upon the architectural plans from Turner Fleischer, dated June 18, 2021.

It is noteworthy that the parking requirements of the Scarborough By-law are outdated and far exceed the parking needs of contemporary residential developments in transit accessible locations nor are supportive of reducing automobile usage in such contexts.

5.1.2 City of Toronto Zoning By-law 569-2013

5.1.2.1 All Other Area Standards

Application of the City of Toronto new consolidated Zoning By-law 569-2013 parking standards for the "All Other Areas" of the City (which the Site would fall into under this By-law) to the proposed development requires the provision of a minimum of 1,770 vehicular parking spaces, including 1,453 resident spaces, and 317 non-resident vehicular parking spaces to support the proposed development.

A summary of the minimum vehicular parking requirements with application of the "All Other Area" standards of By-law 569-2013 is summarized in **Table 7.**

TABLE 7 MINIMUM PARKING REQUIREMENTS ZONING BY-LAW 569-2013 (ALL OTHER AREAS)

Land Use	Units / GFA[1]	Standard	Parking Requirements
Resident Parking			
1-Bedroom	928 units	0.9 spaces / unit	835 spaces
2-Bedroom	452 units	1.0 spaces / unit	452 spaces
3-Bedroom	139 units	1.2 spaces / unit	166 spaces
Subtotal			**1,453 spaces** *(effective supply of 0.96 space / unit)*
Non-Resident Parking			
Residential Visitor	1,519 units	0.2 spaces / unit	303 spaces
Retail	993 sq. metres	1.5 spaces / 100 sq. metres	14 spaces
Subtotal			**317 spaces**
Site Total (Zoning By-law No. 569-2013 – All Other Areas of The City)			**1,770 spaces**

Notes:
1. Site statistics are based upon the architectural plans from Turner Fleischer, dated June 18, 2021.
2. Rounded down to the nearest whole number, in accordance with Section 200.5.1.10 (9) of City of Toronto Zoning By-law 569-2013.

As for the Scarborough By-law, the parking requirements of the "All Other Areas" standards (which, for instance, require an effective resident parking supply requirement of in the order of 0.96 spaces / unit) significantly overstate the parking needs of contemporary condominium buildings in transit accessible locations.

5.1.2.2 Policy Area 3 Standards

The Policy Area 3 parking standards outlined in By-law 569-2013 are intended – in the context of that general City-wide By-law – to reflect reduced parking needs of developments that are located in subway accessible locations.

A review of these standards provides a contextual indication of the range of standards contemplated within the base general By-law for areas of the City that are better served by transit.

A summary of the minimum vehicular parking requirements with application of the "Policy Area 3 (PA3)" standards of By-law 569-2013 is summarized in **Table 8.**

TABLE 8 MINIMUM PARKING REQUIREMENTS ZONING BY-LAW 569-2013 (POLICY AREA 3)

Land Use	Units / GFA[1]	Standard	Parking Requirements
Resident Parking			
1-Bedroom	928 units	0.7 spaces / unit	649 spaces
2-Bedroom	452 units	0.9 spaces / unit	406 spaces
3-Bedroom	139 units	1.0 spaces / unit	139 spaces
Subtotal			**1,194 spaces** *(effective supply of 0.78 space / unit)*
Non-Resident Parking			
Residential Visitor	1,519 units	0.10 spaces / unit	151 spaces
Retail	993 sq. metres	1.0 spaces / 100 sq. metres	9 spaces
Subtotal			**160 spaces**
Site Total (Zoning By-law No. 569-2013 – Policy Area 3)			**1,354 spaces**

Notes:
1. Site statistics are based upon the architectural plans from Turner Fleischer, dated June 18, 2021.
2. Rounded down to the nearest whole number, in accordance with Section 200.5.1.10 (9) of City of Toronto Zoning By-law 569-2013.

Application of Policy Area 3 minimum vehicle parking requirements to the proposed development programme results in a total vehicle parking requirement of 1,354 spaces, comprised of 1,914 resident vehicular parking spaces, and 160 visitor parking spaces. Resident vehicular parking requirements would result in a parking supply ratio of 0.78 residential spaces per unit.

It is noted that, while these standards did prove to be relevant and representative of demand levels following the initial implementation of By-law 569-2013, they are, at this point largely outdated given the age of the City-wide By-law and the standards established therein. The requirements of the PA3 standards are not, in our recent experience across the City, representative of parking demands at newer residential and mixed-use developments today in transit accessible locations.

5.1.2.3 Commentary on Applicable Zoning By-Law Parking Standards

The range of parking standards and requirements of the applicable By-law regime are all considered to be out-dated and overstate the parking needs of contemporary residential and mixed-use buildings in transit accessible locations.

This is based upon the range of demands observed and experienced across a broad range of developments over recent years in comparable locations and the way that parking demands and needs have evolved and reduced as people take advantage of other travel modes to a greater extent than has occurred in the past when the By-law standards were being established and developed.

Given that the Site is located as close to Warden Subway Station as it is (within 500 metres or a 6-8 minute walk), and given the level of transit accessibility the Line 2 subway will provide today and in the future as transit infrastructure plans advance across the City, it is proposed that reduced parking standards be adopted and advanced for the proposed development to:

i) better reflect current and anticipated parking demand needs at the building;
ii) reflect the level of future travel that can and will be made using transit as a primary form of mobility; and
iii) promote other non-automobile mobility choices and travel behaviour as part of the overall demand management plan for the project.

5.1.2.4 Recommended Minimum Parking Standards

Based upon the above, the following reduced resident and non-resident minimum parking standards are proposed:

- a resident parking supply standard of effectively 0.55 spaces / unit is reflected within the current development plans.
- a reduced visitor parking standard of 0.1 spaces / unit reflecting the Policy Area 1, 2 and 3 visitor parking standards outlined in By-law 569-2013.
- a reduced retail parking standard of 1 space / 100 sq. metres GFA based upon the Policy Area 3 standards outlined in By-law 569-2013.

The parking requirements of the proposed standards is outlined in **Table 9.**

TABLE 9 MINIMUM PARKING REQUIREMENTS, PROPOSED PARKING STANDARDS

Land Use	Units / GFA[1]	Standard	Parking Requirements
Resident Parking			
All unit types	1,519 units	0.55 spaces / unit	**833 spaces**
Non-Resident Parking			
Residential Visitor	1,519 units	0.10 spaces / unit	151 spaces
Retail	993 sq. metres	1.0 spaces / 100 sq. metres	9 spaces
Subtotal			**160 spaces**
Site Total			**993 spaces**

Notes:
1. Site statistics are based upon the architectural plans from Turner Fleischer, dated June 18, 2021.
2. Rounded down to the nearest whole number.

The appropriateness of the proposed parking standards and the proposed parking supply provisions is further discussed in **Sections 5.2, 5.3** and **5.4.**

5.2 RESIDENT PARKING STANDARD REVIEW

The City of Toronto and Province of Ontario actively promote lower levels of auto ownership through a number of initiatives, both from a policy perspective and the provision of additional infrastructure to support alternatives modes of transportation.

This section summarizes the prevailing policies and site specific factors which will influence auto ownership and parking demand for the subject site.

As noted previously, the minimum parking requirements of the prevailing Zoning By-law regime (Scarborough By-law No. 24982 and By-law 569-2013) overstate the parking needs of the proposed development given:

- the local area transportation context and the proximity of the Site to subway and bus transit services that serve Warden Station on the Line 2 subway;
- a review of area travel characteristics and the likelihood of reducing vehicular usage over-time given area transit improvements and evolution of the area centred around the Warden Subway Station;
- a review of other comparable residential building reduced parking supply approvals in transit accessible areas of the City; and
- planning policy and transportation planning principles that move towards reducing parking supply and the role such reductions play as part of an effective Transportation Demand Management Plan to reduce car usage.

5.2.1 Existing and Future Local Transportation Context

The Site is located in the immediate vicinity of the Warden Subway Station on the Line 2 subway which – combined with the expanding area higher order and commuter transit network - affords a significant level of transit accessibility to prospective residents of the proposed development.

That transit is a realistic, practical and reliable transit option, combined with the ability to use a car-share service vehicle for occasional use as required, enables a greater number of residents to live and work without the need to own a vehicle.

The following provides a brief summary of the existing and future planned area transit context that supports the increased use of non-automobile – and primarily transit - travel modes for a new development on the proposed Site:

- The Site is well served by public transit routes operated by the Toronto Transit Commission (TTC), including several routes operating directly adjacent to the Site along the Warden Avenue and St Clair Avenue East corridors.

- The Site is located within approximately 500 metres of Warden Subway Station on the Bloor-Danforth Line 2 subway (a 7-8 minute walk or 2-3 minute bus ride). Warden Station and the Line 2 subway corridor provides direct connections across the City of Toronto including the central and downtown areas to the west and the eastern parts of the City to the east.

- Line 2 also provides connections to the Kennedy Subway Station to the east (located approximately 3.75 kilometres north of the Site) which offers access to the Line 3 Scarborough LRT service, the Kennedy GO Station and the future easterly terminus of the Eglinton Crosstown LRT.

- The Site is also located approximately 2.5 kilometres of the Scarborough GO Station with access provided via frequent surface transit services across St. Clair Avenue East. Two (2) regional rail routes serve the Scarborough GO Station. These GO commuter rail services – and those that connect to Kennedy GO Station also - provide direct access to, and across, the central areas of the City including Union Station and a range of existing and evolving employment and destination nodes across the City. Union Station is an approximate 18 to 20 minute train ride from Scarborough GO Station.

- A number of planned investments in public transit services in the eastern portions of the City of Toronto will further improve the transit options for future residents and visitors of the Site and surrounding area. These include a range of committed large scale service improvements planned by Metrolinx and the City as part of the R.E.R commuter rail programme, new / improved transit line facilities such as the Eglinton Crosstown LRT and the Scarborough subway extension and local station improvements at Warden Subway Station.

The above provides a strong level of support for the adoption of reduced parking standards that are lower than the prevailing Zoning By-law parking regime and that meet contemporary parking needs of mixed-use residential buildings in such transit accessible areas.

5.2.2 Transportation Behaviour – Mode Splits

Non-automobile travel mode share can be expected to increase over time in areas such as the Site context as the significant levels of transit investment are realized and the overall transit network serving broad parts of the City comes into place.

There has already been an increase in transit and non-automobile dependent travel across large portions of the City as travel behaviour adapts and evolves to the improving mobility options and the reducing reliance being placed upon car ownership needs afforded by the growing prevalence of car-sharing and ride-hailing services that offer convenient access to a car on an occasional basis without the need to own a vehicle.

This downward trend in automobile usage can be expected to continue in transit accessible areas of the City such as the under-developed areas surrounding the Warden Subway Station.

The planned expansion of transit accessibility and transit reach from the Warden Subway Station will play a significant part in offering more destinations across the City that can be conveniently reached by use of the Line 2 subway and its connecting services (i.e. Eglinton Crosstown LRT and GO R.E.R services at the Kennedy and Scarborough Junction GO Stations). This will – in turn – lead to transit being viable as a mobility options for a greater proportion of trips being made to / from the proposed development and across the City on a daily basis which will lead to a reduced reliance on car-orientated travel and car ownership.

Recent experience of remote working and on-line options that have expanded during the COVID-19 pandemic may also lead to an extension of their usage in a post-pandemic world. This could have a notable effect on commuting needs and patterns with a consequential reduction in travel and the need to use and own a vehicle on a regular basis.

The reduced reliance on automobile dependent travel that is anticipated across the City – particularly in transit accessible areas – is supportive (and supported by) the adoption of progressive and reduced resident parking standards for the proposed development.

5.2.3 Parking Supply Approvals Trends

There is a broad range of parking supply and demand associated with residential buildings across the City of Toronto. Generally speaking, parking demand has been declining over recent years in response to the changing demographics, economic factors, City of Toronto Policy and Planning, and mobility choices of residents within newer buildings, in particular. This has been evidenced in a number of studies undertaken by BA Group and others where parking demands in the same context have reduced (significantly) over recent years.

Parking supply and demand has, more recently, become governed by a number of factors and influences including the age and location of a building, building characteristics and market positioning, geography, potential heritage considerations and other site specific factors, area and occupant demographics, alternative area mobility options and proximity to services, employment centres, amenities and retail facilities. These factors contribute to the choices that residents make with respect to where they live and whether they own a vehicle and a parking space.

As a result, resident parking standards outlined in the City of Toronto Zoning By-law 569-2013 have been found to conservatively high relative to the parking demands generated by residential buildings based on current trends. This has been acknowledged by the City of Toronto and has instigated the City wide review of current parking requirement polices and related standards which – based upon initial public presentations – is leading towards the elimination of minimum parking standards in certain areas of the City.

Parking provisions at a substantial proportion of new residential buildings have been approved at rates that are lower than the applicable Zoning By-laws (often by some margin). Such approvals have been secured through City Council, the Local Planning Appeal Tribunal (LPAT) and the Committee of Adjustment for both condominiums and rental buildings within transit accessible areas of the City of Toronto.

BA Group has reviewed residential developments for which reduced parking standards have been approved in Toronto. The sites of interest in this review are located, generally, in Midtown Toronto area as well as along surface transportation routes. Sites located in Midtown Toronto act as reasonable proxies for the Site given its transit context relative to the Warden Subway Station and the transit connectivity that will be afforded with the ongoing expansion of commuter rail and local transit networks in the eastern portions of the City of Toronto.

5.2.3.1 Representative Resident Parking Standard Approvals: Midtown Toronto

Midtown Toronto is located north of the downtown area of the City. For the purposes of this exercise, it is the area generally situated within the Yonge-Eglinton and Yonge-St. Clair areas of the City. This area context is generally urban with access to amenities, services, and employment, with primary transit access along the Line 1 subway corridor.

This area is primarily subject to Policy Area 2 (PA2) and Policy Area 3 (PA3) parking standards under Zoning By-law 569-2013. PA2 and PA3 standards are both equivalent to a blended rate of approximately 0.80 spaces per unit which far exceeds the evolving parking needs of residential buildings in these transit nodes on the Line 1 subway. Increasingly, in Midtown Toronto, City approvals are also adopting lower resident parking standards well below those required by the applicable City Zoning By-law, with parking approvals ranging from approximately 0.20 to 0.60 spaces per unit, and an average of approximately 0.30 spaces per unit.

While there may be differences in the travel context of these areas to that of the Warden Subway Station context, these approval trends are evidence of contemporary parking needs in transit–accessible and mixed-use areas of the City and the extent to which there is a disconnect between the Zoning By-law regime and actual parking needs being evidenced through approvals being advanced on a routine basis in these areas. The resident parking approvals are – in fact - indicative of the shifting attitude and understanding of the need to reduce vehicle use over time, while advancing alternative mobility options to personal vehicle travel.

Table 10 summarizes reduced resident parking standard approvals for developments generally located within the Midtown area of the City which have comparable transit contexts to the subject Site.

TABLE 10 RESIDENTIAL DEVELOPMENTS WITH APPROVED RESIDENT PARKING REDUCTIONS

Address	Major Intersection	Resident Standard Applied	Permission Through
St. Clair Corridor			
44 Jackes Avenue	St. Clair Avenue E / Yonge Street	892 dwelling units 352 resident parking spaces *Effective res ratio:0.39 sps / unit*	Staff stipulated in a memo as the Preliminary Zoning By-law amendment conditions
22 St. Clair Avenue East, 1495-1525 Yonge Street & 1-31 Heath Street	St. Clair Avenue E / Yonge Street	1,357 dwelling units 462 resident parking spaces *Effective res ratio:0.34 sps / unit*	Staff stipulated in memo as the Preliminary Zoning By-law amendment conditions
Eglinton Avenue Corridor			
2131 Yonge Street & 32 Hillsdale	Eglinton Avenue & Yonge Street	693 dwelling units 243 resident parking spaces *Effective res ratio: 0.35 sps / unit*	OMB Decision PL130924 (2015)

Address	Major Intersection	Resident Standard Applied	Permission Through
45-77 Dunfield Avenue	Eglinton Avenue & Yonge Street	519 dwelling units 181 resident parking spaces *Effective res ratio: 0.35 sps / unit*	Site Specific By-Laws 442-2016 & 443-2016
161 & 173-175 Eglinton Ave E	Eglinton Avenue E & Mount Pleasant Road	443 dwelling units 108 resident parking spaces *Effective res ratio: 0.24 sps / unit*	CoA Decision – A0881/15TEY (2015) CoA Decision – A0934/13TEY (2013) Site Specific By-Law 1433-2012
89-101 Roehampton Avenue	Eglinton Avenue & Yonge Street	384 dwelling units 96 resident parking spaces *Effective res ratio: 0.25 sps / unit*	OMB Case No. PL160796
183-195 Roehampton & 139-145 Redpath Ave	Eglinton Avenue E & Mount Pleasant Road	452 dwelling units 136 resident parking spaces *Effective res ratio: 0.30 sps / unit*	CoA Decision – A0436/16TEY (2016) Site Specific By-Law 1029-2014
958 Eglinton Avenue East	Eglinton Avenue E & Laird Drive	24 dwelling units 8 resident parking spaces *Effective res ratio: 0.33 sps / unit*	A0253/18NY
2221 Yonge Street	Eglinton Avenue & Yonge Street	*Effective res ratio: 0.35 sps / unit*	OMB Settlement Site Specific By-law 69-2016
1 Eglinton Avenue East	Eglinton Avenue & Yonge Street	*Effective res ratio: 0.35 sps / unit*	Site Specific By-law 1257-2018 & 1258-2018
55-65 Broadway Avenue	Eglinton Avenue & Yonge Street	*Effective res ratio: 0.45 sps / unit*	OMB Case #PL160873
2360-2376 Yonge Street & 31-37 Helendale Avenue	Eglinton Avenue & Yonge Street	378 dwelling units 159 resident parking spaces *Effective res ratio: 0.42 sps / unit*	Site Specific By-law 972-2017(OMB)
85-91 Broadway Avenue	Eglinton Avenue & Yonge Street	351 dwelling units 70 resident parking spaces *Effective res ratio: 0.18 sps / unit*	Site-Specific By-laws 1344-2018 & 1345-2018 OMB Case #PL170407
18-30 Erskine Avenue	Eglinton Avenue & Yonge Street	315 dwelling units 94 resident parking spaces *Effective res ratio: 0.30 sps / unit*	Site-Specific By-law (OMB) 265-2017 OMB Hearing PL150293
151-177 Roehampton Avenue	Eglinton Avenue & Yonge Street	573 dwelling units 130 resident parking spaces *Effective res ratio: 0.23 sps / unit*	CoA Decision – A0446/16TEY (2016). Site Specific By-Laws 1355-2015 and 1355-2015
	Approval Rate Range	**0.18 to 0.45 sps / unit**	

5.2.3.2 Residential Approvals for Developments Along Surface Transit Routes

Residential parking approvals were also reviewed for developments located along surface transit routes to provide a comparison to the range of example approvals being provided to developments that are situated outside of the Yonge Street and Midtown core areas. These sites typically have less subway transit access than the more central areas and are served by surface transit facilities. The sites are located in areas typically subject to the "All Other Areas" or Policy Area 4 (PA4) standards as outlined in By-law 569-2013.

Table 11 summarizes the residential parking approvals of development along surface transit routes.

TABLE 11 RESIDENTIAL PARKING APPROVALS FOR DEVELOPMENTS ALONG SURFACE TRANSIT ROUTES

Address	Permission Through	Parking Approval Rate (spaces per unit)
177-197 Front Street East	Site Specific By-law 1327-2018(LPAT)	*0.47*
898-900 St Clair Avenue West	CofA Decision – A0304/17EYK	0.45
19 Western Battery Road	CoA Decision – A0503/17TEY	0.47
41 Ossington Avenue	Site (Specific By-Law 1211-2012 OMB)	0.75
41 River Street	CofA Decision – A1061/16TEY	0.31
2135 Sheppard Avenue East	CofA Decision – A0800/17NY TLAB Case File Number: 17 268352 S45 33 TLAB (2018)	0.54
958 Eglinton Avenue East	A0253/18NY	0.33
	Approval Rate Range	**0.33 to 0.75**

As for the Midtown (and other) areas of the City, approvals for sites in these surface transit accessible areas are also adopting lower resident parking standards compared to the City's prevailing Zoning By-law requirements. Approvals range from 0.33 to 0.75 spaces per unit.

Similar to the Midtown Toronto area, these approval trends demonstrate support of contemporary parking needs in areas of the City well-serviced by frequent transit and adoption of parking supply standards that are significantly lower than the prevailing Zoning By-law requirements notwithstanding these sites are located in areas served by surface transit rather than subway.

5.2.3.3 Resident Parking Standard Approvals Commentary

It is clear that the minimum parking rates outlined in the City of Toronto's Zoning By-laws are not being applied in a significant number of instances across the City in transit accessible areas.

The range of standards adopted for the proxy sites outlined in the prior sections is indicative of the extent to which the Zoning By-law parking requirements overstate the standards being approved on a routine basis across large areas of the City (adopted standards range from 0.18 to 0.55 typically whereas the applicable Zoning By-law would require upwards of 0.7 to 0.8 spaces / unit). It also reflects the disconnect that is evident between the current By-law regime and actual practice which, presumably, has led to the City initiating its review of minimum Zoning By-law parking standards which will conclude sometime in the latter part of 2021.

It is also evident from the information presented for Midtown Toronto, that the range of approvals being seen in subway accessible areas of the City and surface transit accessible corridors are notably lower than that being proposed for the proposed development.

The proposed resident parking supply standard of 0.55 spaces per unit falls well within the upper end of the range of approved reduced resident parking supply standards recorded at the other residential developments outlined in the previous sections. This provides a strong level of support for the appropriateness of the proposed reduced resident parking standard in this context building upon the Site's transit accessibility.

5.2.4 Planning Policy and TDM Relationships

Providing additional parking encourages automobile ownership, which, in turn, can serve to encourage single occupant automobile commuting and travel.

Taking a holistic perspective of the overall transportation network, one of the simplest ways to affect change in travel behaviour is to reduce the amount of available vehicle parking provided in a building. This will serve to change the way a building is marketed and positioned as part of any sales programme such that the development will appeal to purchasers who are looking to locate to a transit accessible location but have redued automobile dependent needs.

A TDM plan has been developed for the proposed development as outlined in **Section 8.0** of this report. One of the main goals of this strategy is to reduce automobile reliance, while promoting and accommodating travel through sustainable modes. Key elements of this plan include the provision of:

- Accessible pedestrian connections on and off-site to enhance pedestrian accessibility in the Site vicinity
- Provision of car-share spaces as part of the development plans
- Provision of a proposed bicycle parking supply that exceeds the area minimum requirements and meets the Toronto Green Standard Tier 1, Zone 1 requirements
- Provision of on-site communication items / information to generate awareness of mobility options
- Consideration of an on-site bicycle repair station
- Reduced parking provisions and unbundling of the sale of parking and units
- Provision of a transit screen and travel Information Brochures

Provision of these measures is focussed upon assisting in reducing the practical need for an automobile (and the associated resident parking space) on a recurring basis. The ability to reduce parking as a strong element

of the overall TDM will form one of the most effective methods by which car usage can be influenced in transit accessible areas where alternate travel mode options exist.

5.2.5 Resident Parking Summary

A reduced (compared to the prevailing Zoning By-law standards) in recognition of the Site's excellent location relative to the higher order and surface transit services provided at the Warden Subway Station and the connectivity / accessibility afforded to a range of destinations across the City that can be readily and conveniently reached on transit.

A minimum resident parking standard of approximately 0.55 spaces / unit is proposed which, based upon the review outlined in this section, falls well within the upper end of the range of other, recent approvals at other residential and mixed-use developments in comparable transportation contexts.

The adoption of the reduced resident parking standard of 0.55 spaces / unit is considered to be appropriate on this basis, will assist in support the automobile use reduction policies of the City and intent of the proposed TDM plan and will meet the anticipated parking needs of the proposed building when also considering the downward trend in parking needs at contemporary and new residential developments in transit accessible areas of the City.

5.3 VISITOR AND RETAIL PARKING STANDARD REVIEW

The residential visitor and retail parking standards outlined in Zoning By-law 569-2013 for "All Other Areas of the City" are considered to overstate the visitor parking needs of the Site and proposed development, given the Site's proximity to Warden Subway Station, its transit accessibility which offers travel options for visitors to the development and, in the case of the proposed retail uses, their small size and ancillary nature.

It is proposed adopt a minimum visitor parking standard of 0.1 spaces / unit and a minimum retail parking requirement of 1.0 spaces / 100 sq. metres GFA which are consistent the City's Policy Area 1 / 2 / 3 minimum requirements for these uses in Zoning By-law 569-2013. These are considered to be appropriate and supportable parking supply standards for such uses in new residential and mixed-use buildings in highly transit orientated locations. They reflect well used, urban visitor parking standard that will accommodate recurring visitor and retail parking demands in this context.

The proposed visitor parking supply of 160 parking spaces (0.10 spaces / unit) is considered appropriate based upon the above and will meet the visitor parking demand needs of the proposed development.

5.4 PROPOSED VEHICULAR PARKING SUPPLY

5.4.1 Supply Provisions

A total of 996 vehicular parking spaces are proposed to be provided on Site within a two (2) level underground parking facility, as well as on the ground level of the development within the proposed building envelope.

Of the proposed parking spaces, 833 parking spaces are allocated for resident parking uses, 160 for non-resident and 3 for car share parking spaces.

The vehicle parking supply and arrangements for the Site are summarized in **Table 12**.

TABLE 12 PROPOSED PARKING SUPPLY

Floor	Use			
	Resident	Non-Resident (Retail and Visitors)	Car Share	Total
Level 1	0	114	3	117 spaces
U/G Level 1	410	46	0	456 spaces
U/G Level 2	423	0	0	423 spaces
Total Provided	**833 spaces**	**160 spaces**	**3 spaces**	**996 spaces**

Notes:
1. Site statistics are based upon the architectural plans from Turner Fleischer, dated June 18, 2021.

The proposed resident and visitor / retail parking supplies meet the requirements of the proposed parking standards and are considered appropriate in terms of supporting the vehicular parking needs of the proposed development.

5.4.2 Accessible Car Parking Requirements

Accessible parking is provided in accordance with By-law 579-2017. The regulations require that where the car parking requirement of a building exceeds 100 spaces, a minimum of 5 accessible vehicular parking spaces plus 1 accessible space for every 50 spaces or part thereof in excess of 100 spaces is required to be provided.

Application of this accessible vehicular parking requirement rate to the proposed car parking provision of 996 spaces results in the need for 23 accessible spaces. A total of 23 accessible parking spaces are proposed across the Site, distributed proportionately between uses and located within close proximity to the building entrances and / or the elevator cores.

All of the accessible parking spaces have stall dimensions of 3.4 metres by 5.6 metres with a 1.5 metre access aisle in accordance with the provisions of By-law 579-2017.

5.4.3 Electric Vehicle Infrastructure

Toronto Green Standard Version 3 (Tier 1) requires 20 per cent of the car parking spaces to be provided with electric vehicle supply equipment (EVSE), equating to 200 spaces. The remaining car parking spaces are designed to permit future EVSE installation.

Of the total 996 parking spaces being supplied by the Site, 199 spaces will have EV charging infrastructure. These spaces will be evenly distributed across the Site.

6.0 BICYCLE PARKING CONSIDERATIONS

6.1 BICYCLE PARKING REQUIREMENTS

6.1.1 Zoning By-law 569-2013 / Toronto Green Standards Version 3.0 - Zone 2

The Site is subject to the minimum bicycle parking requirements set out in the City of Toronto Zoning By-law 569-2013 as well as the Toronto Green Standard (TGS) for Mid-to-High Rise Buildings (Version 3.0). The Site is located within Bicycle Zone 2 and the TGS (Tier 1) bicycle parking standards are consistent with the standards outlined in Zoning By-law 569-2013.

Application of these parking standards to the development programme requires a total of 1,140 bicycle parking spaces (1,033 long term and 107 short term bicycle parking spaces). **Table 13** summarizes the minimum bicycle parking requirements for the proposed development plan.

TABLE 13 TORONTO GREEN STANDARD ZONE 2 - TIER 1 BICYCLE PARKING REQUIREMENTS

Use	Units [1]	Rate [2]	Requirement [3]
Residential	1,519 units	Short-Term: 0.07 spaces / unit	107 spaces
		Long-Term: 0.68 spaces / unit	1,033 spaces
Total			**1,140 spaces**

Notes:
1. Site statistics based on site plans prepared by Turner Fleischer, dated June 18, 2021.
2. Bicycle Zone 1 is bounded by Humber River to the west, Lawrence Avenue to the north, Victoria Park Avenue to the east, and Lake Ontario to the south.
3. The number of bicycle parking spaces is rounded up to the nearest whole number as per Zoning By-law 569-2013, Section 230.5.1.10(2)
4. As per Section 230.5.10.1(3) of Zoning By-law 569-2013, where the total space is less than 2,000 sq. m. GFA, bicycle parking for retail uses is not required.

6.1.2 Recommended Bicycle Standards

It is proposed, as a TDM measure and a way to encourage the use of non-automobile dependent travel alternatives, to adopt the Zone 1 bicycle parking standards outlined in By-law 569-2013. These standards exceed the requirements of the Zone 2 bicycle parking provisions that apply to the Site area.

Application of the Zone 1 bicycle parking standards requires a total of 1,519 bicycle parking spaces, including 1,367 spaces located in secure, weather protected areas for long-term use, and 152 spaces located in convenient accessible locations for short-term use.

TABLE 14 TORONTO GREEN STANDARD ZONE 1 - TIER 1 BICYCLE PARKING REQUIREMENTS

Use	Units [1]	Rate [2]	Requirement [3]
Residential	1,519 units	Short-Term: 0.1 spaces / unit	152 spaces
		Long-Term: 0.9 spaces / unit	1,367 spaces
Total			**1,519 spaces**

Notes:
1. Site statistics based on site plans prepared by Turner Fleischer, dated June 18, 2021.
2. Bicycle Zone 1 is bounded by Humber River to the west, Lawrence Avenue to the north, Victoria Park Avenue to the east, and Lake Ontario to the south. Bicycle Zone 2, includes all areas of the City not included in Bicycle Zone 1.
3. The number of bicycle parking spaces is rounded up to the nearest whole number as per Zoning By-law 569-2013, Section 230.5.1.10(2)
4. As per Section 230.5.10.1(3) of Zoning By-law 569-2013, where the total space is less than 2,000 sq. m. GFA, bicycle parking for retail uses is not required.

6.2 PROPOSED BICYCLE PARKING SUPPLY

The proposed development provides 1,521 bicycle parking spaces. A total of 152 short-term bicycle parking spaces are located on the first level of the development, while 1,369 long-term bicycle parking spaces are located within the P1 and P2 underground parking levels. Access to the underground bicycle parking rooms will be via the underground parking ramp.

This proposed supply meets the Zone 1 bicycle parking standards and exceeds the Zone 2 bicycle requirements of the applicable Zoning By-law and TGS standards for this area.

7.0 LOADING CONSIDERATIONS

7.1 ZONING BY-LAW 569-2013 REQUIREMENTS

7.1.1 Former City of Scarborough Zoning By- law No. 24982

The former City of Scarborough By-law No.24982 does not contain minimum loading standards within the Zoning By-law. As such, under the former City of Scarborough By-law No.24982, no loading parking is required for the proposed development.

7.1.2 Zoning By-law 569-2013

Application of the loading standards outlined in the City of Toronto Zoning By-law 569-2013 to the proposed development programme requires the provision of one (1) Type 'G' loading space and one (1) Type 'C' loading space to service the proposed development on the assumption that all of the residential waste and recycling collection and retail delivery activity is consolidated.

Shared loading principles have also been considered when calculating the required retail loading supply provisions. This principle recognizes that multiple uses within the same site may share the same loading space infrastructure. Zoning By-law 569-2013 also includes shared loading provisions for buildings within a Commercial Residential Zone (CR).

A summary of the minimum loading supply provisions for the development is illustrated in **Table 15**.

TABLE 15 ZONING BY-LAW 569-2013 MINIMUM LOADING REQUIREMENTS

Building	GFA / Units[1]	Loading Requirement				
		Range	Type of Loading Space			
			Type A	Type B	Type C	Type G
Residential	1,519 units	400 **dwelling units** or more	--	--	1	1
Retail	993 sq. metres	0 to 1,999 sq. metres	--	1	--	--
Site Total			**0**	**1**	**1**	**1**
Total after sharing			**--**	**--**	**1**	**1**

Notes:
1. Site statistics based on site plans prepared by Turner Fleischer, dated June 18, 2021.
2. Loading space dimensions as defined in By-law 569-2013 are as follows:
   Type 'A' 17m (L) x 3.5m (W) x 4.4m (H)
   Type 'B' 11m (L) x 3.5m (W) x 4.0m (H)
   Type 'C' 6m (L) x 3.5m (W) x 3.0m (H)
   Type 'G' 13m (L) x 4.0m (W) x 6.1m (H)

7.2 PROPOSED LOADING FACILITIES

The proposed development provides six (6) loading spaces, including three (3) Type 'G' and three (3) Type 'B' loading spaces to support the proposed residential waste / recycling collection, residential moving and delivery activity and retail delivery, waste / recycling collection.

The loading supply is distributed across the Site with at-grade loading facilities located in each tower / building. Buildings connected by a podium will have a primary loading facility in one of the towers / buildings to service the residential waste and recycling collection, and the moving / delivery activities of the proposed uses in that building. A secondary loading facility will be provided in the other building to service the residential and retail moving / deliveries of said building. Access to the loading facilities will be provided from the proposed public street network or private driveway. The residential garbage and moving rooms have been located at-grade within close proximity to the loading facilities to facilitate moving the bins between the waste storage rooms and designated bin staging areas.

7.2.1 Height Clearance

The loading areas and access to the loading areas have been designed such that a minimum of 4.5 metres clearance is maintained throughout the entire loading area and route leading up to the loading area. A minimum height clearance of 6.1 metres is provided above the Type 'G' loading space to enable compacted bulk lift bin collection meeting the City of Toronto Zoning By-law 569-2013 standards. Additional details will be confirmed and refined throughout the Site Plan Application process.

7.2.2 Operations and Manoeuvering

Turning movement diagrams have been developed demonstrating the ability for City of Toronto refuse / recycling collection vehicles and other service / delivery vehicles to manoeuvre appropriately when entering or leaving the proposed loading area.

The design vehicles used to assess the proposed loading spaces are as follows:

- City of Toronto Front Loading Refuse Collection Vehicle
- TAC Single Unit Design Vehicle (TAC – SU)

Vehicle Manoeuvring Diagrams illustrating the ability of service vehicles to enter and exit the Site are attached in **Appendix E.** The diagrams confirm that the proposed loading area arrangements are appropriate and will facilitate the manoeuvering needs of the service vehicles entering / exiting the Site. It is further noted that City refuse / recycling collection vehicles will be able to enter or leave the Site in a forward motion.

7.3 LOADING SUMMARY

The proposed loading supply of six (6) loading spaces, consisting of three (3) Type 'B' loading spaces, and three Type 'G' loading spaces meets the minimum City of Toronto Zoning By-law 569-2013 loading requirements. Based on the above, the proposed loading arrangements are considered appropriate to service the needs following the redevelopment of the Site as planned.

8.0 TRANSPORTATION DEMAND MANAGEMENT

8.1 MOBILITY CHOICE TRAVEL PLAN

The Mobility Choice Travel Plan is organized into several categories that aim to effectively allow for sustainable transportation options to be viable, attractive, and preferred by the development residents, employees and visitors.

The Mobility Choice Travel Plan is proposed to guide the provision of viable alternatives to single occupant vehicle trips. This Plan intends to support the proposed development by outlining Transportation Demand Management (TDM) strategies that promote the use of more active and sustainable transportation modes, respond to the mobility needs of residents, employees and patrons of the Site and reduce dependence on private vehicle use.

Four specific objectives define the policy framework as part of the Mobility Choice Travel Plan:

- Encourage the use of alternate travel modes (transit, cycling and walking);
- Increase vehicle occupancy;
- Shift travel to off-peak periods, and
- Reduce vehicle kilometres traveled.

A summary of the Mobility Choice Travel Plan Strategies are discussed in **Table 16.**

A detailed Mobility Choice Travel Plan will be developed and secured through the approvals process in consultation with the City of Toronto. This is to ensure that the projects set a sustainable precedent in urban redevelopment and encourages the use of active and sustainable modes of transportation.

Measures from the Mobility Choice Travel Plan will be incorporated into this development to minimize the need to own a personal vehicle or use an automobile when travelling to and from the Site. It is important to encourage and facilitate the use of non-automobile travel modes on a daily basis.

TABLE 16 POTENTIAL MOBILITY TRAVEL PLAN STRATEGIES

Intent		Possible Measures	Proposed Implementation Measures
Vehicle parking supply & management	 • Reduce the attractiveness of car use for residents, employees and visitors • Reduce car ownership needs • Encourage higher vehicle occupancy • Encourage the use of other travel modes	**Building, Planning & Design** • Establish appropriate minimum parking supply standards for the proposed land uses and buildings that may be reduced to compare to the existing Zoning By-law • Adopt a sharing of all non-residential parking to maximum the efficient use of the supply • Provide preferred high-occupancy vehicle / carpool parking **Operational / Management** • Operate the majority of the Site parking supply as paid parking for non-residents • Adjust parking fee structure, operations and parking allocations to support non-automobile usage goals and to accommodate changing parking needs	• Offer parking to building residents "unbundled" from unit purchase. • Reduce minimum parking supply provisions • Accommodate a flexible parking supply to provide parking demands where needed
Facilitation of reduced car ownership & usage	 • Reduce the need for residents and employees to own a car for occasional travel • Reduce the likelihood of privately-owned car use for general travel, particularly during peak periods	**Operational / Management** • Operate a car-share program on-site that members can access "on demand" • Provide and manage a carpool / ride-matching and guaranteed ride home programme for residents and employees • Coordination with building employers to offer flexible work hours and compressed work week opportunities for staff • Provide information and communication items that outline the availability of the on-site services as well as broader taxi and ridesharing services • Provide incentive programs design to encourage the use of on-site services including corporate or private membership to car-share / car-pool services **Monitoring** • Monitor car-share program membership and usage, and adjust car deployment to respond to demands • Monitor carpool and ride-matching programs, and adjust to suit needs of residents, employees and visitors	• The provision of three (3) car-sharing spaces will be provided within the underground parking garage. • Provide information and communication to regarding availability of car share provided on the Site and within the area • Establish a monitoring programme for the car share usage provided on the Site.
Encourage transit use	 • Increase awareness and viability of transit travel options for commuter and recreational travel purposes • Capitalize on the improving transit context Support the use of transit	**Building, Planning & Design** • Provide accessible and high-quality pedestrian connections towards transit from the Site • Establish transit stop near building entrances • Provide facilities that support transit passenger travel including weather protection and amenities along key travel paths within the Site • Facilitation of accessible transit services **Operational / Management** • Provide transit service information for Site users • Offer transit promotion programmes • Consider providing shuttle service to key destinations	• The nearest bus stops are located 20 metres west of the Site on Warden Avenue and approximately 550 metres north of the Site on St Clair Avenue East. • The Site is also located approximately 500 metres south of TTC Warden Station (a 6-8 minute walk). • Provision of on-Site communication items / information regarding local transit services and scheduling to facilitate resident and visitor transit travel to / from the Site.

Intent		Possible Measures	Proposed Implementation Measures
Encourage bicycle use	 • Provide physical and operational infrastructure on-site • Cooperate with the City to enhance bicycle connectivity within the area to the broader network	**External Infrastructure** • Work with the City to improve existing facilities and provide new connections in the Site area **Building, Planning & Design** • Provide secure long-term bicycle parking in convenient and accessible locations • Provide short-term bicycle parking distributed across the Site in accessible locations • Meet or exceed the minimum requirements of the Toronto Green Standards • Provide shower and change facilities within office buildings for staff and visitor use in accordance with the requirements of Toronto Green Standards **Operational / Management** • Consider bike share stations within the Site at convenient locations • Encourage an on-site bicycle repair / maintenance centre	• 1,520 bicycle parking spaces will be provided on-site, exceeding Toronto Green Standards Tier 1 • Bicycle parking spaces will be conveniently accessed using an elevator, stairs or at-grade • Consideration will be given into providing a bicycle repair station on the Site. • Provision of on-site communication items / information to generate awareness of multi-use trail systems and cycling network in the Site-vicinity.
Enhance access & walkability	 • Enhance the walkability of the Site at-grade and create a pedestrian-scaled neighbourhood • Assist in creating high-quality, safe pedestrian linkages to the Site and wider network • Improve the quality of the public realm and accessibility of the area • Enhance ability to travel to transit	**External Infrastructure** • Work with the City towards realizing improvements to area pedestrian infrastructure quality of the public realm and the convenience of pedestrian linkages / road crossings along the Site boundaries and in the Site area **Building, Planning & Design** • Provide high-quality, safe pedestrian-scale connections from the Site property to the surrounding public street network • Facilitate convenient building access and connectivity • Provide accessible and universal connectivity throughout the Site, meeting appropriate accessibility codes and guidelines **Operational / Management** • Maintain on-site pedestrian facilities to enable year-round pedestrian access and usage	• All loading and parking operations will be accommodated internal to the building to avoid conflict with pedestrian movements. • The Site will provide residents with high quality, safe pedestrian connections along Warden Avenue, which will connect pedestrians to the wider road network, and TTC bus stops.

9.0 SITE TRAVEL DEMAND FORECASTING

Travel demand forecasts have been prepared, as part of this study, for the build-out of the proposed development based on the development statistics outlined in **Section 1.2**. Residential site traffic was estimated based on rates collected from proxy site survey data and compared with rates outlined in the ITE Trip Generation Manual, 10th Edition, as detailed below.

9.1 MULTIMODAL TRIP FORECASTS

Multimodal trips made to and from the Site were generated based on homebased modal splits for the local area, as shown in **Table 17**. Transportation Tomorrow Survey (TTS) queries are attached in **Appendix F.**

TABLE 17 AREA MODE SPLIT

Travel Mode	Outbound	Inbound
Auto driver	38%	43%
Passenger	10%	14%
Transit	40%	33%
Walk	12%	10%
Cycle	0%	0%
Total	**100%**	**100%**

Notes:
1. Based on a homebased TTS query for 2006 GTA Zones 530, 534 and 536.
2. Outbound mode splits based on homebased outbound trips in the morning peak period (06:00 – 08:59).
3. Inbound mode splits based on homebased inbound trips in the afternoon peak period (15:00 – 17:59).

9.1.1 Vehicular Travel Demands

Trip generation rates were established for the proposed residential units based on a review of proxy data for residential developments with similar traffic contexts and a review of ITE Trip Generation Manual 10th Edition for multifamily high-rise housing (Land Use Code 222).

Site trip generation rates have been established based on proxy data from other development sites that are close to subway access, outside of downtown areas. Rates are also adopted in conjunction with reasonable assumptions on future modal shift and transportation context. Rates have also been adjusted to reflect similar trip characteristics as development applications being submitted for the Golden Mile area to the north, as it is expected that transportation characteristics will be similar between the two areas.

Trip generation rates for the residential component of the development are summarized in **Table 18**.

TABLE 18 RESIDENTIAL VEHICULAR TRIP GENERATION

	Date of Survey	Units	AM Peak Hour			PM Peak Hour		
			In	Out	2-Way	In	Out	2-Way
ITE Comparison Rates								
ITE Land Use Code 222	-	-	*0.07*	*0.24*	*0.31*	*0.22*	*0.14*	*0.36*
ITE Rates, Adjusted[1]	-	-	*0.03*	*0.10*	*0.13*	*0.09*	*0.06*	*0.15*
Proxy Site Rates								
101 Subway Cres, Dundas St W	*Wednesday, February 13, 2013*	*303*	*0.03*	*0.14*	*0.17*	*0.13*	*0.09*	*0.22*
5 Kenneth Ave (Yonge St/Sheppard Ave)	*Monday, February 13, 2012*	*141*	*0.05*	*0.16*	*0.21*	*0.11*	*0.09*	*0.2*
5 & 15 Northtown Way (Yonge St/Finch Ave)	*Wednesday, December 7, 2011*	*712*	*0.03*	*0.17*	*0.2*	*0.07*	*0.06*	*0.13*
70 High Park Ave (High Park Ave/Bloor St)	*Tuesday, June 15, 2010*	*168*	*0.02*	*0.11*	*0.13*	*0.12*	*0.07*	*0.19*
70 High Park Ave (High Park Ave/Bloor St)	*Thursday, April 26, 2012*	*168*	*0.02*	*0.2*	*0.22*	*0.08*	*0.04*	*0.12*
22 Oakmount Rd(High (Park Ave/ Bloor St)	*Tuesday, June 15, 2010*	*208*	*0.06*	*0.16*	*0.22*	*0.18*	*0.09*	*0.27*
Turnberry Court Condos - 5795 Yonge St	*Tuesday, November 6, 2018*	*179*	*0.06*	*0.21*	*0.27*	*0.12*	*0.11*	*0.23*
5791 & 5793 Yonge St	*Tuesday, November 6, 2018*	*396*	*0.03*	*0.15*	*0.17*	*0.12*	*0.06*	*0.19*
World on Yonge - 7161-7171 Yonge St	*Tuesday, December 4, 2018*	*1,250*	*0.03*	*0.15*	*0.18*	*0.14*	*0.05*	*0.19*
Average of Proxy Sites	**-**	**-**	***0.04***	***0.16***	***0.20***	***0.12***	***0.07***	***0.19***
Adopted Trip Generation Rate	**-**	**-**	***0.04***	***0.16***	***0.20***	***0.12***	***0.08***	***0.20***
Trips Generated	**-**	**1,519 units**	**60**	**245**	**305**	**180**	**120**	**305**

Notes:
1. ITE rates were adjusted assuming a default 95% auto mode share and a resultant 40% auto mode share.

Based on the above, the proposed development is anticipated to generate in the order of **305** two-way vehicle trips in both the weekday morning and afternoon peak hours.

It is assumed that the small retail use (less than 1,000 sq. metres GFA) located on site will not generate significant peak hour vehicle activity. A large majority of retail-related trips will occur from within the Site itself. For this reason, specific traffic allowances for the retail use have not been added at this time.

9.1.2 Toronto Green Standard Requirement AQ 1.1

Under the *Toronto Green Standards* (TGS) Version 3, all residential developments within the City of Toronto must meet Tier 1 requirements. Air Quality (AQ) Requirements AQ 1.1 is addressed below.

Requirement AQ 1.1 – Single Occupant Auto Vehicle Trips targets a reduction of 15% in single-occupant auto vehicle trips. For this site, a reduction of greater than 15% has been achieved through a variety of Transportation Demand Management (TDM) measures as outlined in **Section 8.0**. This is best showcased by comparing the adopted residential trip generation rates to ITE Trip Generation Manual 10th Edition rates for similar buildings.

Table 19 outlines the percentage reduction between the selected residential trip generation rates and the ITE Trip Generation Manual Rates for a high-rise residential building.

TABLE 19 RESIDENTIAL TRIP RATE COMPARISON (SELECTED VS ITE)

	AM Peak Hour			PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
ITE Trip Generation Manual (LUC 222: High-Rise)	*0.07*	*0.24*	*0.31*	*0.22*	*0.14*	*0.36*
Selected Residential Trip Generation Rate	*0.04*	*0.16*	*0.20*	*0.12*	*0.08*	*0.20*
Percent Reduction from ITE	**-43%**	**-33%**	**-35%**	**-45%**	**-43%**	**-44%**

As illustrated above, the proposed residential trip generation rates are a minimum of **33%** lower when compared to the ITE rates for high-rise buildings.

The adopted rates are supported by a reduced parking provision and high quality Transportation Demand Management (TDM) measures for the Site.

9.1.3 Multimodal Travel Demands

Based on the mode splits above, a back-calculation was made using the auto driver trips generated, to determine the multimodal trip generation for the proposed development. Site multimodal trip generation is summarized in **Table 20**.

TABLE 20 SITE MULTIMODAL TRIP GENERATION

	AM Peak Hour			PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
Area Mode Split						
Auto driver		38%			43%	
Passenger		10%			14%	
Transit		40%			33%	
Walk		12%			10%	
Cycle		0%			0%	
Multimodal Trips Generated						
Trips						
Auto driver	60	245	305	180	120	305
Passenger	16	64	80	59	39	99
Transit	63	258	321	138	92	234
Walk	19	77	96	42	28	71
Cycle	0	0	0	0	0	0
Total Site Trips	**160**	**645**	**805**	**420**	**280**	**700**

Notes:
1. Total trips rounded to the nearest five (5).

It is expected that the proposed development will generate in the order of **805** and **700** two-way person trips in the morning and afternoon peak hours, respectively.

10.0 MULTIMODAL TRAVEL ASSESSMENT

10.1 TRANSIT MODE ASSESSMENT

Multimodal forecasting for the proposed development indicates that an additional **321** and **234** two-way transit trips will be generated in the weekday morning and afternoon peak hours, respectively. Transit trip distribution has been undertaken using Transportation Tomorrow Survey (TTS) data, to assign new transit trips to the area transit network. Trips have been assigned to major routes only, but it is expected that a small number of trips (<5%) would use other nearby routes along Warden Avenue or the parallel corridors. **Table 21** details the expected site transit distribution and assignment.

TABLE 21 SITE TRANSIT DISTRIBUTION AND ASSIGNMENT

Transit Route	Direction (to or from)	AM Peak Hour	PM Peak Hour
Transit Trip Distribution (Percentage)			
16 McCowan	North	5%	5%
17 Birchmount	North	5%	5%
68 Warden	North	5%	5%
69 Warden South	South	10%	5%
Line 2 Subway	East	70%	75%
Line 2 Subway	West	5%	5%
Total		**100%**	**100%**
Transit Trip Assignment (Two-Way Volumes)			
16 McCowan	North	16	12
17 Birchmount	North	16	12
68 Warden	North	16	12
69 Warden South	South	32	12
Line 2 Subway	East	225	176
Line 2 Subway	West	16	12
Total		**321**	**234**

In the morning peak hour, a majority of the transit trips (258 of 321) are outbound from the subject site. Of these trips, it is expected that most (approximately 70 percent) will proceed to Warden Subway Station, in order to connect with subway services along Line 2 (Bloor-Danforth). This provides a direct connection to downtown Toronto and with it a large range of employment opportunities, as well as connections to the Greater Toronto Area.

In the afternoon peak hour the inverse is evident, with a large proportion of trips being from the subway service at Warden Station. Whilst the majority of transit trips are made to and from the subway station, there are also a multitude of bus services available along Warden Avenue to make north-south connections with other employment areas, particularly the Golden Mile area. It is expected that a relatively small number of transit trips will be made along the north-south corridor, in comparison to the subway service.

10.2 ACTIVE TRAVEL MODE ASSESSMENT

The Site is expected to generate in the order of **96** and **71** new primary pedestrian trips in the weekday morning and afternoon peak hours, respectively.

Additionally, a majority of the transit trips generated by this development will also be pedestrian trips between the Site and transit connections. Given the Site's proximity to Warden Station, tenants of the buildings can easily access the Line 2 subway on foot. It is expected that a majority of peak hour walking trips will be destined to or from Warden Station.

The proposed development will generate a small number of cyclist trips in the weekday morning and afternoon peak hours. Based on current mode split assumptions this number will be very low – likely **less than 5** trips during each peak hour.

Whilst there are no formal plans to encourage cycling along Warden Avenue, it is likely that transit users may utilize bicycles as a mode of travel for the "first mile/last mile" of travel between Warden Station and the Site. Consequently, there may be a small number of cycling trips that will utilize traffic lanes on Warden Avenue for this purpose.

11.0 TRAFFIC ASSESSMENT

A traffic assessment has been undertaken for the area within proximity of 685 Warden Avenue. The study scope and methodology is detailed in the below sections, along with traffic volume forecasts used for the assessment.

11.1 STUDY AREA FOR ANALYSIS

The following existing and future intersections were included in this analysis:

Signalized Intersections:

- Warden Avenue / St Clair Avenue East
- Warden Avenue / Site Driveway South (future only)
- Warden Avenue / Firvalley Court
- Warden Avenue / Danforth Road
- Warden Avenue / Danforth Avenue

Unsignalized Intersections:

- Warden Avenue / Warden Station TTC Parking (South) Entrance
- Warden Avenue / Site Driveway North (future only)
- Warden Avenue / 682 Warden Avenue Driveway
- Warden Avenue / Bell Estate Road
- Warden Avenue / Cataraqui Court
- Warden Avenue / Bamblett Drive
- Warden Avenue / Burnhill Road & Mack Avenue

11.2 ANALYSIS SCENARIOS

Based on the foregoing, operations analysis was undertaken for the weekday morning and weekday afternoon peak hours, for the following scenarios:

- Existing traffic conditions
- 10-year future background traffic conditions, and
- 10-year future total traffic conditions

These analysis horizons have been chosen to conservatively reflect the anticipated build-out of the whole site (10+ years).

11.3 ANALYSIS METHODOLOGY

Intersection capacity analysis has been completed using Synchro Version 11 and the methodology presented within the Highway Capacity Manual 2000 (HCM 2000), unless otherwise specified in the results discussion.

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 certain governing traffic movements through the intersection are operating at or near maximum capacity. The primary overall level of service (LOS) indicator is delay, both on individual movements and expressed as an average for all vehicles processed. Many busy urban intersections operate at LOS D to E, which reflect average (control) delays in the range of 35 to 80 seconds.

For unsignalized intersections, level of service (LOS) characterizes operational conditions for key movements in terms of delay within the traffic stream. LOS A represents a good level of service with short delays. LOS F represents a poor level of service with long delays. The volume to capacity ratio (v/c) is an indicator of the capacity utilization for key movements at the intersection and resultant residual capacity potential.

Full analysis results are attached in **Appendix H**.

11.3.1 Input and Calibration Parameters

Key input parameters and calibrations for this analysis include:

- Existing lane configurations assumed for existing conditions;
- Future lane configurations consistent with those assumed for existing conditions, except for site driveway changes;
- Existing signal timings provided by the City of Toronto;
- Future signal timings optimized within existing cycle lengths;
- Heavy vehicle percentages derived from existing traffic counts;
- Peak hour factors as derived from existing traffic counts (Synchro default adopted where not available);
- A lost time adjustment factor of -1.0 globally and lane widths of 3.5 metres for through lanes and 3.0 metres for turning lanes as outlined in the City of Toronto's *Guidelines for Using Synchro 11*; and
- Synchro defaults for all other parameters.

Typically, for this type of traffic study, unsignalized intersections would be further surveyed and calibrated based on observed delay times. Synchro analysis software typically provides conservative 'critical gap' and 'follow-up time' parameters and, consequently, reported delays at unsignalized intersections are generally much greater than in the field.

Given the current COVID-19 pandemic (March 2020 onwards) and related movement restrictions and provincial stay-at-home orders, such field surveys and calibrations are not possible. For this reason, unsignalized intersections have not been calibrated and are shown to operate with a higher delay value than would likely exist in the field based upon our experience. These results are provided to show a net difference in delay between scenarios and are very conservative in nature.

11.4 BASELINE EXISTING TRAFFIC VOLUMES

A variety of data sources were consulted both from within BA Group and from the City of Toronto in order to establish appropriate base traffic conditions to conduct analysis. Engineering judgement has been applied in conjunction with this data; to ensure the base condition reflects actual traffic conditions on the area street network as accurately as possible with the given data sources.

To determine base conditions along Warden Avenue, the most recent obtainable traffic survey data (from 2019) was acquired for the intersection of Warden Avenue and St Clair Avenue East (at the northern extent of the Study Area for this analysis). From here, available data for intersections south of St Clair Avenue down to Danforth Avenue (dated between 2004 and 2018) was input into the model and balanced / factored to match what was observed in 2019 at Warden / St Clair. Turning Movement Count (TMC) data used for this study is summarized in **Table 22**.

TABLE 22 TURNING MOVEMENT COUNT DATA SOURCES

Intersection	Count Date	Source
Warden Ave / St Clair Ave	Tuesday May 7, 2019[1]	Spectrum Traffic Data
Warden Ave / Warden Station Dwy	Tuesday September 25 & Thursday September 27, 2018	Spectrum Traffic Data
Warden Ave / 682 Warden Dwy	Thursday April 3, 2014	Spectrum Traffic Data
Warden Ave / Bell Estate Rd	Tuesday October 28, 2014	City of Toronto
Warden Ave / Firvalley Ct	Wednesday May 6, 2015	City of Toronto
Warden Ave / Cataraqui Ct	Tuesday November 9, 2004	BA Group (Internal)
Warden Ave / Bamblett Dr	Thursday January 11, 2018	Ontario Traffic Inc.
Warden Ave / Burnhill Rd & Mack Ave	Wednesday May 6, 2015	City of Toronto
Warden Ave / Danforth Rd	Wednesday May 6, 2015	City of Toronto
Warden Ave / Danforth Ave	Wednesday May 6, 2015	City of Toronto

Notes:
1. Used in conjunction with other historical counts to determine an appropriate baseline for this intersection.

Volume balancing was applied down the entire Warden Avenue corridor to Danforth Avenue, with additional volumes added based on existing traffic patterns for each of the given intersections. Volumes are not balanced between the site driveway and Warden Station entrance due to the driveway of 689 Warden Avenue being located between the two.

Further to the above, historical traffic volume counts at the intersection of Warden / St Clair were consulted to determine if the most recent count was an appropriate baseline. Minor adjustments were made for particular movements at the intersection by balancing up / down as necessary, to provide a baseline volume between 2019 counted volumes and average historic volumes counted between 2009 and 2015. Turning movement counts and the most recently available signal timing plans are provided in **Appendix G.**

Baseline existing traffic volumes are illustrated on **Figure 11**.

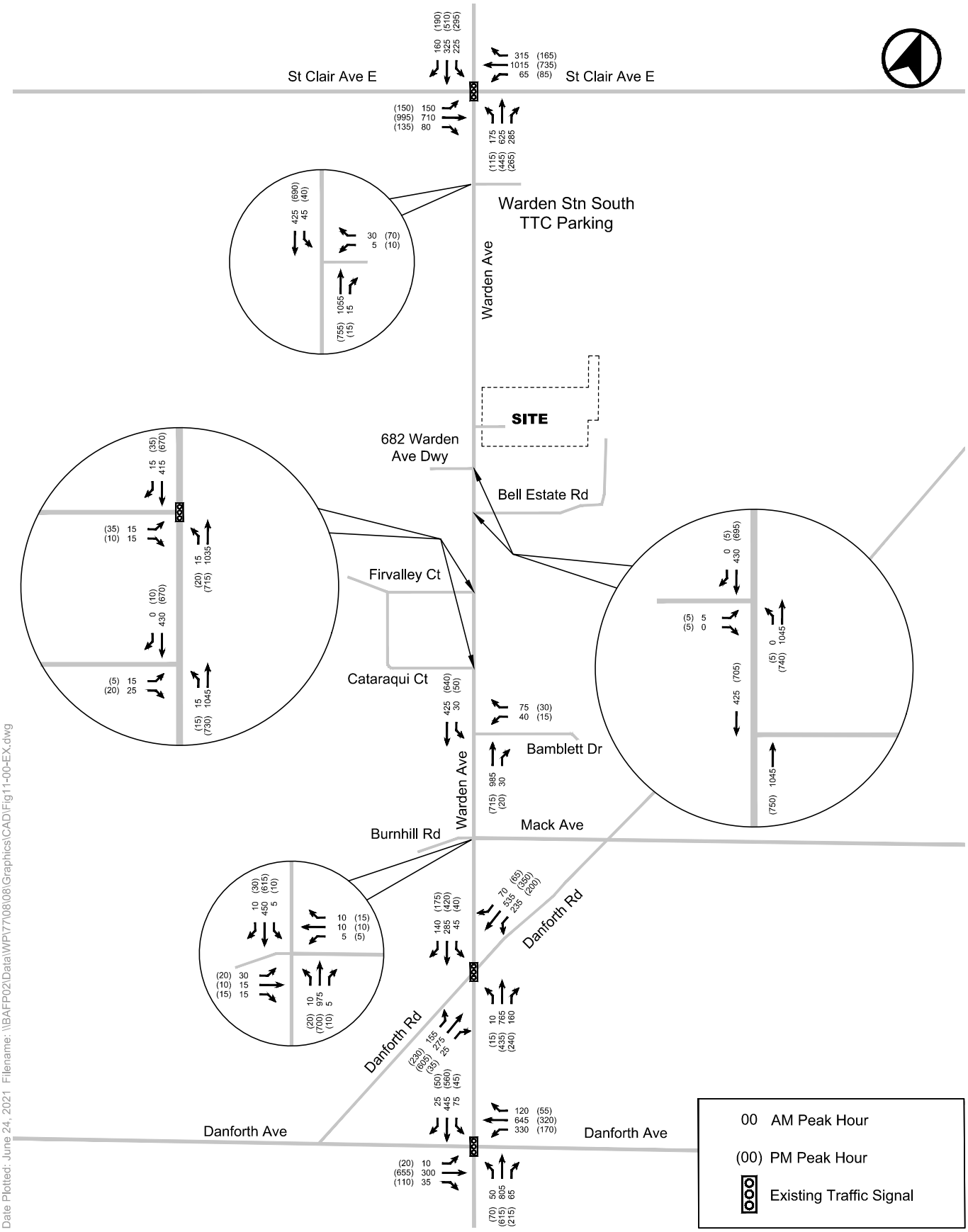


FIGURE 11 BASELINE EXISTING TRAFFIC VOLUMES

11.5 FUTURE BACKGROUND TRAFFIC

11.5.1 Background Development

Background development traffic allowances were made for five approved or proposed developments in proximity of the proposal:

- 705 Warden Ave (Housing Now)
- 743 Warden Ave (Blocks 20, 21 and 22)
- 756 Warden Ave
- 250 Danforth Rd
- 300 Danforth Rd

Traffic allowances associated with these developments were established based upon assignment information incorporated into traffic impact studies prepared as part of the approval processes for these developments.

11.5.2 Corridor Growth

Historical traffic volume data from the intersection at Warden Avenue / St Clair Avenue East to determine appropriate corridor growth rates for the Warden Avenue corridor and for St Clair Avenue East. **Table 23** indicates the adopted corridor growth rates for each direction of each corridor.

TABLE 23 CORRIDOR GROWTH ASSUMPTIONS

Direction	AM Peak Hour	PM Peak Hour
Warden - Northbound	1.0%	0.0%
Warden - Southbound	0.0%	0.0%
St Clair - Eastbound	2.5%	0.0%
St Clair - Westbound	0.0%	2.5%

Notes:
1. Corridor growth is capped at 2.5% for the first 5 years. Corridor growth is capped at 1% for the subsequent 5 years as the area is more developed and less growth is expected to occur outside of local development traffic.

Corridor growth has been added from a baseline year of 2021. Due to circumstances surrounding the ongoing COVID-19 pandemic, traffic growth was negative for the year of 2020, therefore traffic growth was added from 2021 onwards.

11.5.3 Future Background Traffic Volumes

Future background total traffic volumes established by adding baseline existing traffic volumes and background traffic volumes are illustrated on **Figure 12**.

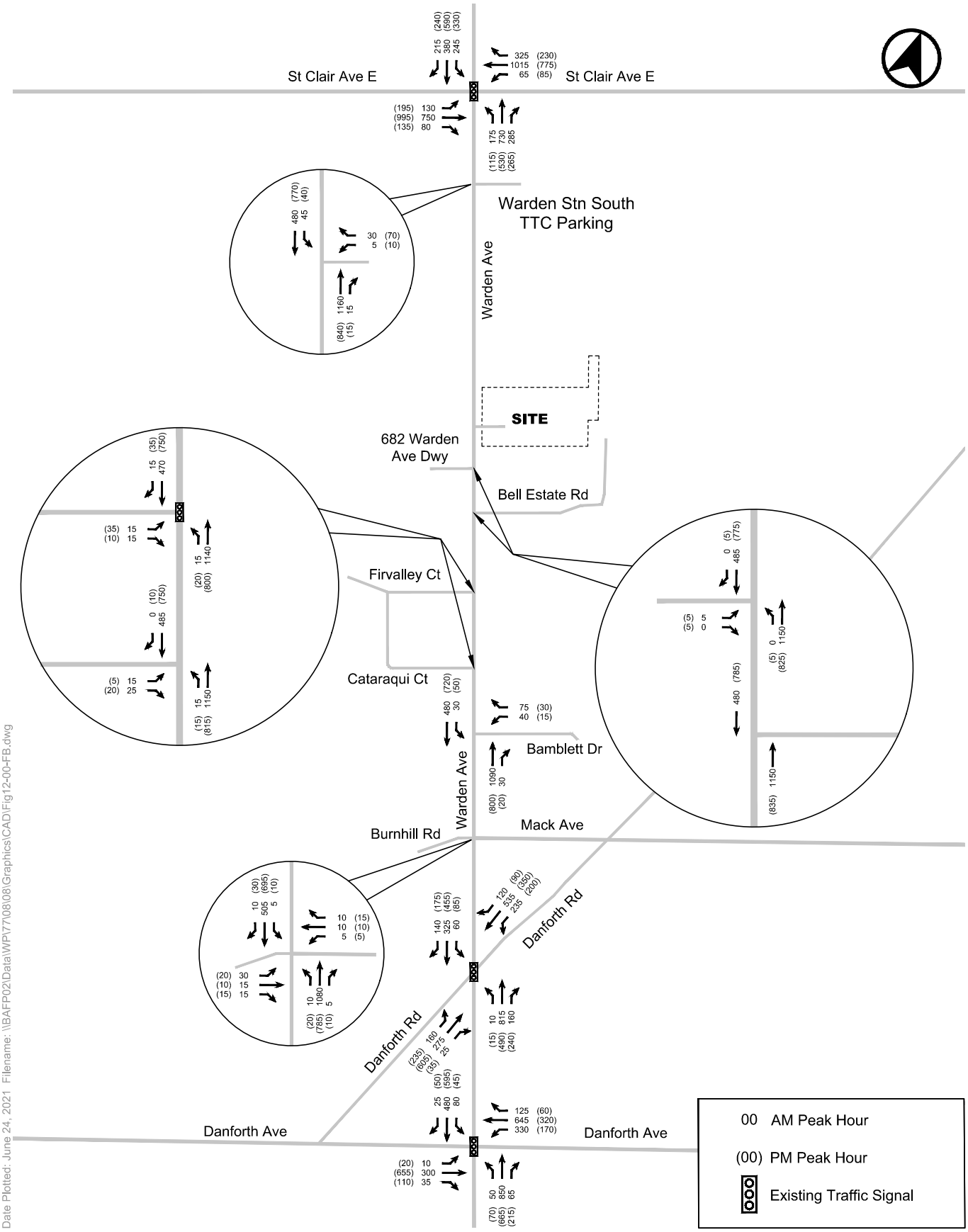


FIGURE 12 FUTURE BACKGROUND TRAFFIC VOLUMES

11.6 SITE TRAFFIC

Based on the methodology outlined in **Section 9.1.1**, the proposed development is anticipated to generate in the order of **305** two-way vehicle trips in both the weekday morning and afternoon peak hours.

11.6.1 Vehicle Trip Distribution

Vehicle trip distribution parameters have been adopted consistent with previous traffic studies prepared for sites within the local area, and data from the 2016 Transportation Tomorrow Survey (TTS). Adopted traffic distribution patterns for site traffic are summarized in **Table 24**.

TABLE 24 SITE TRAFFIC DISTRIBUTION

Direction	Split	
	Inbound	Outbound
North	40%	40%
South	5%	15%
East	50%	30%
West	5%	15%
Total	**100%**	**100%**

Notes:
1. Residential distribution determined through a query of homebased trips from 2006 TTS zones 528, 534, 536, 537 and 538.

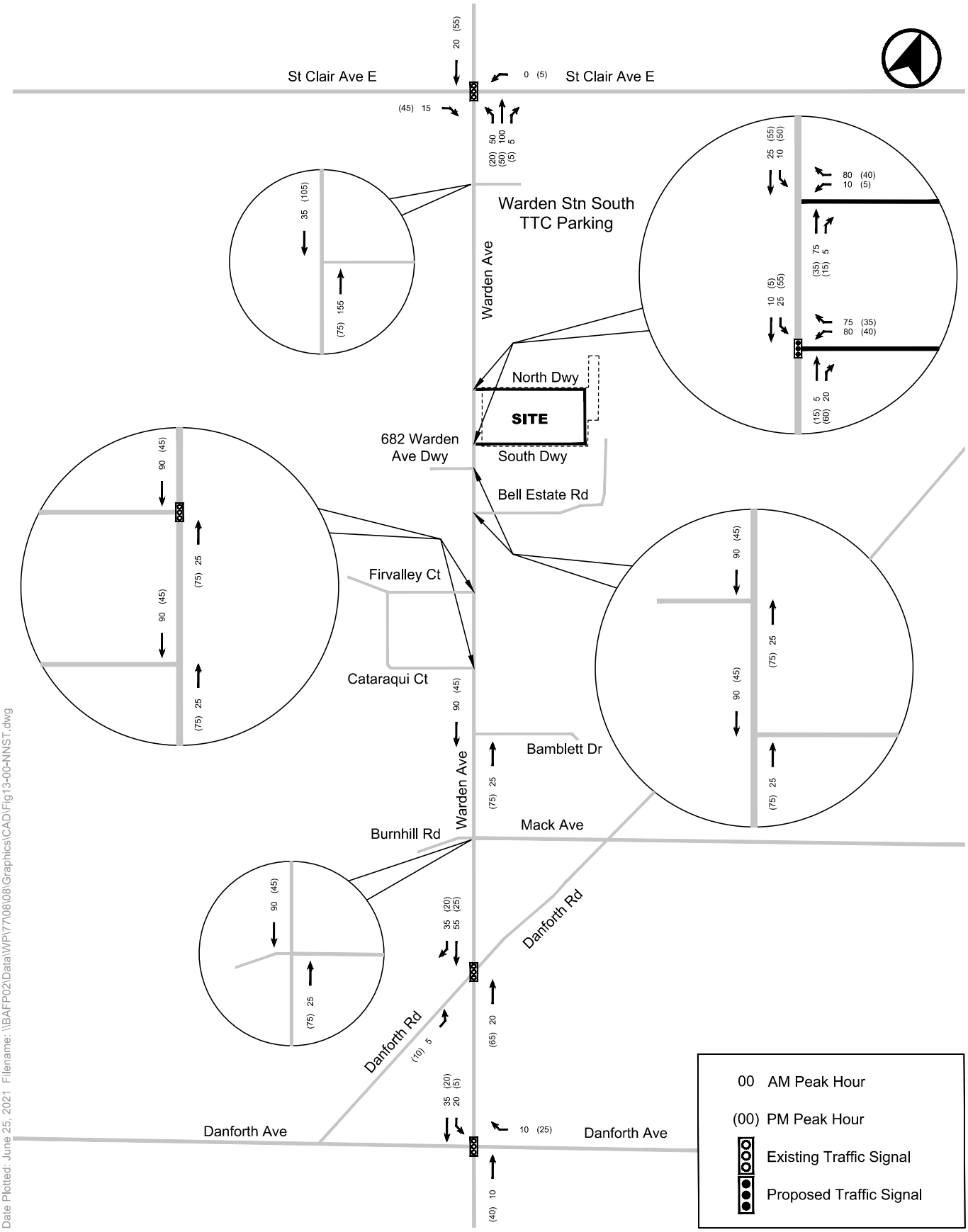
There are a variety of route options available to drivers to and from the Site, predominantly via Warden Avenue, St Clair Avenue East, Danforth Road and Danforth Avenue. Trips have been assigned based on the most likely route choice for each of the directions toward specific planning districts within the GTA.

11.6.2 Site Traffic Generation Review

As discussed in **Section 9.1.1**, projected site traffic volumes for the proposed development are based upon the Site trip generation and vehicular trip distribution described above. No existing traffic is removed from the road network, given the block is currently vacant. New site traffic volumes are illustrated on **Figure 13**.

11.7 FUTURE TOTAL TRAFFIC

Future total traffic volumes were established by adding future background traffic volumes to site traffic volumes. The resulting future total traffic volumes are illustrated on **Figure 14**.



Date Plotted: June 25, 2021 Filename: \\BAFP02\Data\WP\7708\08\Graphics\CAD\Fig13-00-NNST.dwg

FIGURE 13 SITE GENERATED TRAFFIC VOLUMES

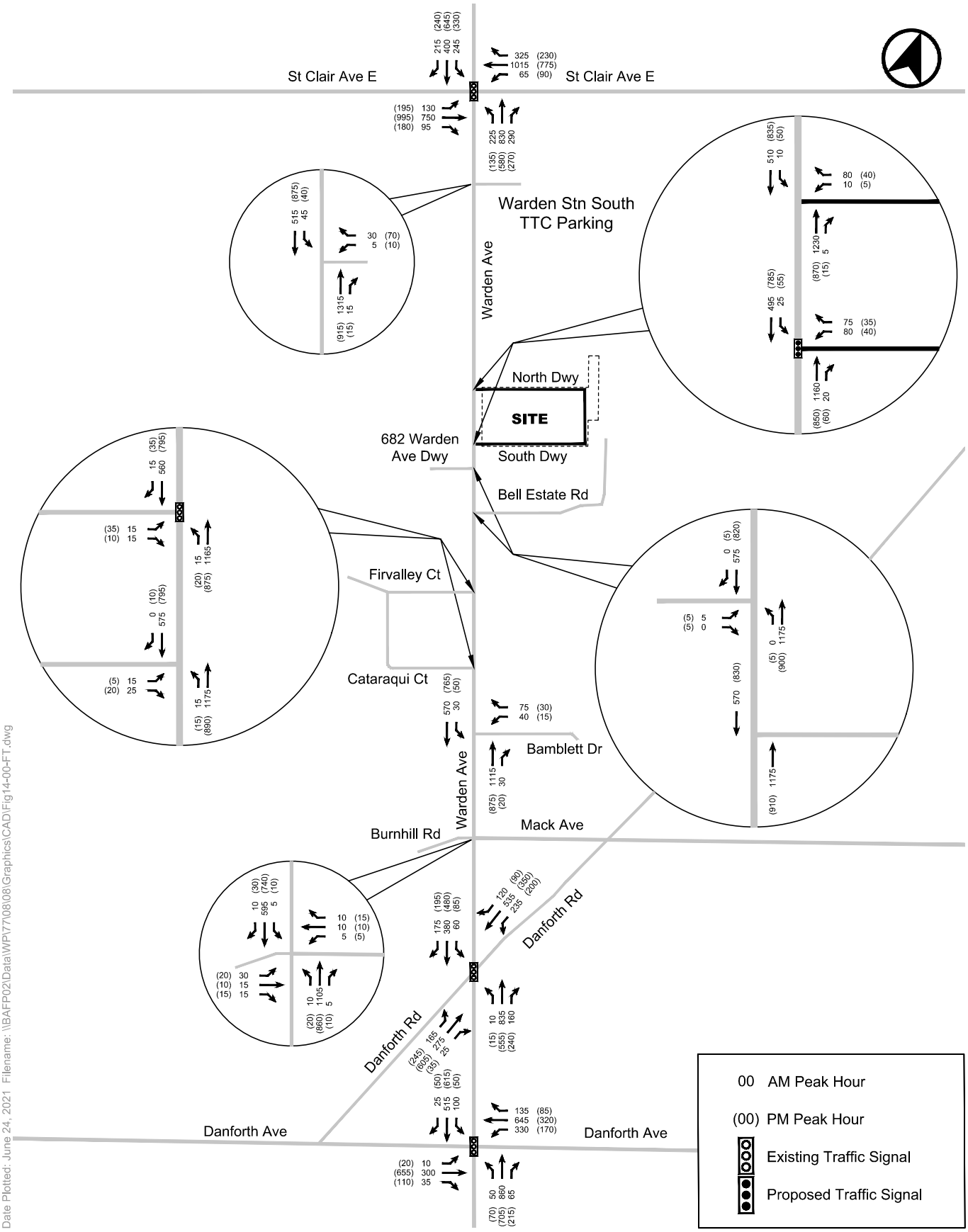


FIGURE 14 FUTURE TOTAL TRAFFIC VOLUMES

11.8 SIGNALIZED INTERSECTION OPERATIONS

11.8.1 Warden Avenue / St Clair Avenue East

The intersection of Warden Avenue / St Clair Avenue East currently operates under traffic signal control with a cycle length of 120 seconds and 115 seconds in the weekday morning and afternoon peak hours, respectively. The results of the analysis for this intersection are summarized in **Table 25**.

Under existing conditions, the intersection operates within its theoretical capacity, with overall v/c ratios of 0.86 and 0.82 during the weekday morning and afternoon peak hours, respectively.

Under all future scenarios, signal timings were optimized for both peak hours. Additionally, the cycle length was increased to 120 seconds in the afternoon peak hour, to match the morning peak hour cycle length.

Under future background conditions, the intersection operates within its theoretical capacity, with overall v/c ratios of 0.90 and 0.96 during the weekday morning and afternoon peak hours, respectively.

Under future total conditions, the intersection will continue to operate within capacity, at overall v/c ratios of 0.93 and 0.98 during the weekday morning and afternoon peak hours, respectively.

TABLE 25 WARDEN AVENUE / ST CLAIR AVENUE EAST TRAFFIC OPERATIONS SUMMARY

Movement	Existing		Future Background		Future Total	
	V/C	LOS	V/C	LOS	V/C	LOS
EBL	0.94 (0.73)	E (D)	0.82 (0.72)	D (C)	0.85 (0.84)	E (D)
EBT	0.52 (0.74)	C (C)	0.55 (0.86)	C (D)	0.55 (0.90)	C (D)
EBR	0.07 (0.14)	C (C)	0.07 (0.16)	C (C)	0.08 (0.25)	C (C)
WBL	0.37 (0.97)	C (F)	0.40 (0.43)	C (C)	0.40 (0.49)	C (C)
WBT	0.93 (0.73)	D (D)	0.93 (0.82)	D (D)	0.93 (0.82)	D (D)
WBR	0.25 (0.12)	C (C)	0.31 (0.17)	C (C)	0.32 (0.17)	C (C)
NBL	0.75 (0.61)	E (D)	0.53 (0.72)	C (E)	0.67 (0.85)	C (E)
NBT	0.60 (0.43)	D (C)	0.71 (0.50)	D (C)	0.81 (0.52)	D (C)
NBR	0.62 (0.53)	D (D)	0.63 (0.45)	D (D)	0.65 (0.45)	D (C)
SBL	0.71 (0.70)	C (C)	0.84 (1.00)	D (E)	0.92 (0.98)	E (E)
SBTR	0.31 (0.44)	C (B)	0.54 (0.56)	C (C)	0.57 (0.57)	D (C)
Overall	**0.86 (0.82)**	**D (C)**	**0.90 (0.96)**	**D (D)**	**0.93 (0.98)**	**D (D)**

Notes:
1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour).

11.8.2 Warden Avenue / Site Driveway (South)

The intersection of Warden Avenue / Site Driveway (South) will be constructed as a signalized intersection with buildout of the Site. Cycle lengths of 90 seconds and 85 seconds have been adopted in the weekday morning and afternoon peak hours, respectively, to match the nearest signalized intersection at Firvalley Court. The results of the analysis for this intersection are summarized in **Table 26**.

Under future total conditions, the driveway will operate within capacity, at overall v/c ratios of 0.48 and 0.37 during the weekday morning and afternoon peak hours, respectively.

TABLE 26 WARDEN AVENUE / SITE DRIVEWAY (SOUTH) TRAFFIC OPERATIONS SUMMARY

Movement	Existing		Future Background		Future Total	
	V/C	LOS	V/C	LOS	V/C	LOS
WBLR	Intersection is constructed with buildout of the Site.				0.52 (0.30)	D (D)
NBTR					0.47 (0.34)	A (A)
SBLT					0.24 (0.38)	A (A)
Overall					**0.48 (0.37)**	**A (A)**

Notes:
1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour).

11.8.3 Warden Avenue / Firvalley Court

The intersection of Warden Avenue / Firvalley Court currently operates under traffic signal control with a cycle length of 90 seconds and 85 seconds in the weekday morning and afternoon peak hours, respectively. The results of the analysis for this intersection are summarized in **Table 27**.

Under existing conditions, the intersection operates within its theoretical capacity, with overall v/c ratios of 0.36 and 0.27 during the weekday morning and afternoon peak hours, respectively.

Under future background conditions, the intersection operates within its theoretical capacity, with overall v/c ratios of 0.40 and 0.30 during the weekday morning and afternoon peak hours, respectively.

Under future total conditions, the intersection will continue to operate within capacity, at overall v/c ratios of 0.40 and 0.32 during the weekday morning and afternoon peak hours, respectively.

TABLE 27 WARDEN AVENUE / FIRVALLEY COURT TRAFFIC OPERATIONS SUMMARY

Movement	Existing		Future Background		Future Total	
	V/C	LOS	V/C	LOS	V/C	LOS
EBLR	0.23 (0.32)	D (D)	0.23 (0.32)	D (D)	0.23 (0.32)	D (D)
NBL	0.02 (0.04)	A (A)	0.02 (0.04)	A (A)	0.02 (0.05)	A (A)
NBT	0.37 (0.26)	A (A)	0.40 (0.29)	A (A)	0.41 (0.32)	A (A)
SBT	0.15 (0.25)	A (A)	0.17 (0.28)	A (A)	0.20 (0.29)	A (A)
SBR	0.01 (0.03)	A (A)	0.01 (0.03)	A (A)	0.01 (0.03)	A (A)
Overall	**0.36 (0.27)**	**A (A)**	**0.40 (0.30)**	**A (A)**	**0.40 (0.32)**	**A (A)**

Notes:
1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour).

11.8.4 Warden Avenue / Danforth Road

The intersection of Warden Avenue / Danforth Road currently operates under traffic signal control with a cycle length of 110 seconds in both the weekday morning and afternoon peak hours. The results of the analysis for this intersection are summarized in **Table 28**.

Under existing conditions, the intersection operates within its theoretical capacity, with overall v/c ratios of 0.70 and 0.66 during the weekday morning and afternoon peak hours, respectively.

Under all future scenarios, signal timings were optimized for both peak hours, within the existing 110 second cycle length.

Under future background conditions, the intersection operates within its theoretical capacity, with overall v/c ratios of 0.73 and 0.66 during the weekday morning and afternoon peak hours, respectively.

Under future total conditions, the intersection will continue to operate within capacity, at overall v/c ratios of 0.75 during both the weekday morning and afternoon peak hours.

11.8.5 Warden Avenue / Danforth Avenue

The intersection of Warden Avenue / Danforth Avenue currently operates under traffic signal control with a cycle length of 110 seconds in both the weekday morning and afternoon peak hours. The results of the analysis for this intersection are summarized in **Table 29**.

Under existing conditions, the intersection operates within its theoretical capacity, with overall v/c ratios of 0.92 and 0.78 during the weekday morning and afternoon peak hours, respectively.

Under all future scenarios, signal timings were optimized for both peak hours, within the existing 110 second cycle length. Under future background conditions, the intersection operates within its theoretical capacity, with overall v/c ratios of 0.94 and 0.89 during the weekday morning and afternoon peak hours, respectively. Under future total conditions, the intersection will continue to operate within capacity, at overall v/c ratios of 0.96 and 0.91 during the weekday morning and afternoon peak hours, respectively.

TABLE 28 WARDEN AVENUE / DANFORTH ROAD TRAFFIC OPERATIONS SUMMARY

Movement	Existing		Future Background		Future Total	
	V/C	LOS	V/C	LOS	V/C	LOS
EBL	0.69 (0.81)	D (D)	0.66 (0.78)	C (D)	0.68 (0.81)	C (D)
EBT	0.26 (0.55)	C (C)	0.24 (0.52)	C (C)	0.24 (0.51)	C (C)
EBR	0.02 (0.03)	C (C)	0.02 (0.03)	C (C)	0.02 (0.03)	C (C)
WBL	0.47 (0.60)	B (C)	0.55 (0.68)	C (C)	0.55 (0.69)	C (C)
WBT	0.35 (0.23)	B (B)	0.38 (0.24)	B (B)	0.37 (0.24)	B (B)
WBR	0.06 (0.05)	B (B)	0.11 (0.07)	B (B)	0.11 (0.07)	B (B)
NBLTR	0.78 (0.56)	C (C)	0.77 (0.60)	C (C)	0.79 (0.65)	C (C)
SBLT	0.41 (0.46)	C (C)	0.48 (0.67)	C (C)	0.54 (0.73)	C (C)
SBR	0.16 (0.24)	C (C)	0.16 (0.24)	B (C)	0.21 (0.27)	B (C)
Overall	**0.70 (0.66)**	**C (C)**	**0.73 (0.71)**	**C (C)**	**0.75 (0.75)**	**C (C)**

Notes:
1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour).

TABLE 29 WARDEN AVENUE / DANFORTH AVENUE TRAFFIC OPERATIONS SUMMARY

Movement	Existing		Future Background		Future Total	
	V/C	LOS	V/C	LOS	V/C	LOS
EBLTR	0.35 (0.75)	C (C)	0.38 (0.83)	C (D)	0.40 (0.84)	C (D)
WBL	0.65 (0.61)	B (B)	0.67 (0.86)	B (D)	0.68 (0.87)	C (D)
WBTR	0.88 (0.45)	C (B)	0.91 (0.53)	D (C)	0.94 (0.57)	D (C)
NBL	0.36 (0.78)	C (E)	0.37 (0.51)	C (C)	0.42 (0.51)	C (C)
NBTR	0.74 (0.67)	C (C)	0.93 (0.60)	D (C)	0.95 (0.62)	D (C)
SBL	0.91 (0.40)	F (C)	0.58 (0.31)	C (C)	0.66 (0.36)	D (C)
SBT	0.72 (0.85)	C (D)	0.74 (0.91)	C (D)	0.77 (0.93)	C (D)
SBR	0.02 (0.04)	C (B)	0.02 (0.04)	C (B)	0.02 (0.04)	B (B)
Overall	**0.92 (0.78)**	**C (C)**	**0.94 (0.89)**	**D (C)**	**0.96 (0.91)**	**D (C)**

Notes:
1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour).

11.9 UNSIGNALIZED INTERSECTION OPERATIONS

The results of the traffic analysis for the study area unsignalized intersections are summarized in **Table 30**.

Most unsignalized intersections within the study area operate satisfactorily at LOS C or better in future scenarios with the redevelopment of the Site as planned.

However, in the weekday afternoon peak hour, the westbound movement at Bamblett Drive, as well as the eastbound and westbound movements at Burnhill Road / Mack Avenue will operate at LOS F and delays of just over 60 seconds under 10-year future total traffic conditions. It is noteworthy that the Site-related impact on these movements is modest.

As previously discussed, these unsignalized intersections were unable to be accurately calibrated under existing conditions due to the ongoing COVID-19 pandemic situation (March 2020 onwards). Consequently, it is likely that the results are reporting a very conservative delay value that – in reality – would not be as severe. It is likely that with calibration under normal conditions, these movements would operate at LOS E or below.

Additionally, it is expected that in reality, the pedestrian signal located approximately 80 metres north of Burnhill Road / Mack Avenue would provide gaps for side-street traffic to enter onto Warden Avenue during peak hours and consequently allow the streets to operate well below LOS E.

It is recommended that traffic operations continue to be monitored at these intersections, however, no further improvements or mitigation measures are recommended or proposed at this time.

TABLE 30 UNSIGNALIZED INTERSECTION TRAFFIC OPERATIONS SUMMARY

Movement	Existing		Future Background		Future Total	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
Warden Avenue & Warden TTC South Parking						
WBLR	17.8 (15.0)	C (C)	20.2 (16.2)	C (C)	24.1 (18.1)	C (C)
NBT	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
NBTR	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
SBLT	3.6 (2.0)	A (A)	3.7 (2.0)	A (A)	4.1 (2.0)	A (A)
SBT	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
Warden Avenue & Site Driveway (North)						
WBLR	Intersection constructed with buildout of the Site.				18.9 (15.7)	C (C)
NBT					0.0 (0.0)	A (A)
NBTR					0.0 (0.0)	A (A)
SBLT					0.9 (2.4)	A (A)
SBT					0.0 (0.0)	A (A)

Movement	Existing		Future Background		Future Total	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
Warden Avenue & 682 Warden Avenue Access						
EBLR	20.7 (19.1)	C (C)	23.0 (21.7)	C (C)	22.2 (21.1)	C (C)
NBLT	0.0 (0.2)	A (A)	0.0 (0.2)	A (A)	0.0 (0.2)	A (A)
NBT	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
SBT	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
SBTR	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
Warden Avenue & Bell Estate Rd						
WBLR	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
NBT	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
NBTR	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
SBLT	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
SBT	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
Warden Avenue & Cataraqui Cr						
EBLR	15.3 (13.4)	C (B)	17.1 (14.4)	C (B)	19.2 (15.2)	C (C)
NBLT	0.5 (0.7)	A (A)	0.5 (0.7)	A (A)	0.5 (0.7)	A (A)
NBT	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
SBT	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
SBT	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
Warden Avenue & Bamblett Dr						
WBLR	34.0 (18.8)	D (C)	46.7 (21.8)	E (C)	55.9 (24.8)	F (C)
NBT	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	A (A)
NBTR	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	A (A)
SBL	11.0 (9.7)	B (A)	11.7 (10.1)	B (B)	11.9 (10.5)	B (B)
SBT	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	A (A)
SBT	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	A (A)
Warden Avenue & Burnhill Rd/Mack Ave						
EBLTR	31.4 (39.7)	D (E)	44.8 (48.3)	E (E)	63.2 (55.9)	F (F)
WBLTR	34.2 (31.3)	D (D)	47.6 (36.7)	E (E)	60.4 (42.2)	F (E)
NBLT	0.3 (0.8)	A (A)	0.3 (0.8)	A (A)	0.3 (0.8)	A (A)
NBTR	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)
SBLT	0.3 (0.5)	A (A)	0.3 (0.4)	A (A)	0.3 (0.4)	A (A)
SBTR	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)	0.0 (0.0)	A (A)

Notes:
1. XX (XX) – Weekday morning peak hour (weekday afternoon peak hour).

12.0 SUMMARY AND CONCLUSIONS

BA Group is retained by Choice Properties Limited Partnership to provide transportation consulting services, for a mixed-use development located at 683 - 685 Warden Avenue (also referred to herein as the "Site") located in the former municipality of Scarborough in the City of Toronto. The Site is situated on the east side of Warden Avenue approximately 500 metres south of the Warden Subway Station and the Warden Avenue / St. Clair Avenue East intersection.

A Zoning By-law Amendment application is being made to the City of Toronto to modify the prevailing development permissions outlined for the Site to enable the development of a mixed-use residential / commercial development on the property.

The following provides a summary overview of the study findings of the assessment of the transportation related aspect of the proposed development.

Existing and Proposed Development

1. The Site is currently vacant. Vehicular access is currently provided onto Warden Avenue although this access is currently closed.

2. A total of 1,519 residential units are proposed within the mixed-use development proposal together with approximately 995 sq. metres of retail space located on the grade level of the building. A new public park and new public street network are also proposed within the Site as part of the development plans.

3. A total of 996 new vehicular parking spaces, 1,521 new bicycle parking spaces, three (3) Type 'G', and three (3) Type 'B' loading spaces are provided to support the transportation related aspects of the proposed development. Vehicular parking is to be provided within a 2 level underground garage and within the internal portions of the ground floor of the proposed buildings.

4. A new "C-shaped" public street network is proposed within the Site to support the development plan and provides two new public street connections to Warden Avenue. A basic 18.5 metre wide ultimate right-of-way is proposed for the new street network with a portion of the proposed right-of-ways for the east-west sections of street being provided – over time and as development occurs – by the neighbouring properties to the north and south of the Site.

5. A traffic signal is proposed at the intersection of Warden Avenue and the southern leg of the proposed public road to provide for pedestrian / cycling crossing and vehicular access needs of the proposed development and for the community more broadly.

Transportation Context

6. The site is located on Warden Avenue - a north-south oriented arterial street - and close to its intersections with St. Clair Avenue East, Danforth Road and Danforth Avenue. These street connections provide connectivity to / from the Site area across the City of Toronto.

7. The Site is well served by existing and planned area transit services including several Toronto Transit Commission (TTC) surface transit routes that provide the Site and the surrounding neighbourhood connections to higher order transit services, including GO Transit and other TTC services.

8. Most notably, the Site is located within approximately 500 metres (a 7 – 8 minute walk or 2-3 minute bus ride) of the Warden Subway Station. Warden Station provides access to the Bloor-Danforth Line 2 subway corridor which provides direct connections across the City of Toronto including the central and downtown areas to the west as well as the eastern parts of the City.

9. Notably, Line 2 also provides connections to the Kennedy Subway Station to the east (located approximately 3.75 kilometres north of the Site) which offers access to the Line 3 Scarborough LRT service, the Kennedy GO Station and the future easterly terminus of the Eglinton Crosstown LRT.

10. The Site is also located approximately 2.5 kilometres of the Scarborough GO Station with access provided via frequent surface transit services across St. Clair Avenue East. Two (2) regional rail routes – the Lakeshore East and Stouffville GO lines - serve the Scarborough GO Station with the Stouffville service also providing service to the Kennedy GO Station. These GO commuter rail services provide direct access to, and across, the central areas of the City including Union Station (approximately 18 to 20 minutes from Scarborough GO Station), and a range of existing and evolving employment and destination nodes across the City.

11. While the existing level of transit accessibility afforded to the Site today already provides convenient connectivity across the City of Toronto, planned investments in public transit services will further improve the transit options for future residents and visitors of the Site and surrounding area.

12. These include a range of large scale service improvements planned by Metrolinx as part of the R.E.R commuter rail programme, new / improved transit line facilities such as the Eglinton Crosstown LRT and the Scarborough subway extension and local station improvements at Warden Subway Station.

13. The level of transit service afforded to the Site, and surrounding area, provide significant levels of convenient transit access across the City of Toronto and are strongly supportive of its intensification as a mixed-use development as proposed.

Demand Management

14. A Mobility Choice Travel Plan has been developed for the proposed development to guide the provision of Transportation Demand Management (TDM) strategies that will promote the use of more active and sustainable transportation modes, respond to the mobility needs of residents, employees and patrons of the Site and reduce dependence on private vehicle use.

15. A detailed Mobility Choice Travel Plan will be developed and secured through the approvals process in consultation with the City of Toronto.

Vehicular Parking

16. The parking standards outlined in the Former City of Scarborough and general City of Toronto Zoning By-laws that would apply to the proposed development are considered to be out-dated and significantly overstate the parking needs of contemporary residential and mixed-use buildings in transit accessible locations such as the area surrounding the Warden Subway Station.

17. This is based upon the range of demands observed and experienced across a broad range of developments over recent years in comparable locations and the way that parking demands and needs have evolved and reduced as people take advantage of other travel modes to a greater extent than has occurred in the past when the By-law standards were being established and developed.

18. Given that the Site is located as close to Warden Subway Station as it is (within 500 metres or a 6-8 minute walk), and given the level of transit accessibility the Line 2 subway will provide today and in the future as transit infrastructure plans advance across the City, it is proposed that reduced parking standards be adopted and advanced for the proposed development to:

    i) better reflect current and anticipated parking demand needs at the building;
    ii) reflect the level of future travel that can and will be made using transit as a primary form of mobility; and
    iii) promote other non-automobile mobility choices and travel behaviour as part of the overall demand management plan for the project.

19. The following (reduced relative to the in-force Zoning By-law standards) resident, visitor and retail parking standards are proposed based upon the above:

    - a resident parking supply standard of effectively 0.55 spaces / unit.
    - a reduced visitor parking standard of 0.1 spaces / unit.
    - a reduced retail parking standard of 1 space / 100 sq. metres GFA.

20. Adoption of the proposed minimum vehicular parking standards are considered to be appropriate in this context recognizing the Site's excellent location relative to the higher order and surface transit services provided at the Warden Subway Station and the connectivity / accessibility afforded to a range of destinations across the City that can be readily and conveniently reached on transit.

21. It is notable that the proposed resident parking standard of 0.55 spaces / unit falls, based upon the review outlined in this report, well within the upper end of the range of other, recent approvals at other residential and mixed-use developments in comparable transportation contexts. The adoption of this reduced standard will, furthermore, assist in supporting the automobile use reduction policies of the City and intent of the proposed TDM plan and will, importantly, enable the anticipated parking needs of the proposed building to be met when also considering the downward trend in parking needs at contemporary and new residential developments in transit accessible areas of the City.

22. The current development plans indicate the provision of a total of 996 parking spaces to support the proposed development as follows:

    - 833 residential parking spaces
    - 160 non-residential parking spaces
    - 3 car share parking spaces

23. The proposed resident and visitor / retail parking supplies meet the requirements of the proposed parking standards and are considered appropriate in terms of supporting the vehicular parking needs of the proposed development.

Bicycle Parking

24. It is proposed, as a TDM measure and a way to encourage the use of non-automobile dependent travel alternatives, to adopt the Zone 1 bicycle parking standards outlined in By-law 569-2013 for the proposed development. These standards exceed the requirements of the Zone 2 bicycle parking provisions that would ordinarily apply to the Site and surrounding area.

25. Application of the Zone 1 bicycle parking standards requires a total of 1,519 bicycle parking spaces on the Site.

26. A total of 1,521 bicycle parking spaces (1,369 long-term spaces and 152 short-term spaces) are reflected on the current site plans which meets the proposed Zone 1 bicycle parking standards requirements for the development and exceeds the Zone 2 bicycle requirements.

Loading

27. The proposed development provides six (6) loading spaces, including 3 Type 'G' and 3 Type 'B' loading spaces which meets (and exceeds) the minimum loading space provisions for the proposed development.

28. The loading spaces have been designed to accommodate the manoeuvring needs of the City of Toronto front-loading garbage truck design vehicles and enables such vehicles to enter / leave the property in the a forward motion as required by City policy. The design arrangements of the proposed loading areas are appropriate and will further detailed as part of future Site Plan Approval submissions.

Site Travel Forecasts

29. Multi-modal travel demand forecasts have been prepared as part of this study for the build-out of the proposed development.

30. The proposed development is forecast to generate in the order **805** and **700** two-way person trips in the morning and afternoon peak hours, respectively.

31. The proposed development is anticipated to generate in the order of **305** two-way vehicle trips in both the weekday morning and afternoon peak hours.

Transit Assessment

32. The proposed development plan is forecast to generate – based upon the multi-modal travel demand forecasts developed as part of this study – in the order of **321** and **234** two-way transit trips during the weekday morning and afternoon peak hours, respectively.

33. Transit trips have been distributed to the various transit services in the area (and primarily the Line 2 subway) based upon directional distribution information provided by the Transportation Tomorrow Survey (TTS).

34. Site related incremental transit trips are relatively modest when distributed on the area transit network and can be appropriately accommodated by the existing (and planned) area network.

Traffic Operations Analysis

35. Existing baseline traffic conditions were established in the Site area based upon a range of available traffic count data sources given the limited ability to undertake new traffic (or travel) activity counts due to the COVID-19 pandemic.

36. Background development traffic allowances were made for five (5) approved or proposed developments in proximity of the proposal. Allowances for corridor growth were also made for the anticipated 10 year development horizon for the project.

37. Under existing and future traffic conditions, the area signalized intersections operate acceptably during the weekday morning and afternoon peak hours when considering, in the future assessments, incremental traffic demands related to other area development and the subject proposal.

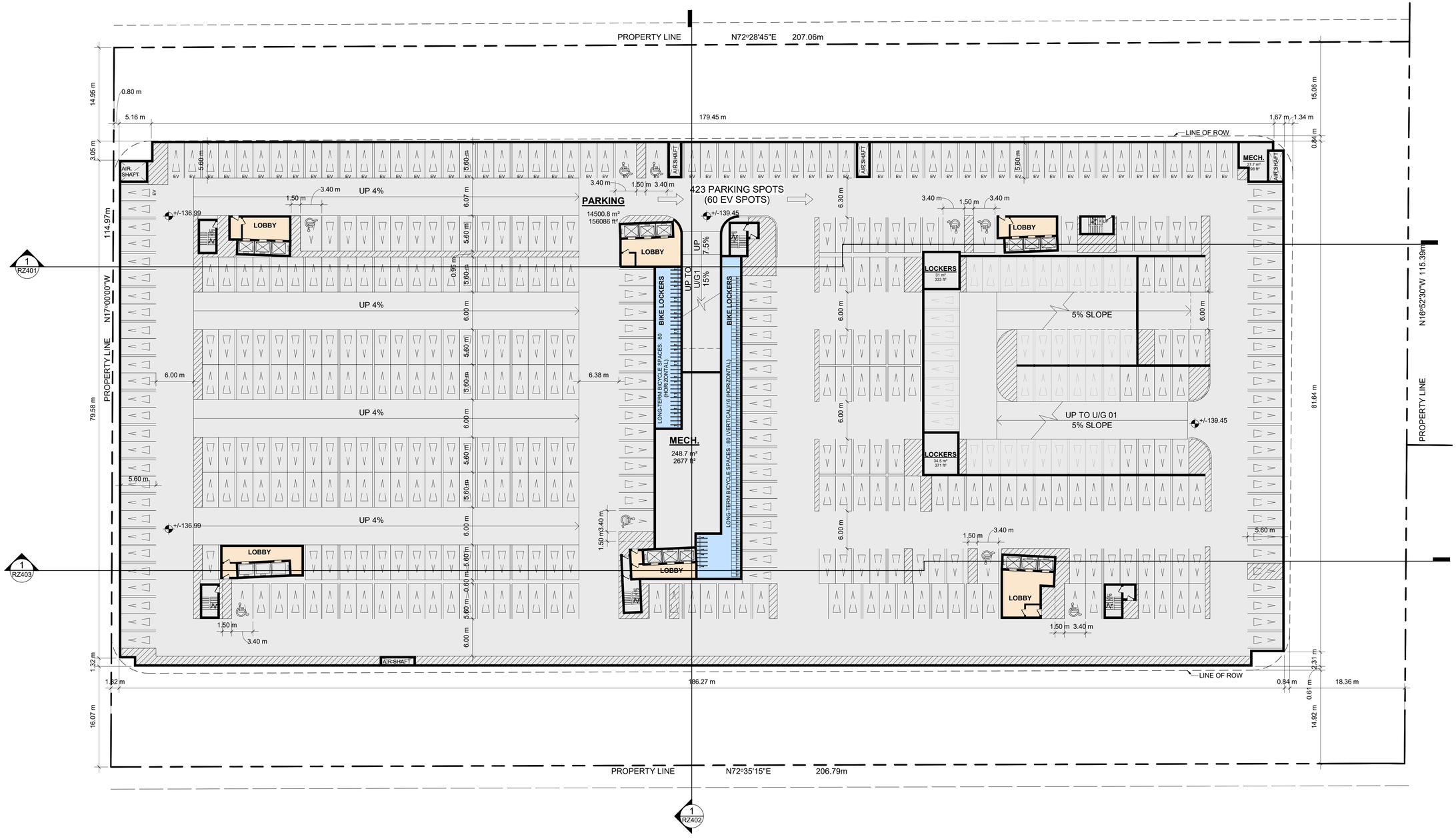
38. The addition of traffic generated by the proposed development will have a modest impact on traffic operations at the area intersections with the adoption of minor signal timing changes at key intersections to optimize traffic operations in the context of future changing travel demands.

39. Most unsignalized intersections within the study area operate satisfactorily at LOS C or better in future scenarios with the redevelopment of the Site as planned.

40. In the weekday afternoon peak hour, the westbound movement at Bamblett Drive, as well as the eastbound and westbound movements at Burnhill Road/Mack Avenue will operate at LOS F and delays of just over 60 seconds under future total traffic conditions. It is noteworthy that the Site-related impact at these movements is modest. It is recommended that traffic operations continue to be monitored at these intersections, however, no further improvements or mitigation measures are recommended at this time.

41. New Site traffic can, based upon the above, be acceptably and appropriately accommodated on the area street network.

Appendix A
Reduced Scale Architectural Site Plans



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TURNER FLEISCHER

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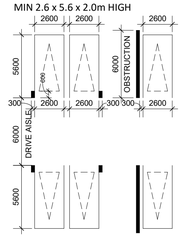
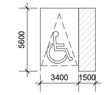
TYPICAL PARKING DIMENSIONS:

AISLE WIDTH: MIN 6m

TYPICAL PARKING SPACE:
MIN 2.6 x 5.6 x 2.0m HIGH



TYPICAL BARRIER FREE SPACE:
MIN 3.4 x 5.6 x 2.1m HIGH



#	DATE	DESCRIPTION	BY
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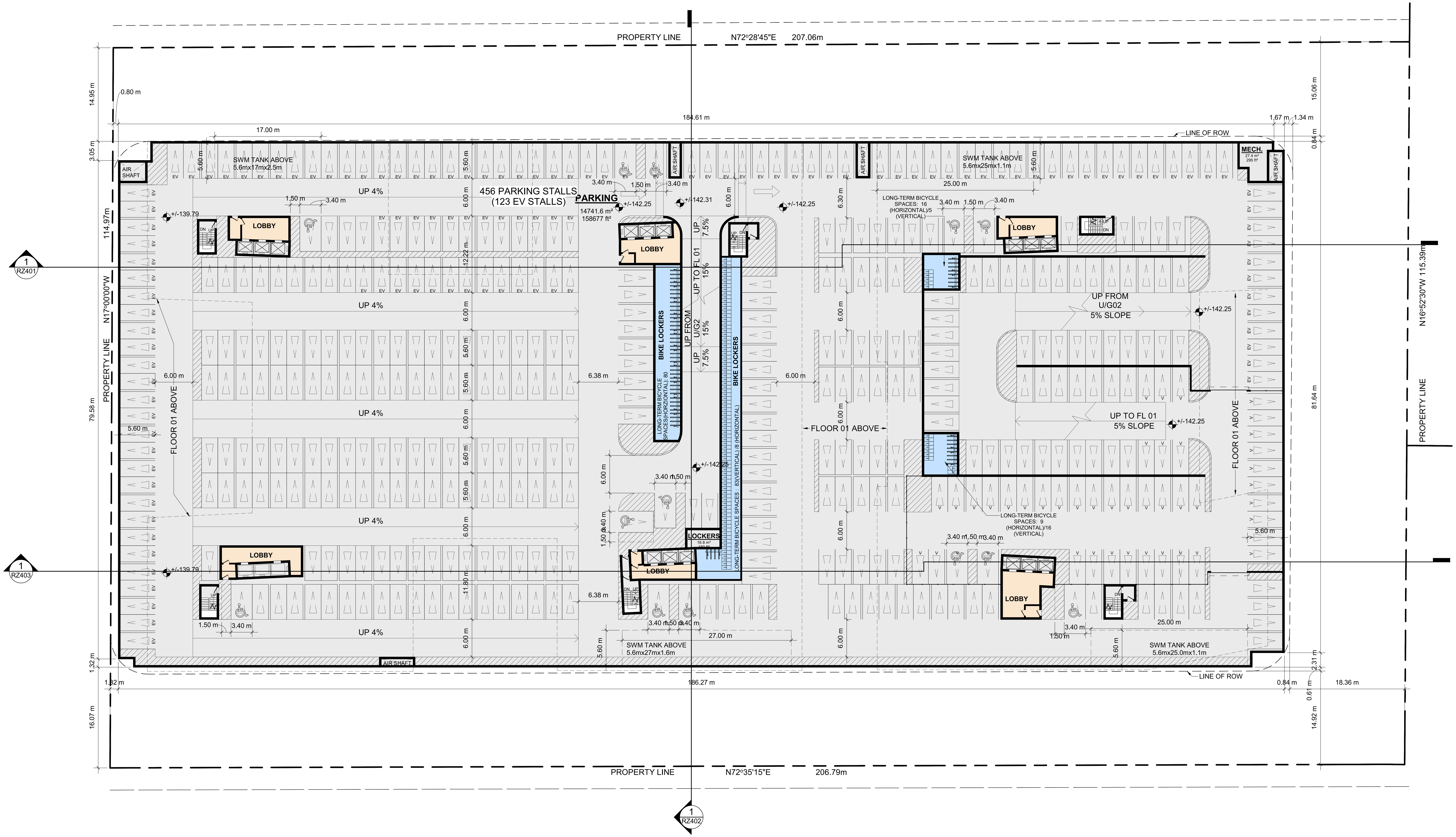
PROJECT
Proposed Mixed Use Development

685 Warden Avenue,Toronto, ON

DRAWING
UNDERGROUND LEVEL 02

PROJECT NO.	06.077RZ
PROJECT DATE	2021-05-03
DRAWN BY	CCU / ALG
CHECKED BY	CCU / RMM
SCALE	As indicated

DRAWING NO. RZ101
REV. 1



1 U/G 01
RZ102 1 : 300

TURNER FLEISCHER

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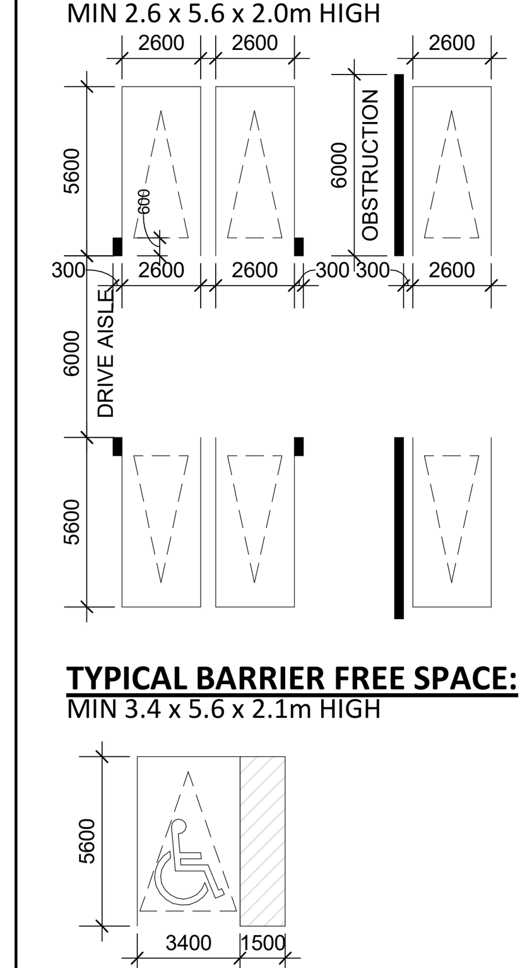
TYPICAL PARKING DIMENSIONS:

AISLE WIDTH: MIN 6m

TYPICAL PARKING SPACE:
MIN 2.6 x 5.6 x 2.0m HIGH

TYPICAL BARRIER FREE SPACE:
MIN 3.4 x 5.6 x 2.1m HIGH



#	DATE	DESCRIPTION	BY
1	2021-06-28	ISSUED FOR ZBA	CCU

PROJECT
Proposed Mixed Use Development
685 Warden Avenue,Toronto, ON

DRAWING
UNDERGROUND LEVEL 01

PROJECT NO.
06.077RZ
PROJECT DATE
2021-05-03
DRAWN BY
CCU / ALG
CHECKED BY
CCU / RMM
SCALE
As indicated

DRAWING NO. RZ102
REV. 1

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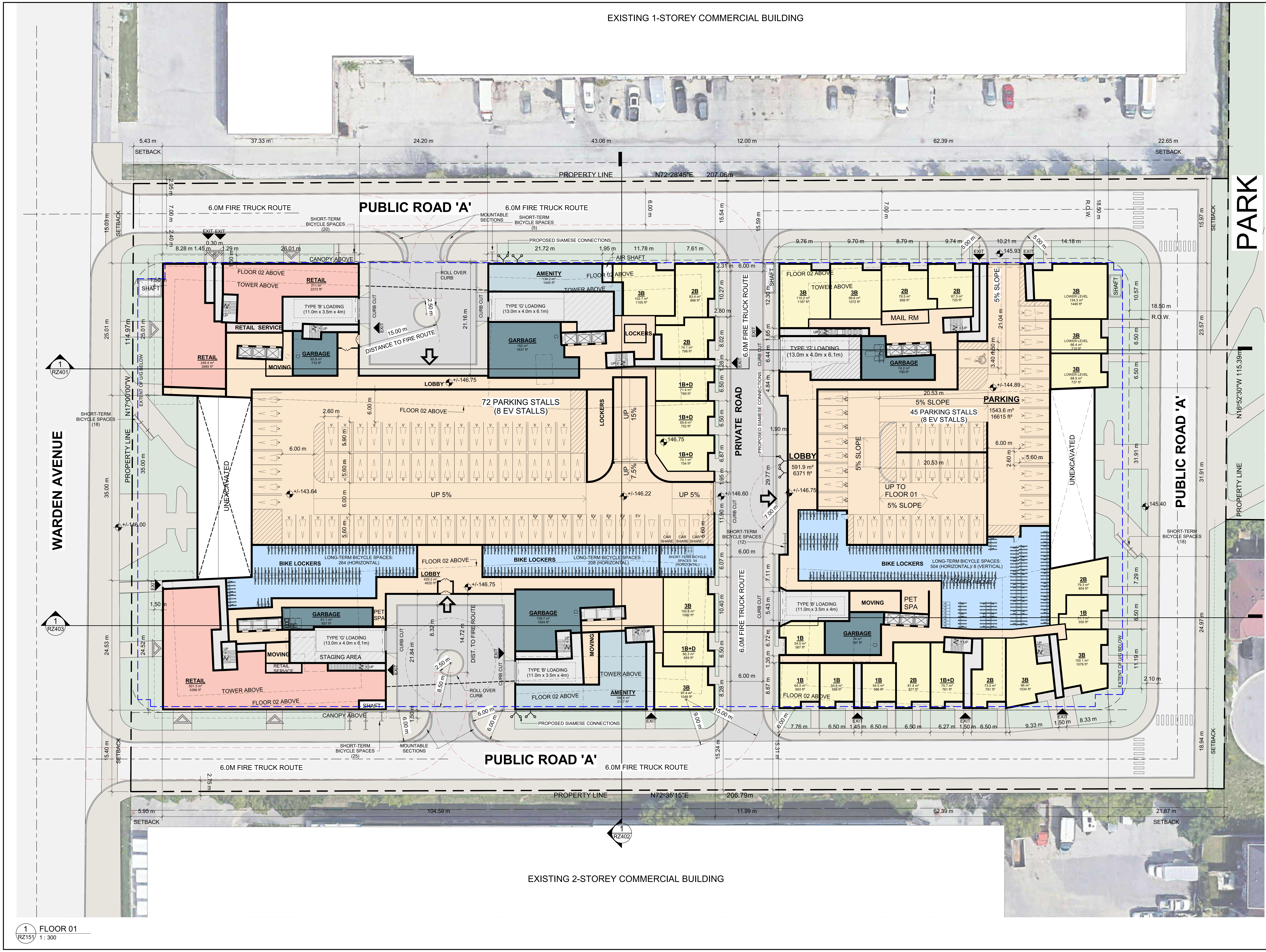

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LEGEND

- PRIMARY RESIDENTIAL ENTRANCE
- SECONDARY RESIDENTIAL ENTRANCE
- RETAIL ENTRANCE
- EXIT
- FIRE HYDRANT
- SIAMESE CONNECTION
- CONVEX MIRROR
- TRANSFORMER WITH CLEARANCES
- FIRE ROUTE SIGN
- 000.00 SPOT ELEVATION
- GAS/HYDRO METER

TYPICAL PARKING DIMENSIONS:

AISLE WIDTH: MIN 6m

TYPICAL PARKING SPACE:
MIN 2.6 x 5.6 x 2.0m HIGH

TYPICAL BARRIER FREE SPACE:
MIN 3.4 x 5.6 x 2.1m HIGH

#	DATE	DESCRIPTION	BY
1	2021-06-28	ISSUED FOR ZBA	CCU

PROJECT
Proposed Mixed Use Development

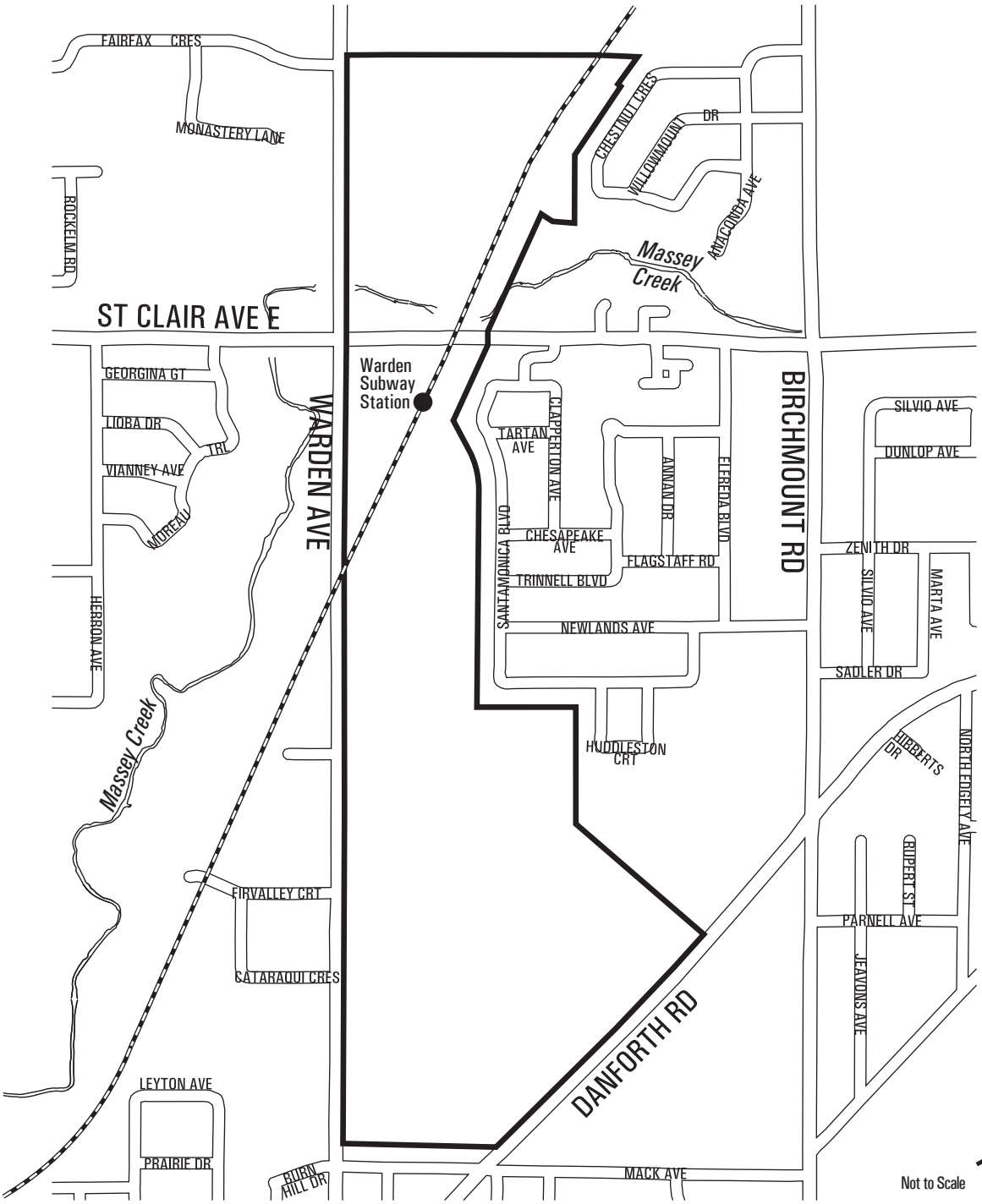
685 Warden Avenue,Toronto, ON

DRAWING
FLOOR 01

PROJECT NO. 06.077RZ
PROJECT DATE 2021-05-03
DRAWN BY CCU / ALG
CHECKED BY CCU / RMM
SCALE As indicated

DRAWING NO. RZ151
REV. 1

Appendix B
Warden Woods Community Secondary Plan

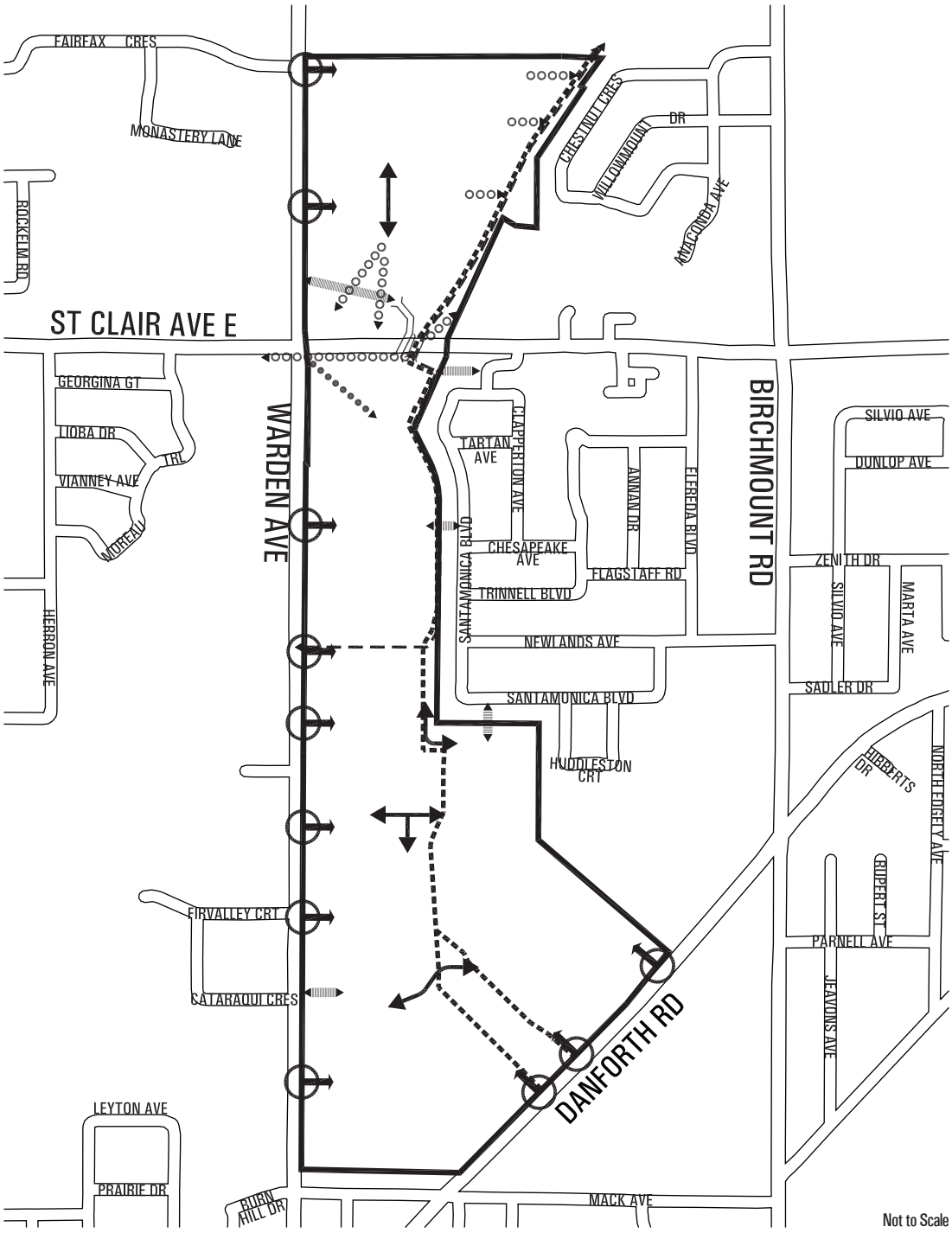


TORONTO
City Planning Division

Warden Woods Community Secondary Plan

Map 30-1 Urban Structure Plan

Secondary Plan Boundary



TORONTO
City Planning Division

Warden Woods Community Secondary Plan

Map 30-2 Potential Linkages and Connections

Secondary Plan Boundary

Connections to Arterial Roads

Key Linkages

Linkage to Natural Area & Open Space

Pedestrian Link

Pedestrian Corridor

Bicycle Trail

Pedestrian Walkway Connection

Pedestrian Bridge

October 2009

Appendix C
Eglinton Crosstown LRT Plan

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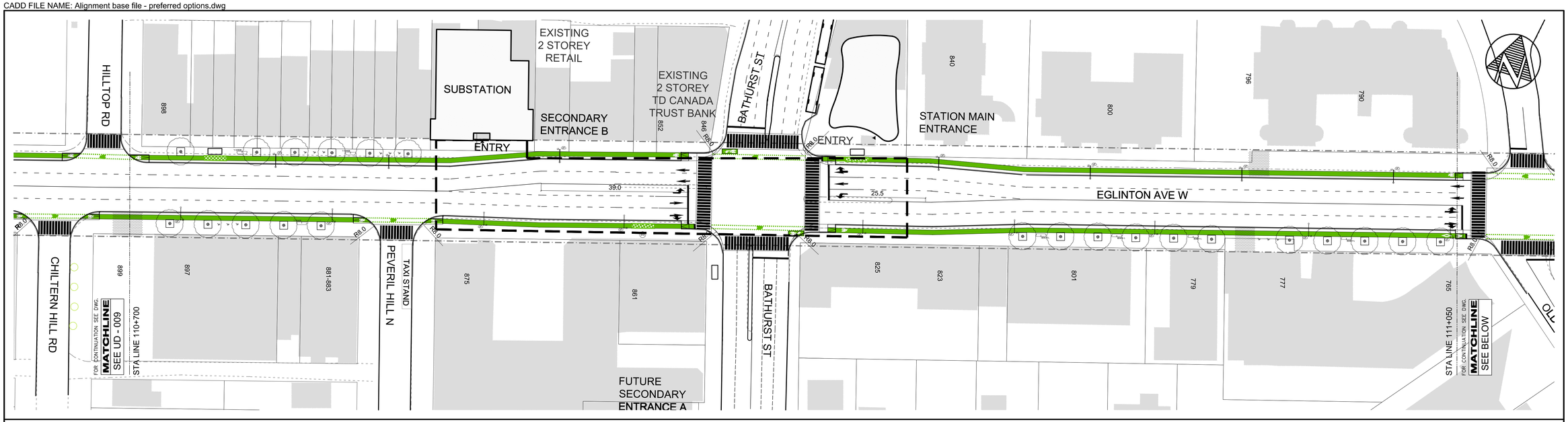
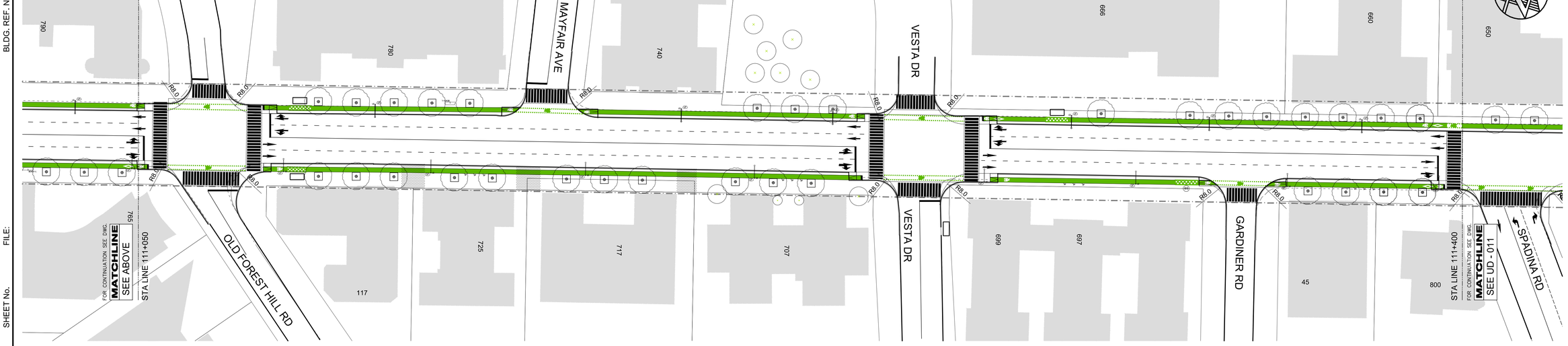




BLDG. REF. No.

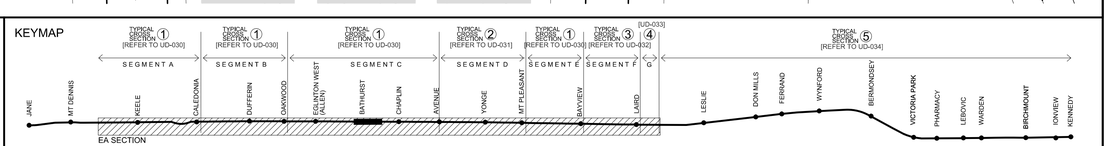
FILE:

SHEET No.

LEGEND

- CITY OF TORONTO STANDARD BICYCLE RING - F-1-6
- LIGHT POST
- LIGHT POST COMBINED WITH HYDRO
- CITY OF TORONTO STANDARD BENCH - F-1-3a
- CITY OF TORONTO STANDARD LITTER RECEPTACLE - F-1-2a
- CITY OF TORONTO STANDARD MULTI-PUBLICATION STRUCTURE - F-1-4b
- CITY OF TORONTO STANDARD MESSAGE CENTRE - F-1-7a
- RAISED BIKE LANE REFER TO DWG UD - 040
- MULTIUSE TRAIL
- OUTLINE OF STATION BUILDINGS - INDICATED IN METROLINX REFERENCE CONCEPT DESIGN
- PROPOSED TREE, REFER TO DWG UD - 036 AND 037
- RAISED PLANTER
- SPECIES COMPLIANT WITH HYDRO HEIGHT RESTRICTIONS
- EXISTING TREE PRIVATE PROPERTY
- OFFICIAL PLAN RIGHT-OF-WAY
- APPROXIMATE AREA OF EXCAVATION
- DRIVEWAY
- BUS STOP
- CITY OF TORONTO STANDARD BUS SHELTER - F-1-1a
- EXISTING BUILDING FOOTPRINT AND ADDRESS NUMBER
- GREEN MEDIAN
- GREY MEDIAN

KEYMAP



REVISIONS	REVISIONS
2013-JULY-29 ISSUED FOR TAC	2013-NOVEMBER -18 ISSUED FOR REVIEW
2013-NOVEMBER -08 ISSUED FOR REVIEW	2013-NOVEMBER -28 ISSUED FOR REVIEW
2013-NOVEMBER -25 ISSUED FOR REVIEW	2014-JANUARY -10 ISSUED FOR REVIEW
2013-AUGUST-15 ISSUED FOR REVIEW	2014-FEBRUARY -21 ISSUED FOR REVIEW

DRAWING No.

CROSSTOWN Collaborative

SCALE 1:500 0 5 10 15 20m

DESIGNED	PK	2013/--/--
DRAWN	AE/CR	2013/--/--
CHECKED	PK	2013/--/--
APPROVED	PK	2013/--/--

EGLINTON CROSSTOWN

EGLINTON AVENUE STREETSCAPE DESIGN

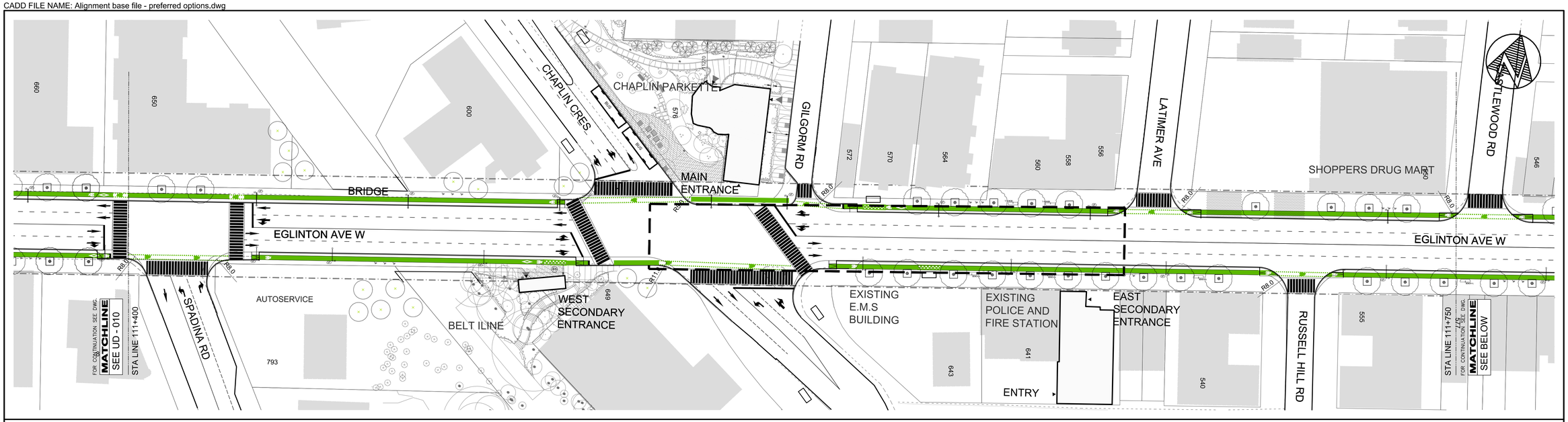
LANDSCAPE PLAN - FROM PEVERIL HILL N TO GARDINER RD (STA. 110+700 TO STA. 111+400)

Plot Date: 2014/05/06

TORONTO

Sheet No.
UD - 010

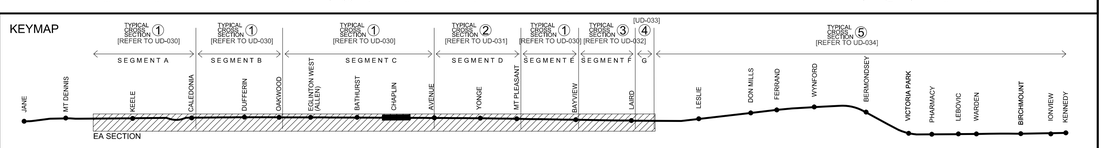
CADD FILE NAME: Alignment base file - preferred options.dwg



LEGEND

- CITY OF TORONTO STANDARD BICYCLE RING - F-1-6
- LIGHT POST
- LIGHT POST COMBINED WITH HYDRO
- CITY OF TORONTO STANDARD BENCH - F-1-3a
- CITY OF TORONTO STANDARD LITTER RECEPTACLE - F-1-2a
- CITY OF TORONTO STANDARD MULTI-PUBLICATION STRUCTURE - F-1-4b
- CITY OF TORONTO STANDARD MESSAGE CENTRE - F-1-7a
- RAISED BIKE LANE REFER TO DWG UD - 040
- MULTIUSE TRAIL
- OUTLINE OF STATION BUILDINGS - INDICATED IN METROLINX REFERENCE CONCEPT DESIGN
- PROPOSED TREE, REFER TO DWG UD - 036 AND 037
- RAISED PLANTER
- SPECIES COMPLIANT WITH HYDRO HEIGHT RESTRICTIONS
- EXISTING TREE PRIVATE PROPERTY
- OFFICIAL PLAN RIGHT-OF-WAY
- APPROXIMATE AREA OF EXCAVATION
- DRIVEWAY
- BUS STOP
- CITY OF TORONTO STANDARD BUS SHELTER - F-1-1a
- EXISTING BUILDING FOOTPRINT AND ADDRESS NUMBER
- GREEN MEDIAN
- GREY MEDIAN

KEYMAP



REVISIONS	REVISIONS
2013-JULY-29 ISSUED FOR TAC	2013-NOVEMBER -18 ISSUED FOR REVIEW
2013-NOVEMBER -08 ISSUED FOR REVIEW	2013-NOVEMBER -28 ISSUED FOR REVIEW
2013-NOVEMBER -25 ISSUED FOR REVIEW	2014-JANUARY -10 ISSUED FOR REVIEW
2013-AUGUST-15 ISSUED FOR REVIEW	2014-FEBRUARY -21 ISSUED FOR REVIEW

CROSSTOWN Collaborative

SCALE 1:500 0 5 10 15 20m

DESIGNED	PK	2013/--/--
DRAWN	AE/CR	2013/--/--
CHECKED	PK	2013/--/--
APPROVED	PK	2013/--/--

EGLINTON CROSSTOWN

EGLINTON AVENUE STREETSCAPE DESIGN

LANDSCAPE PLAN - FROM SPADINA RD TO ELMSTHORPE AVE (STA. 111+400 TO STA. 112+100)

Plot Date: 2014/05/06

TORONTO

Sheet No. UD - 011

BLDG. REF. No.
FILE:
SHEET No.
DRAWING No.

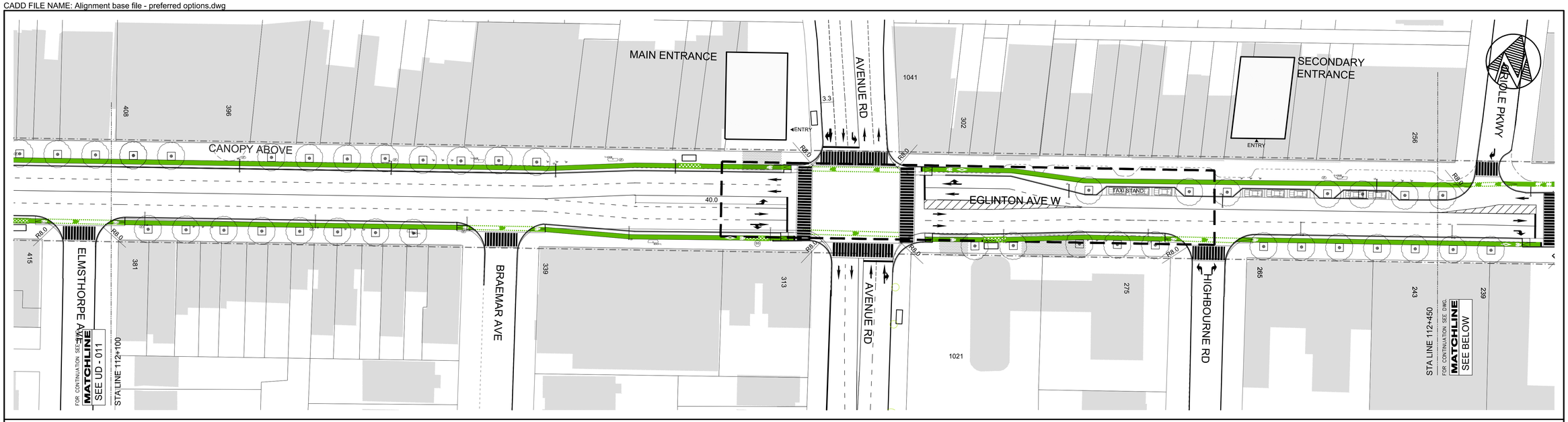
CADD FILE NAME: Alignment base file - preferred options.dwg

BLDG. REF. No.

FILE:

SHEET No.

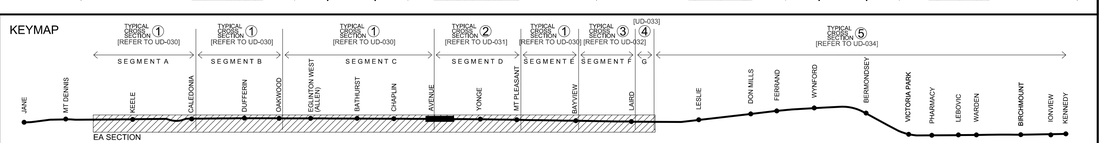
DRAWING No.



LEGEND

- CITY OF TORONTO STANDARD BICYCLE RING - F-1-6
- LIGHT POST
- LIGHT POST COMBINED WITH HYDRO
- CITY OF TORONTO STANDARD BENCH - F-1-3a
- CITY OF TORONTO STANDARD LITTER RECEPTACLE - F-1-2a
- CITY OF TORONTO STANDARD MULTI-PUBLICATION STRUCTURE - F-1-4b
- CITY OF TORONTO STANDARD MESSAGE CENTRE - F-1-7a
- RAISED BIKE LANE REFER TO DWG UD - 040
- MULTIUSE TRAIL
- OUTLINE OF STATION BUILDINGS - INDICATED IN METROLINX REFERENCE CONCEPT DESIGN
- PROPOSED TREE, REFER TO DWG UD - 036 AND 037
- RAISED PLANTER
- SPECIES COMPLIANT WITH HYDRO HEIGHT RESTRICTIONS
- EXISTING TREE PRIVATE PROPERTY
- OFFICIAL PLAN RIGHT-OF-WAY
- APPROXIMATE AREA OF EXCAVATION
- DRIVEWAY
- BUS STOP
- CITY OF TORONTO STANDARD BUS SHELTER - F-1-1a
- EXISTING BUILDING FOOTPRINT AND ADDRESS NUMBER
- GREEN MEDIAN
- GREY MEDIAN

KEYMAP



REVISIONS	REVISIONS
2013-JULY-29 ISSUED FOR TAC	2013-NOVEMBER -18 ISSUED FOR REVIEW
2013-NOVEMBER -08 ISSUED FOR REVIEW	2013-NOVEMBER -28 ISSUED FOR REVIEW
2013-NOVEMBER -25 ISSUED FOR REVIEW	2014-JANUARY -10 ISSUED FOR REVIEW
2013-AUGUST-15 ISSUED FOR REVIEW	2014-FEBRUARY -21 ISSUED FOR REVIEW

CROSSTOWN Collaborative

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

DESIGNED	PK	2013/--/--
DRAWN	AE/CR	2013/--/--
CHECKED	PK	2013/--/--
APPROVED	PK	2013/--/--

EGLINTON CROSSTOWN

EGLINTON AVENUE STREETSCAPE DESIGN

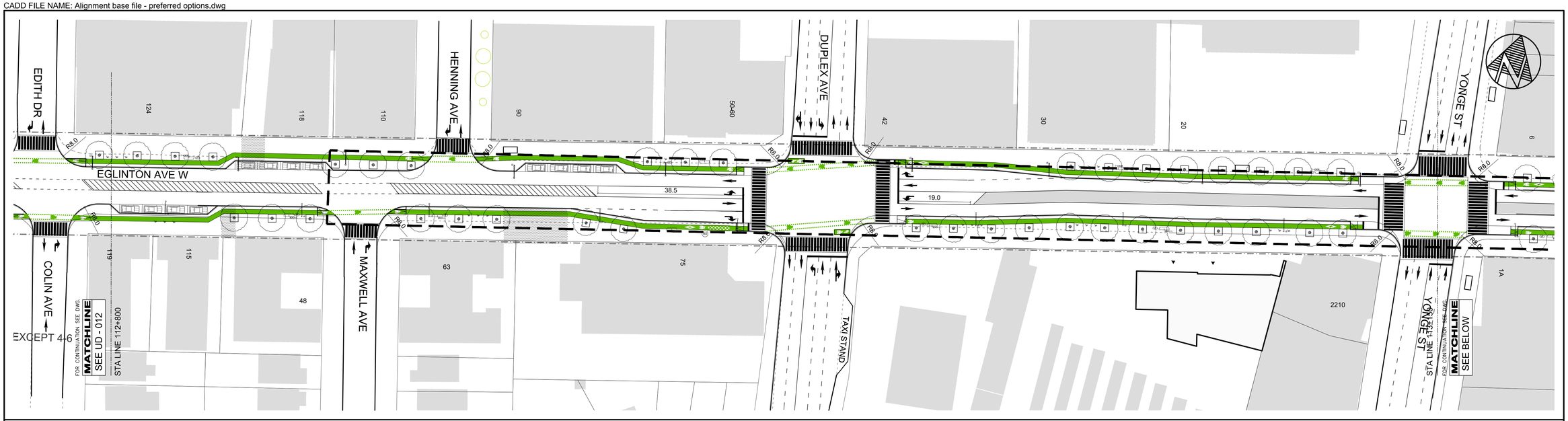
LANDSCAPE PLAN - FROM BRAEMAR AVE TO COLIN AVE (STA. 112+100 TO STA. 112+800)

Plot Date: 2014/05/06

TORONTO

Sheet No. UD - 012

CADD FILE NAME: Alignment base file - preferred options.dwg



BLDG. REF. No.

FILE:

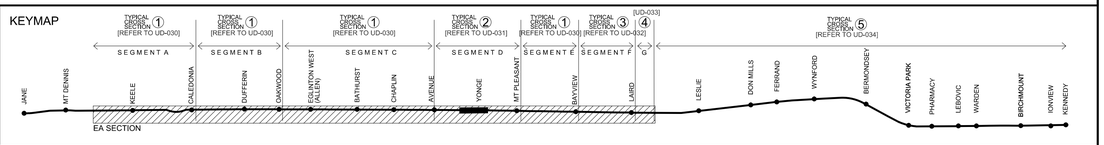
SHEET No.

DRAWING No.

LEGEND

- CITY OF TORONTO STANDARD BICYCLE RING - F-1-6
- LIGHT POST
- LIGHT POST COMBINED WITH HYDRO
- CITY OF TORONTO STANDARD BENCH - F-1-3a
- CITY OF TORONTO STANDARD LITTER RECEPTACLE - F-1-2a
- CITY OF TORONTO STANDARD MULTI-PUBLICATION STRUCTURE - F-1-4b
- CITY OF TORONTO STANDARD MESSAGE CENTRE - F-1-7a
- RAISED BIKE LANE REFER TO DWG UD - 040
- MULTIUSE TRAIL
- OUTLINE OF STATION BUILDINGS - INDICATED IN METROLINX REFERENCE CONCEPT DESIGN
- PROPOSED TREE, REFER TO DWG UD - 036 AND 037
- RAISED PLANTER
- SPECIES COMPLIANT WITH HYDRO HEIGHT RESTRICTIONS
- EXISTING TREE PRIVATE PROPERTY
- OFFICIAL PLAN RIGHT-OF-WAY
- APPROXIMATE AREA OF EXCAVATION
- DRIVEWAY
- BUS STOP
- CITY OF TORONTO STANDARD BUS SHELTER - F-1-1a
- EXISTING BUILDING FOOTPRINT AND ADDRESS NUMBER
- GREEN MEDIAN
- GREY MEDIAN

KEYMAP



REVISIONS	REVISIONS
2013-JULY-29 ISSUED FOR TAC	2013-NOVEMBER -18 ISSUED FOR REVIEW
2013-NOVEMBER -08 ISSUED FOR REVIEW	2013-NOVEMBER -28 ISSUED FOR REVIEW
2013-NOVEMBER -25 ISSUED FOR REVIEW	2014-JANUARY -10 ISSUED FOR REVIEW
2013-AUGUST-15 ISSUED FOR REVIEW	2014-FEBRUARY -21 ISSUED FOR REVIEW

CROSSTOWN Collaborative

SCALE 1:500 0 5 10 15 20m

DESIGNED	PK	2013/--/--
DRAWN	AE/CR	2013/--/--
CHECKED	PK	2013/--/--
APPROVED	PK	2013/--/--

EGLINTON CROSSTOWN

EGLINTON AVENUE STREETSCAPE DESIGN

LANDSCAPE PLAN - FROM MAXWELL AVE TO LILLIAN ST (STA. 112+800 TO STA. 113+500)

Plot Date: 2014/05/06

TORONTO

Sheet No. UD - 013

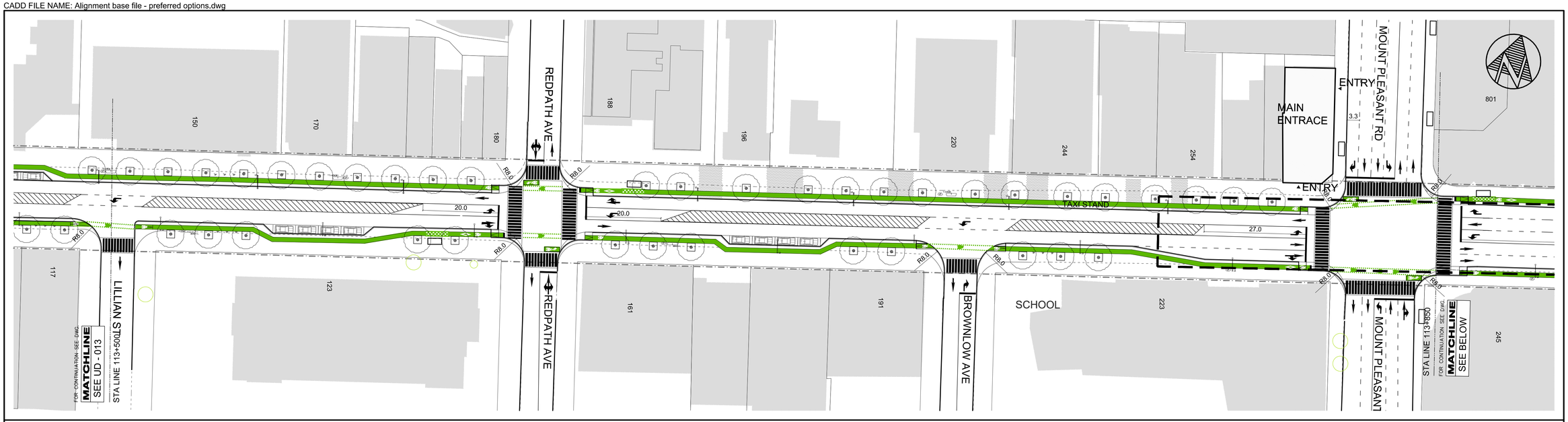
CADD FILE NAME: Alignment base file - preferred options.dwg

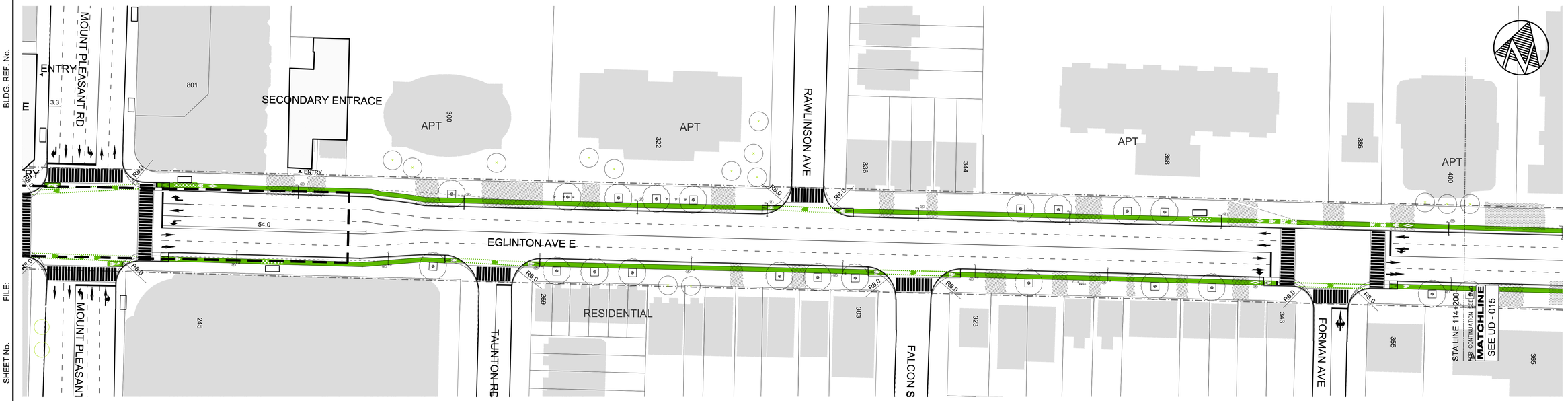
BLDG. REF. No.

FILE:

SHEET No.

DRAWING No.

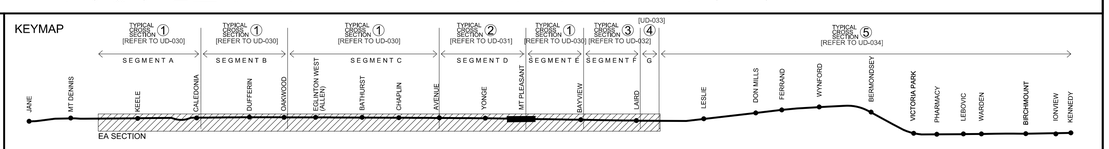




LEGEND

- CITY OF TORONTO STANDARD BICYCLE RING - F-1-6
- LIGHT POST
- LIGHT POST COMBINED WITH HYDRO
- CITY OF TORONTO STANDARD BENCH - F-1-3a
- CITY OF TORONTO STANDARD LITTER RECEPTACLE - F-1-2a
- CITY OF TORONTO STANDARD MULTI-PUBLICATION STRUCTURE - F-1-4b
- CITY OF TORONTO STANDARD MESSAGE CENTRE - F-1-7a
- RAISED BIKE LANE REFER TO DWG UD - 040
- MULTIUSE TRAIL
- OUTLINE OF STATION BUILDINGS - INDICATED IN METROLINX REFERENCE CONCEPT DESIGN
- PROPOSED TREE, REFER TO DWG UD - 036 AND 037
- RAISED PLANTER
- SPECIES COMPLIANT WITH HYDRO HEIGHT RESTRICTIONS
- EXISTING TREE PRIVATE PROPERTY
- OFFICIAL PLAN RIGHT-OF-WAY
- APPROXIMATE AREA OF EXCAVATION
- DRIVEWAY
- BUS STOP
- CITY OF TORONTO STANDARD BUS SHELTER - F-1-1a
- EXISTING BUILDING FOOTPRINT AND ADDRESS NUMBER
- GREEN MEDIAN
- GREY MEDIAN

KEYMAP



REVISIONS	REVISIONS
2013-JULY-29 ISSUED FOR TAC	2013-NOVEMBER -18 ISSUED FOR REVIEW
2013-NOVEMBER -08 ISSUED FOR REVIEW	2013-NOVEMBER -28 ISSUED FOR REVIEW
2013-NOVEMBER -25 ISSUED FOR REVIEW	2014-JANUARY -10 ISSUED FOR REVIEW
2013-AUGUST-15 ISSUED FOR REVIEW	2014-FEBRUARY -21 ISSUED FOR REVIEW

CROSSTOWN Collaborative

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

DESIGNED	PK	2013/--/--
DRAWN	AE/CR	2013/--/--
CHECKED	PK	2013/--/--
APPROVED	PK	2013/--/--

EGLINTON CROSSTOWN

EGLINTON AVENUE STREETSCAPE DESIGN

LANDSCAPE PLAN - FROM LILLIAN ST TO FORMAN AVE (STA. 113+500 TO STA. 114+200)

Plot Date: 2014/05/06

TORONTO

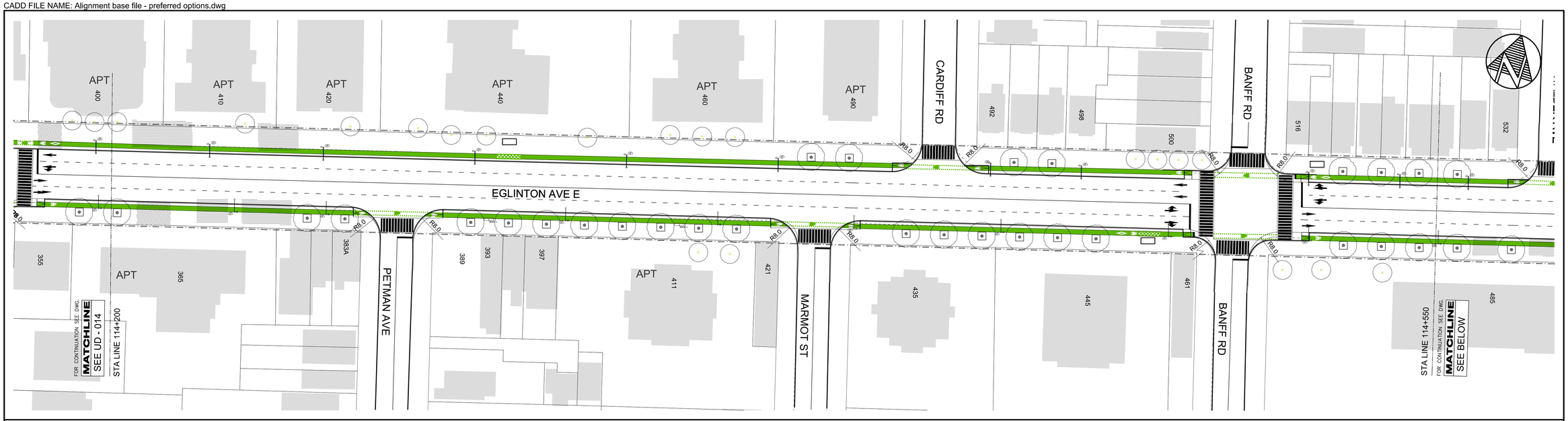
Sheet No. UD - 014

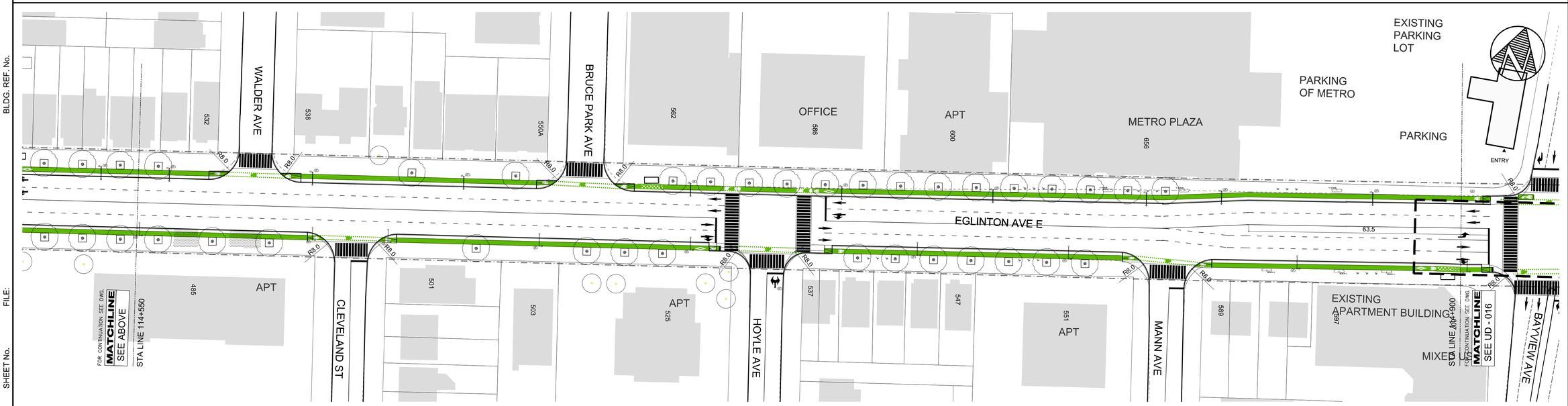
CADD FILE NAME: Alignment base file - preferred options.dwg

BLDG. REF. No.

FILE:

SHEET No.

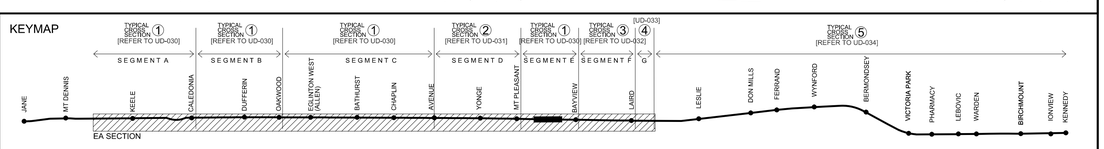




LEGEND

- CITY OF TORONTO STANDARD BICYCLE RING - F-1-6
- LIGHT POST
- LIGHT POST COMBINED WITH HYDRO
- CITY OF TORONTO STANDARD BENCH - F-1-3a
- CITY OF TORONTO STANDARD LITTER RECEPTACLE - F-1-2a
- CITY OF TORONTO STANDARD MULTI-PUBLICATION STRUCTURE - F-1-4b
- CITY OF TORONTO STANDARD MESSAGE CENTRE - F-1-7a
- RAISED BIKE LANE REFER TO DWG UD - 040
- MULTIUSE TRAIL
- OUTLINE OF STATION BUILDINGS - INDICATED IN METROLINX REFERENCE CONCEPT DESIGN
- PROPOSED TREE, REFER TO DWG UD - 036 AND 037
- RAISED PLANTER
- SPECIES COMPLIANT WITH HYDRO HEIGHT RESTRICTIONS
- EXISTING TREE PRIVATE PROPERTY
- OFFICIAL PLAN RIGHT-OF-WAY
- APPROXIMATE AREA OF EXCAVATION
- DRIVEWAY
- BUS STOP
- CITY OF TORONTO STANDARD BUS SHELTER - F-1-1a
- EXISTING BUILDING FOOTPRINT AND ADDRESS NUMBER (e.g. 2343)
- GREEN MEDIAN
- GREY MEDIAN

KEYMAP



REVISIONS	REVISIONS
2013-JULY-29 ISSUED FOR TAC	2013-NOVEMBER -18 ISSUED FOR REVIEW
2013-NOVEMBER -08 ISSUED FOR REVIEW	2013-NOVEMBER -28 ISSUED FOR REVIEW
2013-NOVEMBER -25 ISSUED FOR REVIEW	2014-JANUARY -10 ISSUED FOR REVIEW
2013-AUGUST-15 ISSUED FOR REVIEW	2014-FEBRUARY -21 ISSUED FOR REVIEW

DRAWING No.

CROSSTOWN Collaborative

SCALE 1:500 0 5 10 15 20m

DESIGNED	PK	2013/--/--
DRAWN	AE/CR	2013/--/--
CHECKED	PK	2013/--/--
APPROVED	PK	2013/--/--

EGLINTON CROSSTOWN

EGLINTON AVENUE STREETSCAPE DESIGN

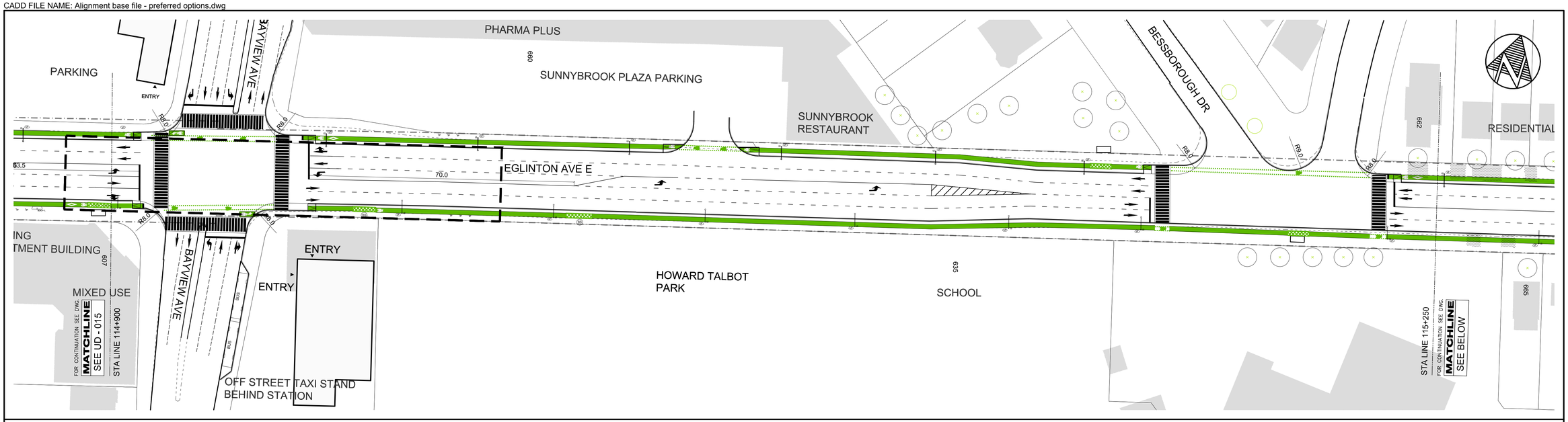
LANDSCAPE PLAN - FROM PETMAN AVE TO MANN AVE (STA. 114+200 TO STA. 114+900)

Plot Date: 2014/05/06

TORONTO

Sheet No. UD - 015

CADD FILE NAME: Alignment base file - preferred options.dwg



BLDG. REF. No.

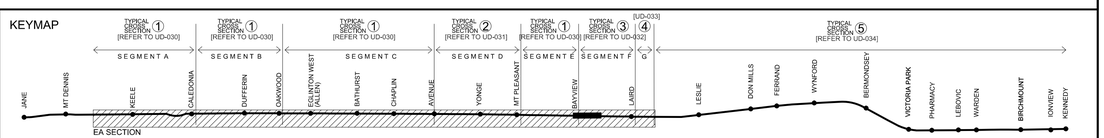
FILE:

SHEET No.

LEGEND

- CITY OF TORONTO STANDARD BICYCLE RING - F-1-6
- LIGHT POST
- LIGHT POST COMBINED WITH HYDRO
- CITY OF TORONTO STANDARD BENCH - F-1-3a
- CITY OF TORONTO STANDARD LITTER RECEPTACLE - F-1-2a
- CITY OF TORONTO STANDARD MULTI-PUBLICATION STRUCTURE - F-1-4b
- CITY OF TORONTO STANDARD MESSAGE CENTRE - F-1-7a
- RAISED BIKE LANE REFER TO DWG UD - 040
- MULTIUSE TRAIL
- OUTLINE OF STATION BUILDINGS - INDICATED IN METROLINX REFERENCE CONCEPT DESIGN
- PROPOSED TREE, REFER TO DWG UD - 036 AND 037
- RAISED PLANTER
- SPECIES COMPLIANT WITH HYDRO HEIGHT RESTRICTIONS
- EXISTING TREE PRIVATE PROPERTY
- OFFICIAL PLAN RIGHT-OF-WAY
- APPROXIMATE AREA OF EXCAVATION
- DRIVEWAY
- BUS STOP
- CITY OF TORONTO STANDARD BUS SHELTER - F-1-1a
- EXISTING BUILDING FOOTPRINT AND ADDRESS NUMBER
- GREEN MEDIAN
- GREY MEDIAN

KEYMAP



REVISIONS	REVISIONS
2013-JULY-29 ISSUED FOR TAC	2013-NOVEMBER -18 ISSUED FOR REVIEW
2013-NOVEMBER -08 ISSUED FOR REVIEW	2013-NOVEMBER -28 ISSUED FOR REVIEW
2013-NOVEMBER -25 ISSUED FOR REVIEW	2014-JANUARY -10 ISSUED FOR REVIEW
2013-AUGUST-15 ISSUED FOR REVIEW	2014-FEBRUARY -21 ISSUED FOR REVIEW

DRAWING No.

CROSSTOWN Collaborative

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

DESIGNED	PK	2013/--/--
DRAWN	AE/CR	2013/--/--
CHECKED	PK	2013/--/--
APPROVED	PK	2013/--/--

EGLINTON CROSSTOWN

EGLINTON AVENUE STREETSCAPE DESIGN

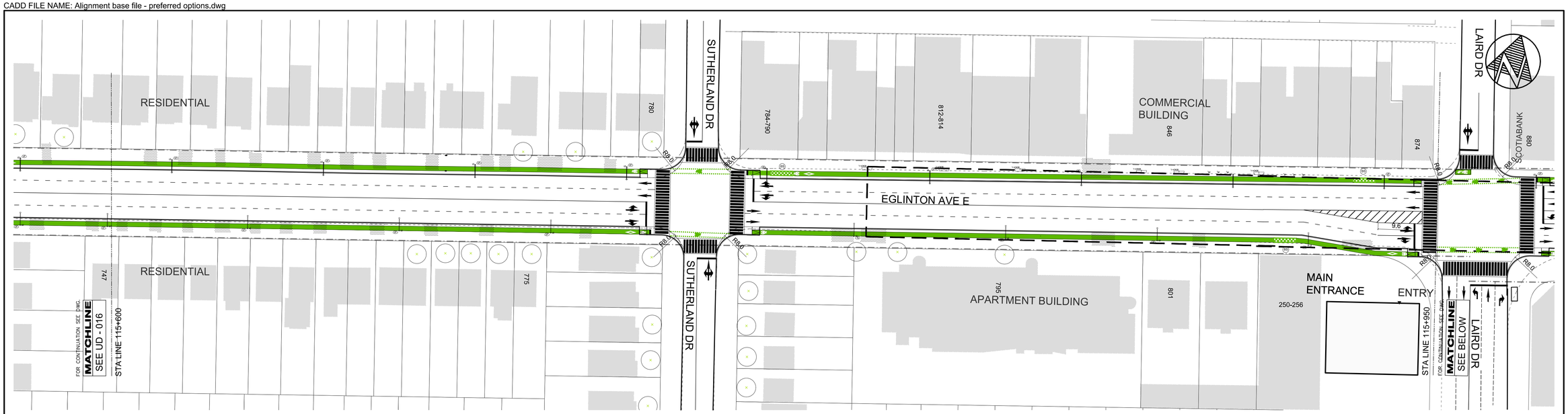
LANDSCAPE PLAN - FROM BAYVIEW AVE TO RUMSEY RD (STA. 114+900 TO STA. 115+600)

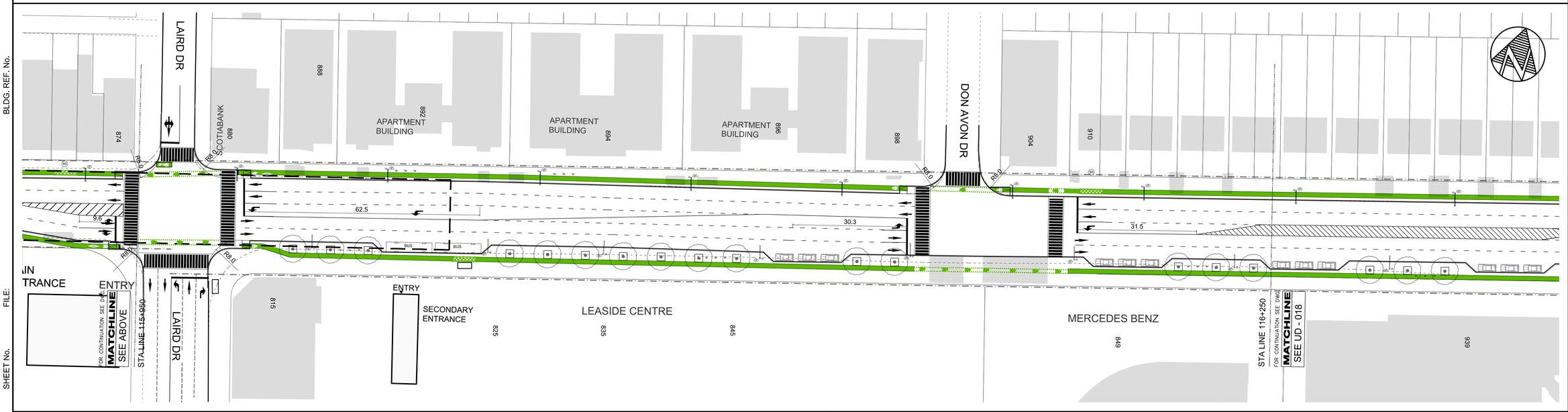
Plot Date: 2014/05/06

TORONTO

Sheet No. UD - 016

CADD FILE NAME: Alignment base file - preferred options.dwg

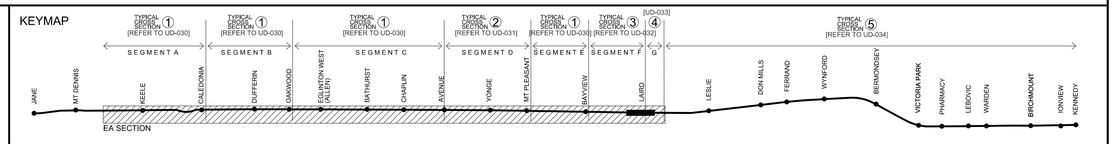




LEGEND

- CITY OF TORONTO STANDARD BICYCLE RING - F-1-6
- LIGHT POST
- LIGHT POST COMBINED WITH HYDRO
- CITY OF TORONTO STANDARD BENCH - F-1-3a
- CITY OF TORONTO STANDARD LITTER RECEPTACLE - F-1-2a
- CITY OF TORONTO STANDARD MULTI-PUBLICATION STRUCTURE - F-1-4b
- CITY OF TORONTO STANDARD MESSAGE CENTRE - F-1-7a
- RAISED BIKE LANE REFER TO DWG UD - 040
- MULTIUSE TRAIL
- OUTLINE OF STATION BUILDINGS - INDICATED IN METROLINX REFERENCE CONCEPT DESIGN
- PROPOSED TREE, REFER TO DWG UD - 036 AND 037
- RAISED PLANTER
- SPECIES COMPLIANT WITH HYDRO HEIGHT RESTRICTIONS
- EXISTING TREE PRIVATE PROPERTY
- OFFICIAL PLAN RIGHT-OF-WAY
- APPROXIMATE AREA OF EXCAVATION
- DRIVEWAY
- BUS STOP
- CITY OF TORONTO STANDARD BUS SHELTER - F-1-1a
- EXISTING BUILDING FOOTPRINT AND ADDRESS NUMBER
- GREEN MEDIAN
- GREY MEDIAN (SIGNALIZED PLANTING IN CENTRAL MEDIAN)

KEYMAP



REVISIONS	REVISIONS
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2013-NOVEMBER -08 ISSUED FOR REVIEW	2013-NOVEMBER -28 ISSUED FOR REVIEW
2013-NOVEMBER -25 ISSUED FOR REVIEW	2014-JANUARY -10 ISSUED FOR REVIEW
2013-AUGUST-15 ISSUED FOR REVIEW	2014-FEBRUARY -21 ISSUED FOR REVIEW

CROSSTOWN Collaborative

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

DESIGNED	PK	2013/--/--
DRAWN	AE/CR	2013/--/--
CHECKED	PK	2013/--/--
APPROVED	PK	2013/--/--

EGLINTON CROSSTOWN

EGLINTON AVENUE STREETSCAPE DESIGN

LANDSCAPE PLAN - FROM SUTHERLAND DR TO DON AVON DR (STA. 115+600 TO STA. 116+250)

Plot Date: 2014/05/06

TORONTO

Sheet No. UD - 017

BLDG. REF. No.
FILE:
SHEET No.
DRAWING No.

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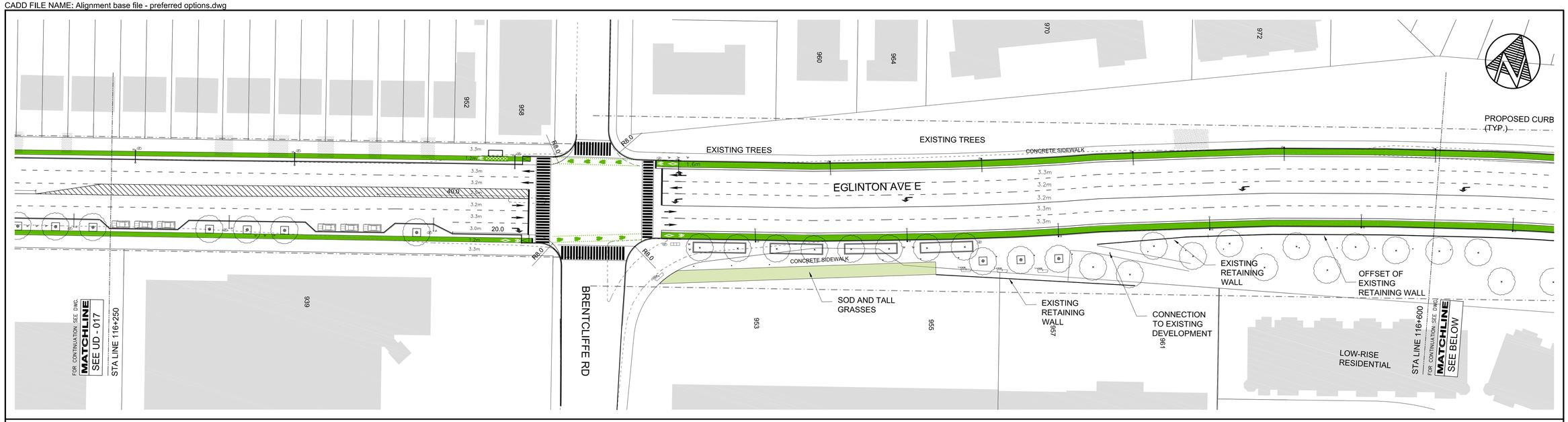


BLDG. REF. No.

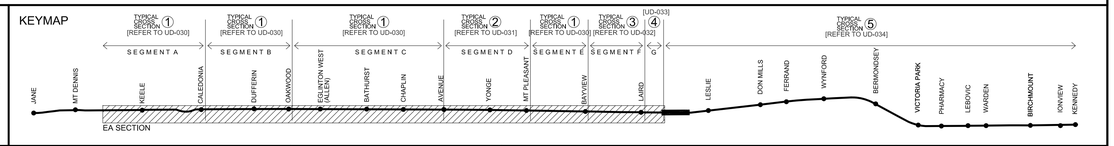
FILE:

SHEET No.

LEGEND

- CITY OF TORONTO STANDARD BICYCLE RING - F-1-6
- LIGHT POST
- LIGHT POST COMBINED WITH HYDRO
- CITY OF TORONTO STANDARD BENCH - F-1-3a
- CITY OF TORONTO STANDARD LITTER RECEPTACLE - F-1-2a
- CITY OF TORONTO STANDARD MULTI-PUBLICATION STRUCTURE - F-1-4b
- CITY OF TORONTO STANDARD MESSAGE CENTRE - F-1-7a
- RAISED BIKE LANE REFER TO DWG UD - 040
- MULTIUSE TRAIL
- OUTLINE OF STATION BUILDINGS - INDICATED IN METROLINX REFERENCE CONCEPT DESIGN
- PROPOSED TREE, REFER TO DWG UD - 036 AND 037
- RAISED PLANTER
- SPECIES COMPLIANT WITH HYDRO HEIGHT RESTRICTIONS
- EXISTING TREE PRIVATE PROPERTY
- OFFICIAL PLAN RIGHT-OF-WAY
- APPROXIMATE AREA OF EXCAVATION
- DRIVEWAY
- BUS STOP
- CITY OF TORONTO STANDARD BUS SHELTER - F-1-1a
- EXISTING BUILDING FOOTPRINT AND ADDRESS NUMBER (2343)
- GREEN MEDIAN
- GREY MEDIAN (TEXTURED PAVING/CONTRAL LEVEL)

KEYMAP



REVISIONS	REVISIONS
2013-NOVEMBER -08 ISSUED FOR REVIEW	2013-NOVEMBER -28 ISSUED FOR REVIEW
2013-NOVEMBER -25 ISSUED FOR REVIEW	2014-JANUARY -10 ISSUED FOR REVIEW
2013-AUGUST-15 ISSUED FOR REVIEW	2014-FEBRUARY -21 ISSUED FOR REVIEW
2013-NOVEMBER -18 ISSUED FOR REVIEW	2014-SEPTEMBER -02 ISSUED FOR REVIEW

DRAWING No.

CROSSTOWN Collaborative

SCALE 1:500 0 5 10 15 20m

DESIGNED	PK	2013/--/--
DRAWN	AE/CR	2013/--/--
CHECKED	PK	2013/--/--
APPROVED	PK	2013/--/--

EGLINTON CROSSTOWN

EGLINTON AVENUE STREETSCAPE DESIGN

LANDSCAPE PLAN - FROM BRENTCLIFFE RD TO DON RIVER (STA. 116+250 TO STA. 116+950)

Plot Date: 2014/05/06

TORONTO

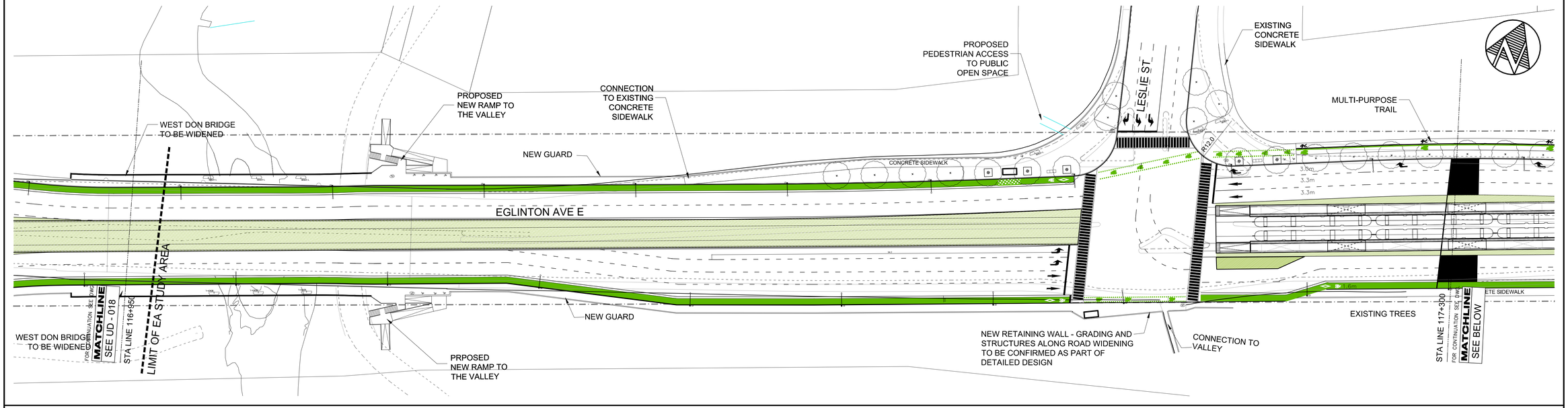
Sheet No. UD - 018

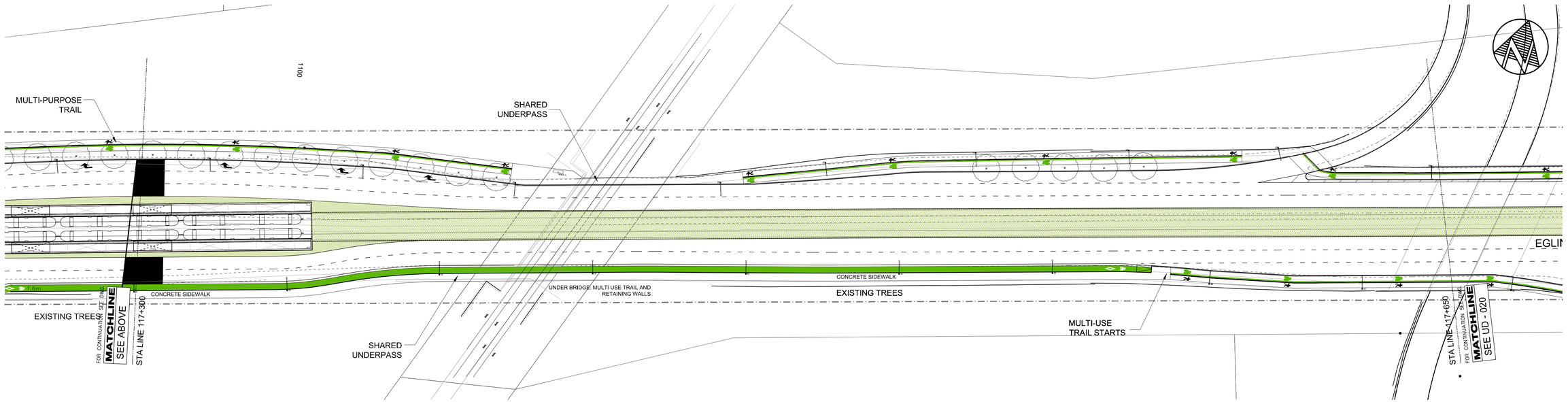
CADD FILE NAME: Alignment base file - preferred options.dwg

BLDG. REF. No.

FILE:

SHEET No.





LEGEND

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- LIGHT POST
- LIGHT POST COMBINED WITH HYDRO
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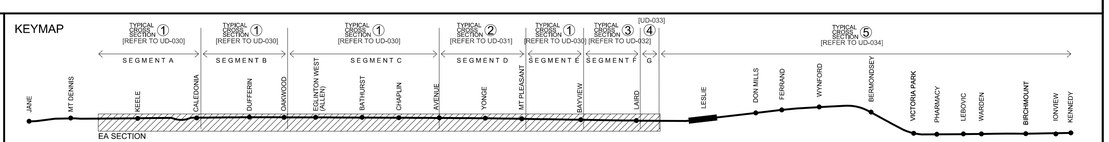
- MULTIUSE TRAIL
- OUTLINE OF STATION BUILDINGS - INDICATED IN METROLINX REFERENCE CONCEPT DESIGN
- PROPOSED TREE, REFER TO DWG UD - 036 AND 037
- RAISED PLANTER
- SPECIES COMPLIANT WITH HYDRO HEIGHT RESTRICTIONS
- EXISTING TREE PRIVATE PROPERTY
- OFFICIAL PLAN RIGHT-OF-WAY
- APPROXIMATE AREA OF EXCAVATION
- DRIVEWAY
- BUS STOP
- CITY OF TORONTO STANDARD BUS SHELTER - F-1-1a
- EXISTING BUILDING FOOTPRINT AND ADDRESS NUMBER
- GREEN MEDIAN
- GREY MEDIAN

KEYMAP



REVISIONS	REVISIONS
2013-JULY-29 ISSUED FOR TAC	2013-NOVEMBER -18 ISSUED FOR REVIEW
2013-NOVEMBER -08 ISSUED FOR REVIEW	2013-NOVEMBER -28 ISSUED FOR REVIEW
2013-NOVEMBER -25 ISSUED FOR REVIEW	2014-JANUARY -10 ISSUED FOR REVIEW
2013-AUGUST-15 ISSUED FOR REVIEW	2014-FEBRUARY -21 ISSUED FOR REVIEW

DRAWING No.

CROSSTOWN Collaborative

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

DESIGNED	PK	2013/--/--
DRAWN	AE/CR	2013/--/--
CHECKED	PK	2013/--/--
APPROVED	PK	2013/--/--

EGLINTON CROSSTOWN

EGLINTON AVENUE STREETSCAPE DESIGN

LANDSCAPE PLAN - FROM DON RIVER W BRANCH TO CELESTICA RAMP (STA. 116+950 TO STA. 117+650)

Plot Date: 2014/05/06

TORONTO

Sheet No. UD - 019

Appendix D
Functional Road Plan

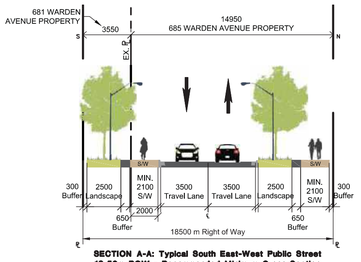
GENERAL NOTES

1. ARCHITECTURAL GROUND FLOOR PLAN DATED JUNE 22, 2021, PREPARED BY TURNER FLEISCHER ARCHITECTS

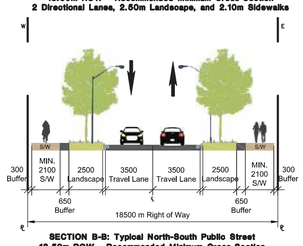
GENERAL LEGEND

PROPOSED SIGNALIZED INTERSECTION

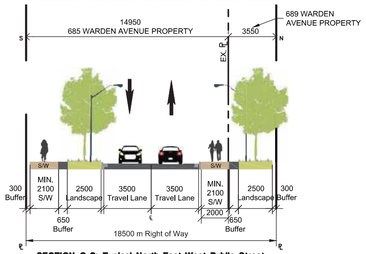
TYPICAL CROSS-SECTIONS



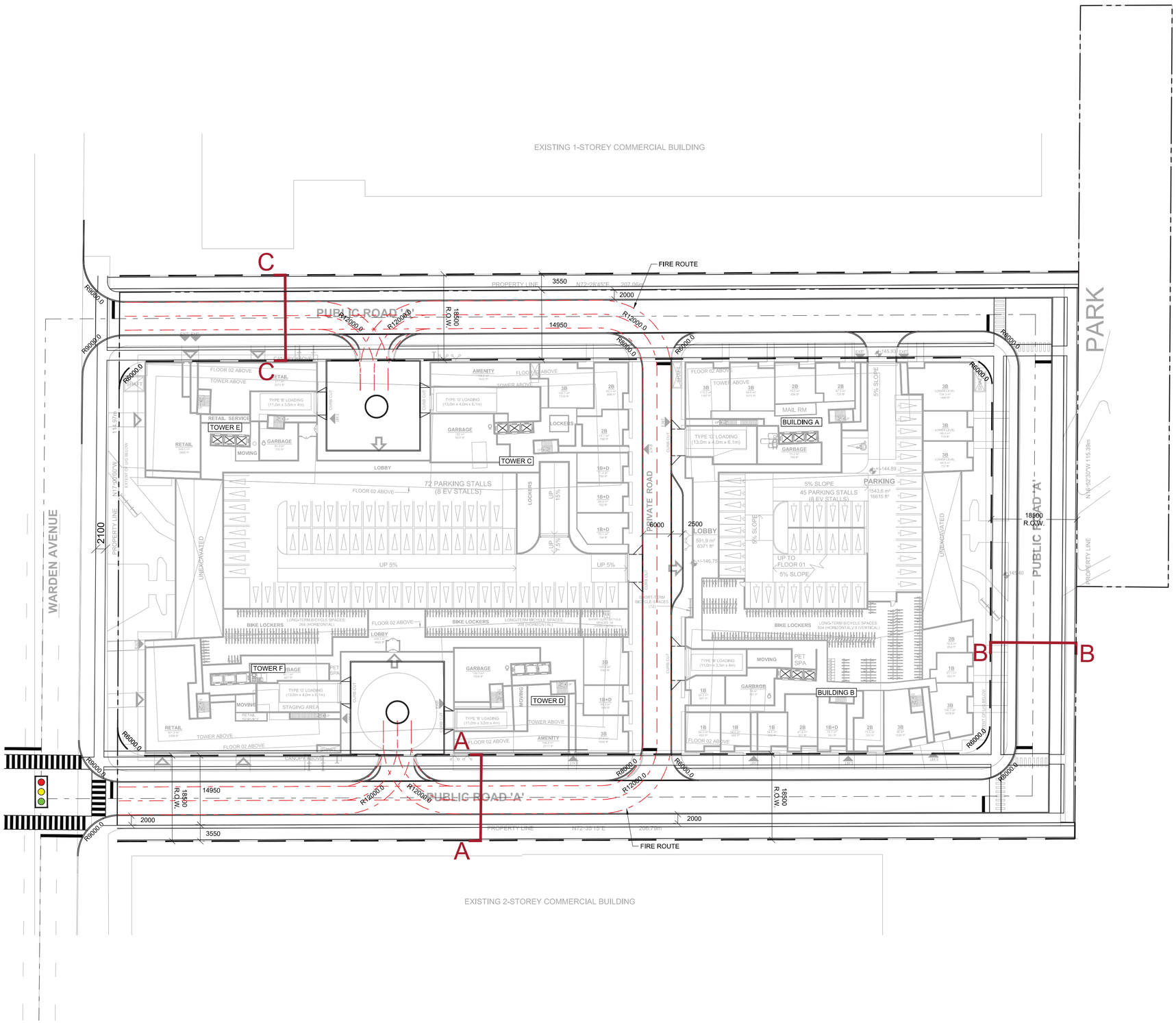
SECTION A-A: Typical South East-West Public Street
18.50m ROW - Recommended Minimum Cross-Section
2 Directional Lanes, 2.50m Landscape, and 2.10m Sidewalks



SECTION B-B: Typical North-South Public Street
18.50m ROW - Recommended Minimum Cross-Section
2 Directional Lanes, 2.50m Landscape, and 2.10m Sidewalks



SECTION C-C: Typical North East-West Public Street
18.50m ROW - Recommended Minimum Cross-Section
2 Directional Lanes, 2.50m Landscape, and 2.10m Sidewalks



01 06-25-21 CAM ISSUED FOR REZONING SUBMISSION

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

685 WARDEN AVENUE

FUNCTIONAL ROAD PLAN

Date: June 11, 2021

Project No.: 7708-08

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

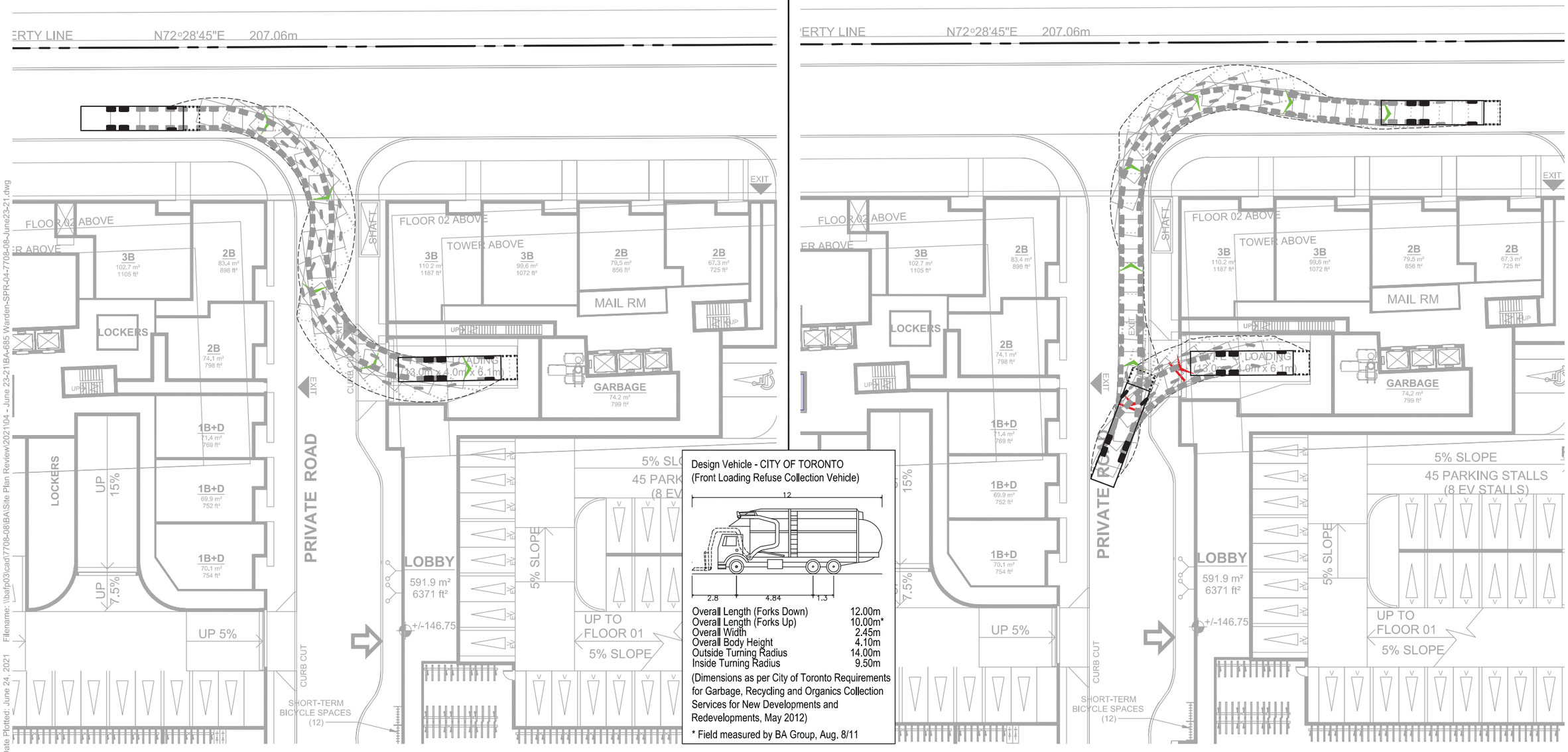
RP-01

Date Plotted: June 24, 2021 Filename: J:\7708-08\BA\Road Plan\2021\03 - June 22-21\BA-685 Warden-RP-03-7708-08-June22-21.dwg

Appendix E
Vehicle Manoeuvring Diagram

INBOUND

OUTBOUND



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

(Dimensions as per City of Toronto Requirements for Garbage, Recycling and Organics Collection Services for New Developments and Redevelopments, May 2012)

* Field measured by BA Group, Aug. 8/11

Filename: \\bafp03\cad\7708-08\BA\Site Plan Review\2021\04 - June 23-21\BA-685 Warden-SPR-04-7708-08-June23-21.dwg

Date Plotted: June 24, 2021

BA Group

685 WARDEN AVENUE

VEHICULAR MANOEUVRING DIAGRAM
CITY OF TORONTO FRONT LOADING WASTE COLLECTION TRUCK
BUILDING A

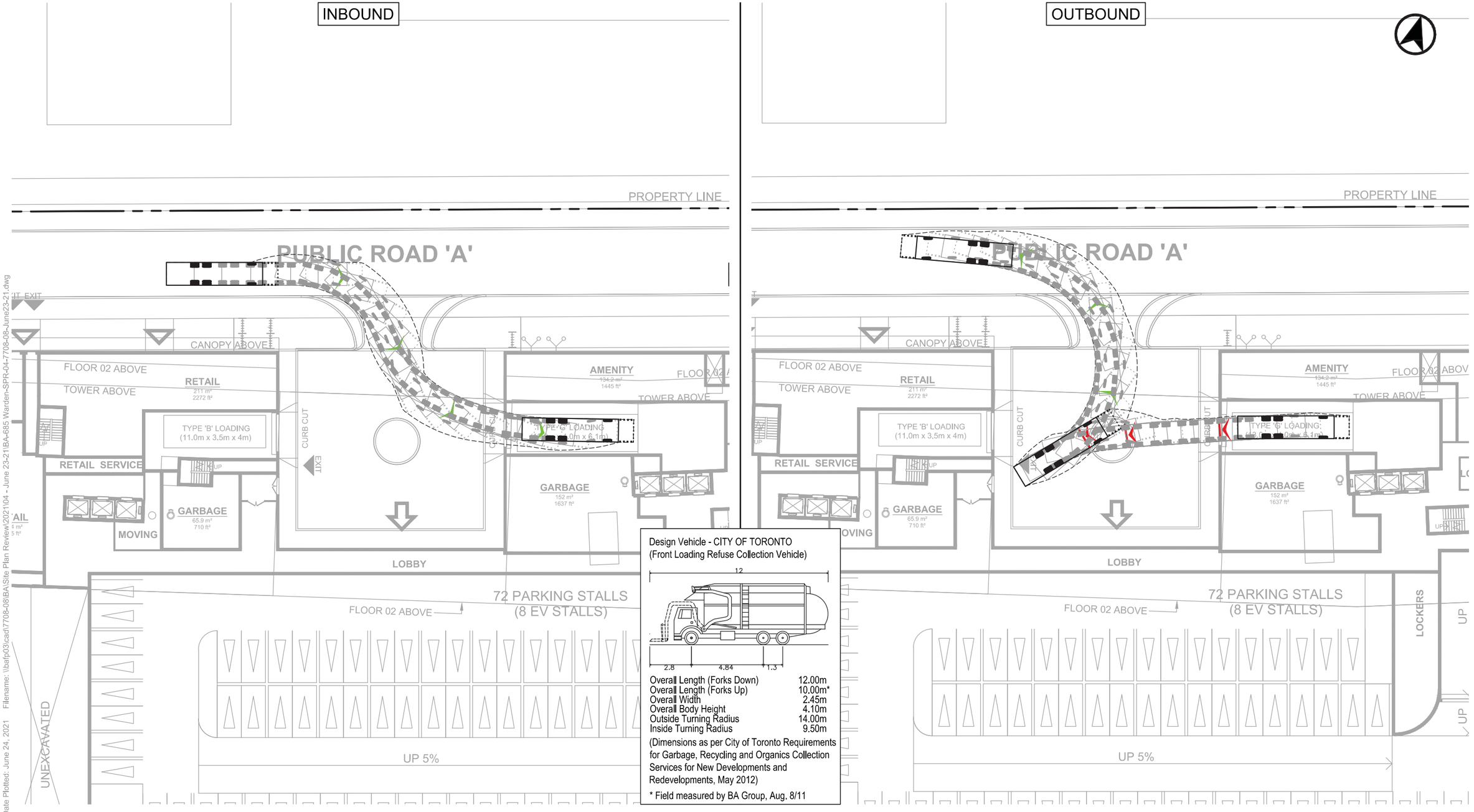
Project:	685 Warden Avenue
Project No.	7708-08
Date:	May 27, 2021
Revised:	June 25, 2021

Scale 1:400 — 0 2 4 6 8 10 20m

Drawing No. VMD-01

INBOUND

OUTBOUND



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(Front Loading Refuse Collection Vehicle)

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(Dimensions as per City of Toronto Requirements for Garbage, Recycling and Organics Collection Services for New Developments and Redevelopments, May 2012)

* Field measured by BA Group, Aug. 8/11

BA Group

685 WARDEN AVENUE

VEHICULAR MANOEUVRING DIAGRAM
CITY OF TORONTO FRONT LOADING WASTE COLLECTION TRUCK
TOWER E

Project:	685 Warden Avenue
Project No.	7708-08
Date:	May 27, 2021
Revised:	June 25, 2021

Scale 1:400 — 0 2 4 6 8 10 20m

Drawing No. VMD-02

Date Plotted: June 24, 2021 Filename: \\bafp03\cad\7708-08\BA\Site Plan Review\2021\04 - June 23-21BA-685 Warden-SPR-04-7708-08-June23-21.dwg

INBOUND

OUTBOUND

UP 5%

UP 7.5%

BIKE LOCKERS

LONG-TERM BICYCLE SPACES: 264 (HORIZONTAL)

LONG-TERM BICYCLE SPACES : 208 (HORIZONTAL)

FLOOR 02 ABOVE

LOBBY
429.2 m²
4620 ft²

GARBAGE
61.1 m²
657 ft²

GARBAGE
139.7 m²
1504 ft²

TYPE 'G' LOADING
(13.0m x 4.0m x 6.1m)

MOVING

STAGING AREA

RETAIL SERVICE

SHAFT

CANOPY ABOVE

EXIT

CURB CUT

TYPE 'B' LOADING
(11.0m x 3.5m x 4m)

TOWER ABOVE

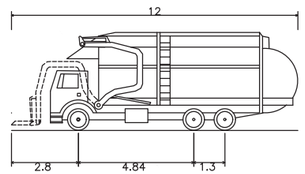
AMENITY
196.6 m²
2117 ft²

PUBLIC ROAD 'A'

PROPERTY LINE

EXISTING 2-STOREY COMMERCI

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

(Dimensions as per City of Toronto Requirements for Garbage, Recycling and Organics Collection Services for New Developments and Redevelopments, May 2012)

* Field measured by BA Group, Aug. 8/11

Filename: \\bafp03\cad\7708-08\BA\Site Plan Review\2021\04 - June 23-21BA-685 Warden-SPR-04-7708-08-June23-21.dwg

Date Plotted: June 24, 2021

BA Group

685 WARDEN AVENUE

VEHICULAR MANOEUVRING DIAGRAM

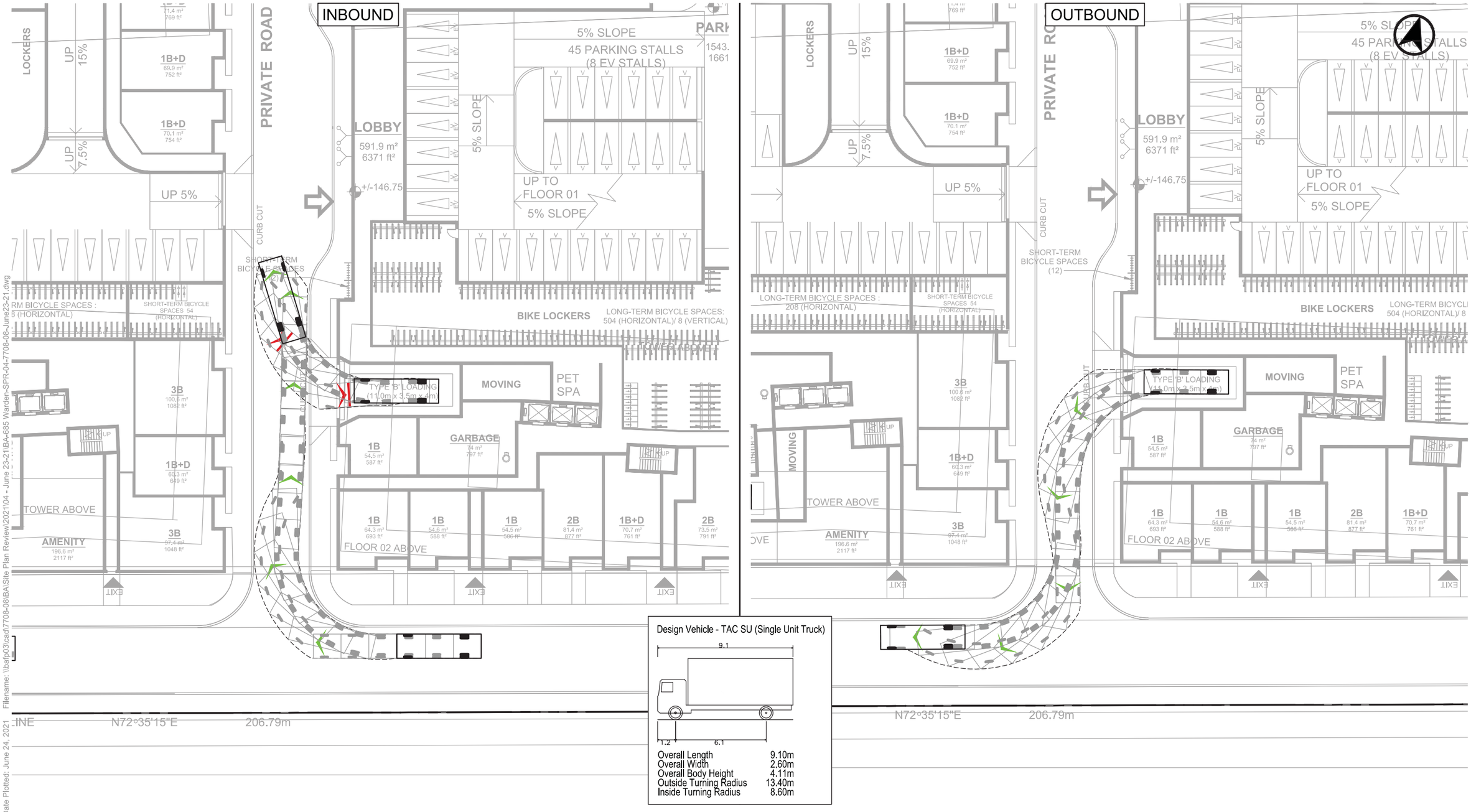
CITY OF TORONTO FRONT LOADING WASTE COLLECTION TRUCK

TOWER F

Project:	685 Warden Avenue
Project No.	7708-08
Date:	May 27, 2021
Revised:	June 25, 2021

Scale 1:400 — 0 2 4 6 8 10 20m

Drawing No. VMD-03



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

Filename: \\bafp03\cad\7708-08\BA\Site Plan Review\2021\04 - June 23-21BA-685 Warden-SPR-04-7708-08-June23-21.dwg

Date Plotted: June 24, 2021

BA Group

685 WARDEN AVENUE

VEHICULAR MANOEUVRING DIAGRAM

TYPE 'B' LOADING SPACE - SINGLE UNIT (SU) TRUCK

BUILDING B

Project:	685 Warden Avenue
Project No.	7708-08
Date:	May 27, 2021
Revised:	June 25, 2021

Scale 1:400 — 0 2 4 6 8 10 20m

Drawing No. VMD-04

INBOUND

OUTBOUND

PROPERTY LINE

PUBLIC ROAD 'A'

EXIT EXIT

CANOPY ABOVE

FLOOR 02 ABOVE

TOWER ABOVE

RETAIL
211 m²
2272 ft²

TYPE 'B' LOADING
(11.0m x 3.5m x 4m)

CURB CUT

AMENITY
134.2 m²
1445 ft²

TYPE 'G' LOADING
(13.0m x 4.0m x 6.1m)

RETAIL SERVICE

UP

GARBAGE
65.9 m²
710 ft²

GARBAGE
152 m²
1637 ft²

MOVING

LOBBY

72 PARKING STALLS
(8 EV STALLS)

FLOOR 02 ABOVE

LOCKERS

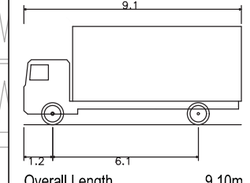
UP 15%

UP 7.5%

UP 5%

UNEXCAVATED

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

Date Plotted: June 24, 2021 Filename: J:\7708-08\BA\Site Plan Review\2021\04 - June 23-21\BA-685 Warden-SPR-04-7708-08-June23-21.dwg

BA Group

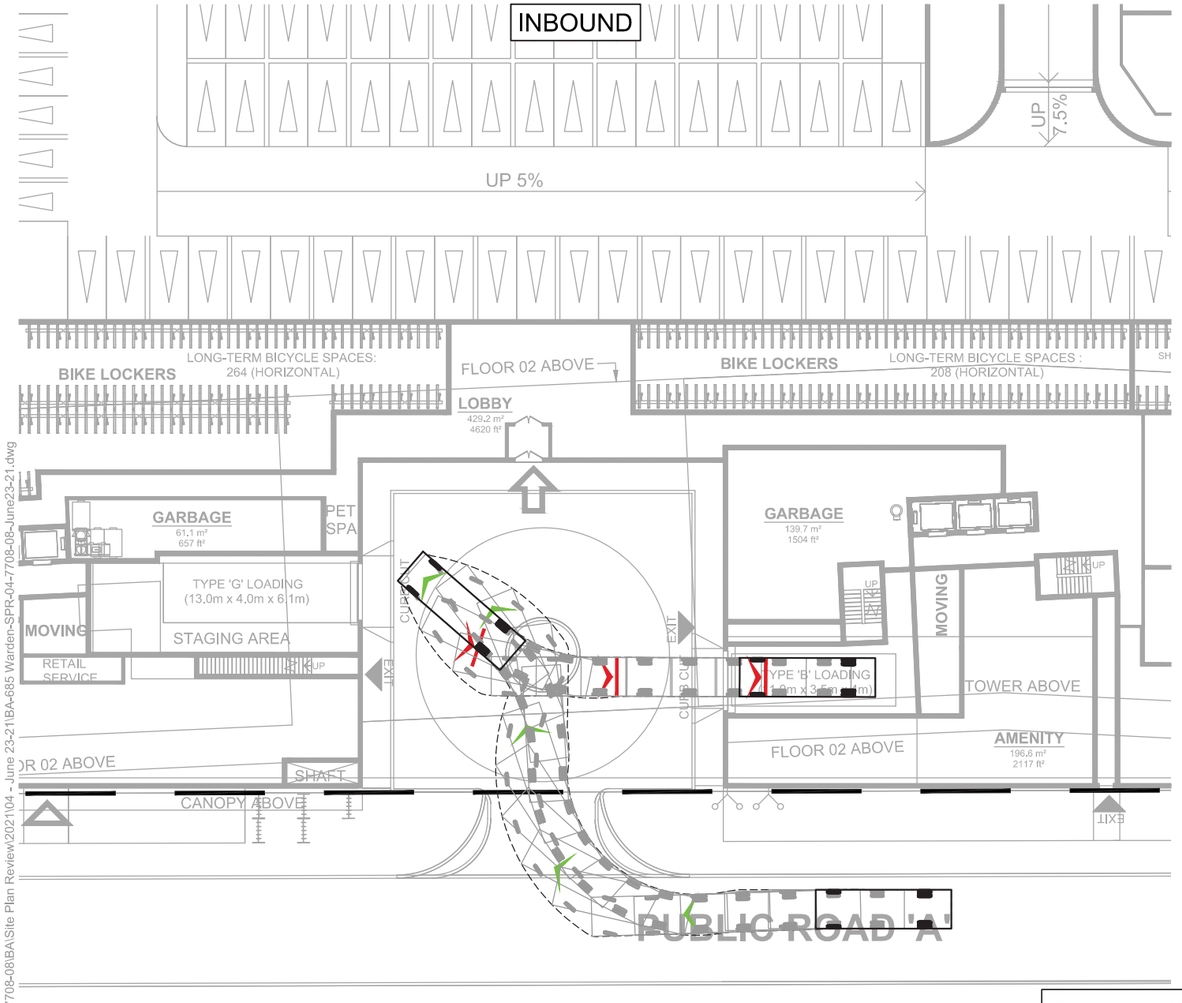
685 WARDEN AVENUE

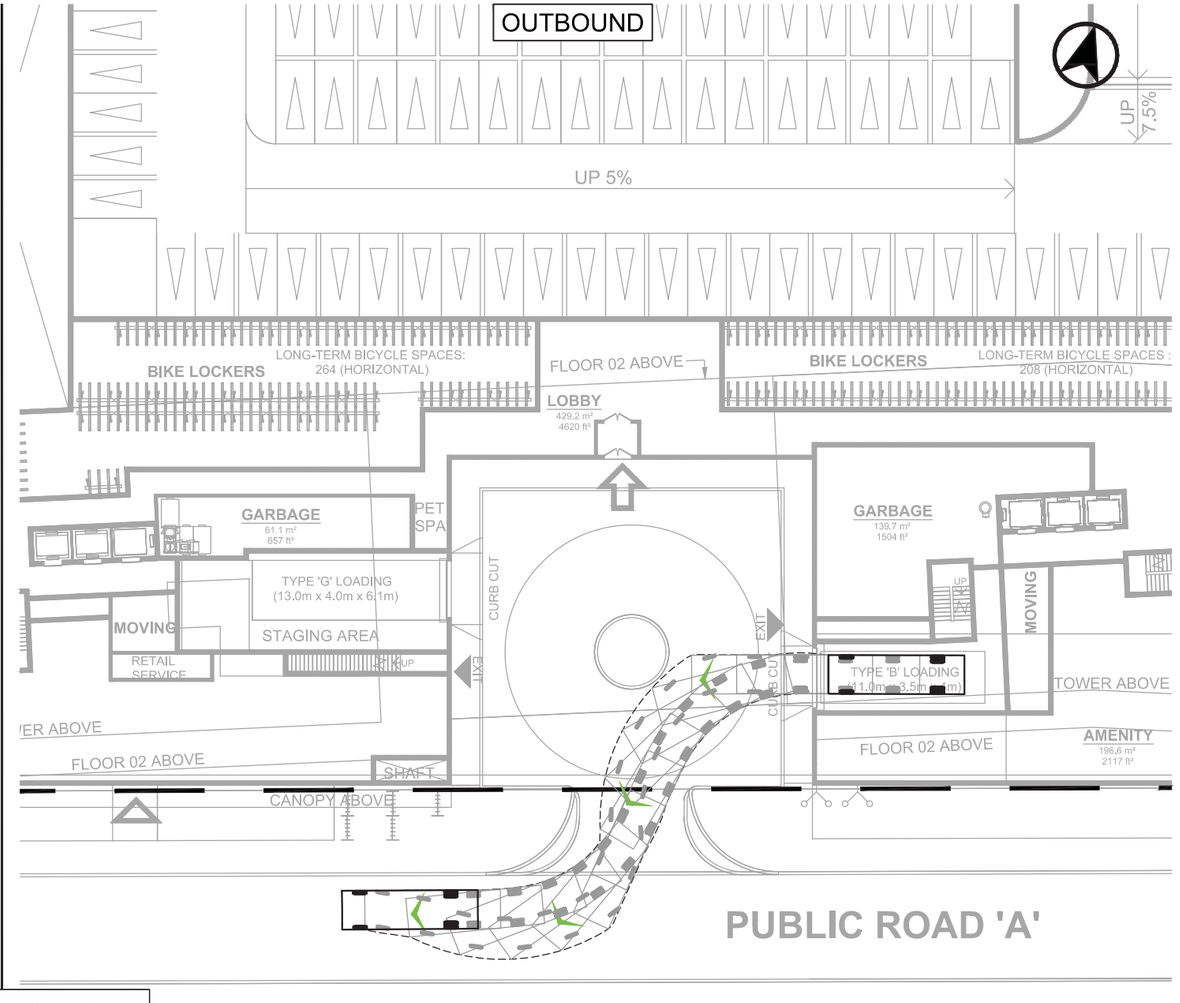
VEHICULAR MANOEUVRING DIAGRAM
TYPE 'B' LOADING SPACE - SINGLE UNIT (SU) TRUCK
TOWER C

Project:	685 Warden Avenue
Project No.	7708-08
Date:	May 27, 2021
Revised:	June 25, 2021

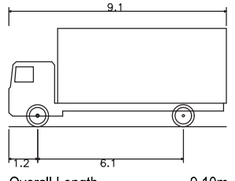
Scale 1:400 0 2 4 6 8 10 20m

Drawing No. VMD-05





Design Vehicle - TAC SU (Single Unit Truck)



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

Date Plotted: June 24, 2021 Filename: \\bafp03\cad\7708-08\BA\Site Plan Review\20211104 - June 23-21BA-685 Warden-SPR-04-7708-08-June23-21.dwg

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685 WARDEN AVENUE

VEHICULAR MANOEUVRING DIAGRAM
TYPE 'B' LOADING SPACE - SINGLE UNIT (SU) TRUCK
TOWER D

Project:	685 Warden Avenue
Project No.	7708-08
Date:	May 27, 2021
Revised:	June 25, 2021

Scale 1:400 (0 2 4 6 8 10 20m)

Drawing No. VMD-06

Appendix F
TTS Queries

RESIDENTIAL TTS DISTRIBUTION ANALYSIS - OUTBOUND

Destination /Origin	Origin/Destination					Total	Route Selection				Trip Distribution				
	528	534	536	537	538		North	South	East	West	North	South	East	West	
PD 1 of Toronto	77	17	173	123	412	802	30%	5%	65%		4.0%	0.7%	8.7%	0.0%	100%
PD 2 of Toronto	0	0	48	33	8	89	30%	5%	65%		0.4%	0.1%	1.0%	0.0%	100%
PD 3 of Toronto	19	0	0	0	0	19	15%		85%		0.0%	0.0%	0.3%	0.0%	100%
PD 4 of Toronto	57	6	15	0	0	78	50%		50%		0.6%	0.0%	0.6%	0.0%	100%
PD 5 of Toronto	84	0	90	18	45	237	100%				3.9%	0.0%	0.0%	0.0%	100%
PD 6 of Toronto	160	24	93	26	676	979		15%	85%		0.0%	2.4%	13.8%	0.0%	100%
PD 7 of Toronto	0	0	0	20	0	20	30%		70%		0.1%	0.0%	0.2%	0.0%	100%
PD 8 of Toronto	0	0	21	0	0	21	50%		50%		0.2%	0.0%	0.2%	0.0%	100%
PD 9 of Toronto	0	12	0	0	0	12	95%		5%		0.2%	0.0%	0.0%	0.0%	100%
PD 10 of Toronto	0	0	0	0	32	32	95%		5%		0.5%	0.0%	0.0%	0.0%	100%
PD 11 of Toronto	0	0	84	0	61	145	50%		50%		1.2%	0.0%	1.2%	0.0%	100%
PD 12 of Toronto	0	58	87	0	22	167	100%				2.8%	0.0%	0.0%	0.0%	100%
PD 13 of Toronto											0.0%	0.0%	0.0%	0.0%	
486	0	18	10	51	0	79	100%				1.3%	0.0%	0.0%	0.0%	100%
487	79	0	36	0	0	115	100%				1.9%	0.0%	0.0%	0.0%	100%
490	0	0	17	0	0	17	100%				0.3%	0.0%	0.0%	0.0%	100%
491	0	12	0	0	0	12	100%				0.2%	0.0%	0.0%	0.0%	100%
492	0	0	0	29	0	29	100%				0.5%	0.0%	0.0%	0.0%	100%
494	0	0	0	8	0	8	100%				0.1%	0.0%	0.0%	0.0%	100%
499	0	0	0	15	0	15	100%				0.2%	0.0%	0.0%	0.0%	100%
500	0	0	38	0	7	45	100%				0.7%	0.0%	0.0%	0.0%	100%
503	0	0	0	18	0	18	100%				0.3%	0.0%	0.0%	0.0%	100%
507	17	0	0	0	8	25	100%				0.4%	0.0%	0.0%	0.0%	100%
508	0	27	11	0	0	38	100%				0.6%	0.0%	0.0%	0.0%	100%
525	0	0	0	20	15	35	100%				0.6%	0.0%	0.0%	0.0%	100%
526	33	0	10	0	0	43	100%				0.7%	0.0%	0.0%	0.0%	100%
527	0	0	0	41	0	41	100%				0.7%	0.0%	0.0%	0.0%	100%
528	85	23	76	196	205	585	50%			50%	4.9%	0.0%	0.0%	4.9%	100%
530	0	0	10	0	22	32	75%			25%	0.4%	0.0%	0.0%	0.1%	100%
531	0	0	0	18	0	18	30%			70%	0.1%	0.0%	0.0%	0.2%	100%
532	0	0	0	0	7	7	50%			50%	0.1%	0.0%	0.0%	0.1%	100%
534	0	17	0	0	0	17	50%			50%	0.1%	0.0%	0.0%	0.1%	100%
535	0	0	121	0	0	121		10%		90%	0.0%	0.2%	0.0%	1.8%	100%
536	0	14	136	67	29	246		50%		50%	0.0%	2.0%	0.0%	2.0%	100%
537	0	0	0	146	0	146		50%	50%		0.0%	1.2%	1.2%	0.0%	100%
538	17	17	8	21	111	174		95%	5%		0.0%	2.7%	0.1%	0.0%	100%
PD 14 of Toronto	69	21	16	16	80	202		40%		60%	0.0%	1.3%	0.0%	2.0%	100%
PD 15 of Toronto	0	0	31	0	0	31		30%		70%	0.0%	0.2%	0.0%	0.4%	100%
PD 16 of Toronto	0	33	101	0	54	188		15%		85%	0.0%	0.5%	0.0%	2.7%	100%
Scugog	0	0	8	0	0	8		50%		50%	0.0%	0.1%	0.0%	0.1%	100%
Pickering	0	0	0	26	0	26		50%		50%	0.0%	0.2%	0.0%	0.2%	100%
Ajax	0	0	0	20	9	29		50%		50%	0.0%	0.2%	0.0%	0.2%	100%
Oshawa	48	0	0	26	0	74		50%		50%	0.0%	0.6%	0.0%	0.6%	100%
Aurora	0	0	0	0	57	57	100%				0.9%	0.0%	0.0%	0.0%	100%
Richmond Hill	15	15	0	0	24	54	100%				0.9%	0.0%	0.0%	0.0%	100%
Markham	43	41	18	9	97	208	90%			10%	3.1%	0.0%	0.0%	0.3%	100%
Vaughan	0	47	52	0	92	191	100%				3.2%	0.0%	0.0%	0.0%	100%
Mississauga	57	17	222	46	33	375	50%		50%		3.1%	0.0%	3.1%	0.0%	100%
Oakville	60	0	0	0	22	82	40%		60%		0.5%	0.0%	0.8%	0.0%	100%
External	0	0	0	20	0	20	25%	25%	25%	25%	0.1%	0.1%	0.1%	0.1%	100%
Total	**920**	**419**	**1532**	**1013**	**2128**	**6012**					**40.1%**	**12.6%**	**31.4%**	**15.9%**	Check
										Adopt	**40%**	**15%**	**30%**	**15%**	100%

RESIDENTIAL TTS DISTRIBUTION ANALYSIS - INBOUND

Destination /Origin	Origin/Destination					Total	Route Selection				Trip Distribution				
	528	534	536	537	538		North	South	East	West	North	South	East	West	
PD 1 of Toronto	54	39	173	127	260	653	30%	5%	65%		6.2%	1.0%	13.5%	0.0%	100%
PD 2 of Toronto	47	0	8	8	0	63	30%	5%	65%		0.6%	0.1%	1.3%	0.0%	100%
PD 4 of Toronto	0	0	63	47	28	138	50%		50%		2.2%	0.0%	2.2%	0.0%	100%
PD 5 of Toronto	34	21	90	44	12	201	100%				6.4%	0.0%	0.0%	0.0%	100%
PD 6 of Toronto	172	48	92	123	570	1005		15%	85%		0.0%	4.8%	27.2%	0.0%	100%
PD 7 of Toronto	0	0	0	20	0	20	30%		70%		0.2%	0.0%	0.4%	0.0%	100%
PD 10 of Toronto	0	0	0	0	32	32	95%		5%		1.0%	0.0%	0.1%	0.0%	100%
PD 11 of Toronto	0	13	84	25	49	171	50%		50%		2.7%	0.0%	2.7%	0.0%	100%
PD 12 of Toronto	0	114	118	0	17	249	100%				7.9%	0.0%	0.0%	0.0%	100%
486		0	18	10	12	0	100%				0.0%	0.0%	0.0%	0.0%	100%
487		150	45	36	0	23	100%				0.7%	0.0%	0.0%	0.0%	100%
490		22	0	0	12	0	100%				0.0%	0.0%	0.0%	0.0%	100%
491		0	12	0	16	0	100%				0.0%	0.0%	0.0%	0.0%	100%
492		0	0	0	29	0	100%				0.0%	0.0%	0.0%	0.0%	100%
494		0	0	0	0	19	100%				0.6%	0.0%	0.0%	0.0%	100%
499		0	0	0	15	0	100%				0.0%	0.0%	0.0%	0.0%	100%
500		0	0	38	0	7	100%				0.2%	0.0%	0.0%	0.0%	100%
503		0	0	0	0	7	100%				0.2%	0.0%	0.0%	0.0%	100%
507		0	0	0	65	0	100%				0.0%	0.0%	0.0%	0.0%	100%
508		0	27	11	0	0	100%				0.0%	0.0%	0.0%	0.0%	100%
525		0	6	38	0	0	100%				0.0%	0.0%	0.0%	0.0%	100%
526		0	0	0	16	0	100%				0.0%	0.0%	0.0%	0.0%	100%
527		6	0	0	0	0	100%				0.0%	0.0%	0.0%	0.0%	100%
528		0	0	0	20	43	50%			50%	0.7%	0.0%	0.0%	0.7%	100%
530		22	21	97	21	38	75%			25%	0.9%	0.0%	0.0%	0.3%	100%
531		36	0	15	10	0	30%			70%	0.0%	0.0%	0.0%	0.0%	100%
532		123	0	67	224	65	50%			50%	1.0%	0.0%	0.0%	1.0%	100%
534		16	13	118	51	24	50%			50%	0.4%	0.0%	0.0%	0.4%	100%
535		21	0	0	15	0		10%		90%	0.0%	0.0%	0.0%	0.0%	100%
536		0	0	0	18	33		50%		50%	0.0%	0.5%	0.0%	0.5%	100%
537		0	0	0	0	7		50%	50%		0.0%	0.1%	0.1%	0.0%	100%
538		4	14	120	0	0		95%	5%		0.0%	0.0%	0.0%	0.0%	100%
PD 14 of Toronto		0	0	0	91	0		40%		60%	0.0%	0.0%	0.0%	0.0%	100%
PD 15 of Toronto		38	0	260	0	69		30%		70%	0.0%	0.7%	0.0%	1.5%	100%
PD 16 of Toronto		14	53	46	0	7		15%		85%	0.0%	0.0%	0.0%	0.2%	100%
Pickering		6	0	0	26	0		50%		50%	0.0%	0.0%	0.0%	0.0%	100%
Oshawa		48	0	0	26	0		50%		50%	0.0%	0.0%	0.0%	0.0%	100%
Aurora		0	0	0	0	57	100%				1.8%	0.0%	0.0%	0.0%	100%
Richmond Hill		15	15	0	0	0	100%				0.0%	0.0%	0.0%	0.0%	100%
Whitchurch-Stouffville		19	0	0	0	0	100%				0.0%	0.0%	0.0%	0.0%	100%
Markham		43	21	18	0	107	90%			10%	3.1%	0.0%	0.0%	0.3%	100%
Vaughan		0	40	52	0	92	100%				2.9%	0.0%	0.0%	0.0%	100%
Caledon		0	0	0	33	0	100%				0.0%	0.0%	0.0%	0.0%	100%
Brampton		0	0	0	27	0	100%				0.0%	0.0%	0.0%	0.0%	100%
Mississauga		28	35	222	117	16	50%		50%		0.3%	0.0%	0.3%	0.0%	100%
Oakville		19	0	0	0	0	40%		60%		0.0%	0.0%	0.0%	0.0%	100%
Hamilton		17	0	0	0	0	40%		60%		0.0%	0.0%	0.0%	0.0%	100%
External		0	0	0	20	0	25%	25%	25%	25%	0.0%	0.0%	0.0%	0.0%	100%
Total	**307**	**882**	**948**	**1542**	**1832**	**3146**					**40.0%**	**7.3%**	**47.7%**	**5.0%**	Check
										Adopt	**40%**	**5%**	**50%**	**5%**	100%

Appendix G
Turning Movement Counts and Signal Timing Plans

LOCATION:	**Danforth Rd & Warden Ave**	*DISTRICT:*	**Scarborough**
MODE/COMMENT:	**FXT**	*COMPUTER SYSTEM:*	**TransSuite**
TCS:	**418**	*CONTROLLER/CABINET TYPE:*	**Peek ATC-1000 / TS2T1**
PREPARED/CHECKED BY:	**TC/IA**	*CONFLICT FLASH:*	**Red & Red**
PREPARATION DATE:	**October 25, 2017**	*DESIGN WALK SPEED:*	**1.0 m/s (FDW based on full crossing at 1.2 m/s)**
IMPLEMENTATION DATE:	**December 6, 2017**	*CHANNEL/DROP:*	**4008 / 27**
		CONTROLLER FIRMWARE:	**3.018.1.2976**

N

NEMA Phase		OFF	AM	PM	NGHT	WKND	Phase Mode	Remarks
		All Other Times	06:30-10:00 M-F	15:00-19:00 M-F	22:00-06:30 Daily	10:00-18:15 Sat & Sun	(Fixed / Demanded / Callable)	
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5		
	Split Table	Split 1	Split 2	Split 3	Split 4	Split 5		
1	WLK						WBLA Callable by stopbar loop	Pedestrian Minimums: EWWK = 7 sec., EWFD = 26 sec. NSWK = 7 sec., NSFD = 34 sec. WBLA is callable 24 hours by stop-bar loop. Unused time allocated to EWG/EWWK.
	FDW							
	MIN 6							
	MAX1 7							
	AMB 3							
	ALR 1							
	SPLIT	14	18	15	11	11		
2 (Danforth Rd)	WLK 7						Fixed	
	FDW 26							
	MIN 33							
	MAX1 39							
	AMB 4							
	ALR 3							
	SPLIT	46	42	44	44	45		
3 NOT USED	WLK							
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
4 (Warden Ave)	WLK 7						Fixed	
	FDW 34							
	MIN 41							
	MAX1 42							
	AMB 4							
	ALR 4							
	SPLIT	50	50	51	50	54		
5 NOT USED	WLK							
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
6 (Danforth Rd)	WLK 7						Fixed	
	FDW 26							
	MIN 33							
	MAX1 53							
	AMB 4							
	ALR 3							
	SPLIT	60	60	59	55	56		
7 NOT USED	WLK							
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
8 (Warden Ave)	WLK 7						Fixed	
	FDW 34							
	MIN 41							
	MAX1 42							
	AMB 4							
	ALR 4							
	SPLIT	50	50	51	50	54		
	CL	110	110	110	105	110		
	OF	2	32	2	104	2		

Notes: Stopbar loop for WBLA because of skew intersection and long turn distance.

CITY OF TORONTO - TRANSPORTATION SERVICES
TRANSPORTATION SYSTEMS - TRAFFIC SIGNAL CONTROL SECTION
703 Don Mills Rd, Toronto ON M3C 3N3
Phone: (416) 397 5770, Fax (416) 397 5777

CURRENT SIGNAL TIMING INFORMATION

Intersection: Danforth Rd - Mack Av
Date: 18-Nov-02 Our Ref: 02161
System: MTSS MOC: SAP
Issued to: BA Group (Marie Wong)

PX: 376
Staff: EC
Design Walk Speed: -

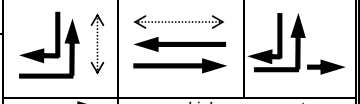
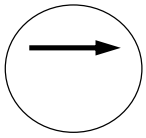
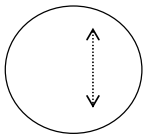
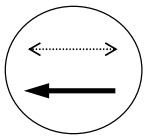
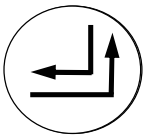
PLAN	AM PK	OFF PK	PM PK
TIME PERIOD	0630-0915 Mon - Fri	Other Times	1545-1830 Mon - Fri
N-S PHASE			
N-S GREEN	37	37	37
AMBER	4	4	4
ALL RED	2	2	2
E-W PHASE			
E-W GREEN	21	21	21
AMBER	3	3	3
ALL RED	3	3	3
CYCLE LENGTH	70	70	70
N-S FDW	-	-	-
E-W FDW	-	-	-

COMMENTS:

CITY OF TORONTO - TRANSPORTATION SERVICES
TRANSPORTATION SYSTEMS - TRAFFIC SIGNAL CONTROL SECTION
703 Don Mills Rd, Toronto ON M3C 3N3
Phone: (416) 397 5770, Fax (416) 397 5777
CURRENT SIGNAL TIMING INFORMATION

ISSUED **BA Consulting Group Ltd. (Karen L. MacDougall)** ***OUR REF:*** **10155**
DATE: **December 9, 2010** ***STAFF:*** **US/TS**

LOCATION:	**Danforth Av. & Danforth Rd.**	***DISTRICT:***	**Scarborough**
MODE/COMMENT:	**FXT**	***COMPUTER SYSTEM:***	**TransSuite**
PX:	**357**	***CONTROLLER/CABINET TYPE:***	**Econolite ASC/3 - 2100 / TS2 T1**
PREPARED/CHECKED BY:	**HP / HL**	***CONFLICT FLASH:***	**Red & Red**
PREPARATION DATE:	**July 23, 2010**	***DESIGN WALK SPEED:***	**1.0 m/s (FDW based on full crossing at 1.2 m/s)**
IMPLEMENTATION DATE:	**November 29, 2010**	***CHANNEL/DROP:***	

NEMA Phase		OFF	AM	PM	Phase Mode	Remarks
		All Other Times	06:30-09:15	15:45-18:30	(Fixed/Demanded/Callable)	
			M-F.	M-F.		
	Local Plan	Pattern 1	Pattern 2	Pattern 3		
	System Plan	(Plan 1)	(Plan 2)	(Plan 3)		
1 NOT USED	WLK FDW MIN MAX1 AMB ALR SPLIT					Pedestrian Minimums: EWWK = 7 sec. EWFD = 21 sec. NSWK = 7 sec. NSFD = 18 sec. Left-Turn Passage Time = 2 seconds. Phasing Sequence Diagram Phase A / Phase B / Phase C  vehicle movement pedestrian movement Phase 8 is displayed with load switch 4. NS push buttons monitored on local detector #2.
2 Danforth Av. 	WLK 7 FDW 21 MIN 28 MAX1 28 AMB 4 ALR 3 SPLIT	36	36	36	Fixed.	
3 NOT USED	WLK FDW MIN MAX1 AMB ALR SPLIT					
4 Danforth Rd. 	WLK 7 FDW 18 MIN 25 MAX1 25 AMB 3 ALR 3 SPLIT	34	34	34	Callable by pedestrian push button.	
5 NOT USED	WLK FDW MIN MAX1 AMB ALR SPLIT					
6 Danforth Av. 	WLK 7 FDW 21 MIN 28 MAX1 28 AMB 4 ALR 3 SPLIT	36	36	36	Fixed.	
7 NOT USED	WLK FDW MIN MAX1 AMB ALR SPLIT					
8 Danforth Rd. 	WLK 7 FDW 18 MIN 25 MAX1 25 AMB 3 ALR 3 SPLIT	34	34	34	Fixed. EBLA served concurrently with SBRA. (EBLA & SBRA can also be served concurrently with Phase 4 north/south ped. movement if called.) See Phasing Sequence Diagram	
	CL OF	70 1	70 34	70 67		

NOTES: T-intersection (no south leg).
East-West crossing on north side only.
North-South crossing on east side only.

LOCATION:	**Danforth Ave & Warden Ave**	***DISTRICT:***	**Scarborough**
MODE/COMMENT:	**FXT**	***COMPUTER SYSTEM:***	**TransSuite**
TCS:	**358**	***CONTROLLER/CABINET TYPE:***	**Econolite ASC/3S-2100 / TS2T1**
PREPARED/CHECKED BY:	***IBI* / BS / PV**	***CONFLICT FLASH:***	**Red & Red**
PREPARATION DATE:	**November 3, 2015**	***DESIGN WALK SPEED:***	**1.0 m/s (FDW based on full crossing @ 1.2 m/s)**
IMPLEMENTATION DATE:	**December 16, 2015**	***CHANNEL/DROP:***	**4008 / 7**
		FIRMWARE VERSION:	**2.47.10**

N

NEMA Phase		OFF	AM	PM	NGHT	WKND	DVP	Phase Mode	Remarks
		All Other Times	**06:30-09:30 M-F**	**15:00-19:00 M-F**	**23:00-06:30 Daily**	**10:00-19:00 Sat & Sun**	**DVP Closure**	**(Fixed/Demanded or Callable)**	
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 16		
	System Plan	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5	Plan 16		
1	WLK							Fixed (In Shared Thru-Left Lane)	Pedestrian Minimums: EWWK = 7 sec, EWFD = 23 sec NSWK = 7 sec, NSFD = 18 sec
	FDW								
	MIN 6								
	MAX1 7								
	AMB 3								
	ALR 1								
	SPLIT	11	11	11		11	11		
2 Danforth Ave	WLK 7							Fixed	
	FDW 23								
	MIN 30								
	MAX1 32								
	AMB 4								
	ALR 3								
	SPLIT	39	44	38	43	42	45		
3 NOT USED	WLK								
	FDW								
	MIN								
	MAX1								
	AMB								
	ALR								
	SPLIT								
4 Warden Ave	WLK 7							Fixed	
	FDW 18								
	MIN 25								
	MAX1 28								
	AMB 4								
	ALR 2								
	SPLIT	34	35	41	37	37	44		
5 NOT USED	WLK								
	FDW								
	MIN								
	MAX1								
	AMB								
	ALR								
	SPLIT								
6 Danforth Ave	WLK 7							Fixed	
	FDW 23								
	MIN 30								
	MAX1 43								
	AMB 4								
	ALR 3								
	SPLIT	50	55	49	43	53	56		
7 NOT USED	WLK								
	FDW								
	MIN								
	MAX1								
	AMB								
	ALR								
	SPLIT								
8 Warden Ave	WLK 7							Fixed	
	FDW 18								
	MIN 25								
	MAX1 28								
	AMB 4								
	ALR 2								
	SPLIT	34	35	41	37	37	44		
	CL	84	90	90	80	90	100		
	OF	20	88	78	79	23	38		

Notes: Picked up system control on Feb 26, 2013 at approximately 1:52 pm.

LOCATION:	**Warden Ave & 75m North of Mack Ave**	*DISTRICT:*	**Scarborough**
MODE/COMMENT:	**PED with PR & 2-Wire Polara APS**	*COMPUTER SYSTEM:*	**TransSuite**
TCS:	**1839**	*CONTROLLER/CABINET TYPE:*	**Econolite Colbalt / TS2T1**
PREPARED/DATE:	**Ameneh Dialameh / February 20, 2019**	*CONFLICT FLASH:*	**Red & Out**
CHECKED BY/DATE:	**Syed Qasim / February 20, 2019**	*DESIGN WALK SPEED:*	**1.0 m/s (FDW based on full crossing at 1.2 m/s)**
IMPLEMENTATION DATE:	**March 1, 2019**	*CHANNEL/DROP:*	**5024/1**
		CONTROLLER FIRMWARE:	**32.63.10**

N

NEMA Phase		OFF All Other Times	AM 06:30-10:00 M-F	PM 15:00-19:00 M-F	NGHT 22:00-06:30 Daily	WKND 10:00-18:15 Sat & Sun	Phase Mode (Fixed / Demanded / Callable)	Remarks
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5		
	System Plan	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5		
1 NOT USED	WLK FDW MIN MAX1 AMB ALR SPLIT							Pedestrian Minimums: EWWK = 7 sec., EWFD = 13 sec. EW phase is callable by pedestrian actuation. 7 & 6 seconds entered for phases 2 & 6 WLK & FDW to make controller stay in coordination (any two values that add up to phase min can be entered). 7 seconds EWWK served when pedestrian call is received. Extra second from phase 4 & 8 split is served in mainstreet walk.
2 Warden Ave	WLK 7 FDW 6 MIN 13 MAX1 35 AMB 4 ALR 2 SPLIT	40	40	45	40	45	Fixed	
3 NOT USED	WLK FDW MIN MAX1 AMB ALR SPLIT							
4 Ped Crosswalk 75m N of Mack Ave	WLK 7 FDW 13 MIN 7 MAX1 20 AMB 3 ALR 1 SPLIT	25	25	25	25	25	Callable by Pushbutton	
5 NOT USED	WLK FDW MIN MAX1 AMB ALR SPLIT							
6 Warden Ave	WLK 7 FDW 6 MIN 13 MAX1 35 AMB 4 ALR 2 SPLIT	40	40	45	40	45	Fixed	
7 NOT USED	WLK FDW MIN MAX1 AMB ALR SPLIT							
8 NOT USED	WLK 7 FDW 13 MIN 7 MAX1 20 AMB 3 ALR 1 SPLIT	25	25	25	25	25		
	CL OF	65 30	65 4	70 56	65 64	70 59		

NOTES: Transferred to wireless system control on December 13, 2013 at approximately 10:05.

LOCATION:	**Warden Ave & Firvalley Ct**	*DISTRICT:*	**Scarborough**
MODE/COMMENT:	**SA2-VMG with PR & 2-wire Polara APS**	*COMPUTER SYSTEM:*	**TransSuite**
TCS:	**689**	*CONTROLLER/CABINET TYPE:*	**Econolite ASC/3-2100 / TS2T1**
PREPARED/CHECKED BY:	**IK / HL**	*CONFLICT FLASH:*	**Red & Red**
PREPARATION DATE:	**January 11, 2016**	*DESIGN WALK SPEED:*	**1.0 m/s (FDW based on full crossing at 1.2 m/s)**
IMPLEMENTATION DATE:	**June 30, 2016**	*CHANNEL/DROP:*	**4073 / 9**
		CONTROLLER FIRMWARE:	**2.47.10**

N

NEMA Phase		OFF	AM	PM	NGHT	WKND	Phase Mode	Remarks
		All Other Times	06:30-10:00 M-F	15:00-19:00 M-F	22:00-06:30 Daily	10:00-18:15 Sat & Sun	(Fixed / Demanded / Callable)	
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5		
	System Plan	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5		
1 NOT USED	WLK							Pedestrian Minimums: NSWK = 7 sec, NSFD = 10 sec EWWK = 7 sec, EWFD = 16 sec
	FDW							
	MIN							
	MAX 1							
	AMB							
	ALR							
	SPLIT							
2 Warden Ave	WLK 7						Fixed	EW phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum EBG is 7 seconds. If ongoing vehicle demand exists on the stopbar loop, the EBG is capable of providing vehicle extensions up to the maximum. If a pedestrian call is received, the maximum would be served. The EWWK & EWFD are only displayed on the pedestrian signal heads if a pedestrian call is received. Extension time is based on vehicle demand and is taken from the NSG. Unused extension time is given to the NSG.
	FDW 10							
	MIN 17							
	MAX 1 31							
	AMB 4							
	ALR 2							
	SPLIT	36	36	41	36	41		Side Street Passage Time = 3 sec
3 NOT USED	WLK							APS on during 7 secs of NSWK and 7 secs of EBWK when activated by pushbutton
	FDW							
	MIN							
	MAX 1							Extended Push Activation = 3 secs
	AMB							
	ALR							
	SPLIT							
4 Firvalley Ct	WLK 7						Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop.	
	FDW 16							
	MIN 7							
	MAX 1 23							
	AMB 3							
	ALR 2							
	SPLIT	29	29	29	29	29		
5 NOT USED	WLK							
	FDW							
	MIN							
	MAX 1							
	AMB							
	ALR							
	SPLIT							
6 Warden Ave	WLK 7						Fixed	
	FDW 10							
	MIN 17							
	MAX 1 31							
	AMB 4							
	ALR 2							
	SPLIT	36	36	41	36	41		
7 NOT USED	WLK							
	FDW							
	MIN							
	MAX 1							
	AMB							
	ALR							
	SPLIT							
8 NOT USED	WLK 7							
	FDW 16							
	MIN 7							
	MAX 1 23							
	AMB 3							
	ALR 2							
	SPLIT	29	29	29	29	29		
	CL	65	65	70	65	70		
	OF	54	28	9	16	13		
	VP	10	10	10	10	10		

NOTES: T - intersection, no east leg.

LOCATION:	**Warden Ave & St Clair Ave**		***DISTRICT:***	**Scarborough**	N
MODE/COMMENT:	**FXT with SBLT TSP**		***COMPUTER SYSTEM:***	**TransSuite**	
TCS:	**473**		***CONTROLLER/CABINET TYPE:***	**Peek ATC-1000 / TS2T1**	
PREPARED/CHECKED BY:	**AH/IA**		***CONFLICT FLASH:***	**Red & Red**	
PREPARATION DATE:	**September 23, 2018**		***DESIGN WALK SPEED:***	**1.0m/s (FDW based on full crossing @ 1.2m/s)**	
IMPLEMENTATION DATE:	**October 10, 2018**		***CHANNEL/DROP:***	**4073/11**	
			CONTROLLER FIRMWARE:	**3.018.1.2976**	

NEMA Phase		**OFF**	**AM**	**PM**	**NGHT**	**WKND**	**DVP**	**Phase Mode**	**Remarks**
		All Other Times	**06:30-10:00 M-F**	**15:00-19:00 M-F**	**22:00-06:30 Daily**	**10:00-19:00 Sat &Sun**	**Closure**	**(Fixed / Demanded / Callable)**	
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 16		
	Split Table	Split 1	Split 2	Split 3	Split 4	Split 5	Split 16		
1	WLK							Callable and extendable by 5m setback loop in AM, PM and WKND plans and/ or callable & extendable 24 hours by transit loop.	Pedestrian Minimums: NSWK = 7 sec., NSFD = 28 sec. EWWK = 7 sec., EWFD = 26 sec. Left-Turn Passage Time = 2 sec. See back for transit loop locations.
	FDW								
	MIN 6								
	MAX1 16								
	AMB 3								
	ALR 1								
	SPLIT	20	20	20	11	20	12		
Warden Ave 2	WLK 7							Fixed	
	FDW 28								
	MIN 35								
	MAX1 36								
	AMB 4								
	ALR 3								
	SPLIT	43	43	43	44	43	44		
3 NOT USED	WLK								
	FDW								
	MIN								
	MAX1								
	AMB								
	ALR								
	SPLIT								
St Clair Ave 4	WLK 7							Fixed	
	FDW 26								
	MIN 33								
	MAX1 45								
	AMB 4								
	ALR 3								
	SPLIT	52	57	52	41	52	59		
5 NOT USED	WLK								
	FDW								
	MIN								
	MAX1								
	AMB								
	ALR								
	SPLIT								
Warden Ave 6	WLK 7							Fixed	
	FDW 28								
	MIN 35								
	MAX1 56								
	AMB 4								
	ALR 3								
	SPLIT	63	63	63	55	63	56		
7	WLK							Callable and Extendable by 5m setback loop.	
	FDW								
	MIN 6								
	MAX1 6								
	AMB 3								
	ALR 1								
	SPLIT		11	11		11	15		
St Clair Ave 8	WLK 7							Fixed	
	FDW 26								
	MIN 33								
	MAX1 45								
	AMB 4								
	ALR 3								
	SPLIT	52	46	41	41	41	44		
	CL	115	120	115	96	115	115		
	OF	1	1	45	1	1	1		

NOTES:

LOCATION:	**Warden Ave & St Clair Ave**				***DISTRICT:***	**Scarborough**		
MODE/COMMENT:	**FXT with SBLT TSP**				***COMPUTER SYSTEM:***	**TransSuite**		N
TCS:	**473**				***CONTROLLER/CABINET TYPE:***	**Peek ATC-1000 / TS2T1**		↑
PREPARED/CHECKED BY:	**AH/IA**				***CONFLICT FLASH:***	**Red & Red**		
PREPARATION DATE:	**September 23, 2018**				***DESIGN WALK SPEED:***	**1.0m/s (FDW based on full crossing @ 1.2m/s)**		
IMPLEMENTATION DATE:	**October 10, 2018**				***CHANNEL/DROP:***	**4073/11**		
					CONTROLLER FIRMWARE:	**3.018.1.2976**		

NEMA Phase		**OFF**	**AM**	**PM**	**NGHT**	**WKND**	**DVP Closure**	**Phase Mode**	**Remarks**
		All Other Times	**06:30-10:00 M-F**	**15:00-19:00 M-F**	**22:00-06:30 Daily**	**10:00-19:00 Sat &Sun**		**(Fixed / Demanded / Callable)**	
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 16		
	Split Table	Split 1	Split 2	Split 3	Split 4	Split 5	Split 16		
1	WLK							Callable and extendable by 5m setback loop in AM, PM and WKND plans and/ or callable & extendable 24 hours by transit loop.	Pedestrian Minimums: NSWK = 7 sec., NSFD = 28 sec. EWWK = 7 sec., EWFD = 26 sec.
	FDW								Left-Turn Passage Time = 2 sec.
	MIN 6								See back for transit loop locations.
	MAX1 16								
	AMB 3								
	ALR 1								
	SPLIT	20	20	20	11	20	20		
Warden Ave 2	WLK 7							Fixed	
	FDW 28								
	MIN 35								
	MAX1 36								
	AMB 4								
	ALR 3								
	SPLIT	43	43	43	44	43	44		
3 NOT USED	WLK								
	FDW								
	MIN								
	MAX1								
	AMB								
	ALR								
	SPLIT								
St Clair Ave 4	WLK 7							Fixed	
	FDW 26								
	MIN 33								
	MAX1 45								
	AMB 4								
	ALR 3								
	SPLIT	52	57	52	41	52	59		
5 NOT USED	WLK								
	FDW								
	MIN								
	MAX1								
	AMB								
	ALR								
	SPLIT								
Warden Ave 6	WLK 7							Fixed	
	FDW 28								
	MIN 35								
	MAX1 56								
	AMB 4								
	ALR 3								
	SPLIT	63	63	63	55	63	56		
7	WLK							Callable and Extendable by 5m setback loop.	
	FDW								
	MIN 6								
	MAX1 6								
	AMB 3								
	ALR 1								
	SPLIT		11	11		11	15		
St Clair Ave 8	WLK 7							Fixed	
	FDW 26								
	MIN 33								
	MAX1 45								
	AMB 4								
	ALR 3								
	SPLIT	52	46	41	41	41	44		
	CL	115	120	115	96	115	115		
	OF	1	1	45	1	1	1		

NOTES:

Turning Movement Count (4 . WARDEN AVE & ST CLAIR AVE E)

Start Time	N Approach WARDEN AVE						E Approach ST CLAIR AVE E						S Approach WARDEN AVE						W Approach ST CLAIR AVE E						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:30:00	54	56	40	0	12	150	51	207	25	0	20	283	64	133	41	0	28	238	17	132	27	0	10	176	847	
07:45:00	38	67	40	0	10	145	61	260	21	0	11	342	73	145	36	0	30	254	15	203	43	0	14	261	1002	
08:00:00	44	78	54	0	9	176	57	252	14	0	21	323	66	176	48	0	24	290	13	176	31	0	14	220	1009	
08:15:00	35	70	72	0	17	177	94	259	20	1	26	374	67	140	40	0	34	247	16	173	36	1	8	226	1024	3882
08:30:00	34	80	55	0	8	169	114	205	13	0	26	332	78	156	44	0	32	278	27	178	37	0	31	242	1021	4056
08:45:00	46	98	70	0	10	214	102	248	18	0	17	368	75	153	45	0	17	273	23	181	47	0	8	251	1106	4160
09:00:00	42	81	46	0	8	169	71	225	13	0	16	309	40	138	49	0	8	227	22	148	33	0	5	203	908	4059
09:15:00	35	58	33	0	11	126	55	271	18	1	11	345	45	96	35	0	19	176	16	134	38	0	9	188	835	3870
BREAK																										
16:00:00	34	96	73	0	17	203	35	179	17	0	19	231	77	118	29	0	36	224	29	227	46	0	23	302	960	
16:15:00	49	99	60	0	32	208	44	195	12	0	32	251	84	120	35	0	28	239	32	221	45	0	16	298	996	
16:30:00	43	108	63	0	17	214	61	196	12	0	26	269	66	127	28	0	21	221	26	206	43	0	14	275	979	
16:45:00	42	126	96	0	19	264	47	170	15	0	33	232	71	116	28	0	24	215	42	219	49	0	17	310	1021	3956
17:00:00	45	136	97	0	10	278	40	177	22	0	23	239	80	110	23	0	28	213	34	200	34	0	18	268	998	3994
17:15:00	55	119	88	0	14	262	34	210	24	1	35	269	91	121	21	0	31	233	37	218	37	0	15	292	1056	4054
17:30:00	48	140	97	0	7	285	44	191	12	0	21	247	72	96	34	0	19	202	31	305	40	0	10	376	1110	4185
17:45:00	41	117	89	0	10	247	47	158	25	0	15	230	95	119	38	0	36	252	35	222	39	0	19	296	1025	4189
Grand Total	685	1529	1073	0	211	3287	957	3403	281	3	352	4644	1144	2064	574	0	415	3782	415	3143	625	1	231	4184	**15897**	-
Approach%	20.8%	46.5%	32.6%	0%		-	20.6%	73.3%	6.1%	0.1%		-	30.2%	54.6%	15.2%	0%		-	9.9%	75.1%	14.9%	0%		-	-	-
Totals %	4.3%	9.6%	6.7%	0%		20.7%	6%	21.4%	1.8%	0%		29.2%	7.2%	13%	3.6%	0%		23.8%	2.6%	19.8%	3.9%	0%		26.3%	-	-
Heavy	33	47	58	0		-	36	88	9	0		-	208	106	28	0		-	16	106	41	0		-	-	-
Heavy %	4.8%	3.1%	5.4%	0%		-	3.8%	2.6%	3.2%	0%		-	18.2%	5.1%	4.9%	0%		-	3.9%	3.4%	6.6%	0%		-	-	-
Bicycles	2	3	0	0		-	0	1	0	0		-	3	2	0	0		-	1	2	1	0		-	-	-
Bicycle %	0.3%	0.2%	0%	0%		-	0%	0%	0%	0%		-	0.3%	0.1%	0%	0%		-	0.2%	0.1%	0.2%	0%		-	-	-

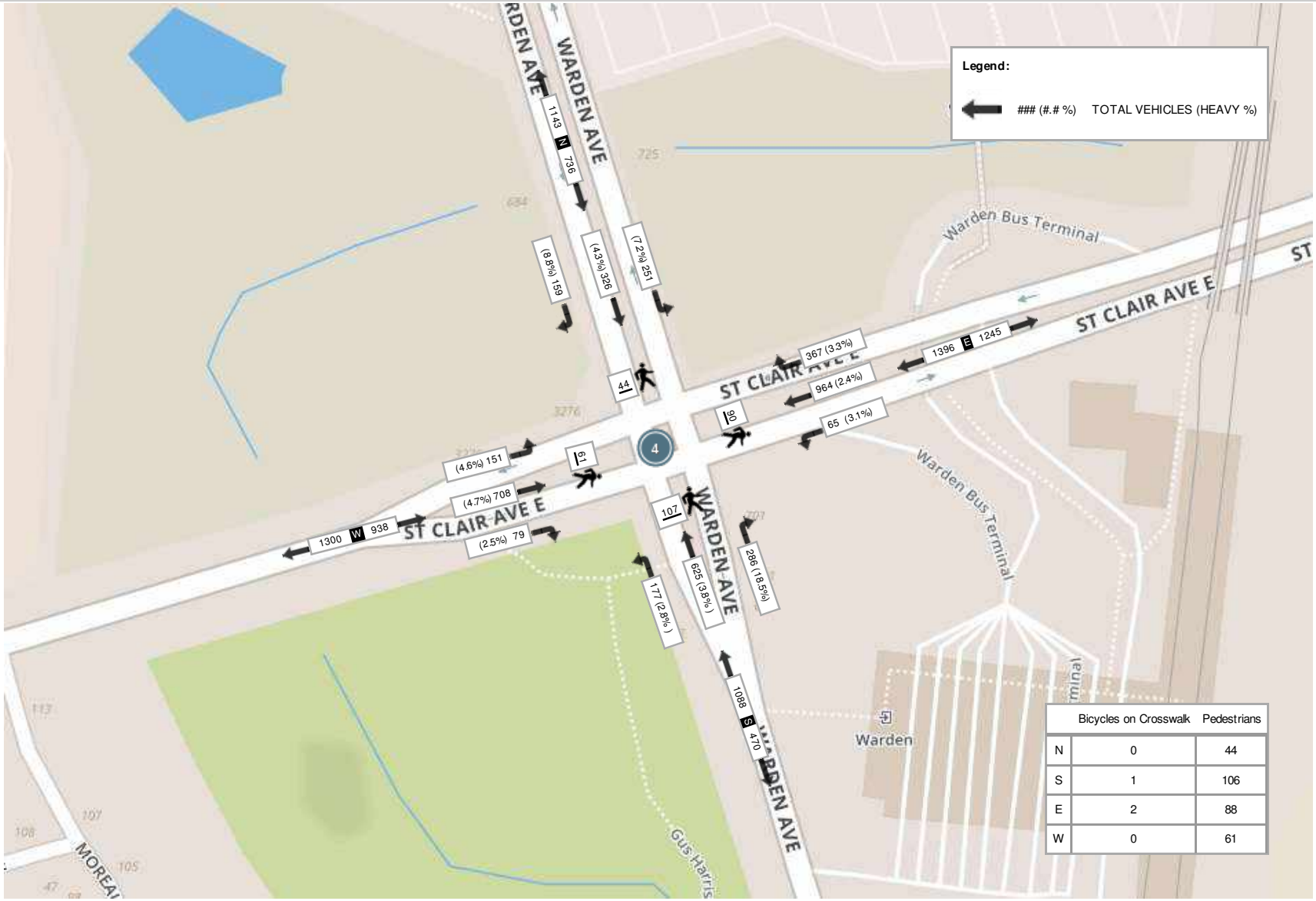
Peak Hour: 08:00 AM - 09:00 AM Weather: Light Rain (7.82 °C)

Start Time	N Approach WARDEN AVE						E Approach ST CLAIR AVE E						S Approach WARDEN AVE						W Approach ST CLAIR AVE E						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
08:00:00	44	78	54	0	9	176	57	252	14	0	21	323	66	176	48	0	24	290	13	176	31	0	14	220	1009
08:15:00	35	70	72	0	17	177	94	259	20	1	26	374	67	140	40	0	34	247	16	173	36	1	8	226	1024
08:30:00	34	80	55	0	8	169	114	205	13	0	26	332	78	156	44	0	32	278	27	178	37	0	31	242	1021
08:45:00	46	98	70	0	10	214	102	248	18	0	17	368	75	153	45	0	17	273	23	181	47	0	8	251	1106
Grand Total	159	326	251	0	44	736	367	964	65	1	90	1397	286	625	177	0	107	1088	79	708	151	1	61	939	**4160**
Approach%	21.6%	44.3%	34.1%	0%		-	26.3%	69%	4.7%	0.1%		-	26.3%	57.4%	16.3%	0%		-	8.4%	75.4%	16.1%	0.1%		-	**-**
Totals %	3.8%	7.8%	6%	0%		17.7%	8.8%	23.2%	1.6%	0%		33.6%	6.9%	15%	4.3%	0%		26.2%	1.9%	17%	3.6%	0%		22.6%	**-**
PHF	0.86	0.83	0.87	0		0.86	0.8	0.93	0.81	0.25		0.93	0.92	0.89	0.92	0		0.94	0.73	0.98	0.8	0.25		0.94	**-**
Heavy	14	14	18	0		46	12	23	2	0		37	53	24	5	0		82	2	33	7	0		42	**-**
Heavy %	8.8%	4.3%	7.2%	0%		6.3%	3.3%	2.4%	3.1%	0%		2.6%	18.5%	3.8%	2.8%	0%		7.5%	2.5%	4.7%	4.6%	0%		4.5%	**-**
Lights	145	312	233	0		690	355	941	63	1		1360	233	601	172	0		1006	77	675	144	1		897	**-**
Lights %	91.2%	95.7%	92.8%	0%		93.8%	96.7%	97.6%	96.9%	100%		97.4%	81.5%	96.2%	97.2%	0%		92.5%	97.5%	95.3%	95.4%	100%		95.5%	**-**
Single-Unit Trucks	6	10	3	0		19	4	17	1	0		22	3	4	1	0		8	0	16	3	0		19	**-**
Single-Unit Trucks %	3.8%	3.1%	1.2%	0%		2.6%	1.1%	1.8%	1.5%	0%		1.6%	1%	0.6%	0.6%	0%		0.7%	0%	2.3%	2%	0%		2%	**-**
Buses	7	2	14	0		23	7	5	1	0		13	50	19	4	0		73	2	15	4	0		21	**-**
Buses %	4.4%	0.6%	5.6%	0%		3.1%	1.9%	0.5%	1.5%	0%		0.9%	17.5%	3%	2.3%	0%		6.7%	2.5%	2.1%	2.6%	0%		2.2%	**-**
Articulated Trucks	1	2	1	0		4	1	1	0	0		2	0	1	0	0		1	0	2	0	0		2	**-**
Articulated Trucks %	0.6%	0.6%	0.4%	0%		0.5%	0.3%	0.1%	0%	0%		0.1%	0%	0.2%	0%	0%		0.1%	0%	0.3%	0%	0%		0.2%	**-**
Pedestrians	-	-	-	-	44	-	-	-	-	-	88	-	-	-	-	-	106	-	-	-	-	-	61	-	**-**
Pedestrians%	-	-	-	-	14.6%		-	-	-	-	29.1%		-	-	-	-	35.1%		-	-	-	-	20.2%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0.7%		-	-	-	-	0.3%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	1	1	0	0	0	-	1	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Rain (13.71 °C)

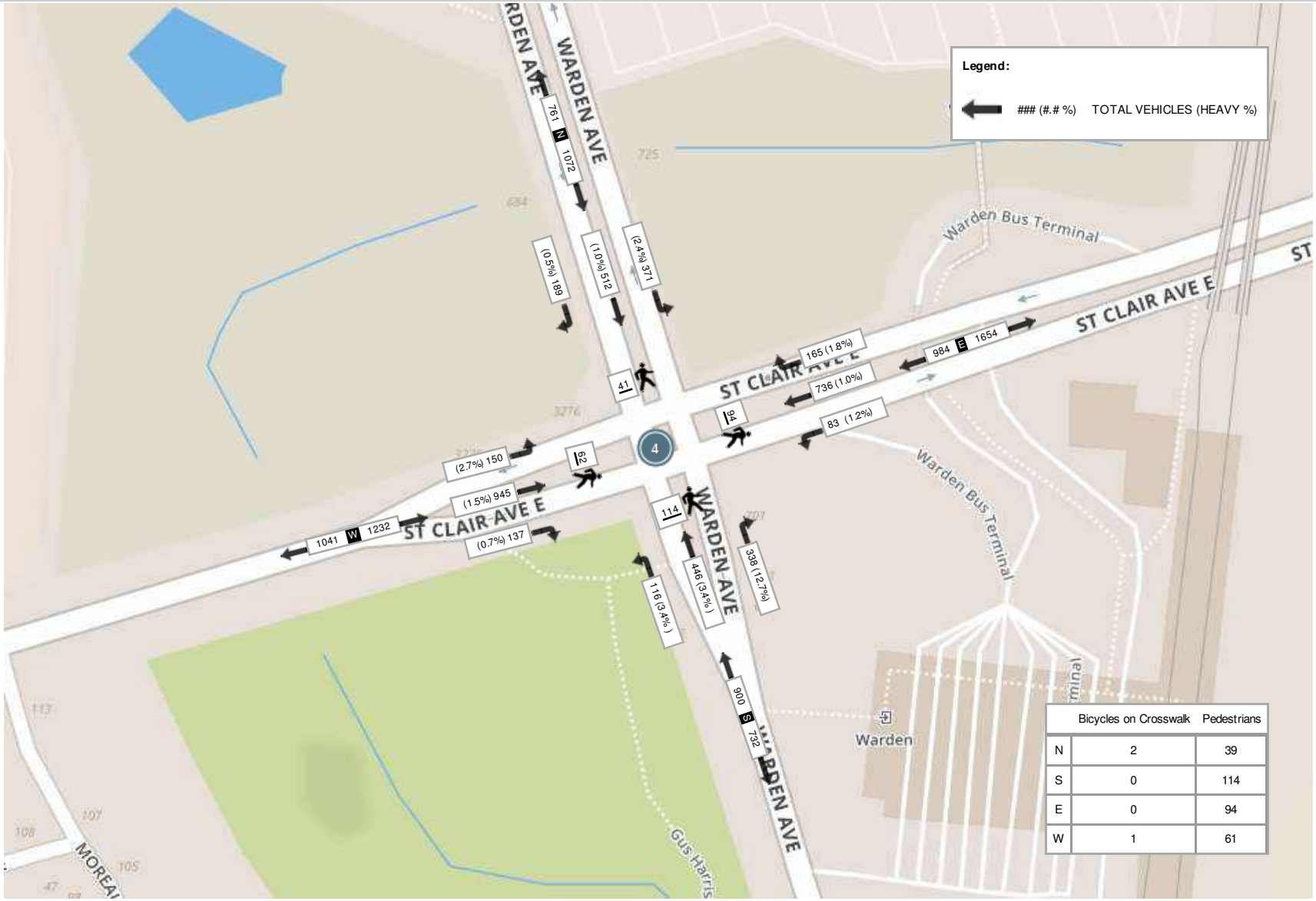
Start Time	N Approach WARDEN AVE						E Approach ST CLAIR AVE E						S Approach WARDEN AVE						W Approach ST CLAIR AVE E						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
17:00:00	45	136	97	0	10	278	40	177	22	0	23	239	80	110	23	0	28	213	34	200	34	0	18	268	998
17:15:00	55	119	88	0	14	262	34	210	24	1	35	269	91	121	21	0	31	233	37	218	37	0	15	292	1056
17:30:00	48	140	97	0	7	285	44	191	12	0	21	247	72	96	34	0	19	202	31	305	40	0	10	376	1110
17:45:00	41	117	89	0	10	247	47	158	25	0	15	230	95	119	38	0	36	252	35	222	39	0	19	296	1025
Grand Total	189	512	371	0	41	1072	165	736	83	1	94	985	338	446	116	0	114	900	137	945	150	0	62	1232	**4189**
Approach%	17.6%	47.8%	34.6%	0%		-	16.8%	74.7%	8.4%	0.1%		-	37.6%	49.6%	12.9%	0%		-	11.1%	76.7%	12.2%	0%		-	**-**
Totals %	4.5%	12.2%	8.9%	0%		25.6%	3.9%	17.6%	2%	0%		23.5%	8.1%	10.6%	2.8%	0%		21.5%	3.3%	22.6%	3.6%	0%		29.4%	**-**
PHF	0.86	0.91	0.96	0		0.94	0.88	0.88	0.83	0.25		0.92	0.89	0.92	0.76	0		0.89	0.93	0.77	0.94	0		0.82	**-**
Heavy	1	5	9	0		15	3	7	1	0		11	43	15	4	0		62	1	14	4	0		19	**-**
Heavy %	0.5%	1%	2.4%	0%		1.4%	1.8%	1%	1.2%	0%		1.1%	12.7%	3.4%	3.4%	0%		6.9%	0.7%	1.5%	2.7%	0%		1.5%	**-**
Lights	188	507	362	0		1057	162	729	82	1		974	295	431	112	0		838	136	931	146	0		1213	**-**
Lights %	99.5%	99%	97.6%	0%		98.6%	98.2%	99%	98.8%	100%		98.9%	87.3%	96.6%	96.6%	0%		93.1%	99.3%	98.5%	97.3%	0%		98.5%	**-**
Single-Unit Trucks	1	3	1	0		5	2	5	0	0		7	1	9	0	0		10	1	6	3	0		10	**-**
Single-Unit Trucks %	0.5%	0.6%	0.3%	0%		0.5%	1.2%	0.7%	0%	0%		0.7%	0.3%	2%	0%	0%		1.1%	0.7%	0.6%	2%	0%		0.8%	**-**
Buses	0	1	8	0		9	0	0	1	0		1	42	6	4	0		52	0	7	1	0		8	**-**
Buses %	0%	0.2%	2.2%	0%		0.8%	0%	0%	1.2%	0%		0.1%	12.4%	1.3%	3.4%	0%		5.8%	0%	0.7%	0.7%	0%		0.6%	**-**
Articulated Trucks	0	1	0	0		1	1	2	0	0		3	0	0	0	0		0	0	1	0	0		1	**-**
Articulated Trucks %	0%	0.2%	0%	0%		0.1%	0.6%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	**-**
Pedestrians	-	-	-	-	39	-	-	-	-	-	94	-	-	-	-	-	114	-	-	-	-	-	61	-	**-**
Pedestrians%	-	-	-	-	12.5%		-	-	-	-	30.2%		-	-	-	-	36.7%		-	-	-	-	19.6%		**-**
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0.6%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0.3%		**-**
Bicycles on Road	1	1	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	1	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 08:00 AM - 09:00 AM Weather: Light Rain (7.82 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	44
S	1	106
E	2	88
W	0	61

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Rain (13.71 °C)



City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

ST CLAIR AVE AT WARDEN AVE (PX 473)

Survey Date: 2014-Jun-26 (Thursday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:00-09:00	CAR	786	142	536	158	836	830	134	592	40	766	370	80	265	99	444	1,258	65	1,017	116	1,198	N	24	0	0
	TRK	92	7	61	11	79	72	10	47	8	65	60	14	41	12	67	120	11	101	21	133	S	86	5	0
AM PEAK	BUS	37	6	24	43	73	76	10	19	2	31	4	14	2	1	17	28	0	21	3	24	E	36	0	0
																						W	35	1	0
	TOTAL:	**915**	**155**	**621**	**212**	**988**	**978**	**154**	**658**	**50**	**862**	**434**	**108**	**308**	**112**	**528**	**1,406**	**76**	**1,139**	**140**	**1,355**				
16:45-17:45	CAR	730	102	412	169	683	1,430	158	1,012	82	1,252	771	249	545	188	982	957	144	667	160	971	N	27	2	0
	TRK	84	12	59	14	85	135	14	102	11	127	63	19	41	11	71	71	11	48	11	70	S	30	0	0
PM PEAK	BUS	26	3	18	41	62	72	7	19	6	32	8	12	2	2	16	29	0	24	1	25	E	26	0	0
																						W	24	0	0
	TOTAL:	**840**	**117**	**489**	**224**	**830**	**1,637**	**179**	**1,133**	**99**	**1,411**	**842**	**280**	**588**	**201**	**1,069**	**1,057**	**155**	**739**	**172**	**1,066**				
OFF HR AVG	CAR	641	79	381	66	526	688	122	507	61	690	433	115	325	119	559	785	47	587	138	772	N	15	1	0
	TRK	102	10	62	9	81	99	18	72	9	99	62	18	44	17	79	88	9	61	22	92	S	32	1	0
	BUS	18	5	14	38	57	61	3	14	4	21	7	9	2	1	12	20	1	14	1	16	E	22	1	0
																						W	24	2	0
	TOTAL:	**761**	**94**	**457**	**113**	**664**	**848**	**143**	**593**	**74**	**810**	**502**	**142**	**371**	**137**	**650**	**893**	**57**	**662**	**161**	**880**				
07:30-09:30	CAR	1,503	267	999	322	1,588	1,650	275	1,154	72	1,501	695	174	507	196	877	2,407	116	1,944	229	2,289	N	38	1	0
	TRK	162	19	106	24	149	156	22	111	12	145	108	21	75	18	114	210	21	173	34	228	S	131	5	0
2 HR AM	BUS	63	14	44	83	141	146	15	36	5	56	11	27	5	2	34	56	1	40	4	45	E	64	2	0
																						W	55	1	0
	TOTAL:	**1,728**	**300**	**1,149**	**429**	**1,878**	**1,952**	**312**	**1,301**	**89**	**1,702**	**814**	**222**	**587**	**216**	**1,025**	**2,673**	**138**	**2,157**	**267**	**2,562**				
16:00-18:00	CAR	1,432	213	816	325	1,354	2,639	315	1,870	159	2,344	1,485	444	1,062	337	1,843	1,870	264	1,320	301	1,885	N	64	7	0
	TRK	160	21	113	26	160	275	24	203	17	244	124	46	82	22	150	125	25	82	23	130	S	71	0	0
2 HR PM	BUS	53	7	33	83	123	143	19	37	7	63	10	23	3	3	29	57	0	47	1	48	E	69	1	0
																						W	60	1	0
	TOTAL:	**1,645**	**241**	**962**	**434**	**1,637**	**3,057**	**358**	**2,110**	**183**	**2,651**	**1,619**	**513**	**1,147**	**362**	**2,022**	**2,052**	**289**	**1,449**	**325**	**2,063**				
07:30-18:00	CAR	5,495	794	3,337	912	5,043	7,043	1,077	5,053	473	6,603	3,906	1,078	2,867	1,007	4,952	7,412	566	5,611	1,081	7,258	N	163	10	0
	TRK	727	80	465	84	629	823	116	600	63	779	480	139	334	106	579	686	83	500	146	729	S	331	8	0
8 HR SUM	BUS	187	42	133	317	492	534	44	130	26	200	44	87	15	7	109	190	3	141	10	154	E	221	7	0
																						W	210	8	0
	TOTAL:	**6,409**	**916**	**3,935**	**1,313**	**6,164**	**8,400**	**1,237**	**5,783**	**562**	**7,582**	**4,430**	**1,304**	**3,216**	**1,120**	**5,640**	**8,288**	**652**	**6,252**	**1,237**	**8,141**				

Total 8 Hour Vehicle Volume: 27,527

Total 8 Hour Bicycle Volume: 33

Total 8 Hour Intersection Volume: 27,560

Comment:

Printed On: 26 Mar, 2020 2:49:07PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

ST CLAIR AVE AT WARDEN AVE (PX 473)

Survey Date: 2013-Jun-03 (Monday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:00-09:00	CAR	893	131	545	112	788	960	212	704	84	1,000	587	144	354	147	645	1,427	149	1,149	136	1,434	N	60	0	0
	TRK	34	0	33	0	33	40	0	40	0	40	25	0	25	0	25	38	0	38	1	39	S	56	21	0
AM PEAK	BUS	37	1	37	40	78	77	0	13	0	13	25	24	25	0	49	39	0	38	0	38	E	64	0	0
																						W	58	26	0
	TOTAL:	**964**	**132**	**615**	**152**	**899**	**1,077**	**212**	**757**	**84**	**1,053**	**637**	**168**	**404**	**147**	**719**	**1,504**	**149**	**1,225**	**137**	**1,511**				
16:45-17:45	CAR	772	168	428	128	724	1,247	201	1,011	100	1,312	829	108	607	142	857	950	122	640	143	905	N	45	0	0
	TRK	16	0	16	0	16	34	0	34	0	34	30	0	29	2	31	29	1	27	0	28	S	64	0	0
PM PEAK	BUS	44	1	44	47	92	94	0	23	0	23	26	24	26	1	51	27	0	25	0	25	E	56	0	0
																						W	136	0	0
	TOTAL:	**832**	**169**	**488**	**175**	**832**	**1,375**	**201**	**1,068**	**100**	**1,369**	**885**	**132**	**662**	**145**	**939**	**1,006**	**123**	**692**	**143**	**958**				
OFF HR AVG	CAR	689	115	416	95	626	799	147	596	64	807	488	108	325	130	563	894	99	649	126	874	N	36	0	0
	TRK	21	0	20	0	20	29	0	29	0	29	16	0	16	0	16	30	0	30	1	31	S	46	8	0
	BUS	20	2	20	24	46	52	0	16	0	16	11	12	11	1	24	17	0	14	0	14	E	37	0	0
																						W	41	11	0
	TOTAL:	**730**	**117**	**456**	**119**	**692**	**880**	**147**	**641**	**64**	**852**	**515**	**120**	**352**	**131**	**603**	**941**	**99**	**693**	**127**	**919**				
07:30-09:30	CAR	1,710	244	1,076	215	1,535	1,761	375	1,278	162	1,815	1,022	268	605	264	1,137	2,691	255	2,183	259	2,697	N	118	2	0
	TRK	54	0	52	0	52	65	0	65	0	65	35	0	35	1	36	66	0	65	2	67	S	108	29	0
2 HR AM	BUS	66	1	66	60	127	124	0	23	0	23	51	41	51	1	93	74	0	72	0	72	E	133	8	0
																						W	99	41	0
	TOTAL:	**1,830**	**245**	**1,194**	**275**	**1,714**	**1,950**	**375**	**1,366**	**162**	**1,903**	**1,108**	**309**	**691**	**266**	**1,266**	**2,831**	**255**	**2,320**	**261**	**2,836**				
16:00-18:00	CAR	1,468	322	778	269	1,369	2,461	405	1,955	200	2,560	1,554	237	1,119	296	1,652	1,861	235	1,243	285	1,763	N	117	0	0
	TRK	31	1	31	0	32	63	0	63	0	63	40	0	39	2	41	55	1	52	0	53	S	124	0	0
2 HR PM	BUS	77	3	77	89	169	177	0	43	0	43	52	45	52	1	98	47	0	43	0	43	E	124	1	0
																						W	187	0	0
	TOTAL:	**1,576**	**326**	**886**	**358**	**1,570**	**2,701**	**405**	**2,061**	**200**	**2,666**	**1,646**	**282**	**1,210**	**299**	**1,791**	**1,963**	**236**	**1,338**	**285**	**1,859**				
07:30-18:00	CAR	5,932	1,026	3,517	862	5,405	7,418	1,366	5,618	618	7,602	4,525	938	3,023	1,078	5,039	8,127	884	6,023	1,049	7,956	N	380	2	0
	TRK	167	1	163	0	164	244	0	244	0	244	140	0	139	4	143	241	1	236	4	241	S	417	62	0
8 HR SUM	BUS	221	12	221	244	477	505	0	128	0	128	148	133	148	4	285	187	0	171	0	171	E	403	9	0
																						W	448	84	0
	TOTAL:	**6,320**	**1,039**	**3,901**	**1,106**	**6,046**	**8,167**	**1,366**	**5,990**	**618**	**7,974**	**4,813**	**1,071**	**3,310**	**1,086**	**5,467**	**8,555**	**885**	**6,430**	**1,053**	**8,368**				

Total 8 Hour Vehicle Volume: 27,855

Total 8 Hour Bicycle Volume: 157

Total 8 Hour Intersection Volume: 28,012

Comment:

Printed On: 30 Aug, 2013 11:12:54AM

City of Toronto - Traffic Safety Unit

Intersection Detailed 15 Minutes Movement Report

ST CLAIR AVE AT WARDEN AVE (PX 473) **Survey Date:** Jun-03-2013 (Monday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
07:45	CARS	142	15	19	125	24	33	62	30	34	261	25	21
	DUALS	2	0	0	6	0	0	2	0	0	5	0	0
	BUSES	3	1	0	0	0	0	8	0	2	10	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		19	**East Side**		20	**South Side**		8	**West Side**		8
08:00	CARS	151	23	17	127	26	39	54	35	33	267	28	24
	DUALS	0	0	0	3	0	0	3	0	0	7	0	0
	BUSES	5	2	0	0	0	0	10	0	6	14	0	0
	BIKE (OTHER)		0	(0)		0	(0)		2	(0)	6	(0)	
	PEDS	**North Side**		20	**East Side**		25	**South Side**		11	**West Side**		10
08:15	CARS	135	34	31	163	22	53	75	37	35	254	33	30
	DUALS	9	0	0	11	0	0	8	0	0	14	0	0
	BUSES	11	10	1	4	0	0	9	0	8	13	0	0
	BIKE (OTHER)		7	(0)		10	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		16	**East Side**		14	**South Side**		15	**West Side**		11
08:30	CARS	135	21	37	161	13	61	85	44	32	306	31	52
	DUALS	6	0	0	5	0	0	6	0	0	9	0	0
	BUSES	10	9	0	3	0	0	6	0	6	9	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		19	**East Side**		17	**South Side**		18	**West Side**		16
08:45	CARS	141	32	39	185	32	49	90	34	44	286	39	31
	DUALS	10	0	0	11	0	0	6	0	0	8	1	0
	BUSES	7	12	0	3	0	0	6	0	5	10	0	0
	BIKE (OTHER)		8	(0)		10	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		6	**East Side**		14	**South Side**		10	**West Side**		11
09:00	CARS	134	25	24	195	17	49	104	32	33	303	33	36
	DUALS	8	0	0	13	0	0	5	0	0	7	0	0
	BUSES	9	9	0	3	0	0	4	0	5	6	0	0
	BIKE (OTHER)		6	(0)		6	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		19	**East Side**		19	**South Side**		13	**West Side**		20
09:15	CARS	149	38	46	158	16	49	67	30	28	258	31	34
	DUALS	10	0	0	5	0	0	0	0	0	6	1	0
	BUSES	13	10	0	6	0	0	4	0	4	6	0	0
	BIKE (OTHER)		0	(0)		6	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		13	**East Side**		13	**South Side**		19	**West Side**		14

City of Toronto - Traffic Safety Unit

Intersection Detailed 15 Minutes Movement Report

ST CLAIR AVE AT WARDEN AVE (PX 473) **Survey Date:** Jun-03-2013 (Monday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
09:30	CARS	89	27	31	164	12	42	68	22	29	248	39	27
	DUALS	7	0	0	11	0	0	5	1	0	9	0	0
	BUSES	8	7	0	4	0	0	4	1	5	4	0	0
	BIKE (OTHER)		8	(0)		9	(0)		0	(0)	2	(0)	
	PEDS	**North Side**		6	**East Side**		11	**South Side**		14	**West Side**		9
10:15	CARS	76	20	30	123	9	37	59	28	26	170	21	19
	DUALS	8	0	0	11	0	0	3	0	0	8	0	0
	BUSES	6	6	0	6	0	0	2	0	3	3	0	0
	BIKE (OTHER)		10	(0)		15	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		4	**East Side**		6	**South Side**		9	**West Side**		8
10:30	CARS	87	24	29	119	11	31	64	21	12	161	23	21
	DUALS	7	0	0	5	0	0	8	0	0	8	0	0
	BUSES	4	4	0	3	0	0	2	0	3	5	0	0
	BIKE (OTHER)		3	(0)		5	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		7	**East Side**		9	**South Side**		17	**West Side**		14
10:45	CARS	125	15	24	115	12	26	48	20	18	145	29	23
	DUALS	5	0	0	6	0	0	4	0	0	10	0	0
	BUSES	5	4	0	3	0	0	2	0	2	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		6	**East Side**		6	**South Side**		8	**West Side**		6
11:00	CARS	95	24	23	129	18	37	86	28	33	157	32	24
	DUALS	6	0	0	7	0	0	3	0	0	1	0	0
	BUSES	5	7	0	3	0	0	0	0	3	0	0	0
	BIKE (OTHER)		0	(0)		6	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		9	**East Side**		1	**South Side**		7	**West Side**		9
11:15	CARS	101	26	28	135	16	33	80	31	21	121	25	18
	DUALS	0	0	0	9	0	0	5	0	0	5	0	0
	BUSES	5	3	0	5	0	0	4	0	2	3	0	0
	BIKE (OTHER)		9	(0)		8	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		7	**East Side**		0	**South Side**		19	**West Side**		7
11:30	CARS	123	23	25	124	10	30	91	33	25	152	28	23
	DUALS	6	0	0	6	0	0	6	0	0	10	1	0
	BUSES	6	5	0	3	0	0	3	0	5	3	0	0
	BIKE (OTHER)		6	(0)		5	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		16	**East Side**		10	**South Side**		16	**West Side**		16

Intersection Detailed 15 Minutes Movement Report

ST CLAIR AVE AT WARDEN AVE (PX 473) **Survey Date:** Jun-03-2013 (Monday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
11:45	CARS	104	25	22	144	13	33	85	36	26	172	32	26
	DUALS	4	0	0	8	0	0	4	1	0	7	0	0
	BUSES	8	7	0	5	0	0	3	0	3	3	0	0
	BIKE (OTHER)		5	(0)		4	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		9	**East Side**		8	**South Side**		25	**West Side**		16
12:00	CARS	91	29	24	150	15	33	74	36	27	167	33	27
	DUALS	6	0	0	8	0	0	5	0	0	7	0	0
	BUSES	4	4	0	3	0	0	2	0	2	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		7	**East Side**		15	**South Side**		17	**West Side**		16
13:15	CARS	127	13	31	118	22	30	64	37	21	195	35	27
	DUALS	8	0	0	7	0	0	4	0	0	15	0	0
	BUSES	5	8	0	4	0	0	2	1	3	6	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		8	**East Side**		8	**South Side**		8	**West Side**		9
13:30	CARS	145	27	36	138	19	31	93	35	43	174	50	38
	DUALS	5	0	0	10	0	0	4	0	0	9	0	0
	BUSES	4	8	0	4	0	0	5	1	3	5	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		7	**East Side**		12	**South Side**		10	**West Side**		8
13:45	CARS	130	22	24	173	15	40	86	38	34	175	36	24
	DUALS	3	0	0	6	0	0	5	0	0	5	0	0
	BUSES	5	6	0	3	0	0	3	0	4	4	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		5	**East Side**		10	**South Side**		6	**West Side**		9
14:00	CARS	83	20	25	186	18	28	70	36	32	142	34	28
	DUALS	6	0	0	7	0	0	5	0	0	9	0	0
	BUSES	4	5	4	5	0	0	4	0	4	4	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		9	**East Side**		8	**South Side**		5	**West Side**		8
14:15	CARS	86	15	25	169	22	54	111	48	29	169	41	35
	DUALS	6	0	0	7	0	0	0	0	0	6	1	0
	BUSES	4	6	1	3	0	0	3	0	3	4	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		23	**East Side**		16	**South Side**		8	**West Side**		9

Intersection Detailed 15 Minutes Movement Report

ST CLAIR AVE AT WARDEN AVE (PX 473) **Survey Date:** Jun-03-2013 (Monday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
14:30	CARS	105	42	36	178	27	51	74	35	29	182	26	16
	DUALS	6	0	0	5	0	0	7	0	0	8	0	0
	BUSES	4	7	2	3	0	0	4	0	3	4	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		14	**East Side**		10	**South Side**		11	**West Side**		7
14:45	CARS	99	21	40	194	15	44	109	26	27	165	28	22
	DUALS	4	0	0	7	0	0	0	0	0	4	0	0
	BUSES	5	7	1	3	0	0	3	0	2	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		9	**East Side**		13	**South Side**		10	**West Side**		7
15:00	CARS	86	32	38	190	14	48	105	30	30	150	32	23
	DUALS	0	0	0	7	0	0	2	0	0	7	0	0
	BUSES	4	8	0	6	0	0	3	0	2	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		5	**East Side**		14	**South Side**		9	**West Side**		13
16:15	CARS	101	22	39	219	18	55	135	39	32	153	34	32
	DUALS	8	0	0	7	0	0	0	0	0	7	0	0
	BUSES	7	9	0	5	0	0	5	0	5	7	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		23	**East Side**		17	**South Side**		16	**West Side**		19
16:30	CARS	80	35	41	229	35	61	122	32	28	162	32	16
	DUALS	7	0	0	7	0	0	0	0	0	7	0	0
	BUSES	10	14	2	5	0	0	6	0	5	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		14	**East Side**		19	**South Side**		17	**West Side**		9
16:45	CARS	89	43	40	257	25	44	129	44	38	146	41	36
	DUALS	0	0	1	6	0	0	5	0	0	6	0	0
	BUSES	7	10	0	4	0	0	9	0	6	4	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	1	(0)	
	PEDS	**North Side**		22	**East Side**		25	**South Side**		10	**West Side**		10
17:00	CARS	133	35	47	235	28	50	149	26	33	144	36	27
	DUALS	4	0	0	7	0	0	5	0	0	8	0	1
	BUSES	7	10	1	6	0	0	6	0	6	5	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		6	**East Side**		7	**South Side**		25	**West Side**		24

City of Toronto - Traffic Safety Unit

Intersection Detailed 15 Minutes Movement Report

ST CLAIR AVE AT WARDEN AVE (PX 473) **Survey Date:** Jun-03-2013 (Monday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
17:15	CARS	91	31	45	264	22	64	165	39	22	167	38	33
	DUALS	0	0	0	5	0	0	7	0	0	7	0	0
	BUSES	10	12	0	6	0	0	6	0	6	8	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		14	**East Side**		12	**South Side**		11	**West Side**		62
17:30	CARS	112	37	43	238	25	35	142	40	33	173	38	36
	DUALS	5	0	0	11	0	0	7	0	0	7	0	0
	BUSES	14	10	0	5	0	0	7	0	5	5	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		11	**East Side**		16	**South Side**		10	**West Side**		30
17:45	CARS	92	25	33	274	25	52	151	37	20	156	31	26
	DUALS	7	0	0	11	0	0	10	2	0	5	0	0
	BUSES	13	15	0	6	0	0	7	1	7	7	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		14	**East Side**		21	**South Side**		18	**West Side**		20
18:00	CARS	80	41	34	239	22	44	126	39	31	142	35	29
	DUALS	0	0	0	9	0	0	5	0	0	5	0	0
	BUSES	9	9	0	6	0	0	6	0	5	4	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		13	**East Side**		7	**South Side**		17	**West Side**		13

City of Toronto - Traffic Data Centre & Safety Bureau

Turning Movement Count Summary Report

ST CLAIR AVE AT WARDEN AVE

Survey Date: 2009-Dec-09 (Wednesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
07:45-08:45	CAR	972	100	705	101	906	775	140	564	58	762	567	110	395	164	669	1,481	114	1,217	127	1,458	N	39	0	0
	TRK	21	2	19	7	28	32	0	25	2	27	13	0	11	3	14	42	0	37	2	39	S	9	0	0
AM PEAK	BUS	22	4	17	22	43	40	0	10	1	11	31	8	17	5	30	25	13	16	5	34	E	56	0	0
																						W	21	0	0
	TOTAL:	**1,015**	**106**	**741**	**130**	**977**	**847**	**140**	**599**	**61**	**800**	**611**	**118**	**423**	**172**	**713**	**1,548**	**127**	**1,270**	**134**	**1,531**				
16:45-17:45	CAR	867	53	496	143	692	1,439	173	1,108	47	1,328	777	188	569	173	930	1,042	161	816	198	1,175	N	62	0	0
	TRK	30	1	27	3	31	28	3	23	2	28	20	2	18	0	20	26	0	25	0	25	S	15	11	0
PM PEAK	BUS	32	1	14	18	33	36	13	9	1	23	28	9	19	1	29	23	8	21	5	34	E	80	0	0
																						W	28	6	0
	TOTAL:	**929**	**55**	**537**	**164**	**756**	**1,503**	**189**	**1,140**	**50**	**1,379**	**825**	**199**	**606**	**174**	**979**	**1,091**	**169**	**862**	**203**	**1,234**				
OFF HR AVG	CAR	679	79	439	104	622	634	90	391	47	528	452	139	296	98	533	770	109	593	150	852	N	30	0	0
	TRK	16	1	12	3	16	15	4	11	1	16	17	1	16	0	17	28	0	27	0	27	S	19	2	0
	BUS	36	2	13	27	42	42	22	9	2	33	14	6	9	1	16	15	3	12	1	16	E	31	0	0
																						W	34	2	0
	TOTAL:	**731**	**82**	**464**	**134**	**680**	**691**	**116**	**411**	**50**	**577**	**483**	**146**	**321**	**99**	**566**	**813**	**112**	**632**	**151**	**895**				
07:30-09:30	CAR	1,857	190	1,274	206	1,670	1,577	281	1,083	119	1,483	1,023	288	671	288	1,247	2,723	233	2,245	302	2,780	N	46	0	0
	TRK	44	3	41	15	59	74	1	52	9	62	30	7	21	6	34	66	0	57	2	59	S	19	0	0
2 HR AM	BUS	49	8	41	45	94	89	1	28	7	36	50	16	26	9	51	47	17	30	7	54	E	90	1	0
																						W	76	0	0
	TOTAL:	**1,950**	**201**	**1,356**	**266**	**1,823**	**1,740**	**283**	**1,163**	**135**	**1,581**	**1,103**	**311**	**718**	**303**	**1,332**	**2,836**	**250**	**2,332**	**311**	**2,893**				
16:00-18:00	CAR	1,694	127	993	242	1,362	2,683	321	2,074	106	2,501	1,515	367	1,129	348	1,844	2,067	280	1,592	380	2,252	N	122	0	0
	TRK	65	3	57	13	73	63	7	47	6	60	57	3	50	0	53	59	1	56	1	58	S	36	12	0
2 HR PM	BUS	92	2	43	41	86	83	40	23	7	70	55	19	36	3	58	38	12	33	9	54	E	150	0	0
																						W	93	6	0
	TOTAL:	**1,851**	**132**	**1,093**	**296**	**1,521**	**2,829**	**368**	**2,144**	**119**	**2,631**	**1,627**	**389**	**1,215**	**351**	**1,955**	**2,164**	**293**	**1,681**	**390**	**2,364**				
07:30-18:00	CAR	6,266	634	4,022	864	5,520	6,794	962	4,721	412	6,095	4,345	1,209	2,985	1,028	5,222	7,869	948	6,207	1,282	8,437	N	288	0	0
	TRK	170	9	144	40	193	194	22	141	20	183	154	13	133	7	153	236	1	220	4	225	S	129	21	0
8 HR SUM	BUS	284	16	136	193	345	340	127	88	23	238	161	59	99	16	174	143	39	111	21	171	E	364	1	0
																						W	303	13	0
	TOTAL:	**6,720**	**659**	**4,302**	**1,097**	**6,058**	**7,328**	**1,111**	**4,950**	**455**	**6,516**	**4,660**	**1,281**	**3,217**	**1,051**	**5,549**	**8,248**	**988**	**6,538**	**1,307**	**8,833**				

Total 8 Hour Vehicle Volume: 26,956

Total 8 Hour Bicycle Volume: 35

Total 8 Hour Intersection Volume: 26,991

Comment:

Printed On: 25 Jan, 2010 8:02:25AM

City of Toronto - Traffic Data Centre & Safety Bureau

Intersection Detailed 15 Minutes Movement Report

ST CLAIR AVE AT WARDEN AVE **Survey Date:** Dec-09-2009 (Wednesday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
07:45	CARS	151	20	12	104	19	24	90	40	18	307	27	24
	DUALS	4	2	0	2	0	0	0	0	0	0	0	0
	BUSES	6	2	0	1	1	0	2	1	1	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		4	**West Side**		21
08:00	CARS	194	19	16	118	14	35	100	43	20	310	33	27
	DUALS	5	0	1	0	0	0	0	3	0	10	0	0
	BUSES	3	3	0	0	0	0	5	2	2	4	0	3
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		14	**East Side**		9	**South Side**		4	**West Side**		0
08:15	CARS	173	36	27	127	19	42	82	51	21	332	29	31
	DUALS	8	2	1	6	0	0	1	0	0	15	1	0
	BUSES	7	5	1	3	0	0	0	2	3	4	1	4
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		5	**West Side**		10
08:30	CARS	185	25	21	153	15	30	122	41	15	292	28	20
	DUALS	5	0	0	13	0	0	5	0	0	11	0	0
	BUSES	5	8	3	4	0	0	6	0	1	8	3	4
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		15	**East Side**		27	**South Side**		0	**West Side**		7
08:45	CARS	153	21	36	166	10	33	91	29	54	283	37	36
	DUALS	1	5	0	6	2	0	5	0	0	1	1	0
	BUSES	2	6	0	3	1	0	6	1	2	0	1	2
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		10	**East Side**		20	**South Side**		0	**West Side**		4
09:00	CARS	151	18	27	165	11	39	56	37	56	241	55	27
	DUALS	6	3	1	6	4	0	0	0	2	6	0	0
	BUSES	6	5	2	6	1	0	0	2	2	4	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	1	(0)	
	PEDS	**North Side**		7	**East Side**		20	**South Side**		2	**West Side**		15
09:15	CARS	139	30	40	135	16	35	59	21	59	253	46	44
	DUALS	6	1	0	12	0	0	5	1	3	7	0	0
	BUSES	5	9	2	5	0	0	4	0	3	5	2	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		6	**South Side**		1	**West Side**		10

Intersection Detailed 15 Minutes Movement Report

ST CLAIR AVE AT WARDEN AVE **Survey Date:** Dec-09-2009 (Wednesday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
09:30	CARS	128	37	11	115	15	43	71	26	45	227	47	24
	DUALS	6	2	0	7	3	1	5	2	2	7	0	0
	BUSES	7	7	0	6	4	1	3	1	2	5	0	2
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		8	**South Side**		3	**West Side**		9
10:15	CARS	132	27	19	71	6	28	42	20	31	157	34	25
	DUALS	6	2	0	0	0	1	4	0	0	10	0	0
	BUSES	7	3	1	1	0	6	1	0	2	2	0	0
	BIKE (OTHER)		2	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		10	**East Side**		7	**South Side**		7	**West Side**		0
10:30	CARS	128	22	20	92	10	23	109	23	44	162	39	20
	DUALS	0	0	0	0	0	0	0	0	3	10	0	0
	BUSES	1	5	0	0	0	0	3	0	3	5	1	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
10:45	CARS	113	26	22	72	11	26	59	23	25	154	34	21
	DUALS	3	0	0	2	0	0	4	0	0	5	0	0
	BUSES	3	9	0	1	0	0	3	2	2	2	1	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		7	**East Side**		13	**South Side**		9	**West Side**		7
11:00	CARS	130	30	19	74	8	22	57	17	25	133	36	30
	DUALS	4	1	1	3	0	1	5	0	0	7	0	0
	BUSES	6	10	0	2	0	5	2	0	1	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		5	**East Side**		7	**South Side**		8	**West Side**		6
11:15	CARS	112	29	18	64	9	19	60	18	38	120	24	33
	DUALS	2	1	0	3	0	0	5	0	0	7	0	0
	BUSES	3	9	0	1	2	5	3	0	1	3	0	1
	BIKE (OTHER)		0	(0)		1	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		7	**East Side**		6	**South Side**		1	**West Side**		12
11:30	CARS	111	33	22	83	12	24	75	17	28	117	18	22
	DUALS	4	0	0	1	0	0	6	0	0	4	0	0
	BUSES	2	7	0	1	0	8	3	0	1	1	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		17	**East Side**		11	**South Side**		12	**West Side**		17

Intersection Detailed 15 Minutes Movement Report

ST CLAIR AVE AT WARDEN AVE **Survey Date:** Dec-09-2009 (Wednesday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
11:45	CARS	104	29	16	97	7	22	79	24	29	121	55	26
	DUALS	1	2	1	2	2	1	5	1	0	8	0	0
	BUSES	4	3	1	3	1	6	2	1	2	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		6	**East Side**		8	**South Side**		2	**West Side**		0
12:00	CARS	118	24	29	100	13	15	62	29	31	127	34	20
	DUALS	5	1	0	1	0	1	6	0	0	6	0	0
	BUSES	4	6	3	3	1	6	2	0	2	2	1	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		4	**East Side**		7	**South Side**		1	**West Side**		2
13:15	CARS	117	26	19	93	16	27	60	25	41	148	40	32
	DUALS	0	1	0	3	2	2	0	0	0	0	0	0
	BUSES	1	6	0	2	0	4	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		2	**West Side**		19
13:30	CARS	119	33	17	102	5	16	55	29	45	156	46	45
	DUALS	3	1	1	4	0	0	7	0	0	9	1	0
	BUSES	1	9	0	2	1	7	2	0	2	6	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		4	**East Side**		4	**South Side**		9	**West Side**		11
13:45	CARS	104	27	33	100	15	24	77	31	47	132	46	29
	DUALS	5	2	0	0	0	2	5	0	0	8	0	0
	BUSES	4	6	0	3	1	8	3	0	1	4	0	2
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		9	**East Side**		6	**South Side**		4	**West Side**		8
14:00	CARS	104	15	19	119	13	24	54	23	39	160	34	25
	DUALS	4	0	0	7	0	1	0	0	0	10	0	0
	BUSES	3	9	0	6	1	6	2	0	2	3	1	0
	BIKE (OTHER)		7	(0)		6	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		7	**East Side**		4	**South Side**		3	**West Side**		6
14:15	CARS	70	17	17	130	12	18	80	25	32	181	30	32
	DUALS	1	0	0	2	0	0	6	0	0	6	0	0
	BUSES	1	7	0	1	1	3	3	0	1	1	1	2
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		7	**South Side**		0	**West Side**		1

Intersection Detailed 15 Minutes Movement Report

ST CLAIR AVE AT WARDEN AVE **Survey Date:** Dec-09-2009 (Wednesday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
14:30	CARS	91	22	15	121	17	22	94	34	36	164	49	28
	DUALS	0	0	0	1	0	0	4	0	0	6	0	0
	BUSES	4	2	1	1	1	7	3	1	1	6	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		9	**East Side**		13	**South Side**		0	**West Side**		10
14:45	CARS	106	24	17	117	21	26	100	27	25	155	42	24
	DUALS	3	0	0	2	1	3	5	0	0	3	0	0
	BUSES	2	8	0	2	0	10	3	0	1	3	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		11	**East Side**		15	**South Side**		2	**West Side**		20
15:00	CARS	96	32	15	129	12	24	122	27	38	183	39	23
	DUALS	5	1	0	11	0	2	0	0	0	8	0	0
	BUSES	6	8	0	8	0	5	1	0	2	4	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		24	**East Side**		16	**South Side**		14	**West Side**		15
16:15	CARS	110	22	23	206	15	32	151	33	44	174	45	36
	DUALS	6	2	0	7	2	2	10	0	1	9	0	0
	BUSES	8	3	0	3	4	9	5	1	3	6	1	2
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		20	**East Side**		23	**South Side**		5	**West Side**		46
16:30	CARS	123	34	19	263	20	47	132	42	33	194	37	26
	DUALS	3	2	0	5	1	0	8	0	0	7	0	0
	BUSES	6	7	1	2	1	5	4	0	2	4	2	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		17	**East Side**		17	**South Side**		3	**West Side**		0
16:45	CARS	148	19	14	243	14	35	143	49	52	210	41	29
	DUALS	8	3	1	9	0	1	5	0	0	7	0	0
	BUSES	8	7	0	6	1	6	4	0	2	2	1	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		20	**East Side**		16	**South Side**		2	**West Side**		10
17:00	CARS	132	38	9	243	12	36	151	37	46	215	55	41
	DUALS	8	2	1	4	0	0	10	0	0	6	0	0
	BUSES	5	6	0	2	0	6	4	0	2	4	2	1
	BIKE (OTHER)		7	(0)		4	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		19	**East Side**		23	**South Side**		7	**West Side**		10

Intersection Detailed 15 Minutes Movement Report

ST CLAIR AVE AT WARDEN AVE **Survey Date:** Dec-09-2009 (Wednesday)

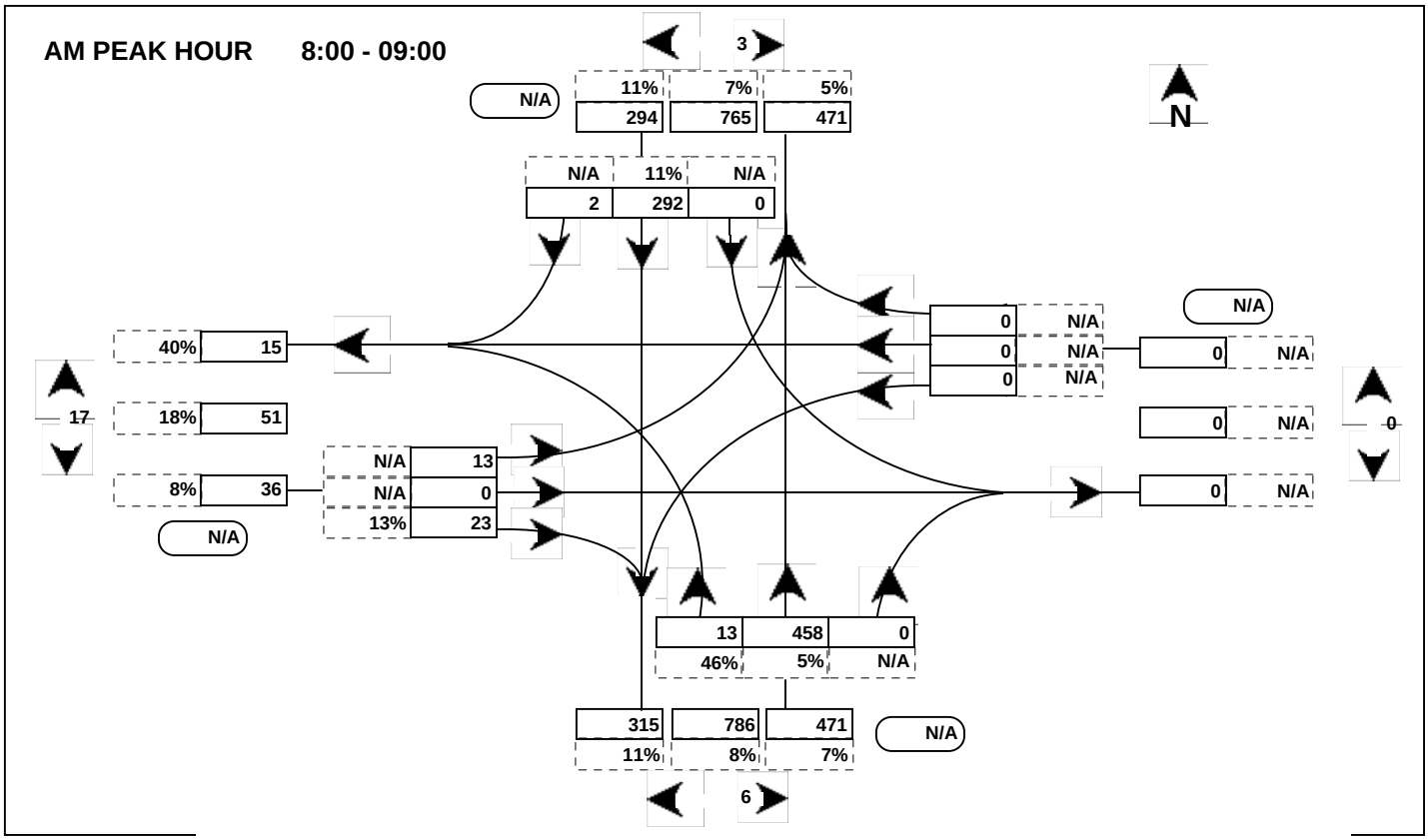
Survey Type: Routine Hours

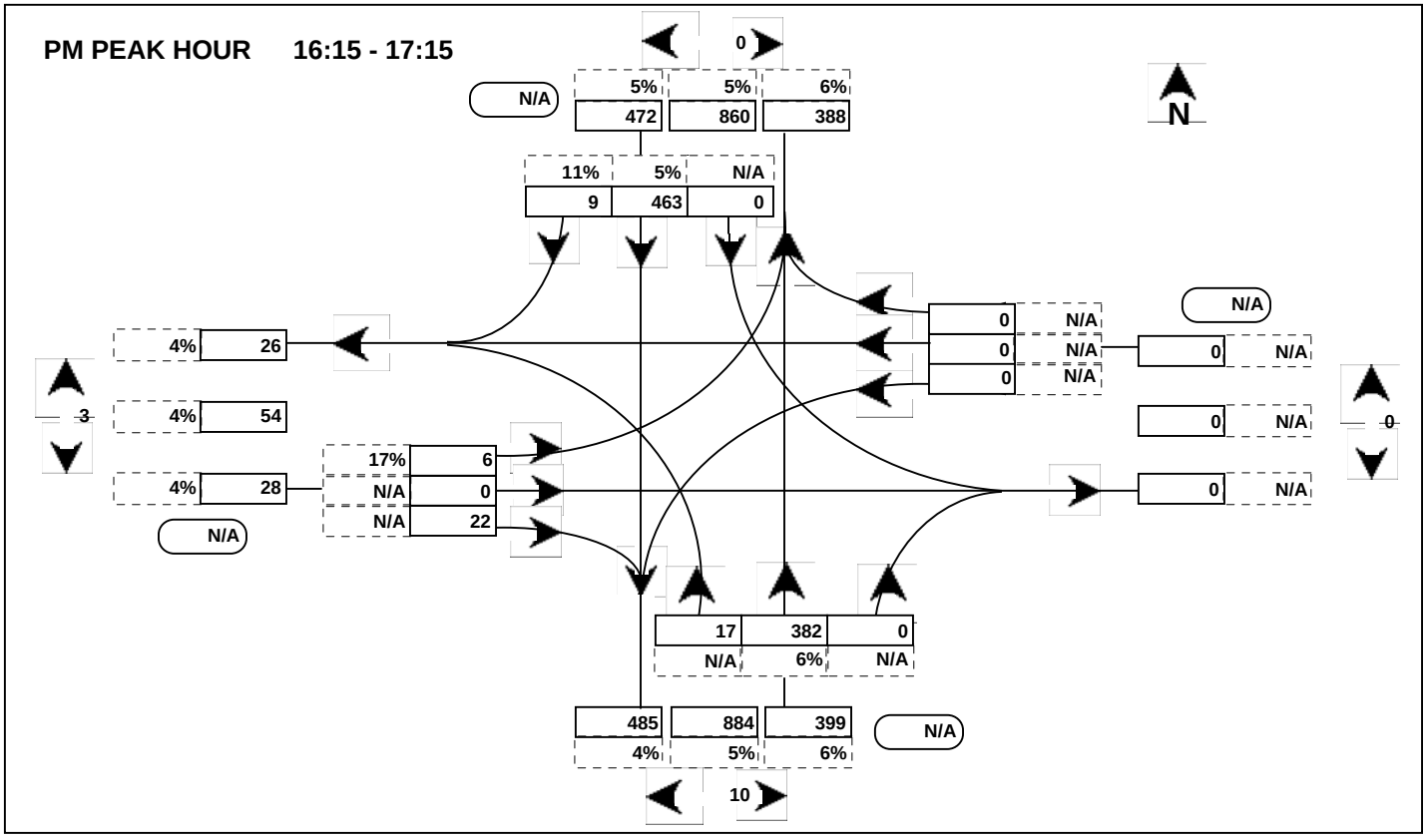
Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
17:15	CARS	133	32	10	225	10	45	148	47	30	216	46	45
	DUALS	3	0	0	3	0	0	6	0	0	2	0	0
	BUSES	1	2	0	1	0	4	5	0	2	5	2	2
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		20	**East Side**		9	**South Side**		0	**West Side**		1
17:30	CARS	121	38	12	317	13	50	132	45	57	192	47	43
	DUALS	16	1	0	6	0	1	2	0	0	10	0	0
	BUSES	8	5	1	4	1	3	5	1	3	6	1	3
	BIKE (OTHER)		4	(0)		2	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		8	**East Side**		19	**South Side**		8	**West Side**		0
17:45	CARS	110	35	22	323	12	42	138	44	55	193	50	32
	DUALS	0	0	0	10	2	2	0	0	2	7	0	0
	BUSES	0	5	0	2	0	0	5	0	2	6	0	2
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		15	**East Side**		29	**South Side**		0	**West Side**		17
18:00	CARS	116	24	18	254	10	34	134	51	50	198	59	28
	DUALS	13	3	1	3	1	1	9	0	0	8	1	1
	BUSES	7	6	0	3	0	7	4	1	3	0	0	0
	BIKE (OTHER)		1	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		3	**East Side**		14	**South Side**		11	**West Side**		9

BA Consulting Group Intersection Count Database

Intersection: **CATARAQUI CRES, WARDEN AVE**
Date of Count: **Tuesday, November 09, 04**
Source: **BA Group**
Veh & PCU used: **Cars * 1.0 + Medium * 1.0 + Heavy * 1.0**
Comments: **Traffic - Warden NB and SB curb lane closed for construction; weather - clear, sunny**

999 Total vehicles
999 Percent medium and heavy
999 Bikes and other
999 Pedestrians





City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

BURN HILL RD AT MACK AVE & WARDEN AVE

Survey Date: 2015-May-06 (Wednesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:00-09:00	CAR	576	10	543	5	558	21	28	14	16	58	390	2	372	12	386	31	2	9	5	16	N	43	6	0
	TRK	25	2	21	0	23	2	2	0	0	2	21	2	20	0	22	2	1	0	2	3	S	29	2	0
AM PEAK	BUS	16	0	15	0	15	0	0	0	0	0	13	0	12	0	12	0	1	0	1	2	E	25	2	0
																						W	104	3	0
	TOTAL:	**617**	**12**	**579**	**5**	**596**	**23**	**30**	**14**	**16**	**60**	**424**	**4**	**404**	**12**	**420**	**33**	**4**	**9**	**8**	**21**				
17:00-18:00	CAR	526	19	493	10	522	32	18	12	17	47	632	10	610	28	648	57	5	10	15	30	N	73	7	0
	TRK	10	0	10	0	10	0	0	0	0	0	7	0	7	0	7	0	0	0	0	0	S	15	2	0
PM PEAK	BUS	7	0	7	0	7	0	0	0	0	0	7	0	7	0	7	0	0	0	0	0	E	18	0	0
																						W	23	4	0
	TOTAL:	**543**	**19**	**510**	**10**	**539**	**32**	**18**	**12**	**17**	**47**	**646**	**10**	**624**	**28**	**662**	**57**	**5**	**10**	**15**	**30**				
OFF HR AVG	CAR	407	9	361	4	374	35	13	3	12	28	383	28	369	14	411	25	2	2	33	37	N	29	3	0
	TRK	20	0	16	0	16	2	0	0	0	0	17	2	17	0	19	0	0	0	4	4	S	8	1	0
	BUS	10	0	10	0	10	0	0	0	0	0	11	0	11	0	11	0	0	0	0	0	E	7	1	0
																						W	23	2	0
	TOTAL:	**437**	**9**	**387**	**4**	**400**	**37**	**13**	**3**	**12**	**28**	**411**	**30**	**397**	**14**	**441**	**25**	**2**	**2**	**37**	**41**				
07:30-09:30	CAR	1,028	13	950	7	970	41	53	20	26	99	660	14	630	20	664	44	4	11	25	40	N	68	7	0
	TRK	51	3	46	0	49	5	2	1	0	3	46	4	44	0	48	3	2	0	3	5	S	46	3	0
2 HR AM	BUS	25	0	24	0	24	0	0	0	0	0	27	0	26	0	26	0	1	0	1	2	E	35	4	0
																						W	154	5	0
	TOTAL:	**1,104**	**16**	**1,020**	**7**	**1,043**	**46**	**55**	**21**	**26**	**102**	**733**	**18**	**700**	**20**	**738**	**47**	**7**	**11**	**29**	**47**				
16:00-18:00	CAR	1,079	36	1,008	16	1,060	50	35	16	24	75	1,163	18	1,128	51	1,197	104	11	17	36	64	N	131	14	0
	TRK	31	0	31	1	32	1	0	0	0	0	18	0	18	1	19	1	0	0	0	0	S	27	2	0
2 HR PM	BUS	16	0	16	0	16	0	0	0	0	0	15	0	15	0	15	0	0	0	0	0	E	34	2	0
																						W	47	6	0
	TOTAL:	**1,126**	**36**	**1,055**	**17**	**1,108**	**51**	**35**	**16**	**24**	**75**	**1,196**	**18**	**1,161**	**52**	**1,231**	**105**	**11**	**17**	**36**	**64**				
07:30-18:00	CAR	3,733	85	3,402	40	3,527	230	139	47	97	283	3,350	143	3,232	125	3,500	245	21	35	192	248	N	314	33	0
	TRK	161	4	141	2	147	13	2	1	1	4	131	10	128	2	140	6	2	0	18	20	S	106	9	0
8 HR SUM	BUS	81	0	80	0	80	0	0	0	0	0	85	0	84	0	84	0	1	0	1	2	E	96	8	0
																						W	292	19	0
	TOTAL:	**3,975**	**89**	**3,623**	**42**	**3,754**	**243**	**141**	**48**	**98**	**287**	**3,566**	**153**	**3,444**	**127**	**3,724**	**251**	**24**	**35**	**211**	**270**				

Total 8 Hour Vehicle Volume: 8,035

Total 8 Hour Bicycle Volume: 69

Total 8 Hour Intersection Volume: 8,104

Comment:

Printed On: 25 Mar, 2020 2:21:34PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

DANFORTH AVE AT WARDEN AVE (PX 358)

Survey Date: 2015-May-06 (Wednesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:00-09:00	CAR	572	48	492	63	603	394	7	263	33	303	758	68	401	22	491	637	324	567	73	964	N	16	2	0
	TRK	9	1	9	3	13	5	0	2	3	5	21	0	13	0	13	15	5	14	0	19	S	12	5	0
AM PEAK	BUS	12	0	11	0	11	8	0	5	0	5	10	3	10	1	14	6	0	5	1	6	E	23	6	0
																						W	14	7	0
	TOTAL:	**593**	**49**	**512**	**66**	**627**	**407**	**7**	**270**	**36**	**313**	**789**	**71**	**424**	**23**	**518**	**658**	**329**	**586**	**74**	**989**				
16:45-17:45	CAR	613	68	555	215	838	847	14	585	108	707	770	47	494	43	584	393	168	282	44	494	N	22	2	0
	TRK	10	0	10	1	11	5	0	4	0	4	7	0	6	0	6	4	1	4	0	5	S	16	2	0
PM PEAK	BUS	7	0	6	0	6	4	0	4	0	4	6	0	6	0	6	4	0	4	1	5	E	18	8	0
																						W	20	5	0
	TOTAL:	**630**	**68**	**571**	**216**	**855**	**856**	**14**	**593**	**108**	**715**	**783**	**47**	**506**	**43**	**596**	**401**	**169**	**290**	**45**	**504**				
OFF HR AVG	CAR	392	48	319	89	456	344	27	218	58	303	497	37	317	38	392	318	122	232	46	400	N	18	1	0
	TRK	12	1	9	2	12	10	1	6	1	8	9	2	6	1	9	7	2	5	2	9	S	11	2	0
	BUS	8	0	8	0	8	5	0	4	0	4	12	1	11	0	12	4	1	4	0	5	E	11	5	0
																						W	12	3	0
	TOTAL:	**412**	**49**	**336**	**91**	**476**	**359**	**28**	**228**	**59**	**315**	**518**	**40**	**334**	**39**	**413**	**329**	**125**	**241**	**48**	**414**				
07:30-09:30	CAR	1,018	87	874	139	1,100	709	19	471	72	562	1,418	99	721	52	872	1,206	625	1,067	125	1,817	N	39	2	0
	TRK	13	2	13	5	20	15	0	7	5	12	39	3	28	1	32	27	6	24	0	30	S	27	7	0
2 HR AM	BUS	25	0	24	2	26	17	0	11	0	11	23	4	23	1	28	11	0	10	1	11	E	37	13	0
																						W	32	10	0
	TOTAL:	**1,056**	**89**	**911**	**146**	**1,146**	**741**	**19**	**489**	**77**	**585**	**1,480**	**106**	**772**	**54**	**932**	**1,244**	**631**	**1,101**	**126**	**1,858**				
16:00-18:00	CAR	1,205	125	1,076	432	1,633	1,678	27	1,151	213	1,391	1,457	95	938	89	1,122	760	306	546	102	954	N	55	7	0
	TRK	23	1	21	2	24	13	1	10	3	14	18	1	11	1	13	11	4	9	1	14	S	31	4	0
2 HR PM	BUS	17	0	15	1	16	10	0	9	0	9	16	0	16	0	16	7	0	7	2	9	E	26	18	0
																						W	38	9	0
	TOTAL:	**1,245**	**126**	**1,112**	**435**	**1,673**	**1,701**	**28**	**1,170**	**216**	**1,414**	**1,491**	**96**	**965**	**90**	**1,151**	**778**	**310**	**562**	**105**	**977**				
07:30-18:00	CAR	3,786	403	3,224	926	4,553	3,761	153	2,494	516	3,163	4,863	341	2,928	293	3,562	3,236	1,419	2,540	409	4,368	N	164	12	0
	TRK	80	8	70	14	92	67	3	42	12	57	93	11	63	5	79	64	18	51	7	76	S	102	19	0
8 HR SUM	BUS	77	0	72	4	76	44	1	34	0	35	84	6	82	1	89	32	2	31	4	37	E	105	51	0
																						W	117	31	0
	TOTAL:	**3,943**	**411**	**3,366**	**944**	**4,721**	**3,872**	**157**	**2,570**	**528**	**3,255**	**5,040**	**358**	**3,073**	**299**	**3,730**	**3,332**	**1,439**	**2,622**	**420**	**4,481**				

Total 8 Hour Vehicle Volume: 16,187

Total 8 Hour Bicycle Volume: 113

Total 8 Hour Intersection Volume: 16,300

Comment:

Printed On: 06 Apr, 2020 2:02:28PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

DANFORTH RD AT WARDEN AVE (PX 418)

Survey Date: 2015-May-06 (Wednesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:00-09:00	CAR	547	9	425	156	590	430	84	237	25	346	492	37	237	117	391	593	230	467	38	735	N	8	3	0
	TRK	19	0	12	3	15	13	3	8	0	11	14	2	8	10	20	23	6	13	4	23	S	19	2	0
AM PEAK	BUS	15	0	11	1	12	8	4	6	0	10	13	1	12	0	13	7	1	7	0	8	E	18	5	0
																						W	5	4	0
	TOTAL:	**581**	**9**	**448**	**160**	**617**	**451**	**91**	**251**	**25**	**367**	**519**	**40**	**257**	**127**	**424**	**623**	**237**	**487**	**42**	**766**				
16:30-17:30	CAR	545	13	347	235	595	806	157	533	35	725	626	38	394	160	592	477	197	304	41	542	N	20	6	0
	TRK	18	1	11	3	15	15	5	10	1	16	11	2	7	4	13	11	3	6	2	11	S	24	1	0
PM PEAK	BUS	9	0	9	0	9	6	0	6	0	6	6	0	6	1	7	6	0	5	0	5	E	14	0	0
																						W	20	5	0
	TOTAL:	**572**	**14**	**367**	**238**	**619**	**827**	**162**	**549**	**36**	**747**	**643**	**40**	**407**	**165**	**612**	**494**	**200**	**315**	**43**	**558**				
OFF HR AVG	CAR	376	12	262	118	392	377	90	242	16	348	396	17	245	120	382	404	135	272	24	431	N	8	3	0
	TRK	16	0	9	4	13	20	4	13	2	19	15	3	10	5	18	16	3	11	3	17	S	11	1	0
	BUS	10	0	9	0	9	5	0	5	1	6	12	0	10	1	11	7	1	6	1	8	E	11	3	0
																						W	10	2	0
	TOTAL:	**402**	**12**	**280**	**122**	**414**	**402**	**94**	**260**	**19**	**373**	**423**	**20**	**265**	**126**	**411**	**427**	**139**	**289**	**28**	**456**				
07:30-09:30	CAR	958	14	749	281	1,044	790	147	451	41	639	868	58	415	204	677	1,118	412	900	62	1,374	N	18	3	0
	TRK	43	1	23	4	28	23	14	13	2	29	40	6	24	16	46	53	14	36	6	56	S	33	3	0
2 HR AM	BUS	25	0	21	3	24	26	4	22	0	26	27	1	25	0	26	13	2	13	0	15	E	26	6	0
																						W	10	6	0
	TOTAL:	**1,026**	**15**	**793**	**288**	**1,096**	**839**	**165**	**486**	**43**	**694**	**935**	**65**	**464**	**220**	**749**	**1,184**	**428**	**949**	**68**	**1,445**				
16:00-18:00	CAR	1,064	23	698	474	1,195	1,505	279	958	59	1,296	1,190	73	765	329	1,167	1,001	366	649	87	1,102	N	29	9	0
	TRK	30	2	20	6	28	26	8	17	1	26	17	3	10	6	19	22	6	14	2	22	S	45	4	0
2 HR PM	BUS	16	0	16	1	17	12	0	11	0	11	15	0	14	1	15	13	1	12	0	13	E	30	5	0
																						W	32	14	0
	TOTAL:	**1,110**	**25**	**734**	**481**	**1,240**	**1,543**	**287**	**986**	**60**	**1,333**	**1,222**	**76**	**789**	**336**	**1,201**	**1,036**	**373**	**675**	**89**	**1,137**				
07:30-18:00	CAR	3,523	85	2,493	1,225	3,803	3,801	787	2,376	164	3,327	3,640	200	2,158	1,014	3,372	3,734	1,318	2,635	243	4,196	N	79	22	0
	TRK	133	4	77	25	106	125	38	80	10	128	113	20	73	42	135	138	30	92	18	140	S	123	12	0
8 HR SUM	BUS	80	0	73	5	78	58	5	51	2	58	87	2	80	3	85	53	5	50	2	57	E	101	24	0
																						W	82	28	0
	TOTAL:	**3,736**	**89**	**2,643**	**1,255**	**3,987**	**3,984**	**830**	**2,507**	**176**	**3,513**	**3,840**	**222**	**2,311**	**1,059**	**3,592**	**3,925**	**1,353**	**2,777**	**263**	**4,393**				

Total 8 Hour Vehicle Volume: 15,485

Total 8 Hour Bicycle Volume: 86

Total 8 Hour Intersection Volume: 15,571

Comment:

Printed On: 25 Mar, 2020 2:24:48PM

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

FIRVALLEY CRT AT WARDEN AVE (PX 689)

Survey Date: 2015-May-06 (Wednesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:00-09:00	CAR	643	12	629	0	641	0	14	0	14	28	386	0	372	14	386	26	0	0	0	0	N	30	1	0
	TRK	18	4	16	0	20	0	2	0	3	5	24	0	21	0	21	4	0	0	0	0	S	20	3	0
AM PEAK	BUS	15	0	14	0	14	0	1	0	0	1	12	0	12	1	13	1	0	0	0	0	E	0	0	0
																						W	55	0	0
	TOTAL:	**676**	**16**	**659**	**0**	**675**	**0**	**17**	**0**	**17**	**34**	**422**	**0**	**405**	**15**	**420**	**31**	**0**	**0**	**0**	**0**				
17:00-18:00	CAR	551	22	519	0	541	0	32	0	10	42	658	0	648	37	685	59	0	0	0	0	N	76	9	0
	TRK	11	0	10	0	10	0	1	0	0	1	7	0	7	0	7	0	0	0	0	0	S	19	3	0
PM PEAK	BUS	8	0	8	0	8	0	0	0	0	0	7	0	7	0	7	0	0	0	0	0	E	0	0	0
																						W	31	1	0
	TOTAL:	**570**	**22**	**537**	**0**	**559**	**0**	**33**	**0**	**10**	**43**	**672**	**0**	**662**	**37**	**699**	**59**	**0**	**0**	**0**	**0**				
OFF HR AVG	CAR	445	11	416	0	427	0	29	0	14	43	416	0	402	30	432	41	0	0	0	0	N	34	2	0
	TRK	24	1	23	0	24	0	1	0	0	1	22	0	22	2	24	3	0	0	0	0	S	13	2	0
	BUS	10	0	10	0	10	0	0	0	0	0	11	0	11	0	11	0	0	0	0	0	E	0	0	0
																						W	33	1	0
	TOTAL:	**479**	**12**	**449**	**0**	**461**	**0**	**30**	**0**	**14**	**44**	**449**	**0**	**435**	**32**	**467**	**44**	**0**	**0**	**0**	**0**				
07:30-09:30	CAR	1,134	23	1,106	0	1,129	0	28	0	18	46	671	0	653	31	684	54	0	0	0	0	N	67	1	0
	TRK	42	5	37	0	42	0	5	0	5	10	53	0	48	1	49	6	0	0	0	0	S	53	6	0
2 HR AM	BUS	25	0	24	0	24	0	1	0	0	1	26	0	26	1	27	1	0	0	0	0	E	0	0	0
																						W	103	0	0
	TOTAL:	**1,201**	**28**	**1,167**	**0**	**1,195**	**0**	**34**	**0**	**23**	**57**	**750**	**0**	**727**	**33**	**760**	**61**	**0**	**0**	**0**	**0**				
16:00-18:00	CAR	1,146	38	1,092	0	1,130	0	54	0	22	76	1,227	0	1,205	68	1,273	106	0	0	0	0	N	164	14	0
	TRK	30	1	28	0	29	0	2	0	1	3	20	0	19	0	19	1	0	0	0	0	S	48	6	0
2 HR PM	BUS	18	0	18	0	18	0	0	0	0	0	17	0	17	1	18	1	0	0	0	0	E	0	0	0
																						W	66	3	0
	TOTAL:	**1,194**	**39**	**1,138**	**0**	**1,177**	**0**	**56**	**0**	**23**	**79**	**1,264**	**0**	**1,241**	**69**	**1,310**	**108**	**0**	**0**	**0**	**0**				
07:30-18:00	CAR	4,056	104	3,860	0	3,964	0	196	0	94	290	3,559	0	3,465	218	3,683	322	0	0	0	0	N	366	24	0
	TRK	169	9	157	0	166	0	12	0	6	18	161	0	155	9	164	18	0	0	0	0	S	153	21	0
8 HR SUM	BUS	83	0	82	0	82	0	1	0	0	1	87	0	87	2	89	2	0	0	0	0	E	0	0	0
																						W	302	6	0
	TOTAL:	**4,308**	**113**	**4,099**	**0**	**4,212**	**0**	**209**	**0**	**100**	**309**	**3,807**	**0**	**3,707**	**229**	**3,936**	**342**	**0**	**0**	**0**	**0**				

Total 8 Hour Vehicle Volume: 8,457

Total 8 Hour Bicycle Volume: 51

Total 8 Hour Intersection Volume: 8,508

Comment:

Printed On: 25 Mar, 2020 2:14:38PM

Spectrum Traffic Data Incorporated
250 Wincott Drive, PO Box 18562
Toronto
Ontario, Ontario, Canada M9R 2R0
416-875-6200 greg@spectrumtraffic.com

Count Name: Warden Ave and 682 Warden Ave
Site Code:
Start Date: 04/03/2014

Turning Movement Data

Start Time	Warden Ave Southbound						Commercail Driveway Westbound						Warden Ave Northbound						682 Warden Ave Driveway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:30 AM	3	85	1	0	0	89	1	0	0	0	11	1	0	143	0	0	3	143	2	0	0	0	3	2	235
7:45 AM	1	88	1	1	0	91	2	0	1	0	22	3	2	174	1	0	5	177	1	0	0	0	4	1	272
Hourly Total	4	173	2	1	0	180	3	0	1	0	33	4	2	317	1	0	8	320	3	0	0	0	7	3	507
8:00 AM	0	97	0	0	1	97	0	0	0	0	15	0	0	186	0	0	7	186	1	0	2	0	5	3	286
8:15 AM	0	120	1	0	1	121	0	0	1	0	18	1	0	195	0	0	6	195	0	0	0	0	4	0	317
8:30 AM	2	101	0	0	0	103	0	0	0	0	9	0	2	192	0	0	8	194	1	0	1	0	7	2	299
8:45 AM	0	127	0	0	0	127	0	0	0	0	5	0	0	177	1	0	2	178	0	0	0	0	6	0	305
Hourly Total	2	445	1	0	2	448	0	0	1	0	47	1	2	750	1	0	23	753	2	0	3	0	22	5	1207
9:00 AM	0	80	1	0	0	81	0	0	0	0	15	0	0	126	0	0	5	126	1	0	0	0	8	1	208
9:15 AM	3	82	1	0	0	86	2	0	0	0	16	2	1	116	0	0	7	117	0	0	2	0	7	2	207
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	3	162	2	0	0	167	2	0	0	0	31	2	1	242	0	0	12	243	1	0	2	0	15	3	415
4:00 PM	0	160	0	0	0	160	2	0	0	0	24	2	1	152	2	0	7	155	2	0	3	0	9	5	322
4:15 PM	1	151	2	0	0	154	0	0	1	0	8	1	1	154	2	0	3	157	1	0	0	0	3	1	313
4:30 PM	2	166	0	0	1	168	0	0	2	0	6	2	1	171	0	0	10	172	2	0	2	0	10	4	346
4:45 PM	2	172	0	0	1	174	1	0	0	0	11	1	0	134	1	0	11	135	1	5	2	0	12	8	318
Hourly Total	5	649	2	0	2	656	3	0	3	0	49	6	3	611	5	0	31	619	6	5	7	0	34	18	1299
5:00 PM	2	159	0	0	0	161	1	0	1	0	20	2	2	145	1	0	13	148	1	0	2	0	12	3	314
5:15 PM	1	187	0	0	1	188	0	0	0	0	15	0	0	125	0	0	9	125	1	0	2	0	6	3	316
5:30 PM	1	184	2	0	0	187	1	0	1	0	18	2	1	127	1	0	13	129	0	0	2	0	11	2	320
5:45 PM	2	168	1	0	0	171	3	0	0	0	10	3	0	130	0	0	6	130	1	0	1	0	6	2	306
Hourly Total	6	698	3	0	1	707	5	0	2	0	63	7	3	527	2	0	41	532	3	0	7	0	35	10	1256
Grand Total	20	2127	10	1	5	2158	13	0	7	0	223	20	11	2447	9	0	115	2467	15	5	19	0	113	39	4684
Approach %	0.9	98.6	0.5	0.0	-	-	65.0	0.0	35.0	0.0	-	-	0.4	99.2	0.4	0.0	-	-	38.5	12.8	48.7	0.0	-	-	-
Total %	0.4	45.4	0.2	0.0	-	46.1	0.3	0.0	0.1	0.0	-	0.4	0.2	52.2	0.2	0.0	-	52.7	0.3	0.1	0.4	0.0	-	0.8	-
Lights	19	2033	10	1	-	2063	13	0	6	0	-	19	11	2306	7	0	-	2324	14	5	19	0	-	38	4444
% Lights	95.0	95.6	100.0	100.0	-	95.6	100.0	-	85.7	-	-	95.0	100.0	94.2	77.8	-	-	94.2	93.3	100.0	100.0	-	-	97.4	94.9
Buses	0	42	0	0	-	42	0	0	0	0	-	0	0	65	0	0	-	65	0	0	0	0	-	0	107
% Buses	0.0	2.0	0.0	0.0	-	1.9	0.0	-	0.0	-	-	0.0	0.0	2.7	0.0	-	-	2.6	0.0	0.0	0.0	-	-	0.0	2.3
Single-Unit Trucks	1	46	0	0	-	47	0	0	1	0	-	1	0	63	0	0	-	63	1	0	0	0	-	1	112
% Single-Unit Trucks	5.0	2.2	0.0	0.0	-	2.2	0.0	-	14.3	-	-	5.0	0.0	2.6	0.0	-	-	2.6	6.7	0.0	0.0	-	-	2.6	2.4
Articulated Trucks	0	1	0	0	-	1	0	0	0	0	-	0	0	4	0	0	-	4	0	0	0	0	-	0	5
% Articulated Trucks	0.0	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Road	0	5	0	0	-	5	0	0	0	0	-	0	0	9	2	0	-	11	0	0	0	0	-	0	16
% Bicycles on Road	0.0	0.2	0.0	0.0	-	0.2	0.0	-	0.0	-	-	0.0	0.0	0.4	22.2	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.3
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	1.8	-	-	-	-	-	0.9	-	-	-	-	-	0.9	-	-

Pedestrians	-	-	-	-	5	-	-	-	-	-	219	-	-	-	-	-	114	-	-	-	-	-	112	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	98.2	-	-	-	-	-	99.1	-	-	-	-	-	99.1	-	-

Spectrum Traffic Data Incorporated
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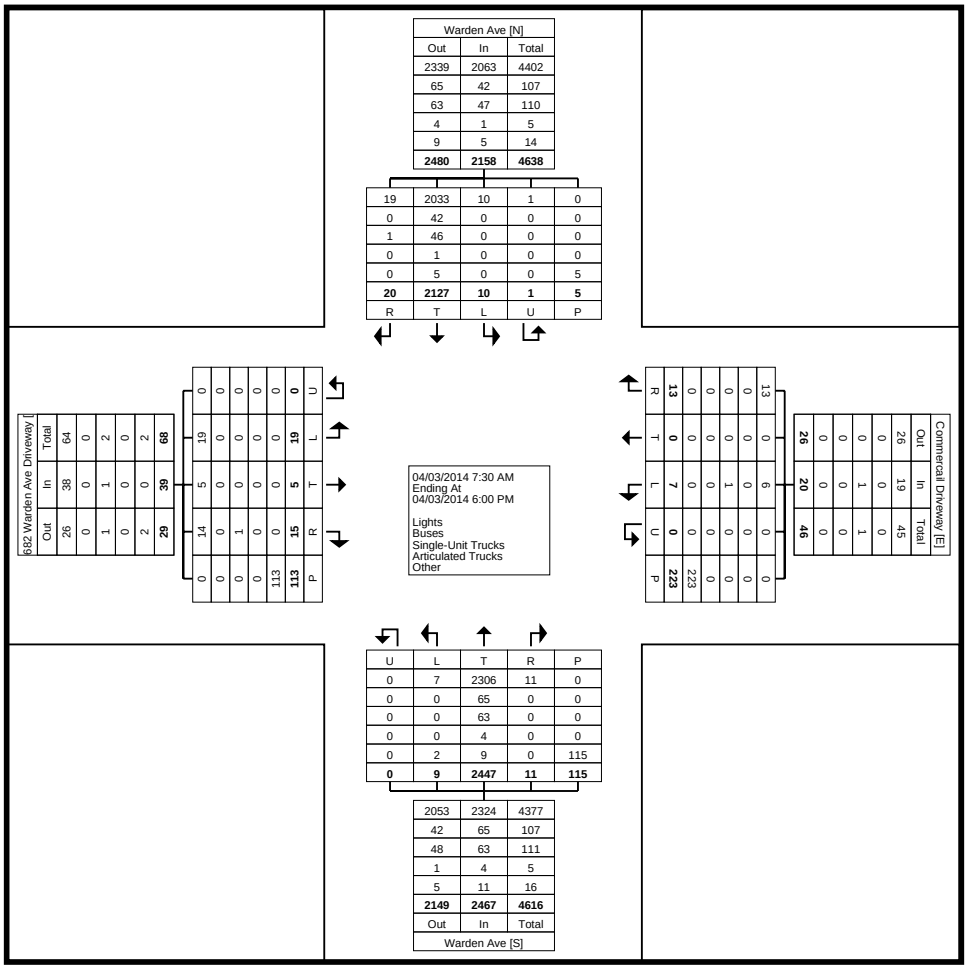

Turning Movement Data Plot

Spectrum Traffic Data Incorporated
250 Wincott Drive, PO Box 18562
Toronto
Ontario, Ontario, Canada M9R 2R0
416-875-6200 greg@spectrumtraffic.com

Count Name: Warden Ave and 682 Warden Ave
Site Code:
Start Date: 04/03/2014

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Warden Ave Southbound						Commercail Driveway Westbound						Warden Ave Northbound						682 Warden Ave Driveway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
8:00 AM	0	97	0	0	1	97	0	0	0	0	15	0	0	186	0	0	7	186	1	0	2	0	5	3	286
8:15 AM	0	120	1	0	1	121	0	0	1	0	18	1	0	195	0	0	6	195	0	0	0	0	4	0	317
8:30 AM	2	101	0	0	0	103	0	0	0	0	9	0	2	192	0	0	8	194	1	0	1	0	7	2	299
8:45 AM	0	127	0	0	0	127	0	0	0	0	5	0	0	177	1	0	2	178	0	0	0	0	6	0	305
Total	2	445	1	0	2	448	0	0	1	0	47	1	2	750	1	0	23	753	2	0	3	0	22	5	1207
Approach %	0.4	99.3	0.2	0.0	-	-	0.0	0.0	100.0	0.0	-	-	0.3	99.6	0.1	0.0	-	-	40.0	0.0	60.0	0.0	-	-	-
Total %	0.2	36.9	0.1	0.0	-	37.1	0.0	0.0	0.1	0.0	-	0.1	0.2	62.1	0.1	0.0	-	62.4	0.2	0.0	0.2	0.0	-	0.4	-
PHF	0.250	0.876	0.250	0.000	-	0.882	0.000	0.000	0.250	0.000	-	0.250	0.250	0.962	0.250	0.000	-	0.965	0.500	0.000	0.375	0.000	-	0.417	0.952
Lights	2	422	1	0	-	425	0	0	0	0	-	0	2	702	1	0	-	705	2	0	3	0	-	5	1135
% Lights	100.0	94.8	100.0	-	-	94.9	-	-	0.0	-	-	0.0	100.0	93.6	100.0	-	-	93.6	100.0	-	100.0	-	-	100.0	94.0
Buses	0	14	0	0	-	14	0	0	0	0	-	0	0	26	0	0	-	26	0	0	0	0	-	0	40
% Buses	0.0	3.1	0.0	-	-	3.1	-	-	0.0	-	-	0.0	0.0	3.5	0.0	-	-	3.5	0.0	-	0.0	-	-	0.0	3.3
Single-Unit Trucks	0	9	0	0	-	9	0	0	1	0	-	1	0	15	0	0	-	15	0	0	0	0	-	0	25
% Single-Unit Trucks	0.0	2.0	0.0	-	-	2.0	-	-	100.0	-	-	100.0	0.0	2.0	0.0	-	-	2.0	0.0	-	0.0	-	-	0.0	2.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	2
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	-	-	0.0	-	-	0.0	0.0	0.3	0.0	-	-	0.3	0.0	-	0.0	-	-	0.0	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	5	0	0	-	5	0	0	0	0	-	0	5
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	-	-	0.0	-	-	0.0	0.0	0.7	0.0	-	-	0.7	0.0	-	0.0	-	-	0.0	0.4
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	2.1	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	46	-	-	-	-	-	23	-	-	-	-	-	22	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	97.9	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

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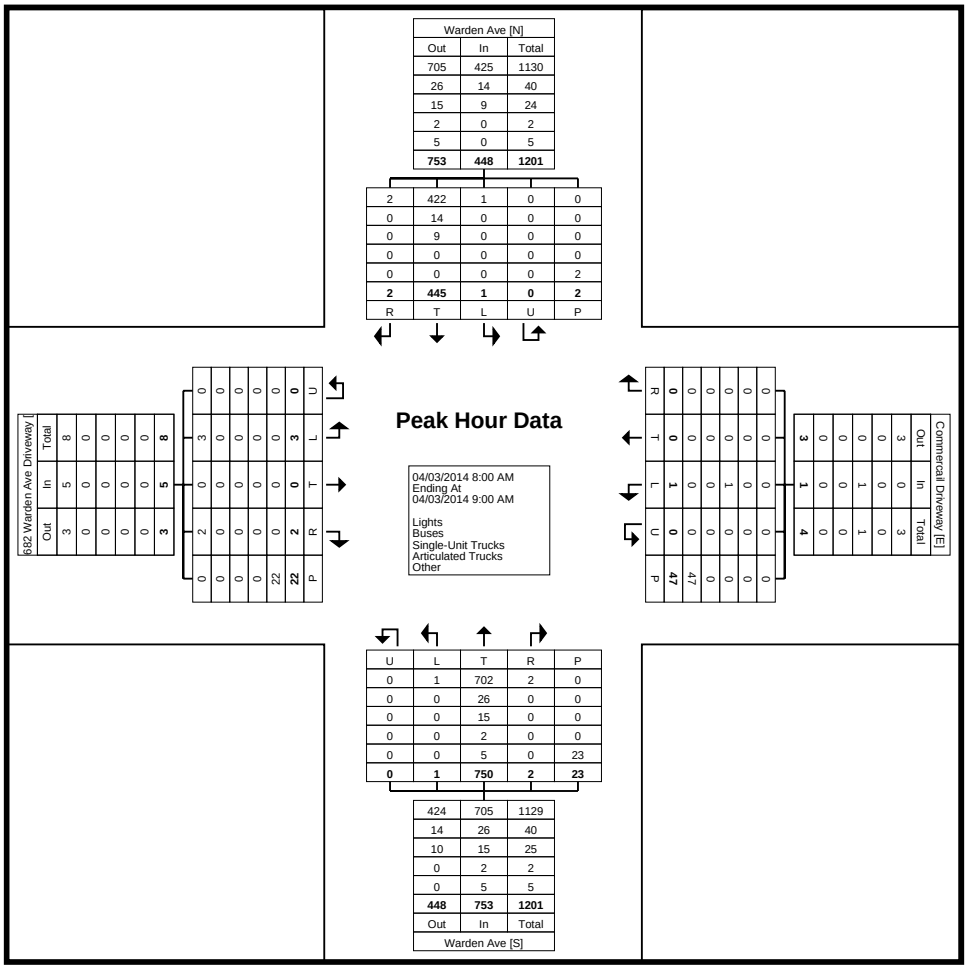

Turning Movement Peak Hour Data Plot (8:00 AM)

Spectrum Traffic Data Incorporated
250 Wincott Drive, PO Box 18562
Toronto
Ontario, Ontario, Canada M9R 2R0
416-875-6200 greg@spectrumtraffic.com

Count Name: Warden Ave and 682 Warden Ave
Site Code:
Start Date: 04/03/2014

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Warden Ave Southbound						Commercail Driveway Westbound						Warden Ave Northbound						682 Warden Ave Driveway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:00 PM	0	160	0	0	0	160	2	0	0	0	24	2	1	152	2	0	7	155	2	0	3	0	9	5	322
4:15 PM	1	151	2	0	0	154	0	0	1	0	8	1	1	154	2	0	3	157	1	0	0	0	3	1	313
4:30 PM	2	166	0	0	1	168	0	0	2	0	6	2	1	171	0	0	10	172	2	0	2	0	10	4	346
4:45 PM	2	172	0	0	1	174	1	0	0	0	11	1	0	134	1	0	11	135	1	5	2	0	12	8	318
Total	5	649	2	0	2	656	3	0	3	0	49	6	3	611	5	0	31	619	6	5	7	0	34	18	1299
Approach %	0.8	98.9	0.3	0.0	-	-	50.0	0.0	50.0	0.0	-	-	0.5	98.7	0.8	0.0	-	-	33.3	27.8	38.9	0.0	-	-	-
Total %	0.4	50.0	0.2	0.0	-	50.5	0.2	0.0	0.2	0.0	-	0.5	0.2	47.0	0.4	0.0	-	47.7	0.5	0.4	0.5	0.0	-	1.4	-
PHF	0.625	0.943	0.250	0.000	-	0.943	0.375	0.000	0.375	0.000	-	0.750	0.750	0.893	0.625	0.000	-	0.900	0.750	0.250	0.583	0.000	-	0.563	0.939
Lights	5	633	2	0	-	640	3	0	3	0	-	6	3	576	3	0	-	582	6	5	7	0	-	18	1246
% Lights	100.0	97.5	100.0	-	-	97.6	100.0	-	100.0	-	-	100.0	100.0	94.3	60.0	-	-	94.0	100.0	100.0	100.0	-	-	100.0	95.9
Buses	0	7	0	0	-	7	0	0	0	0	-	0	0	16	0	0	-	16	0	0	0	0	-	0	23
% Buses	0.0	1.1	0.0	-	-	1.1	0.0	-	0.0	-	-	0.0	0.0	2.6	0.0	-	-	2.6	0.0	0.0	0.0	-	-	0.0	1.8
Single-Unit Trucks	0	6	0	0	-	6	0	0	0	0	-	0	0	17	0	0	-	17	0	0	0	0	-	0	23
% Single-Unit Trucks	0.0	0.9	0.0	-	-	0.9	0.0	-	0.0	-	-	0.0	0.0	2.8	0.0	-	-	2.7	0.0	0.0	0.0	-	-	0.0	1.8
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Road	0	3	0	0	-	3	0	0	0	0	-	0	0	1	2	0	-	3	0	0	0	0	-	0	6
% Bicycles on Road	0.0	0.5	0.0	-	-	0.5	0.0	-	0.0	-	-	0.0	0.0	0.2	40.0	-	-	0.5	0.0	0.0	0.0	-	-	0.0	0.5
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	2.0	-	-	-	-	-	3.2	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	48	-	-	-	-	-	30	-	-	-	-	-	34	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	98.0	-	-	-	-	-	96.8	-	-	-	-	-	100.0	-	-

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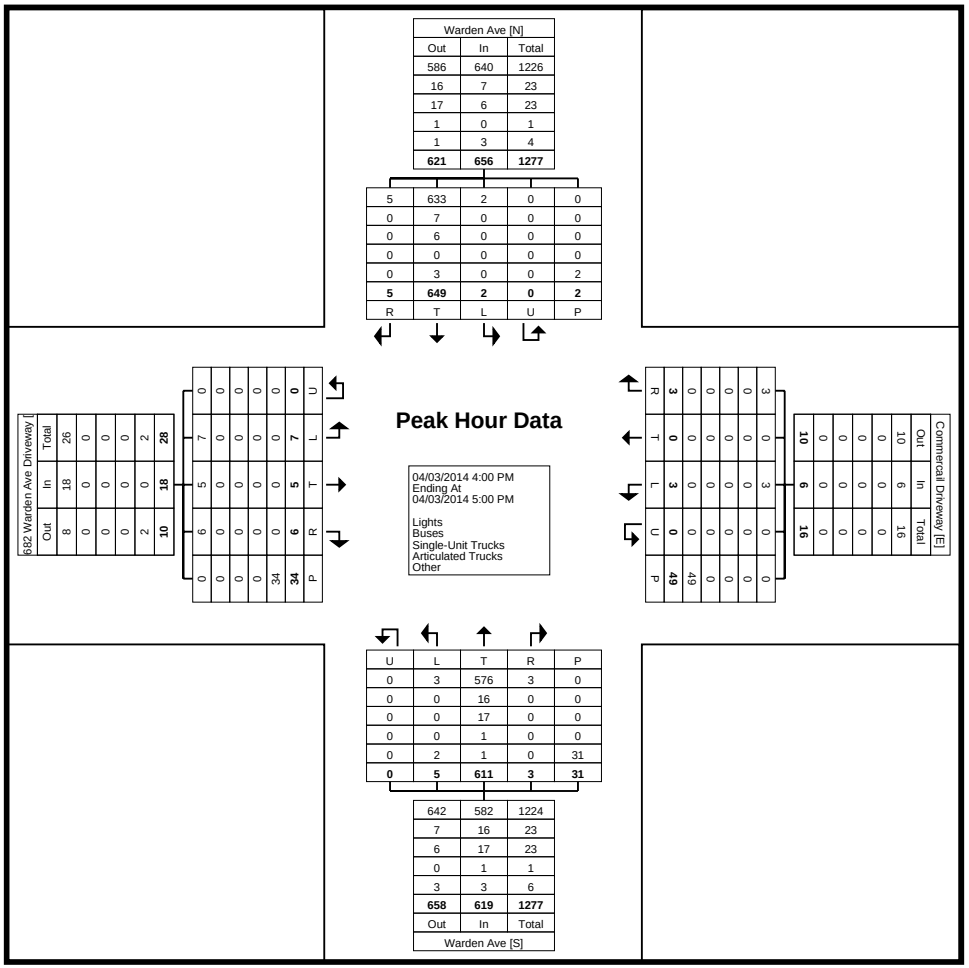


Turning Movement Peak Hour Data Plot (4:00 PM)

Spectrum Traffic Data Incorporated
250 Wincott Drive, PO Box 18562
Toronto
Ontario, Ontario, Canada M9R 2R0
416-875-6200 greg@spectrumtraffic.com

BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Turning Movement Count (7 . WARDEN AVE & WARDEN AVE SOUTH TTC PARKING)

Start Time	N Approach WARDEN AVE					E Approach WARDEN AVE SOUTH TTC PARKING					S Approach WARDEN AVE					Int. Total (15 min)	Int. Total (1 hr)
	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	U-Turn S:S	Peds S:	Approach Total		
07:30:00	116	24	0	0	140	2	0	0	4	2	3	133	0	0	136	278	
07:45:00	91	18	0	0	109	0	0	0	7	0	3	183	0	0	186	295	
08:00:00	107	23	0	0	130	11	0	0	2	11	3	193	0	0	196	337	
08:15:00	115	10	0	0	125	8	3	0	8	11	5	188	0	0	193	329	1239
08:30:00	119	7	0	0	126	9	1	0	1	10	4	203	0	0	207	343	1304
08:45:00	130	3	1	0	134	4	2	0	0	6	1	198	0	0	199	339	1348
09:00:00	123	1	0	0	124	0	0	0	2	0	0	154	0	0	154	278	1289
09:15:00	96	9	2	0	107	6	0	0	0	6	0	127	0	0	127	240	1200
BREAK																	
16:00:00	172	3	0	1	175	6	1	0	2	7	2	154	0	1	156	338	
16:15:00	127	3	0	1	130	9	2	0	9	11	1	168	0	0	169	310	
16:30:00	163	3	0	0	166	18	1	0	6	19	0	160	0	0	160	345	
16:45:00	157	8	0	0	165	12	1	1	7	14	0	150	0	0	150	329	1322
17:00:00	172	10	0	0	182	19	4	0	16	23	4	141	0	1	145	350	1334
17:15:00	155	12	1	0	168	20	2	0	4	22	5	150	0	2	155	345	1369
17:30:00	175	10	0	0	185	10	2	0	6	12	0	148	0	0	148	345	1369
17:45:00	179	15	1	0	195	17	3	0	5	20	1	137	0	0	138	353	1393
Grand Total	2197	159	5	2	2361	151	22	1	79	174	32	2587	0	4	2619	**5154**	-
Approach%	93.1%	6.7%	0.2%		-	86.8%	12.6%	0.6%		-	1.2%	98.8%	0%		-	-	-
Totals %	42.6%	3.1%	0.1%		45.8%	2.9%	0.4%	0%		3.4%	0.6%	50.2%	0%		50.8%	-	-
Heavy	88	0	0		-	0	0	0		-	0	128	0		-	-	-
Heavy %	4%	0%	0%		-	0%	0%	0%		-	0%	4.9%	0%		-	-	-
Bicycles	3	0	0		-	0	0	0		-	0	0	0		-	-	-
Bicycle %	0.1%	0%	0%		-	0%	0%	0%		-	0%	0%	0%		-	-	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Rain (15.8 °C)

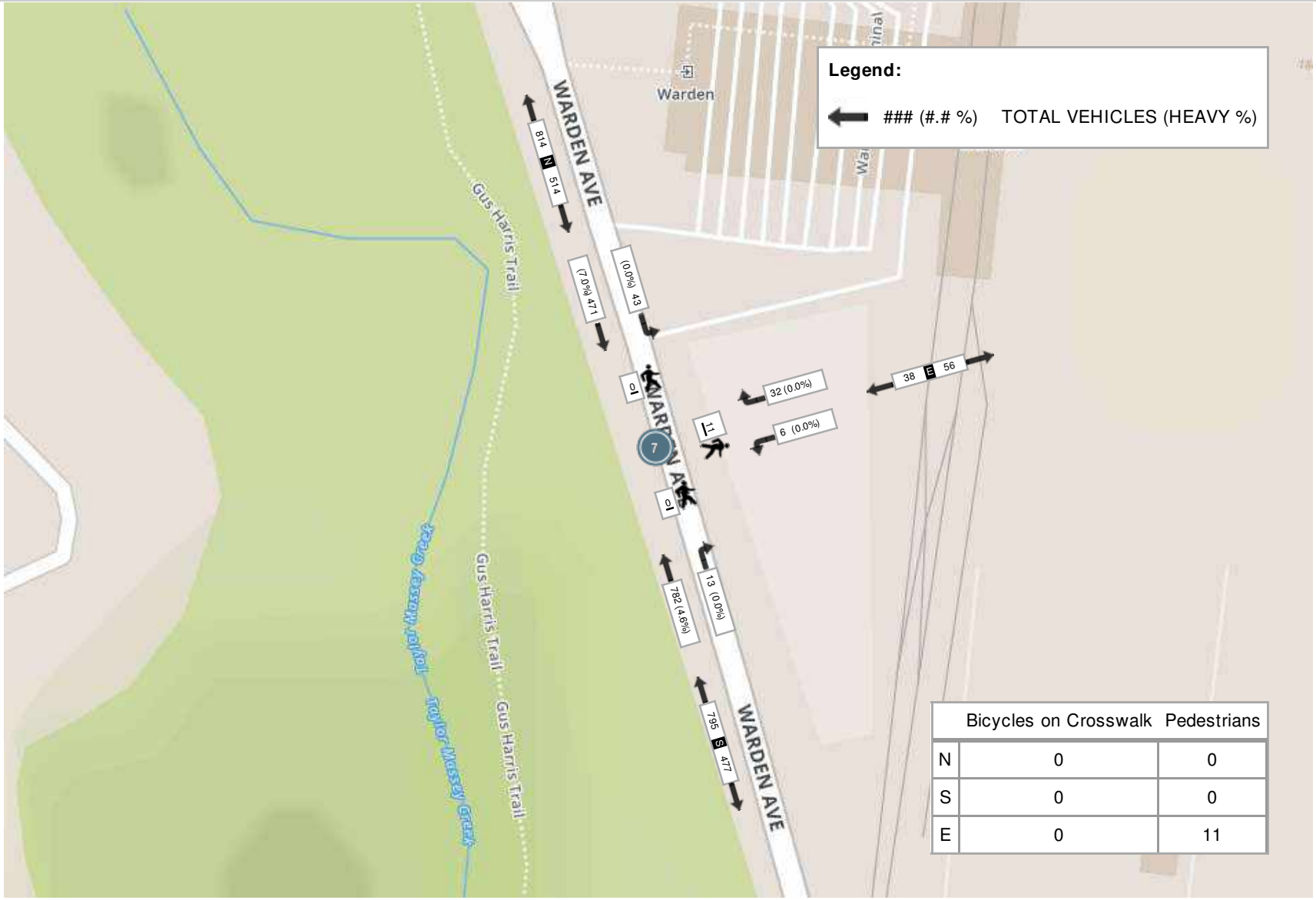
Start Time	N Approach WARDEN AVE					E Approach WARDEN AVE SOUTH TTC PARKING					S Approach WARDEN AVE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
08:00:00	107	23	0	0	130	11	0	0	2	11	3	193	0	0	196	337
08:15:00	115	10	0	0	125	8	3	0	8	11	5	188	0	0	193	329
08:30:00	119	7	0	0	126	9	1	0	1	10	4	203	0	0	207	343
08:45:00	130	3	1	0	134	4	2	0	0	6	1	198	0	0	199	339
Grand Total	471	43	1	0	515	32	6	0	11	38	13	782	0	0	795	**1348**
Approach%	91.5%	8.3%	0.2%		-	84.2%	15.8%	0%		-	1.6%	98.4%	0%		-	-
Totals %	34.9%	3.2%	0.1%		38.2%	2.4%	0.4%	0%		2.8%	1%	58%	0%		59%	-
PHF	0.91	0.47	0.25		0.96	0.73	0.5	0		0.86	0.65	0.96	0		0.96	-
Heavy	33	0	0		33	0	0	0		0	0	36	0		36	-
Heavy %	7%	0%	0%		6.4%	0%	0%	0%		0%	0%	4.6%	0%		4.5%	-
Lights	438	43	1		482	32	6	0		38	13	746	0		759	-
Lights %	93%	100%	100%		93.6%	100%	100%	0%		100%	100%	95.4%	0%		95.5%	-
Single-Unit Trucks	13	0	0		13	0	0	0		0	0	14	0		14	-
Single-Unit Trucks %	2.8%	0%	0%		2.5%	0%	0%	0%		0%	0%	1.8%	0%		1.8%	-
Buses	16	0	0		16	0	0	0		0	0	18	0		18	-
Buses %	3.4%	0%	0%		3.1%	0%	0%	0%		0%	0%	2.3%	0%		2.3%	-
Articulated Trucks	4	0	0		4	0	0	0		0	0	4	0		4	-
Articulated Trucks %	0.8%	0%	0%		0.8%	0%	0%	0%		0%	0%	0.5%	0%		0.5%	-
Pedestrians	-	-	-	0	-	-	-	-	11	-	-	-	-	0	-	-
Pedestrians%	-	-	-	0%		-	-	-	100%		-	-	-	0%		-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	-
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast (20 °C)

Start Time	N Approach WARDEN AVE					E Approach WARDEN AVE SOUTH TTC PARKING					S Approach WARDEN AVE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
17:00:00	172	10	0	0	182	19	4	0	16	23	4	141	0	1	145	350
17:15:00	155	12	1	0	168	20	2	0	4	22	5	150	0	2	155	345
17:30:00	175	10	0	0	185	10	2	0	6	12	0	148	0	0	148	345
17:45:00	179	15	1	0	195	17	3	0	5	20	1	137	0	0	138	353
Grand Total	681	47	2	0	730	66	11	0	31	77	10	576	0	3	586	**1393**
Approach%	93.3%	6.4%	0.3%		-	85.7%	14.3%	0%		-	1.7%	98.3%	0%		-	-
Totals %	48.9%	3.4%	0.1%		52.4%	4.7%	0.8%	0%		5.5%	0.7%	41.3%	0%		42.1%	-
PHF	0.95	0.78	0.5		0.94	0.83	0.69	0		0.84	0.5	0.96	0		0.95	-
Heavy	10	0	0		10	0	0	0		0	0	16	0		16	-
Heavy %	1.5%	0%	0%		1.4%	0%	0%	0%		0%	0%	2.8%	0%		2.7%	-
Lights	671	47	2		720	66	11	0		77	10	560	0		570	-
Lights %	98.5%	100%	100%		98.6%	100%	100%	0%		100%	100%	97.2%	0%		97.3%	-
Single-Unit Trucks	3	0	0		3	0	0	0		0	0	8	0		8	-
Single-Unit Trucks %	0.4%	0%	0%		0.4%	0%	0%	0%		0%	0%	1.4%	0%		1.4%	-
Buses	7	0	0		7	0	0	0		0	0	8	0		8	-
Buses %	1%	0%	0%		1%	0%	0%	0%		0%	0%	1.4%	0%		1.4%	-
Articulated Trucks	0	0	0		0	0	0	0		0	0	0	0		0	-
Articulated Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	0	-	-	-	-	29	-	-	-	-	3	-	-
Pedestrians%	-	-	-	0%		-	-	-	85.3%		-	-	-	8.8%		-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	2	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	5.9%		-	-	-	0%		-
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	-
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

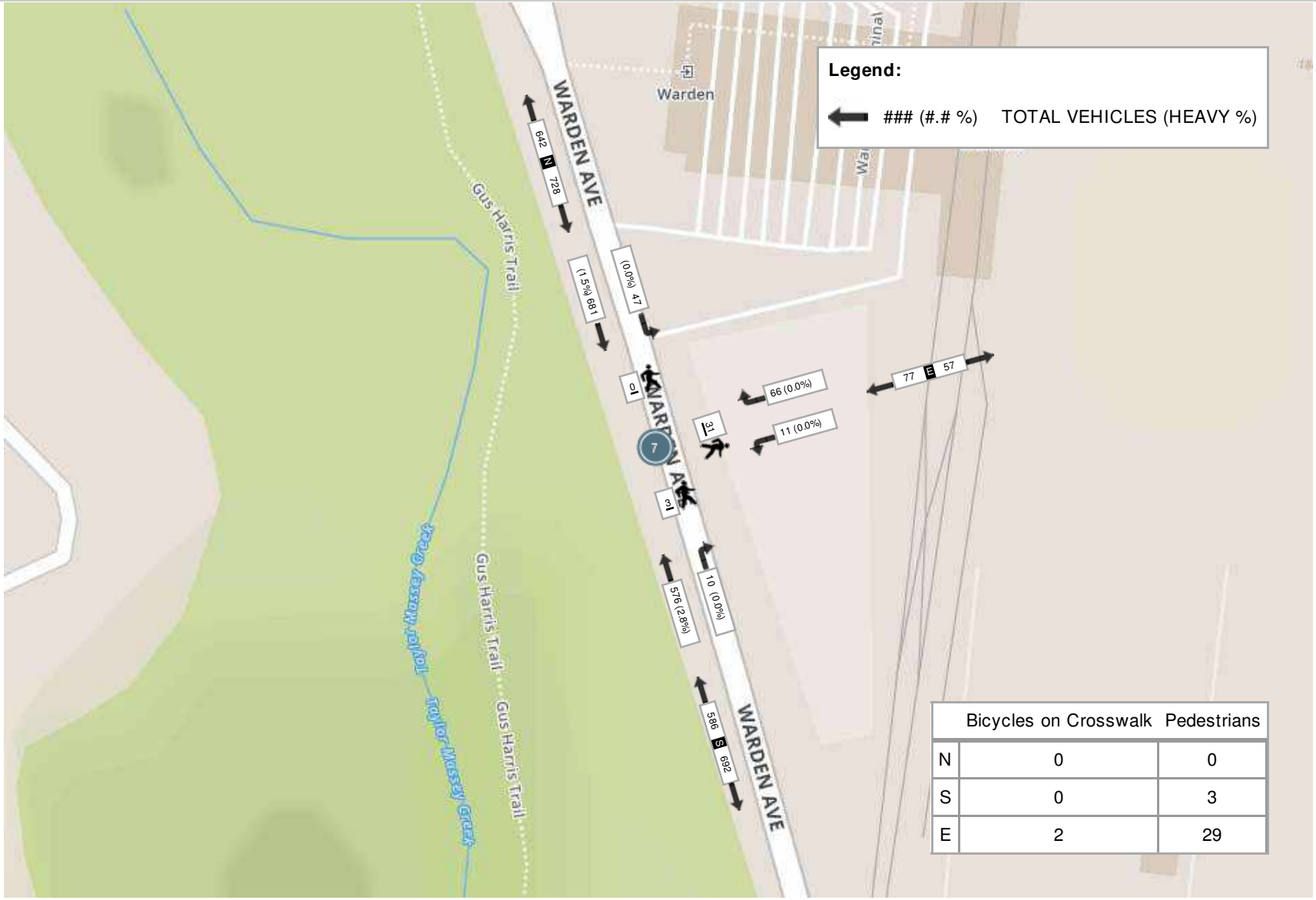
BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Peak Hour: 08:00 AM - 09:00 AM Weather: Rain (15.8 °C)



BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast (20 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	0
S	0	3
E	2	29

Turning Movement Count (7 . WARDEN AVE & WARDEN AVE SOUTH TTC PARKING)

Start Time	N Approach WARDEN AVE					E Approach WARDEN AVE SOUTH TTC PARKING					S Approach WARDEN AVE					Int. Total (15 min)	Int. Total (1 hr)
	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	U-Turn S:S	Peds S:	Approach Total		
07:30:00	104	29	0	0	133	1	1	0	3	2	4	146	0	0	150	285	
07:45:00	105	28	0	0	133	3	1	0	8	4	3	171	0	0	174	311	
08:00:00	120	15	0	0	135	5	2	0	4	7	2	195	0	0	197	339	
08:15:00	114	6	0	0	120	8	0	0	7	8	3	177	0	0	180	308	1243
08:30:00	112	4	0	0	116	6	1	0	7	7	3	200	0	0	203	326	1284
08:45:00	110	5	0	0	115	5	0	0	6	5	0	207	0	0	207	327	1300
09:00:00	114	3	0	0	117	5	0	0	3	5	1	166	0	0	167	289	1250
09:15:00	99	2	1	0	102	2	0	0	3	2	0	132	0	0	132	236	1178
BREAK																	
16:00:00	153	2	1	0	156	4	2	0	4	6	1	172	0	0	173	335	
16:15:00	151	5	0	0	156	9	1	0	8	10	1	161	0	0	162	328	
16:30:00	186	11	0	0	197	24	1	0	11	25	2	172	0	0	174	396	
16:45:00	153	7	0	0	160	19	0	0	13	19	2	173	0	0	175	354	1413
17:00:00	173	11	0	0	184	13	4	0	1	17	4	137	0	0	141	342	1420
17:15:00	200	13	2	1	215	21	0	0	8	21	0	173	0	0	173	409	1501
17:30:00	188	5	0	0	193	19	3	0	10	22	7	152	0	0	159	374	1479
17:45:00	186	12	0	0	198	18	2	0	1	20	3	156	0	0	159	377	1502
Grand Total	2268	158	4	1	2430	162	18	0	97	180	36	2690	0	0	2726	**5336**	-
Approach%	93.3%	6.5%	0.2%		-	90%	10%	0%		-	1.3%	98.7%	0%		-	-	-
Totals %	42.5%	3%	0.1%		45.5%	3%	0.3%	0%		3.4%	0.7%	50.4%	0%		51.1%	-	-
Heavy	106	1	0		-	1	0	0		-	0	143	0		-	-	-
Heavy %	4.7%	0.6%	0%		-	0.6%	0%	0%		-	0%	5.3%	0%		-	-	-
Bicycles	4	0	0		-	0	0	0		-	0	8	0		-	-	-
Bicycle %	0.2%	0%	0%		-	0%	0%	0%		-	0%	0.3%	0%		-	-	-

BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Peak Hour: 08:00 AM - 09:00 AM Weather: Partly Cloudy (10.9 °C)

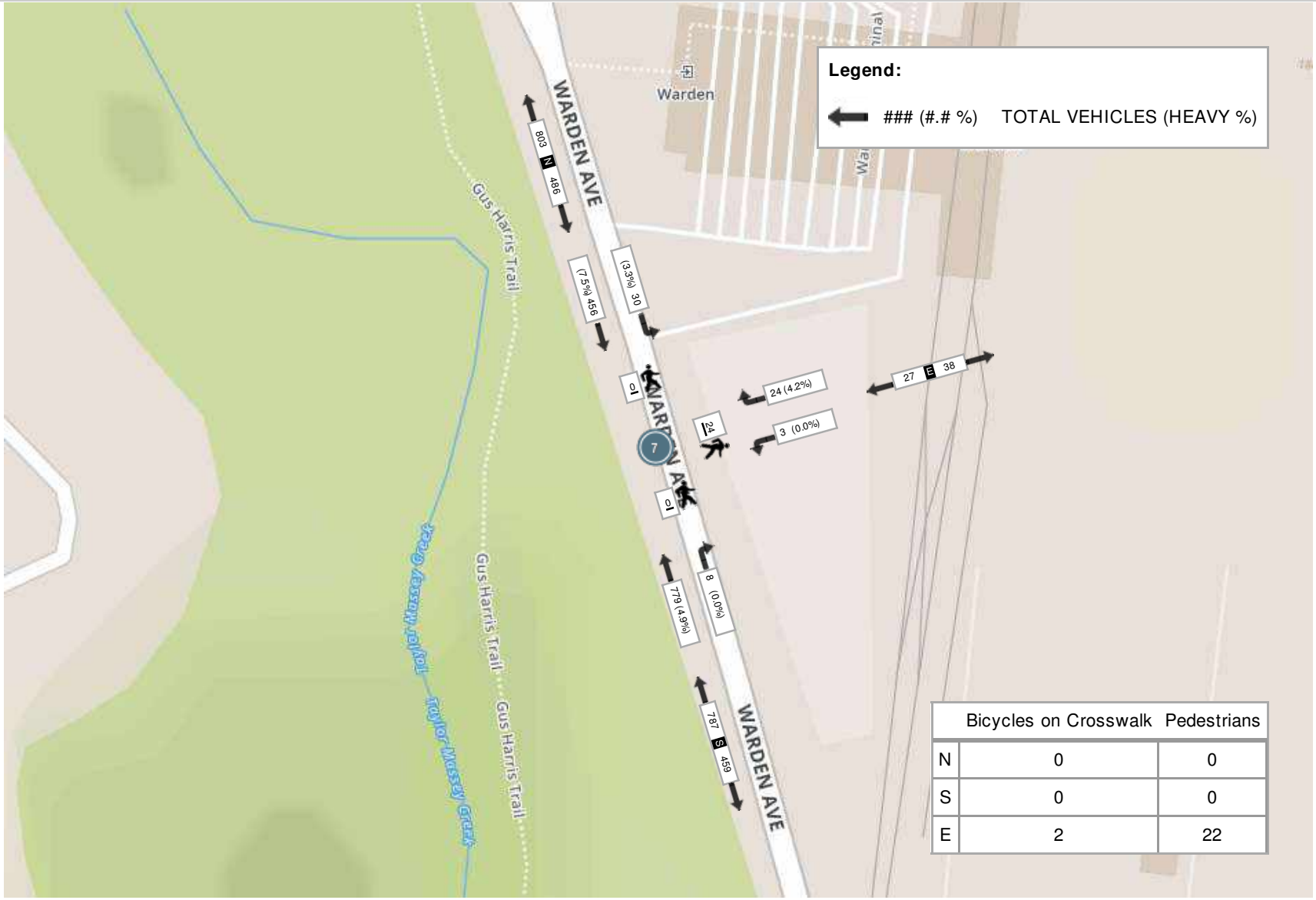
Start Time	N Approach WARDEN AVE					E Approach WARDEN AVE SOUTH TTC PARKING					S Approach WARDEN AVE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
08:00:00	120	15	0	0	135	5	2	0	4	7	2	195	0	0	197	339
08:15:00	114	6	0	0	120	8	0	0	7	8	3	177	0	0	180	308
08:30:00	112	4	0	0	116	6	1	0	7	7	3	200	0	0	203	326
08:45:00	110	5	0	0	115	5	0	0	6	5	0	207	0	0	207	327
Grand Total	456	30	0	0	486	24	3	0	24	27	8	779	0	0	787	**1300**
Approach%	93.8%	6.2%	0%		-	88.9%	11.1%	0%		-	1%	99%	0%		-	-
Totals %	35.1%	2.3%	0%		37.4%	1.8%	0.2%	0%		2.1%	0.6%	59.9%	0%		60.5%	-
PHF	0.95	0.5	0		0.9	0.75	0.38	0		0.84	0.67	0.94	0		0.95	-
Heavy	34	1	0		35	1	0	0		1	0	38	0		38	-
Heavy %	7.5%	3.3%	0%		7.2%	4.2%	0%	0%		3.7%	0%	4.9%	0%		4.8%	-
Lights	422	29	0		451	23	3	0		26	8	741	0		749	-
Lights %	92.5%	96.7%	0%		92.8%	95.8%	100%	0%		96.3%	100%	95.1%	0%		95.2%	-
Single-Unit Trucks	13	1	0		14	1	0	0		1	0	17	0		17	-
Single-Unit Trucks %	2.9%	3.3%	0%		2.9%	4.2%	0%	0%		3.7%	0%	2.2%	0%		2.2%	-
Buses	19	0	0		19	0	0	0		0	0	20	0		20	-
Buses %	4.2%	0%	0%		3.9%	0%	0%	0%		0%	0%	2.6%	0%		2.5%	-
Articulated Trucks	2	0	0		2	0	0	0		0	0	1	0		1	-
Articulated Trucks %	0.4%	0%	0%		0.4%	0%	0%	0%		0%	0%	0.1%	0%		0.1%	-
Pedestrians	-	-	-	0	-	-	-	-	22	-	-	-	-	0	-	-
Pedestrians%	-	-	-	0%		-	-	-	91.7%		-	-	-	0%		-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	2	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	8.3%		-	-	-	0%		-
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	3	0	0	-	-
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

Peak Hour: 05:00 PM - 06:00 PM Weather: Unknown (16 °C)

Start Time	N Approach WARDEN AVE					E Approach WARDEN AVE SOUTH TTC PARKING					S Approach WARDEN AVE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
17:00:00	173	11	0	0	184	13	4	0	1	17	4	137	0	0	141	342
17:15:00	200	13	2	1	215	21	0	0	8	21	0	173	0	0	173	409
17:30:00	188	5	0	0	193	19	3	0	10	22	7	152	0	0	159	374
17:45:00	186	12	0	0	198	18	2	0	1	20	3	156	0	0	159	377
Grand Total	747	41	2	1	790	71	9	0	20	80	14	618	0	0	632	**1502**
Approach%	94.6%	5.2%	0.3%		-	88.8%	11.3%	0%		-	2.2%	97.8%	0%		-	-
Totals %	49.7%	2.7%	0.1%		52.6%	4.7%	0.6%	0%		5.3%	0.9%	41.1%	0%		42.1%	-
PHF	0.93	0.79	0.25		0.92	0.85	0.56	0		0.91	0.5	0.89	0		0.91	-
Heavy	15	0	0		15	0	0	0		0	0	25	0		25	-
Heavy %	2%	0%	0%		1.9%	0%	0%	0%		0%	0%	4%	0%		4%	-
Lights	732	41	2		775	71	9	0		80	14	593	0		607	-
Lights %	98%	100%	100%		98.1%	100%	100%	0%		100%	100%	96%	0%		96%	-
Single-Unit Trucks	7	0	0		7	0	0	0		0	0	13	0		13	-
Single-Unit Trucks %	0.9%	0%	0%		0.9%	0%	0%	0%		0%	0%	2.1%	0%		2.1%	-
Buses	6	0	0		6	0	0	0		0	0	9	0		9	-
Buses %	0.8%	0%	0%		0.8%	0%	0%	0%		0%	0%	1.5%	0%		1.4%	-
Articulated Trucks	2	0	0		2	0	0	0		0	0	3	0		3	-
Articulated Trucks %	0.3%	0%	0%		0.3%	0%	0%	0%		0%	0%	0.5%	0%		0.5%	-
Pedestrians	-	-	-	1	-	-	-	-	19	-	-	-	-	0	-	-
Pedestrians%	-	-	-	4.8%		-	-	-	90.5%		-	-	-	0%		-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	4.8%		-	-	-	0%		-
Bicycles on Road	4	0	0	0	-	0	0	0	0	-	0	1	0	0	-	-
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

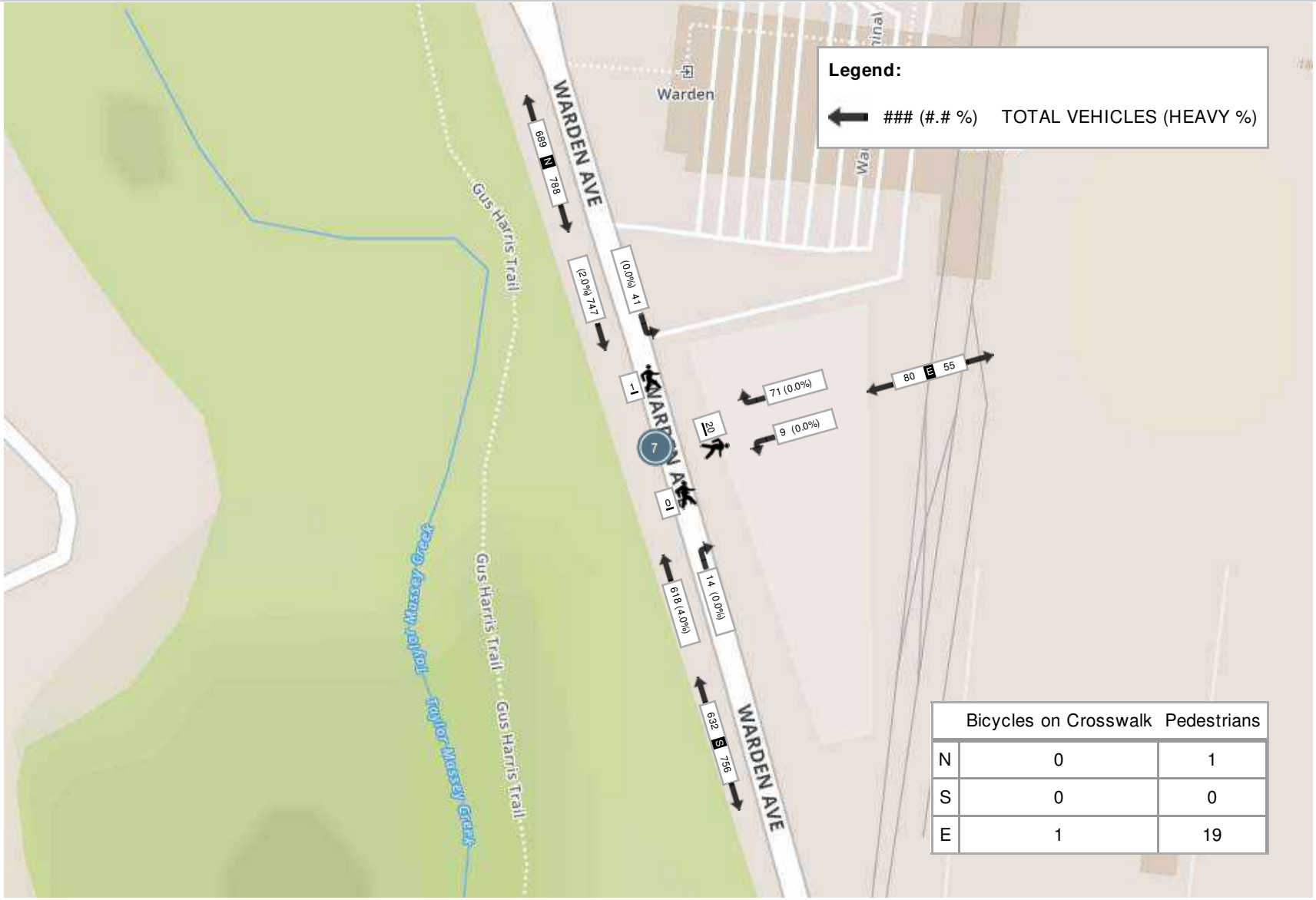
BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Peak Hour: 08:00 AM - 09:00 AM Weather: Partly Cloudy (10.9 °C)



BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Peak Hour: 05:00 PM - 06:00 PM Weather: Unknown (16 °C)



City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

WARDEN AVE AT 85M NORTH OF BELL ESTATE RD (PRIVATE ACCESS)

Survey Date: 2014-Oct-28 (Tuesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
08:15-09:15	CAR	703	2	701	1	704	1	2	0	3	5	350	0	347	1	348	3	0	0	0	0	N	0	0	0
	TRK	67	2	67	0	69	0	0	0	1	1	67	0	66	2	68	4	0	0	0	0	S	19	5	0
AM PEAK	BUS	21	0	21	0	21	0	0	0	0	0	13	0	13	0	13	0	0	0	0	0	E	0	0	0
																						W	6	0	0
	TOTAL:	**791**	**4**	**789**	**1**	**794**	**1**	**2**	**0**	**4**	**6**	**430**	**0**	**426**	**3**	**429**	**7**	**0**	**0**	**0**	**0**				
16:30-17:30	CAR	503	2	501	0	503	0	2	0	0	2	768	0	768	1	769	3	0	0	0	0	N	0	8	0
	TRK	84	0	84	0	84	0	0	0	0	0	75	0	75	1	76	1	0	0	0	0	S	36	1	0
PM PEAK	BUS	18	0	18	0	18	0	0	0	0	0	14	0	14	0	14	0	0	0	0	0	E	0	0	0
																						W	5	0	0
	TOTAL:	**605**	**2**	**603**	**0**	**605**	**0**	**2**	**0**	**0**	**2**	**857**	**0**	**857**	**2**	**859**	**4**	**0**	**0**	**0**	**0**				
OFF HR AVG	CAR	400	2	398	1	401	1	2	0	3	5	357	0	354	3	357	5	0	0	0	0	N	0	1	0
	TRK	80	1	80	0	81	0	0	0	1	1	73	0	72	1	73	2	0	0	0	0	S	20	2	0
	BUS	15	0	15	0	15	0	0	0	0	0	17	0	17	0	17	0	0	0	0	0	E	0	0	0
																						W	6	0	0
	TOTAL:	**495**	**3**	**493**	**1**	**497**	**1**	**2**	**0**	**4**	**6**	**447**	**0**	**443**	**4**	**447**	**7**	**0**	**0**	**0**	**0**				
07:30-09:30	CAR	1,274	3	1,269	1	1,273	2	4	0	6	10	664	1	658	3	662	6	0	0	1	1	N	0	2	0
	TRK	123	2	122	0	124	0	1	0	3	4	131	0	128	3	131	5	0	0	0	0	S	35	9	0
2 HR AM	BUS	43	0	43	0	43	0	0	0	0	0	30	0	30	0	30	0	0	0	0	0	E	0	0	0
																						W	7	0	0
	TOTAL:	**1,440**	**5**	**1,434**	**1**	**1,440**	**2**	**5**	**0**	**9**	**14**	**825**	**1**	**816**	**6**	**823**	**11**	**0**	**0**	**1**	**1**				
16:00-18:00	CAR	985	5	981	0	986	0	4	0	1	5	1,427	0	1,424	3	1,427	8	2	0	0	2	N	0	12	0
	TRK	152	1	151	0	152	0	1	0	1	2	164	0	163	3	166	4	0	0	0	0	S	75	2	0
2 HR PM	BUS	39	0	39	0	39	0	0	0	0	0	25	0	25	0	25	0	0	0	0	0	E	0	0	0
																						W	13	0	0
	TOTAL:	**1,176**	**6**	**1,171**	**0**	**1,177**	**0**	**5**	**0**	**2**	**7**	**1,616**	**0**	**1,612**	**6**	**1,618**	**12**	**2**	**0**	**0**	**2**				
07:30-18:00	CAR	3,861	17	3,842	3	3,862	5	17	0	17	34	3,518	2	3,498	17	3,517	34	3	0	2	5	N	1	18	0
	TRK	596	5	593	0	598	0	3	0	8	11	585	0	577	9	586	14	0	0	0	0	S	188	18	0
8 HR SUM	BUS	143	0	143	0	143	0	0	0	0	0	121	0	121	0	121	0	0	0	0	0	E	0	0	0
																						W	45	0	0
	TOTAL:	**4,600**	**22**	**4,578**	**3**	**4,603**	**5**	**20**	**0**	**25**	**45**	**4,224**	**2**	**4,196**	**26**	**4,224**	**48**	**3**	**0**	**2**	**5**				

Total 8 Hour Vehicle Volume: 8,877

Total 8 Hour Bicycle Volume: 36

Total 8 Hour Intersection Volume: 8,913

Comment:

Printed On: 25 Mar, 2020 2:09:02PM

APPENDIX H:
Synchro Capacity Analysis Results

Timings
1: Warden Avenue & St Clair Avenue

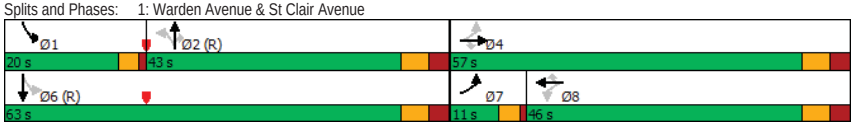
06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	150	710	80	65	1015	315	175	625	285	225	325
Future Volume (vph)	150	710	80	65	1015	315	175	625	285	225	325
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases	7	4			8			2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	7	4	4	8	8	8	2	2	2	1	6
Switch Phase											
Minimum Initial (s)	6.0	33.0	33.0	33.0	33.0	33.0	35.0	35.0	35.0	6.0	35.0
Minimum Split (s)	10.0	40.0	40.0	40.0	40.0	40.0	42.0	42.0	42.0	10.0	42.0
Total Split (s)	11.0	57.0	57.0	46.0	46.0	46.0	43.0	43.0	43.0	20.0	63.0
Total Split (%)	9.2%	47.5%	47.5%	38.3%	38.3%	38.3%	35.8%	35.8%	35.8%	16.7%	52.5%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	1.0	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	-1.0
Total Lost Time (s)	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	3.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	Min	Min	Min	C-Min	C-Min	C-Min	None	C-Min
Act Effct Green (s)	54.1	51.1	51.1	39.7	39.7	39.7	38.4	38.4	38.4	59.9	56.9
Actuated g/C Ratio	0.45	0.43	0.43	0.33	0.33	0.33	0.32	0.32	0.32	0.50	0.47
v/c Ratio	0.92	0.52	0.14	0.37	0.93	0.50	0.75	0.60	0.69	0.69	0.33
Control Delay	76.1	27.0	5.0	37.3	54.0	6.2	57.7	37.5	31.9	29.0	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.1	27.0	5.0	37.3	54.0	6.2	57.7	37.5	31.9	29.0	16.5
LOS	E	C	A	D	D	A	E	D	C	C	B
Approach Delay		33.0			42.4			39.3			20.4
Approach LOS		C			D			D			C

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: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 35.6 — Intersection LOS: D
Intersection Capacity Utilization 133.3% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: Warden Avenue & St Clair Avenue



Queues
1: Warden Avenue & St Clair Avenue

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	160	755	85	69	1080	335	186	665	303	239	516
v/c Ratio	0.92	0.52	0.14	0.37	0.93	0.50	0.75	0.60	0.69	0.69	0.33
Control Delay	76.1	27.0	5.0	37.3	54.0	6.2	57.7	37.5	31.9	29.0	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.1	27.0	5.0	37.3	54.0	6.2	57.7	37.5	31.9	29.0	16.5
Queue Length 50th (m)	23.7	71.3	0.0	12.9	135.3	1.0	41.8	74.1	43.0	33.8	32.7
Queue Length 95th (m)	#68.1	90.3	9.7	27.7	#177.7	23.1	#81.6	94.7	79.1	52.1	45.7
Internal Link Dist (m)		390.8			348.6			183.7			66.3
Turn Bay Length (m)	65.0		60.0	60.0		235.0	65.0		110.0	145.0	
Base Capacity (vph)	174	1465	600	191	1166	677	248	1107	441	359	1548
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.52	0.14	0.36	0.93	0.49	0.75	0.60	0.69	0.67	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: Warden Avenue & St Clair Avenue

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	710	80	65	1015	315	175	625	285	225	325	160
Future Volume (vph)	150	710	80	65	1015	315	175	625	285	225	325	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	3.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.88	1.00	1.00	0.94	1.00	1.00	0.90	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.99	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1620	3433	1294	1572	3500	1375	1602	3466	1146	1566	3145	
Flt Permitted	0.09	1.00	1.00	0.35	1.00	1.00	0.46	1.00	1.00	0.24	1.00	
Satd. Flow (perm)	160	3433	1294	572	3500	1375	778	3466	1146	391	3145	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	160	755	85	69	1080	335	186	665	303	239	346	170
RTOR Reduction (vph)	0	0	49	0	0	220	0	0	75	0	50	0
Lane Group Flow (vph)	160	755	36	69	1080	115	186	665	228	239	466	0
Confl. Peds. (#/hr)	45		105	105		45	60		90	90		60
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	3%	18%	7%	4%	8%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	50.1	50.1	50.1	38.7	38.7	38.7	37.3	37.3	37.3	55.9	55.9	
Effective Green, g (s)	51.1	51.1	51.1	39.7	39.7	39.7	38.3	38.3	38.3	56.9	56.9	
Actuated g/C Ratio	0.43	0.43	0.43	0.33	0.33	0.33	0.32	0.32	0.32	0.47	0.47	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	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	3.0	
Lane Grp Cap (vph)	170	1461	551	189	1157	454	248	1106	365	338	1491	
v/s Ratio Prot	c0.07	0.22			0.31			0.19		c0.09	0.15	
v/s Ratio Perm	c0.33		0.03	0.12		0.08	0.24		0.20	c0.24		
v/c Ratio	0.94	0.52	0.07	0.37	0.93	0.25	0.75	0.60	0.62	0.71	0.31	
Uniform Delay, d1	28.1	25.4	20.3	30.6	38.9	29.3	36.6	34.4	34.7	21.4	19.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	51.8	0.3	0.1	1.2	13.4	0.3	18.7	2.4	7.9	6.6	0.5	
Delay (s)	79.9	25.7	20.4	31.8	52.3	29.6	55.2	36.8	42.6	28.0	20.0	
Level of Service	E	C	C	C	D	C	E	D	D	C	C	
Approach Delay (s)		33.9			46.2			41.3			22.6	
Approach LOS		C			D			D			C	

Intersection Summary				
HCM 2000 Control Delay	38.1	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	133.3%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
2: Warden Avenue & Warden TTC South Parking

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	30	1055	15	45	425
Future Volume (Veh/h)	5	30	1055	15	45	425
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)	5	33	1147	16	49	462
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						208
pX, platoon unblocked						
vC, conflicting volume	1484	582			1163	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1484	582			1163	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	93			92	
cM capacity (veh/h)	106	457			596	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	38	765	398	203	308
Volume Left	5	0	0	49	0
Volume Right	33	0	16	0	0
cSH	318	1700	1700	596	1700
Volume to Capacity	0.12	0.45	0.23	0.08	0.18
Queue Length 95th (m)	3.2	0.0	0.0	2.1	0.0
Control Delay (s)	17.8	0.0	0.0	3.6	0.0
Lane LOS	C			A	
Approach Delay (s)	17.8	0.0		1.4	
Approach LOS	C				

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	56.0%	ICU Level of Service	B	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Warden Avenue & Woodland Acres Access Road

06/17/2021

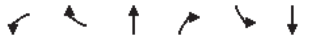
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	0	0	1045	430	0
Future Volume (Veh/h)	5	0	0	1045	430	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	5	0	0	1100	453	0
Pedestrians	22			23	2	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	2			2	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				244		
pX, platoon unblocked	0.98					
vC, conflicting volume	1027	272	475			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	992	272	475			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	234	700	1064			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	5	367	733	302	151
Volume Left	5	0	0	0	0
Volume Right	0	0	0	0	0
cSH	234	1064	1700	1700	1700
Volume to Capacity	0.02	0.00	0.43	0.18	0.09
Queue Length 95th (m)	0.5	0.0	0.0	0.0	0.0
Control Delay (s)	20.7	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	20.7	0.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	44.2%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
5: Warden Avenue & Bell Estate Rd

06/17/2021



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	1045	0	0	425
Future Volume (Veh/h)	0	0	1045	0	0	425
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1136	0	0	462
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			155			
pX, platoon unblocked	0.95	0.95			0.95	
vC, conflicting volume	1367	568			1136	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1282	441			1039	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	149	536			632	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	757	379	154	308
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	632	1700
Volume to Capacity	0.00	0.45	0.22	0.00	0.18
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	0.0	0.0		0.0	
Approach LOS	A				

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	32.2%	ICU Level of Service	A	
Analysis Period (min)	15			

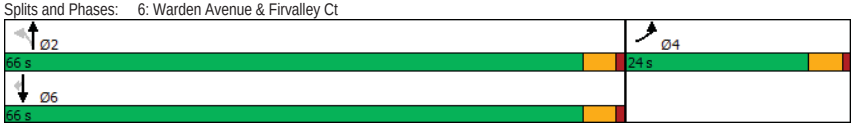
Timings
6: Warden Avenue & Firvalley Ct

06/17/2021

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	15	15	1035	415	15
Future Volume (vph)	15	15	1035	415	15
Turn Type	Prot	Perm	NA	NA	Perm
Protected Phases	4		2	6	
Permitted Phases		2			6
Detector Phase	4	2	2	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	24.0	66.0	66.0	66.0	66.0
Total Split (%)	26.7%	73.3%	73.3%	73.3%	73.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	Max	Max	Max	Max
Act Effct Green (s)	7.7	80.1	80.1	80.1	80.1
Actuated g/C Ratio	0.09	0.93	0.93	0.93	0.93
v/c Ratio	0.20	0.02	0.35	0.14	0.01
Control Delay	27.8	1.3	1.4	0.9	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	1.3	1.4	0.9	0.7
LOS	C	A	A	A	A
Approach Delay	27.8		1.4	0.9	
Approach LOS	C		A	A	

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 86.1			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.35			
Intersection Signal Delay: 1.8		Intersection LOS: A	
Intersection Capacity Utilization 46.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: Warden Avenue & Firvalley Ct



Queues
6: Warden Avenue & Firvalley Ct

06/17/2021

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	32	16	1125	451	16
v/c Ratio	0.20	0.02	0.35	0.14	0.01
Control Delay	27.8	1.3	1.4	0.9	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	1.3	1.4	0.9	0.7
Queue Length 50th (m)	2.4	0.0	0.0	0.0	0.0
Queue Length 95th (m)	11.6	1.4	27.2	9.3	0.9
Internal Link Dist (m)	72.7		123.4	130.6	
Turn Bay Length (m)		40.0			20.0
Base Capacity (vph)	402	795	3258	3258	1377
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.02	0.35	0.14	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Warden Avenue & Firvalley Ct

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	15	15	1035	415	15
Future Volume (vph)	15	15	15	1035	415	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.0	3.5	3.5	3.0
Total Lost time (s)	3.5		3.5	3.5	3.5	3.5
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frpb, ped/bikes	0.97		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.93		1.00	1.00	1.00	0.85
Flt Protected	0.98		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1629		1652	3500	3500	1478
Flt Permitted	0.98		0.49	1.00	1.00	1.00
Satd. Flow (perm)	1629		854	3500	3500	1478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	16	16	1125	451	16
RTOR Reduction (vph)	15	0	0	0	0	2
Lane Group Flow (vph)	17	0	16	1125	451	14
Confl. Peds. (#/hr)	20	30				
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	3.0		76.9	76.9	76.9	76.9
Effective Green, g (s)	4.0		77.9	77.9	77.9	77.9
Actuated g/C Ratio	0.04		0.88	0.88	0.88	0.88
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	73		748	3066	3066	1295
v/s Ratio Prot	c0.01			c0.32	0.13	
v/s Ratio Perm			0.02			0.01
v/c Ratio	0.23		0.02	0.37	0.15	0.01
Uniform Delay, d1	41.0		0.7	1.0	0.8	0.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6		0.1	0.3	0.1	0.0
Delay (s)	42.6		0.7	1.3	0.9	0.7
Level of Service	D		A	A	A	A
Approach Delay (s)	42.6			1.3	0.9	
Approach LOS	D			A	A	

Intersection Summary				
HCM 2000 Control Delay	2.0	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.36			
Actuated Cycle Length (s)	88.9	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	46.3%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
7: Warden Avenue & Cataraqui Cr

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	25	15	1045	430	0
Future Volume (Veh/h)	15	25	15	1045	430	0
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)	16	27	16	1136	467	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					148	
pX, platoon unblocked						
vC, conflicting volume	1067	234	467			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1067	234	467			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	96	99			
cM capacity (veh/h)	214	768	1091			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	43	395	757	234	234	0
Volume Left	16	16	0	0	0	0
Volume Right	27	0	0	0	0	0
cSH	391	1091	1700	1700	1700	1700
Volume to Capacity	0.11	0.01	0.45	0.14	0.14	0.00
Queue Length 95th (m)	2.9	0.4	0.0	0.0	0.0	0.0
Control Delay (s)	15.3	0.5	0.0	0.0	0.0	0.0
Lane LOS	C	A				
Approach Delay (s)	15.3	0.2		0.0		
Approach LOS	C					

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	49.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
8: Warden Avenue & Bamblett Dr

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	75	985	30	30	425
Future Volume (Veh/h)	40	75	985	30	30	425
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)	43	82	1071	33	33	462
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						276
pX, platoon unblocked						
vC, conflicting volume	1384	552			1104	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1384	552			1104	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	66	83			95	
cM capacity (veh/h)	127	477			628	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	125	714	390	33	231	231
Volume Left	43	0	0	33	0	0
Volume Right	82	0	33	0	0	0
cSH	245	1700	1700	628	1700	1700
Volume to Capacity	0.51	0.42	0.23	0.05	0.14	0.14
Queue Length 95th (m)	21.2	0.0	0.0	1.3	0.0	0.0
Control Delay (s)	34.0	0.0	0.0	11.0	0.0	0.0
Lane LOS	D			B		
Approach Delay (s)	34.0	0.0		0.7		
Approach LOS	D					

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	41.7%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
9: Warden Avenue & Burnhill Rd/Mack Ave

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	15	15	5	10	10	10	975	5	5	450	10
Future Volume (Veh/h)	30	15	15	5	10	10	10	975	5	5	450	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	16	16	5	11	11	11	1060	5	5	489	11
Pedestrians		25			104			43			29	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		2			8			3			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								272				
pX, platoon unblocked	0.78	0.78		0.78	0.78	0.78				0.78		
vC, conflicting volume	1127	1720	318	1510	1724	666	525			1169		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	607	1365	318	1096	1369	17	525			661		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	84	98	94	89	99	99			99		
cM capacity (veh/h)	234	101	641	91	100	740	1017			662		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	65	27	541	535	250	256
Volume Left	33	5	11	0	5	0
Volume Right	16	11	0	5	0	11
cSH	200	150	1017	1700	662	1700
Volume to Capacity	0.32	0.18	0.01	0.31	0.01	0.15
Queue Length 95th (m)	10.7	5.1	0.3	0.0	0.2	0.0
Control Delay (s)	31.4	34.2	0.3	0.0	0.3	0.0
Lane LOS	D	D	A		A	
Approach Delay (s)	31.4	34.2	0.2		0.1	
Approach LOS	D	D				

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	52.9%	ICU Level of Service		A
Analysis Period (min)	15			

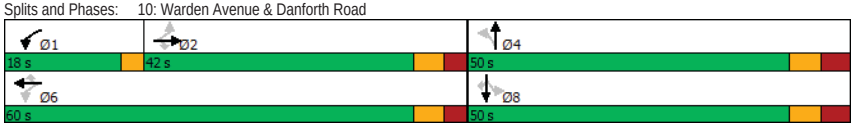
Timings
10: Warden Avenue & Danforth Road

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	155	275	25	235	535	70	10	765	45	285	140
Future Volume (vph)	155	275	25	235	535	70	10	765	45	285	140
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases		2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Detector Phase	2	2	2	1	6	6	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	33.0	33.0	33.0	6.0	33.0	33.0	41.0	41.0	41.0	41.0	41.0
Minimum Split (s)	40.0	40.0	40.0	9.0	40.0	40.0	49.0	49.0	49.0	49.0	49.0
Total Split (s)	42.0	42.0	42.0	18.0	60.0	60.0	50.0	50.0	50.0	50.0	50.0
Total Split (%)	38.2%	38.2%	38.2%	16.4%	54.5%	54.5%	45.5%	45.5%	45.5%	45.5%	45.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	0.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	2.0	6.0	6.0		7.0		7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes							
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	34.8	34.8	34.8	55.3	51.3	51.3		42.4		42.4	42.4
Actuated g/C Ratio	0.33	0.33	0.33	0.52	0.48	0.48		0.40		0.40	0.40
v/c Ratio	0.69	0.26	0.05	0.45	0.35	0.11		0.78		0.41	0.24
Control Delay	48.6	27.5	0.2	17.4	17.9	5.6		32.9		25.3	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	48.6	27.5	0.2	17.4	17.9	5.6		32.9		25.3	9.9
LOS	D	C	A	B	B	A		C		C	A
Approach Delay		33.2			16.8			32.9		20.7	
Approach LOS		C			B			C		C	

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 106.7			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 25.8		Intersection LOS: C	
Intersection Capacity Utilization 113.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 10: Warden Avenue & Danforth Road



Queues
10: Warden Avenue & Danforth Road

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	168	299	27	255	582	76	1017	359	152
v/c Ratio	0.69	0.26	0.05	0.45	0.35	0.11	0.78	0.41	0.24
Control Delay	48.6	27.5	0.2	17.4	17.9	5.6	32.9	25.3	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	27.5	0.2	17.4	17.9	5.6	32.9	25.3	9.9
Queue Length 50th (m)	32.2	25.5	0.0	30.2	40.0	1.7	99.3	29.4	7.5
Queue Length 95th (m)	#65.5	37.5	0.0	47.9	53.7	9.6	130.5	44.1	21.9
Internal Link Dist (m)		140.6			878.4		309.6	248.6	
Turn Bay Length (m)	50.0		30.0	50.0		30.0			10.0
Base Capacity (vph)	252	1181	541	581	1772	755	1315	890	638
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.25	0.05	0.44	0.33	0.10	0.77	0.40	0.24

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
10: Warden Avenue & Danforth Road

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	275	25	235	535	70	10	765	160	45	285	140
Future Volume (vph)	155	275	25	235	535	70	10	765	160	45	285	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.0	6.0	6.0	2.0	6.0	6.0		7.0			7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.97		1.00			1.00	0.97
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.97			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00			0.99	1.00
Satd. Flow (prot)	1638	3500	1449	1648	3500	1433		3399			3476	1440
Flt Permitted	0.43	1.00	1.00	0.52	1.00	1.00		0.95			0.63	1.00
Satd. Flow (perm)	746	3500	1449	910	3500	1433		3227			2209	1440
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)	168	299	27	255	582	76	11	832	174	49	310	152
RTOR Reduction (vph)	0	0	18	0	0	32	0	16	0	0	0	58
Lane Group Flow (vph)	168	299	9	255	582	44	0	1001	0	0	359	94
Confl. Peds. (#/hr)	19		8	8		19	18		5	5		18
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2		2	6		6	4			8		8
Actuated Green, G (s)	33.8	33.8	33.8	50.3	50.3	50.3		41.4			41.4	41.4
Effective Green, g (s)	34.8	34.8	34.8	51.3	51.3	51.3		42.4			42.4	42.4
Actuated g/C Ratio	0.33	0.33	0.33	0.48	0.48	0.48		0.40			0.40	0.40
Clearance Time (s)	7.0	7.0	7.0	3.0	7.0	7.0		8.0			8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	243	1141	472	537	1682	688		1282			877	572
v/s Ratio Prot		0.09		c0.06	0.17							
v/s Ratio Perm	c0.23		0.01	0.16		0.03		c0.31			0.16	0.06
v/c Ratio	0.69	0.26	0.02	0.47	0.35	0.06		0.78			0.41	0.16
Uniform Delay, d1	31.3	26.5	24.4	17.1	17.3	14.8		28.1			23.1	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	8.2	0.1	0.0	0.7	0.1	0.0		3.2			0.3	0.1
Delay (s)	39.5	26.6	24.4	17.7	17.4	14.9		31.3			23.5	20.9
Level of Service	D	C	C	B	B	B		C			C	C
Approach Delay (s)		30.9			17.3			31.3			22.7	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	106.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	113.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

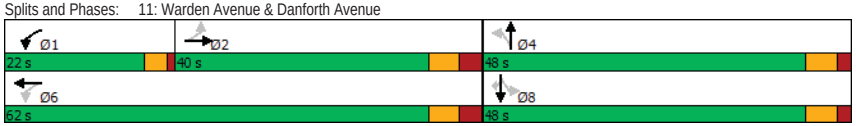
Timings
11: Warden Avenue & Danforth Avenue

06/17/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	10	300	330	645	50	805	75	445	25
Future Volume (vph)	10	300	330	645	50	805	75	445	25
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA	Perm
Protected Phases		2	1	6		4		8	
Permitted Phases	2		6		4		8		8
Detector Phase	2	2	1	6	4	4	8	8	8
Switch Phase									
Minimum Initial (s)	30.0	30.0	6.0	30.0	25.0	25.0	25.0	25.0	25.0
Minimum Split (s)	37.0	37.0	10.0	37.0	31.0	31.0	31.0	31.0	31.0
Total Split (s)	40.0	40.0	22.0	62.0	48.0	48.0	48.0	48.0	48.0
Total Split (%)	36.4%	36.4%	20.0%	56.4%	43.6%	43.6%	43.6%	43.6%	43.6%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	1.0	3.0	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)		6.0	3.0	6.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)		33.1	55.9	52.8	36.8	36.8	36.8	36.8	36.8
Actuated g/C Ratio		0.33	0.55	0.52	0.37	0.37	0.37	0.37	0.37
v/c Ratio		0.36	0.63	0.88	0.36	0.75	0.91	0.72	0.05
Control Delay		27.7	19.3	34.6	31.8	31.9	109.7	34.6	0.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		27.7	19.3	34.6	31.8	31.9	109.7	34.6	0.2
LOS		C	B	C	C	C	F	C	A
Approach Delay		27.7		30.0		31.9		43.5	
Approach LOS		C		C		C		D	

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 100.8			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 32.8		Intersection LOS: C	
Intersection Capacity Utilization 130.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 11: Warden Avenue & Danforth Avenue



Queues
11: Warden Avenue & Danforth Avenue

06/17/2021

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	375	359	831	54	946	82	484	27
v/c Ratio	0.36	0.63	0.88	0.36	0.75	0.91	0.72	0.05
Control Delay	27.7	19.3	34.6	31.8	31.9	109.7	34.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.7	19.3	34.6	31.8	31.9	109.7	34.6	0.2
Queue Length 50th (m)	33.7	45.9	162.6	8.4	91.9	16.6	89.0	0.0
Queue Length 95th (m)	47.5	68.3	#250.3	20.5	116.0	#47.9	127.4	0.0
Internal Link Dist (m)	94.4		62.9		69.5		309.6	
Turn Bay Length (m)				45.0		40.0		
Base Capacity (vph)	1089	596	1015	179	1499	106	797	639
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.60	0.82	0.30	0.63	0.77	0.61	0.04

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
11: Warden Avenue & Danforth Avenue

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	300	35	330	645	120	50	805	65	75	445	25
Future Volume (vph)	10	300	35	330	645	120	50	805	65	75	445	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)		6.0		3.0	6.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor		0.95		1.00	1.00		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	1.00	0.93
Flpb, ped/bikes		1.00		0.99	1.00		0.99	1.00		1.00	1.00	1.00
Frt		0.98		1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3425		1642	1792		1627	3453		1647	1842	1381
Flt Permitted		0.92		0.45	1.00		0.24	1.00		0.14	1.00	1.00
Satd. Flow (perm)		3163		780	1792		416	3453		248	1842	1381
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)	11	326	38	359	701	130	54	875	71	82	484	27
RTOR Reduction (vph)	0	7	0	0	6	0	0	6	0	0	0	17
Lane Group Flow (vph)	0	368	0	359	825	0	54	940	0	82	484	10
Confl. Peds. (#/hr)	12		16	16		12	23		14	14		23
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)		32.1		51.8	51.8		35.8	35.8		35.8	35.8	35.8
Effective Green, g (s)		33.1		52.8	52.8		36.8	36.8		36.8	36.8	36.8
Actuated g/C Ratio		0.33		0.52	0.52		0.37	0.37		0.37	0.37	0.37
Clearance Time (s)		7.0		4.0	7.0		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)		1040		552	940		152	1263		90	673	505
v/s Ratio Prot				0.11	c0.46			0.27			0.26	
v/s Ratio Perm		0.12		0.23			0.13			c0.33		0.01
v/c Ratio		0.35		0.65	0.88		0.36	0.74		0.91	0.72	0.02
Uniform Delay, d1		25.6		14.8	21.1		23.3	27.8		30.3	27.5	20.4
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2		2.7	9.3		1.4	2.4		66.1	3.7	0.0
Delay (s)		25.8		17.5	30.4		24.7	30.2		96.5	31.1	20.4
Level of Service		C		B	C		C	C		F	C	C
Approach Delay (s)		25.8			26.5			29.9			39.7	
Approach LOS		C			C			C			D	

Intersection Summary

HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	100.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	130.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

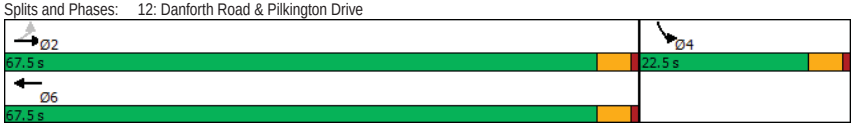
Timings
12: Danforth Road & Pilkington Drive

06/17/2021

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	10	470	825	50
Future Volume (vph)	10	470	825	50
Turn Type	Perm	NA	NA	Prot
Protected Phases		2	6	4
Permitted Phases	2			
Detector Phase	2	2	6	4
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	67.5	67.5	67.5	22.5
Total Split (%)	75.0%	75.0%	75.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		-1.0	-1.0	-1.0
Total Lost Time (s)		3.5	3.5	3.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	None
Act Effct Green (s)		78.0	78.0	9.5
Actuated g/C Ratio		0.85	0.85	0.10
v/c Ratio		0.19	0.32	0.37
Control Delay		1.9	2.3	36.9
Queue Delay		0.0	0.0	0.0
Total Delay		1.9	2.3	36.9
LOS		A	A	D
Approach Delay		1.9	2.3	36.9
Approach LOS		A	A	D

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 91.5			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.37			
Intersection Signal Delay: 3.7		Intersection LOS: A	
Intersection Capacity Utilization 36.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 12: Danforth Road & Pilkington Drive



Queues
12: Danforth Road & Pilkington Drive

06/17/2021

Lane Group	EBT	WBT	SBL
Lane Group Flow (vph)	522	946	70
v/c Ratio	0.19	0.32	0.37
Control Delay	1.9	2.3	36.9
Queue Delay	0.0	0.0	0.0
Total Delay	1.9	2.3	36.9
Queue Length 50th (m)	7.6	15.5	10.1
Queue Length 95th (m)	13.9	26.8	21.6
Internal Link Dist (m)	878.4	128.5	88.0
Turn Bay Length (m)			
Base Capacity (vph)	2788	2957	368
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.19	0.32	0.19

Intersection Summary

HCM Signalized Intersection Capacity Analysis
12: Danforth Road & Pilkington Drive

06/17/2021

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	470	825	45	50	15
Future Volume (vph)	10	470	825	45	50	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.5		3.5	
Lane Util. Factor		0.95	0.95		1.00	
Frpb, ped/bikes		1.00	1.00		1.00	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.99		0.97	
Flt Protected		1.00	1.00		0.96	
Satd. Flow (prot)		3496	3468		1712	
Flt Permitted		0.93	1.00		0.96	
Satd. Flow (perm)		3271	3468		1712	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	511	897	49	54	16
RTOR Reduction (vph)	0	0	2	0	14	0
Lane Group Flow (vph)	0	522	944	0	56	0
Confl. Peds. (#/hr)	2			2	29	4
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)		76.2	76.2		7.3	
Effective Green, g (s)		77.2	77.2		8.3	
Actuated g/C Ratio		0.83	0.83		0.09	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		2729	2894		153	
v/s Ratio Prot			c0.27		c0.03	
v/s Ratio Perm		0.16				
v/c Ratio		0.19	0.33		0.37	
Uniform Delay, d1		1.5	1.7		39.6	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.2	0.3		1.5	
Delay (s)		1.7	2.0		41.1	
Level of Service		A	A		D	
Approach Delay (s)		1.7	2.0		41.1	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	3.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	92.5	Sum of lost time (s)	7.0
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Timings
1: Warden Avenue & St Clair Avenue

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	150	995	135	85	735	165	115	445	265	295	510
Future Volume (vph)	150	995	135	85	735	165	115	445	265	295	510
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases	7	4			8			2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	7	4	4	8	8	8	2	2	2	1	6
Switch Phase											
Minimum Initial (s)	6.0	33.0	33.0	33.0	33.0	33.0	35.0	35.0	35.0	6.0	35.0
Minimum Split (s)	10.0	40.0	40.0	40.0	40.0	40.0	42.0	42.0	42.0	10.0	42.0
Total Split (s)	11.0	52.0	52.0	41.0	41.0	41.0	43.0	43.0	43.0	20.0	63.0
Total Split (%)	9.6%	45.2%	45.2%	35.7%	35.7%	35.7%	37.4%	37.4%	37.4%	17.4%	54.8%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	1.0	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	-1.0
Total Lost Time (s)	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	3.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	Min	Min	Min	C-Min	C-Min	C-Min	None	C-Min
Act Effct Green (s)	49.8	46.8	46.8	35.0	35.0	35.0	36.9	36.9	36.9	59.2	56.2
Actuated g/C Ratio	0.43	0.41	0.41	0.30	0.30	0.30	0.32	0.32	0.32	0.51	0.49
v/c Ratio	0.71	0.74	0.24	0.97	0.73	0.32	0.61	0.43	0.61	0.68	0.45
Control Delay	40.4	32.7	7.3	127.5	40.4	6.0	48.6	32.3	25.6	25.1	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	32.7	7.3	127.5	40.4	6.0	48.6	32.3	25.6	25.1	18.3
LOS	D	C	A	F	D	A	D	C	C	C	B
Approach Delay		30.9			42.1			32.4			20.3
Approach LOS		C			D			C			C

Intersection Summary			
Cycle Length: 115			
Actuated Cycle Length: 115			
Offset: 45 (39%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 31.4		Intersection LOS: C	
Intersection Capacity Utilization 133.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: Warden Avenue & St Clair Avenue

Queues
1: Warden Avenue & St Clair Avenue

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	160	1059	144	90	782	176	122	473	282	314	745
v/c Ratio	0.71	0.74	0.24	0.97	0.73	0.32	0.61	0.43	0.61	0.68	0.45
Control Delay	40.4	32.7	7.3	127.5	40.4	6.0	48.6	32.3	25.6	25.1	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	32.7	7.3	127.5	40.4	6.0	48.6	32.3	25.6	25.1	18.3
Queue Length 50th (m)	23.3	109.6	4.1	20.9	86.9	0.0	24.6	46.7	33.6	43.1	53.6
Queue Length 95th (m)	#48.1	137.8	17.5	#55.4	110.0	16.2	#48.5	61.8	64.0	63.2	68.4
Internal Link Dist (m)		390.8			348.6			207.5			183.8
Turn Bay Length (m)	65.0		60.0	60.0		235.0	65.0		110.0	145.0	
Base Capacity (vph)	225	1438	602	93	1075	552	203	1129	470	467	1685
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.74	0.24	0.97	0.73	0.32	0.60	0.42	0.60	0.67	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: Warden Avenue & St Clair Avenue

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	995	135	85	735	165	115	445	265	295	510	190
Future Volume (vph)	150	995	135	85	735	165	115	445	265	295	510	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	3.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.87	1.00	1.00	0.95	1.00	1.00	0.90	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.99	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1650	3535	1312	1622	3535	1413	1601	3466	1206	1629	3335	
Flt Permitted	0.16	1.00	1.00	0.18	1.00	1.00	0.37	1.00	1.00	0.37	1.00	
Satd. Flow (perm)	281	3535	1312	307	3535	1413	622	3466	1206	628	3335	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	160	1059	144	90	782	176	122	473	282	314	543	202
RTOR Reduction (vph)	0	0	68	0	0	122	0	0	77	0	34	0
Lane Group Flow (vph)	160	1059	76	90	782	54	122	473	205	314	711	0
Confl. Peds. (#/hr)	40		115	115		40	60		95	95		60
Heavy Vehicles (%)	2%	1%	0%	1%	1%	1%	3%	3%	12%	2%	1%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	45.8	45.8	45.8	34.0	34.0	34.0	35.9	35.9	35.9	55.2	55.2	
Effective Green, g (s)	46.8	46.8	46.8	35.0	35.0	35.0	36.9	36.9	36.9	56.2	56.2	
Actuated g/C Ratio	0.41	0.41	0.41	0.30	0.30	0.30	0.32	0.32	0.32	0.49	0.49	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	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	3.0	
Lane Grp Cap (vph)	219	1438	533	93	1075	430	199	1112	386	448	1629	
v/s Ratio Prot	0.06	c0.30			0.22			0.14		c0.10	0.21	
v/s Ratio Perm	0.24		0.06	c0.29		0.04	0.20		0.17	c0.24		
v/c Ratio	0.73	0.74	0.14	0.97	0.73	0.12	0.61	0.43	0.53	0.70	0.44	
Uniform Delay, d1	24.9	28.9	21.5	39.4	35.7	28.9	33.0	30.7	32.0	19.3	19.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.8	2.0	0.1	81.9	2.5	0.1	13.3	1.2	5.1	4.9	0.9	
Delay (s)	36.7	30.9	21.6	121.3	38.2	29.1	46.3	31.9	37.1	24.2	20.0	
Level of Service	D	C	C	F	D	C	D	C	D	C	B	
Approach Delay (s)		30.6			43.8			35.6			21.2	
Approach LOS		C			D			D			C	

Intersection Summary

HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	133.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Warden Avenue & Warden TTC South Parking

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	70	755	15	40	690
Future Volume (Veh/h)	10	70	755	15	40	690
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)	11	76	821	16	43	750
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						232
pX, platoon unblocked	0.92					
vC, conflicting volume	1290	418			837	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1134	418			837	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	87			95	
cM capacity (veh/h)	170	583			793	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	87	547	290	293	500
Volume Left	11	0	0	43	0
Volume Right	76	0	16	0	0
cSH	446	1700	1700	793	1700
Volume to Capacity	0.19	0.32	0.17	0.05	0.29
Queue Length 95th (m)	5.7	0.0	0.0	1.4	0.0
Control Delay (s)	15.0	0.0	0.0	2.0	0.0
Lane LOS	C			A	
Approach Delay (s)	15.0	0.0		0.7	
Approach LOS	C				

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	56.5%	ICU Level of Service		B
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Warden Avenue & Woodland Acres Access Road

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	5	5	740	695	5
Future Volume (Veh/h)	5	5	5	740	695	5
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)	5	5	5	787	739	5
Pedestrians	34			31	2	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	3			3	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				244		
pX, platoon unblocked						
vC, conflicting volume	1181	437	778			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1181	437	778			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	99	99			
cM capacity (veh/h)	176	538	811			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	10	267	525	493	251
Volume Left	5	5	0	0	0
Volume Right	5	0	0	0	5
cSH	266	811	1700	1700	1700
Volume to Capacity	0.04	0.01	0.31	0.29	0.15
Queue Length 95th (m)	0.9	0.1	0.0	0.0	0.0
Control Delay (s)	19.1	0.2	0.0	0.0	0.0
Lane LOS	C	A			
Approach Delay (s)	19.1	0.1		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	40.4%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
5: Warden Avenue & Bell Estate Rd

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	750	0	0	705
Future Volume (Veh/h)	0	0	750	0	0	705
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	815	0	0	766
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			155			
pX, platoon unblocked	0.98	0.98			0.98	
vC, conflicting volume	1198	408			815	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1161	354			770	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	185	629			823	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	543	272	255	511
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	823	1700
Volume to Capacity	0.00	0.32	0.16	0.00	0.30
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	0.0	0.0		0.0	
Approach LOS	A				

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		24.1%	ICU Level of Service A
Analysis Period (min)		15	

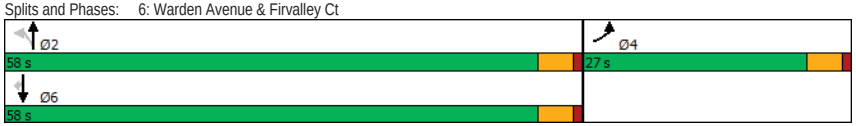
Timings
6: Warden Avenue & Firvalley Ct

06/17/2021

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	35	20	715	670	35
Future Volume (vph)	35	20	715	670	35
Turn Type	Prot	Perm	NA	NA	Perm
Protected Phases	4		2	6	
Permitted Phases		2			6
Detector Phase	4	2	2	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	27.0	58.0	58.0	58.0	58.0
Total Split (%)	31.8%	68.2%	68.2%	68.2%	68.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	Max	Max	Max	Max
Act Effct Green (s)	8.4	70.8	70.8	70.8	70.8
Actuated g/C Ratio	0.10	0.88	0.88	0.88	0.88
v/c Ratio	0.26	0.04	0.25	0.24	0.03
Control Delay	31.8	1.9	1.7	1.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	1.9	1.7	1.7	0.7
LOS	C	A	A	A	A
Approach Delay	31.8		1.7	1.7	
Approach LOS	C		A	A	

Intersection Summary		
Cycle Length: 85		
Actuated Cycle Length: 80.2		
Natural Cycle: 45		
Control Type: Semi Act-Uncoord		
Maximum v/c Ratio: 0.26		
Intersection Signal Delay: 2.6		Intersection LOS: A
Intersection Capacity Utilization 40.6%		ICU Level of Service A
Analysis Period (min) 15		

Splits and Phases: 6: Warden Avenue & Firvalley Ct



Queues
6: Warden Avenue & Firvalley Ct

06/17/2021

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	49	22	777	728	38
v/c Ratio	0.26	0.04	0.25	0.24	0.03
Control Delay	31.8	1.9	1.7	1.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	1.9	1.7	1.7	0.7
Queue Length 50th (m)	6.1	0.5	10.8	10.0	0.0
Queue Length 95th (m)	16.0	1.9	19.0	17.6	1.6
Internal Link Dist (m)	72.7		123.4	130.6	
Turn Bay Length (m)		40.0			20.0
Base Capacity (vph)	501	575	3089	3089	1309
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.04	0.25	0.24	0.03

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Warden Avenue & Firvalley Ct

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	35	10	20	715	670	35
Future Volume (vph)	35	10	20	715	670	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.0	3.5	3.5	3.0
Total Lost time (s)	3.5		3.5	3.5	3.5	3.5
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frpb, ped/bikes	0.97		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	0.96		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1676		1652	3500	3500	1478
Flt Permitted	0.96		0.38	1.00	1.00	1.00
Satd. Flow (perm)	1676		652	3500	3500	1478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	11	22	777	728	38
RTOR Reduction (vph)	10	0	0	0	0	6
Lane Group Flow (vph)	39	0	22	777	728	32
Confl. Peds. (#/hr)	19	76				
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	4.9		68.2	68.2	68.2	68.2
Effective Green, g (s)	5.9		69.2	69.2	69.2	69.2
Actuated g/C Ratio	0.07		0.84	0.84	0.84	0.84
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	120		549	2950	2950	1245
v/s Ratio Prot	c0.02			c0.22	0.21	
v/s Ratio Perm			0.03			0.02
v/c Ratio	0.32		0.04	0.26	0.25	0.03
Uniform Delay, d1	36.2		1.0	1.3	1.3	1.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6		0.1	0.2	0.2	0.0
Delay (s)	37.8		1.2	1.5	1.5	1.1
Level of Service	D		A	A	A	A
Approach Delay (s)	37.8			1.5	1.5	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	2.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	82.1	Sum of lost time (s)	7.0
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
7: Warden Avenue & Cataraqui Cr

06/17/2021

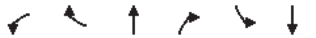
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	20	15	730	670	10
Future Volume (Veh/h)	5	20	15	730	670	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	22	16	793	728	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					148	
pX, platoon unblocked	0.99	0.99	0.99			
vC, conflicting volume	1156	364	739			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1130	327	707			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	97	98			
cM capacity (veh/h)	191	660	875			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	27	280	529	364	364	11
Volume Left	5	16	0	0	0	0
Volume Right	22	0	0	0	0	11
cSH	454	875	1700	1700	1700	1700
Volume to Capacity	0.06	0.02	0.31	0.21	0.21	0.01
Queue Length 95th (m)	1.5	0.4	0.0	0.0	0.0	0.0
Control Delay (s)	13.4	0.7	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	13.4	0.2		0.0		
Approach LOS	B					

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	40.9%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
8: Warden Avenue & Bamblett Dr

06/17/2021



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	30	715	20	50	640
Future Volume (Veh/h)	15	30	715	20	50	640
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)	16	33	777	22	54	696
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						276
pX, platoon unblocked						
vC, conflicting volume	1244	400			799	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1244	400			799	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	95			93	
cM capacity (veh/h)	155	600			819	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	49	518	281	54	348	348
Volume Left	16	0	0	54	0	0
Volume Right	33	0	22	0	0	0
cSH	310	1700	1700	819	1700	1700
Volume to Capacity	0.16	0.30	0.17	0.07	0.20	0.20
Queue Length 95th (m)	4.4	0.0	0.0	1.7	0.0	0.0
Control Delay (s)	18.8	0.0	0.0	9.7	0.0	0.0
Lane LOS	C			A		
Approach Delay (s)	18.8	0.0		0.7		
Approach LOS	C					

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	37.1%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
9: Warden Avenue & Burnhill Rd/Mack Ave

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	10	15	5	10	15	20	700	10	10	615	30
Future Volume (Veh/h)	20	10	15	5	10	15	20	700	10	10	615	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	11	16	5	11	16	22	761	11	11	668	33
Pedestrians		18			23			73			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			2			6			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								272				
pX, platoon unblocked	1.00	1.00		1.00	1.00	1.00				1.00		
vC, conflicting volume	1186	1564	442	1284	1574	424	719			795		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1185	1563	442	1283	1574	423	719			794		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	81	89	97	95	89	97	97			99		
cM capacity (veh/h)	119	103	523	95	101	561	865			807		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	49	32	402	392	345	367
Volume Left	22	5	22	0	11	0
Volume Right	16	16	0	11	0	33
cSH	152	169	865	1700	807	1700
Volume to Capacity	0.32	0.19	0.03	0.23	0.01	0.22
Queue Length 95th (m)	10.4	5.4	0.6	0.0	0.3	0.0
Control Delay (s)	39.7	31.3	0.8	0.0	0.5	0.0
Lane LOS	E	D	A		A	
Approach Delay (s)	39.7	31.3	0.4		0.2	
Approach LOS	E	D				

Intersection Summary					
Average Delay	2.2				
Intersection Capacity Utilization	53.6%	ICU Level of Service		A	
Analysis Period (min)	15				

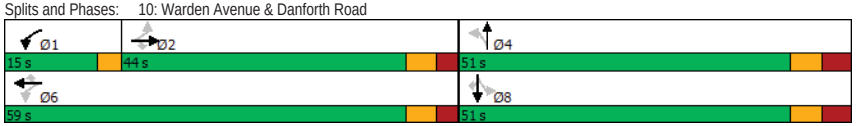
Timings
10: Warden Avenue & Danforth Road

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	230	605	35	200	350	65	15	435	40	420	175
Future Volume (vph)	230	605	35	200	350	65	15	435	40	420	175
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases		2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Detector Phase	2	2	2	1	6	6	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	33.0	33.0	33.0	6.0	33.0	33.0	41.0	41.0	41.0	41.0	41.0
Minimum Split (s)	40.0	40.0	40.0	9.0	40.0	40.0	49.0	49.0	49.0	49.0	49.0
Total Split (s)	44.0	44.0	44.0	15.0	59.0	59.0	51.0	51.0	51.0	51.0	51.0
Total Split (%)	40.0%	40.0%	40.0%	13.6%	53.6%	53.6%	46.4%	46.4%	46.4%	46.4%	46.4%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	0.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	2.0	6.0	6.0		7.0		7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes							
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	36.4	36.4	36.4	54.7	50.7	50.7		42.0		42.0	42.0
Actuated g/C Ratio	0.34	0.34	0.34	0.52	0.48	0.48		0.40		0.40	0.40
v/c Ratio	0.81	0.55	0.07	0.57	0.23	0.10		0.58		0.46	0.30
Control Delay	53.0	30.1	0.8	20.5	16.4	3.9		23.6		25.5	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	53.0	30.1	0.8	20.5	16.4	3.9		23.6		25.5	13.2
LOS	D	C	A	C	B	A		C		C	B
Approach Delay		35.0			16.4			23.6		22.1	
Approach LOS		C			B			C		C	

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 105.7			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 25.2		Intersection LOS: C	
Intersection Capacity Utilization 113.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 10: Warden Avenue & Danforth Road



Queues
10: Warden Avenue & Danforth Road

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	250	658	38	217	380	71	750	500	190
v/c Ratio	0.81	0.55	0.07	0.57	0.23	0.10	0.58	0.46	0.30
Control Delay	53.0	30.1	0.8	20.5	16.4	3.9	23.6	25.5	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	30.1	0.8	20.5	16.4	3.9	23.6	25.5	13.2
Queue Length 50th (m)	49.2	60.6	0.0	25.0	24.4	0.0	58.7	42.8	14.5
Queue Length 95th (m)	#93.1	79.1	1.2	39.9	34.1	7.4	78.9	58.5	31.9
Internal Link Dist (m)		140.6			880.1		308.1	248.6	
Turn Bay Length (m)	50.0		30.0	50.0		30.0			10.0
Base Capacity (vph)	324	1259	565	387	1756	750	1343	1148	653
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.52	0.07	0.56	0.22	0.09	0.56	0.44	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
10: Warden Avenue & Danforth Road

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	605	35	200	350	65	15	435	240	40	420	175
Future Volume (vph)	230	605	35	200	350	65	15	435	240	40	420	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.0	6.0	6.0	2.0	6.0	6.0		7.0			7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97		0.99			1.00	0.98
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.95			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)	1629	3500	1432	1649	3500	1427		3282			3483	1444
Flt Permitted	0.53	1.00	1.00	0.27	1.00	1.00		0.94			0.79	1.00
Satd. Flow (perm)	903	3500	1432	470	3500	1427		3078			2758	1444
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)	250	658	38	217	380	71	16	473	261	43	457	190
RTOR Reduction (vph)	0	0	25	0	0	37	0	64	0	0	0	54
Lane Group Flow (vph)	250	658	13	217	380	34	0	686	0	0	500	136
Confl. Peds. (#/hr)	24		20	20		24	14		20	20		14
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2		2	6		6	4			8		8
Actuated Green, G (s)	35.4	35.4	35.4	49.7	49.7	49.7		41.0			41.0	41.0
Effective Green, g (s)	36.4	36.4	36.4	50.7	50.7	50.7		42.0			42.0	42.0
Actuated g/C Ratio	0.34	0.34	0.34	0.48	0.48	0.48		0.40			0.40	0.40
Clearance Time (s)	7.0	7.0	7.0	3.0	7.0	7.0		8.0			8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	310	1205	493	362	1678	684		1223			1095	573
v/s Ratio Prot		0.19		c0.07	0.11							
v/s Ratio Perm	c0.28		0.01	0.22		0.02		c0.22			0.18	0.09
v/c Ratio	0.81	0.55	0.03	0.60	0.23	0.05		0.56			0.46	0.24
Uniform Delay, d1	31.5	28.0	22.9	17.6	16.1	14.7		24.7			23.4	21.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	14.2	0.5	0.0	2.7	0.1	0.0		0.6			0.3	0.2
Delay (s)	45.6	28.5	22.9	20.2	16.1	14.7		25.3			23.8	21.4
Level of Service	D	C	C	C	B	B		C			C	C
Approach Delay (s)		32.8			17.3			25.3			23.1	
Approach LOS		C			B			C			C	

Intersection Summary				
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	105.7	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	113.3%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

Timings
11: Warden Avenue & Danforth Avenue

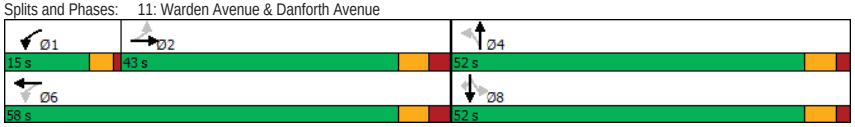
06/17/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	20	655	170	320	70	615	45	560	50
Future Volume (vph)	20	655	170	320	70	615	45	560	50
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA	Perm
Protected Phases		2	1	6		4		8	
Permitted Phases	2		6		4		8		8
Detector Phase	2	2	1	6	4	4	8	8	8
Switch Phase									
Minimum Initial (s)	30.0	30.0	6.0	30.0	25.0	25.0	25.0	25.0	25.0
Minimum Split (s)	37.0	37.0	10.0	37.0	31.0	31.0	31.0	31.0	31.0
Total Split (s)	43.0	43.0	15.0	58.0	52.0	52.0	52.0	52.0	52.0
Total Split (%)	39.1%	39.1%	13.6%	52.7%	47.3%	47.3%	47.3%	47.3%	47.3%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	1.0	3.0	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)		6.0	3.0	6.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)		33.9	51.0	47.9	37.6	37.6	37.6	37.6	37.6
Actuated g/C Ratio		0.35	0.53	0.50	0.39	0.39	0.39	0.39	0.39
v/c Ratio		0.76	0.60	0.46	0.79	0.68	0.40	0.85	0.09
Control Delay		33.7	22.1	18.8	77.9	25.7	33.4	39.7	2.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		33.7	22.1	18.8	77.9	25.7	33.4	39.7	2.3
LOS		C	C	B	E	C	C	D	A
Approach Delay		33.7		19.8		29.8		36.4	
Approach LOS		C		B		C		D	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 96.7
Natural Cycle: 80
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 30.5 — Intersection LOS: C
Intersection Capacity Utilization 118.6% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 11: Warden Avenue & Danforth Avenue



Queues
11: Warden Avenue & Danforth Avenue

06/17/2021

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	854	185	408	76	902	49	609	54
v/c Ratio	0.76	0.60	0.46	0.79	0.68	0.40	0.85	0.09
Control Delay	33.7	22.1	18.8	77.9	25.7	33.4	39.7	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.7	22.1	18.8	77.9	25.7	33.4	39.7	2.3
Queue Length 50th (m)	79.2	19.2	50.5	12.8	71.0	6.8	106.5	0.0
Queue Length 95th (m)	114.7	37.1	86.9	#41.8	98.7	19.7	162.8	4.2
Internal Link Dist (m)	45.9		64.5		51.7		308.1	
Turn Bay Length (m)				45.0		40.0		
Base Capacity (vph)	1247	327	985	123	1673	154	910	727
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.57	0.41	0.62	0.54	0.32	0.67	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
11: Warden Avenue & Danforth Avenue

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	655	110	170	320	55	70	615	215	45	560	50
Future Volume (vph)	20	655	110	170	320	55	70	615	215	45	560	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)		6.0		3.0	6.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor		0.95		1.00	1.00		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes		0.99		1.00	1.00		1.00	0.99		1.00	1.00	0.95
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.98		1.00	0.98		1.00	0.96		1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3395		1650	1794		1652	3333		1644	1842	1398
Flt Permitted		0.94		0.17	1.00		0.14	1.00		0.18	1.00	1.00
Satd. Flow (perm)		3180		299	1794		251	3333		313	1842	1398
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)	22	712	120	185	348	60	76	668	234	49	609	54
RTOR Reduction (vph)	0	12	0	0	6	0	0	34	0	0	0	33
Lane Group Flow (vph)	0	842	0	185	402	0	76	868	0	49	609	21
Confl. Peds. (#/hr)	16		22	22		16	18		20	20		18
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)		33.0		46.9	46.9		36.6	36.6		36.6	36.6	36.6
Effective Green, g (s)		34.0		47.9	47.9		37.6	37.6		37.6	37.6	37.6
Actuated g/C Ratio		0.35		0.50	0.50		0.39	0.39		0.39	0.39	0.39
Clearance Time (s)		7.0		4.0	7.0		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)		1120		301	890		97	1298		121	717	544
v/s Ratio Prot				c0.07	0.22			0.26			c0.33	
v/s Ratio Perm		c0.26		0.24			0.30			0.16		0.02
v/c Ratio		0.75		0.61	0.45		0.78	0.67		0.40	0.85	0.04
Uniform Delay, d1		27.5		16.2	15.8		25.9	24.3		21.3	26.9	18.3
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		2.9		3.7	0.4		32.8	1.3		2.2	9.3	0.0
Delay (s)		30.4		19.9	16.1		58.6	25.6		23.6	36.1	18.3
Level of Service		C		B	B		E	C		C	D	B
Approach Delay (s)		30.4			17.3			28.2			33.9	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	14.0
Intersection Capacity Utilization	118.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

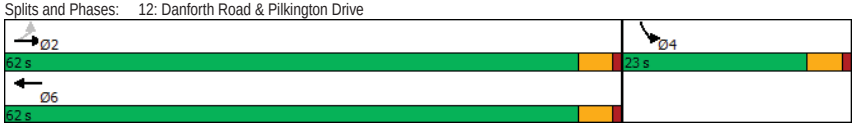
Timings
12: Danforth Road & Pilkington Drive

06/17/2021

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	5	880	605	25
Future Volume (vph)	5	880	605	25
Turn Type	Perm	NA	NA	Prot
Protected Phases		2	6	4
Permitted Phases	2			
Detector Phase	2	2	6	4
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	62.0	62.0	62.0	23.0
Total Split (%)	72.9%	72.9%	72.9%	27.1%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		-1.0	-1.0	-1.0
Total Lost Time (s)		3.5	3.5	3.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	None
Act Effct Green (s)		75.4	75.4	8.0
Actuated g/C Ratio		0.89	0.89	0.09
v/c Ratio		0.32	0.23	0.22
Control Delay		1.8	1.5	32.0
Queue Delay		0.0	0.0	0.0
Total Delay		1.8	1.5	32.0
LOS		A	A	C
Approach Delay		1.8	1.5	32.0
Approach LOS		A	A	C

Intersection Summary			
Cycle Length: 85			
Actuated Cycle Length: 84.5			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.32			
Intersection Signal Delay: 2.3		Intersection LOS: A	
Intersection Capacity Utilization 39.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 12: Danforth Road & Pilkington Drive



Queues
12: Danforth Road & Pilkington Drive

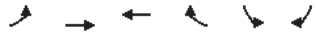
06/17/2021

Lane Group	EBT	WBT	SBL
Lane Group Flow (vph)	962	712	38
v/c Ratio	0.32	0.23	0.22
Control Delay	1.8	1.5	32.0
Queue Delay	0.0	0.0	0.0
Total Delay	1.8	1.5	32.0
Queue Length 50th (m)	13.8	8.8	4.6
Queue Length 95th (m)	23.8	15.6	14.1
Internal Link Dist (m)	880.1	57.7	74.2
Turn Bay Length (m)			
Base Capacity (vph)	2976	3079	403
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.32	0.23	0.09

Intersection Summary

HCM Signalized Intersection Capacity Analysis
12: Danforth Road & Pilkington Drive

06/17/2021



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	880	605	50	25	10
Future Volume (vph)	5	880	605	50	25	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.5		3.5	
Lane Util. Factor		0.95	0.95		1.00	
Frpb, ped/bikes		1.00	1.00		1.00	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.99		0.96	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		3499	3446		1701	
Flt Permitted		0.95	1.00		0.97	
Satd. Flow (perm)		3334	3446		1701	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	957	658	54	27	11
RTOR Reduction (vph)	0	0	3	0	10	0
Lane Group Flow (vph)	0	962	709	0	28	0
Confl. Peds. (#/hr)	14			14	38	3
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)		72.9	72.9		4.6	
Effective Green, g (s)		73.9	73.9		5.6	
Actuated g/C Ratio		0.85	0.85		0.06	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		2848	2944		110	
v/s Ratio Prot			0.21		c0.02	
v/s Ratio Perm		c0.29				
v/c Ratio		0.34	0.24		0.25	
Uniform Delay, d1		1.3	1.2		38.5	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.3	0.2		1.2	
Delay (s)		1.6	1.3		39.7	
Level of Service		A	A		D	
Approach Delay (s)		1.6	1.3		39.7	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	2.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	86.5	Sum of lost time (s)	7.0
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Timings
1: Warden Avenue & St Clair Avenue

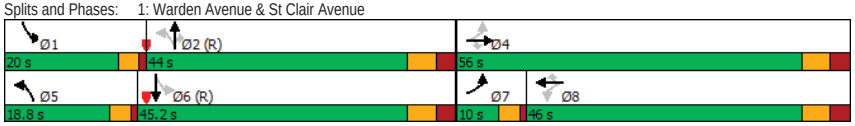
06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	130	750	80	65	1015	325	175	730	285	245	380
Future Volume (vph)	130	750	80	65	1015	325	175	730	285	245	380
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4			8		5	2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	7	4	4	8	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	6.0	33.0	33.0	33.0	33.0	33.0	5.0	35.0	35.0	6.0	35.0
Minimum Split (s)	10.0	40.0	40.0	40.0	40.0	40.0	9.5	42.0	42.0	10.0	42.0
Total Split (s)	10.0	56.0	56.0	46.0	46.0	46.0	18.8	44.0	44.0	20.0	45.2
Total Split (%)	8.3%	46.7%	46.7%	38.3%	38.3%	38.3%	15.7%	36.7%	36.7%	16.7%	37.7%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0	3.0	1.0	3.0	3.0	1.0	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	-1.0
Total Lost Time (s)	3.0	6.0	6.0	6.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	Min	Min	Min	Min	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	53.9	50.9	50.9	39.7	39.7	39.7	54.4	37.8	37.8	59.3	40.5
Actuated g/C Ratio	0.45	0.42	0.42	0.33	0.33	0.33	0.45	0.32	0.32	0.49	0.34
v/c Ratio	0.80	0.55	0.14	0.40	0.93	0.52	0.51	0.71	0.70	0.83	0.57
Control Delay	56.1	27.7	5.1	39.2	54.0	8.3	22.3	40.8	32.5	44.3	29.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	27.7	5.1	39.2	54.0	8.3	22.3	40.8	32.5	44.3	29.9
LOS	E	C	A	D	D	A	C	D	C	D	C
Approach Delay		29.7			42.7			36.1			34.1
Approach LOS		C			D			D			C

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: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 36.4 — Intersection LOS: D
Intersection Capacity Utilization 116.1% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: Warden Avenue & St Clair Avenue



Queues
1: Warden Avenue & St Clair Avenue

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	138	798	85	69	1080	346	186	777	303	261	633
v/c Ratio	0.80	0.55	0.14	0.40	0.93	0.52	0.51	0.71	0.70	0.83	0.57
Control Delay	56.1	27.7	5.1	39.2	54.0	8.3	22.3	40.8	32.5	44.3	29.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	27.7	5.1	39.2	54.0	8.3	22.3	40.8	32.5	44.3	29.9
Queue Length 50th (m)	19.8	75.3	0.0	13.1	135.3	6.6	25.6	91.3	43.8	38.3	58.1
Queue Length 95th (m)	#57.5	98.0	9.9	28.4	#177.7	32.5	39.4	112.2	78.3	#80.0	77.7
Internal Link Dist (m)		390.8			348.6			183.7			66.3
Turn Bay Length (m)	65.0		60.0	60.0		235.0	65.0		110.0	145.0	
Base Capacity (vph)	172	1456	597	175	1166	663	396	1115	442	321	1119
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.55	0.14	0.39	0.93	0.52	0.47	0.70	0.69	0.81	0.57

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: Warden Avenue & St Clair Avenue

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	750	80	65	1015	325	175	730	285	245	380	215
Future Volume (vph)	130	750	80	65	1015	325	175	730	285	245	380	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	6.0	6.0	6.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.88	1.00	1.00	0.94	1.00	1.00	0.90	1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.96	1.00	1.00	0.99	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1620	3433	1294	1577	3500	1375	1642	3466	1146	1570	3118	
Flt Permitted	0.09	1.00	1.00	0.32	1.00	1.00	0.31	1.00	1.00	0.17	1.00	
Satd. Flow (perm)	160	3433	1294	527	3500	1375	534	3466	1146	285	3118	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	138	798	85	69	1080	346	186	777	303	261	404	229
RTOR Reduction (vph)	0	0	49	0	0	205	0	0	75	0	65	0
Lane Group Flow (vph)	138	798	36	69	1080	141	186	777	228	261	568	0
Confl. Peds. (#/hr)	45		105	105		45	60		90	90		60
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	3%	18%	7%	4%	8%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	50.0	50.0	50.0	38.7	38.7	38.7	49.3	36.7	36.7	54.7	39.4	
Effective Green, g (s)	51.0	51.0	51.0	39.7	39.7	39.7	51.3	37.7	37.7	56.7	40.4	
Actuated g/C Ratio	0.42	0.42	0.42	0.33	0.33	0.33	0.43	0.31	0.31	0.47	0.34	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	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	3.0	
Lane Grp Cap (vph)	168	1459	549	174	1157	454	353	1088	360	309	1049	
v/s Ratio Prot	c0.06	0.23			c0.31		0.06	0.22		c0.11	0.18	
v/s Ratio Perm	0.29		0.03	0.13		0.10	0.17		0.20	c0.28		
v/c Ratio	0.82	0.55	0.07	0.40	0.93	0.31	0.53	0.71	0.63	0.84	0.54	
Uniform Delay, d1	27.5	25.8	20.4	30.9	38.9	29.9	22.7	36.4	35.2	23.3	32.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	26.4	0.4	0.1	1.5	13.4	0.4	1.4	4.0	8.2	18.6	2.0	
Delay (s)	54.0	26.3	20.5	32.4	52.3	30.3	24.1	40.4	43.5	41.9	34.3	
Level of Service	D	C	C	C	D	C	C	D	D	D	C	
Approach Delay (s)		29.5			46.3			38.7			36.5	
Approach LOS		C			D			D			D	

Intersection Summary				
HCM 2000 Control Delay	38.7	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	116.1%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
2: Warden Avenue & Warden TTC South Parking

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	30	1160	15	45	480
Future Volume (Veh/h)	5	30	1160	15	45	480
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)	5	33	1261	16	49	522
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						208
pX, platoon unblocked						
vC, conflicting volume	1628	638			1277	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1628	638			1277	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	92			91	
cM capacity (veh/h)	84	419			540	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	38	841	436	223	348
Volume Left	5	0	0	49	0
Volume Right	33	0	16	0	0
cSH	275	1700	1700	540	1700
Volume to Capacity	0.14	0.49	0.26	0.09	0.20
Queue Length 95th (m)	3.8	0.0	0.0	2.4	0.0
Control Delay (s)	20.2	0.0	0.0	3.7	0.0
Lane LOS	C			A	
Approach Delay (s)	20.2	0.0		1.4	
Approach LOS	C				

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	58.0%	ICU Level of Service	B	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Warden Avenue & Woodland Acres Access Road

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	0	0	1150	485	0
Future Volume (Veh/h)	5	0	0	1150	485	0
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	0	1211	511	0
Pedestrians	22			23	2	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	2			2	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				244		
pX, platoon unblocked	0.96					
vC, conflicting volume	1140	300	533			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1068	300	533			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	204	670	1012			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	5	404	807	341	170
Volume Left	5	0	0	0	0
Volume Right	0	0	0	0	0
cSH	204	1012	1700	1700	1700
Volume to Capacity	0.02	0.00	0.47	0.20	0.10
Queue Length 95th (m)	0.6	0.0	0.0	0.0	0.0
Control Delay (s)	23.0	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	23.0	0.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	47.1%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
5: Warden Avenue & Bell Estate Rd

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	1150	0	0	480
Future Volume (Veh/h)	0	0	1150	0	0	480
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1250	0	0	522
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			155			
pX, platoon unblocked	0.93	0.93			0.93	
vC, conflicting volume	1511	625			1250	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1407	459			1128	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	121	513			575	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	833	417	174	348
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	575	1700
Volume to Capacity	0.00	0.49	0.25	0.00	0.20
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	0.0	0.0		0.0	
Approach LOS	A				

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	35.1%	ICU Level of Service	A	
Analysis Period (min)	15			

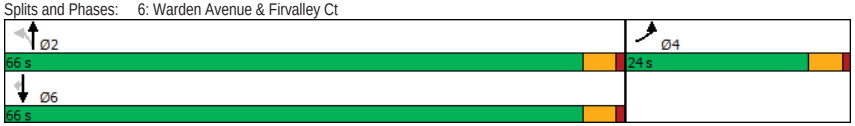
Timings
6: Warden Avenue & Firvalley Ct

06/17/2021

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	15	15	1140	470	15
Future Volume (vph)	15	15	1140	470	15
Turn Type	Prot	Perm	NA	NA	Perm
Protected Phases	4		2	6	
Permitted Phases		2			6
Detector Phase	4	2	2	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	24.0	66.0	66.0	66.0	66.0
Total Split (%)	26.7%	73.3%	73.3%	73.3%	73.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	Max	Max	Max	Max
Act Effct Green (s)	7.7	80.1	80.1	80.1	80.1
Actuated g/C Ratio	0.09	0.93	0.93	0.93	0.93
v/c Ratio	0.20	0.02	0.38	0.16	0.01
Control Delay	27.8	1.3	1.5	1.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	1.3	1.5	1.0	0.7
LOS	C	A	A	A	A
Approach Delay	27.8		1.5	1.0	
Approach LOS	C		A	A	

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 86.1			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 1.8		Intersection LOS: A	
Intersection Capacity Utilization 49.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: Warden Avenue & Firvalley Ct



Queues
6: Warden Avenue & Firvalley Ct

06/17/2021

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	32	16	1239	511	16
v/c Ratio	0.20	0.02	0.38	0.16	0.01
Control Delay	27.8	1.3	1.5	1.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	1.3	1.5	1.0	0.7
Queue Length 50th (m)	2.4	0.0	0.0	0.0	0.0
Queue Length 95th (m)	11.6	1.3	31.4	10.6	0.9
Internal Link Dist (m)	72.7		123.4	130.6	
Turn Bay Length (m)		40.0			20.0
Base Capacity (vph)	402	751	3258	3258	1377
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.02	0.38	0.16	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Warden Avenue & Firvalley Ct

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	15	15	1140	470	15
Future Volume (vph)	15	15	15	1140	470	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.0	3.5	3.5	3.0
Total Lost time (s)	3.5		3.5	3.5	3.5	3.5
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frpb, ped/bikes	0.97		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.93		1.00	1.00	1.00	0.85
Flt Protected	0.98		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1629		1652	3500	3500	1478
Flt Permitted	0.98		0.46	1.00	1.00	1.00
Satd. Flow (perm)	1629		806	3500	3500	1478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	16	16	1239	511	16
RTOR Reduction (vph)	15	0	0	0	0	2
Lane Group Flow (vph)	17	0	16	1239	511	14
Confl. Peds. (#/hr)	20	30				
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	3.0		76.9	76.9	76.9	76.9
Effective Green, g (s)	4.0		77.9	77.9	77.9	77.9
Actuated g/C Ratio	0.04		0.88	0.88	0.88	0.88
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	73		706	3066	3066	1295
v/s Ratio Prot	c0.01			c0.35	0.15	
v/s Ratio Perm			0.02			0.01
v/c Ratio	0.23		0.02	0.40	0.17	0.01
Uniform Delay, d1	41.0		0.7	1.1	0.8	0.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6		0.1	0.4	0.1	0.0
Delay (s)	42.6		0.8	1.5	0.9	0.7
Level of Service	D		A	A	A	A
Approach Delay (s)	42.6			1.4	0.9	
Approach LOS	D			A	A	

Intersection Summary				
HCM 2000 Control Delay	2.0	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.40			
Actuated Cycle Length (s)	88.9	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	49.2%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
7: Warden Avenue & Cataraqui Cr

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	25	15	1150	485	0
Future Volume (Veh/h)	15	25	15	1150	485	0
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)	16	27	16	1250	527	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					148	
pX, platoon unblocked						
vC, conflicting volume	1184	264	527			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1184	264	527			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	96	98			
cM capacity (veh/h)	179	735	1036			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	43	433	833	264	264	0
Volume Left	16	16	0	0	0	0
Volume Right	27	0	0	0	0	0
cSH	341	1036	1700	1700	1700	1700
Volume to Capacity	0.13	0.02	0.49	0.15	0.15	0.00
Queue Length 95th (m)	3.4	0.4	0.0	0.0	0.0	0.0
Control Delay (s)	17.1	0.5	0.0	0.0	0.0	0.0
Lane LOS	C	A				
Approach Delay (s)	17.1	0.2		0.0		
Approach LOS	C					

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	52.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
8: Warden Avenue & Bamblett Dr

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	75	1090	30	30	480
Future Volume (Veh/h)	40	75	1090	30	30	480
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)	43	82	1185	33	33	522
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						276
pX, platoon unblocked						
vC, conflicting volume	1528	609			1218	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1528	609			1218	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	58	81			94	
cM capacity (veh/h)	102	438			568	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	125	790	428	33	261	261
Volume Left	43	0	0	33	0	0
Volume Right	82	0	33	0	0	0
cSH	205	1700	1700	568	1700	1700
Volume to Capacity	0.61	0.46	0.25	0.06	0.15	0.15
Queue Length 95th (m)	27.8	0.0	0.0	1.5	0.0	0.0
Control Delay (s)	46.7	0.0	0.0	11.7	0.0	0.0
Lane LOS	E			B		
Approach Delay (s)	46.7	0.0		0.7		
Approach LOS	E					

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	44.6%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
9: Warden Avenue & Burnhill Rd/Mack Ave

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	15	15	5	10	10	10	1080	5	5	505	10
Future Volume (Veh/h)	30	15	15	5	10	10	10	1080	5	5	505	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	16	16	5	11	11	11	1174	5	5	549	11
Pedestrians		25			104			43			29	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		2			8			3			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								272				
pX, platoon unblocked	0.78	0.78		0.78	0.78	0.78				0.78		
vC, conflicting volume	1244	1894	348	1654	1898	722	585			1283		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	737	1575	348	1265	1579	65	585			787		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	82	78	97	92	85	98	99			99		
cM capacity (veh/h)	180	74	613	64	74	684	966			588		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	65	27	598	592	280	286
Volume Left	33	5	11	0	5	0
Volume Right	16	11	0	5	0	11
cSH	153	111	966	1700	588	1700
Volume to Capacity	0.42	0.24	0.01	0.35	0.01	0.17
Queue Length 95th (m)	15.1	7.1	0.3	0.0	0.2	0.0
Control Delay (s)	44.8	47.6	0.3	0.0	0.3	0.0
Lane LOS	E	E	A		A	
Approach Delay (s)	44.8	47.6	0.2		0.2	
Approach LOS	E	E				

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	55.8%	ICU Level of Service		B
Analysis Period (min)	15			

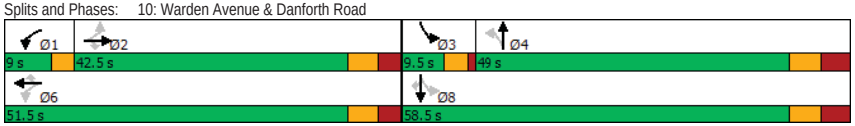
Timings
10: Warden Avenue & Danforth Road

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	160	275	25	235	535	120	10	815	60	325	140
Future Volume (vph)	160	275	25	235	535	120	10	815	60	325	140
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	pm+pt	NA	Perm
Protected Phases		2		1	6			4	3	8	
Permitted Phases	2		2	6		6	4		8		8
Detector Phase	2	2	2	1	6	6	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	33.0	33.0	33.0	6.0	33.0	33.0	41.0	41.0	5.0	41.0	41.0
Minimum Split (s)	40.0	40.0	40.0	9.0	40.0	40.0	49.0	49.0	9.5	49.0	49.0
Total Split (s)	42.5	42.5	42.5	9.0	51.5	51.5	49.0	49.0	9.5	58.5	58.5
Total Split (%)	38.6%	38.6%	38.6%	8.2%	46.8%	46.8%	44.5%	44.5%	8.6%	53.2%	53.2%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	0.0	3.0	3.0	4.0	4.0	1.0	4.0	4.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	2.0	6.0	6.0		7.0		7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	34.7	34.7	34.7	47.7	43.7	43.7		42.0		42.0	42.0
Actuated g/C Ratio	0.35	0.35	0.35	0.48	0.44	0.44		0.43		0.43	0.43
v/c Ratio	0.67	0.24	0.05	0.51	0.38	0.19		0.77		0.48	0.23
Control Delay	41.4	23.3	0.2	20.2	19.2	4.9		28.4		22.8	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	41.4	23.3	0.2	20.2	19.2	4.9		28.4		22.8	8.4
LOS	D	C	A	C	B	A		C		C	A
Approach Delay		28.4			17.6			28.4		19.0	
Approach LOS		C			B			C		B	

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 98.7			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 23.3		Intersection LOS: C	
Intersection Capacity Utilization 124.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 10: Warden Avenue & Danforth Road



Queues
10: Warden Avenue & Danforth Road

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	174	299	27	255	582	130	1071	418	152
v/c Ratio	0.67	0.24	0.05	0.51	0.38	0.19	0.77	0.48	0.23
Control Delay	41.4	23.3	0.2	20.2	19.2	4.9	28.4	22.8	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.4	23.3	0.2	20.2	19.2	4.9	28.4	22.8	8.4
Queue Length 50th (m)	29.3	22.1	0.0	30.2	40.0	1.9	91.4	30.6	6.5
Queue Length 95th (m)	#56.9	32.5	0.0	47.9	53.5	12.4	123.1	46.8	19.6
Internal Link Dist (m)		140.6			878.4		309.6	248.6	
Turn Bay Length (m)	50.0		30.0	50.0		30.0			10.0
Base Capacity (vph)	275	1295	610	499	1614	721	1390	1078	797
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.23	0.04	0.51	0.36	0.18	0.77	0.39	0.19

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
10: Warden Avenue & Danforth Road

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	275	25	235	535	120	10	815	160	60	325	140
Future Volume (vph)	160	275	25	235	535	120	10	815	160	60	325	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.0	6.0	6.0	2.0	6.0	6.0		7.0			7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.97		1.00			1.00	0.98
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.98			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00			0.99	1.00
Satd. Flow (prot)	1639	3500	1450	1648	3500	1435		3404			3473	1441
Flt Permitted	0.43	1.00	1.00	0.54	1.00	1.00		0.95			0.59	1.00
Satd. Flow (perm)	746	3500	1450	930	3500	1435		3231			2066	1441
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)	174	299	27	255	582	130	11	886	174	65	353	152
RTOR Reduction (vph)	0	0	18	0	0	63	0	14	0	0	0	55
Lane Group Flow (vph)	174	299	9	255	582	67	0	1057	0	0	418	97
Confl. Peds. (#/hr)	19		8	8		19	18		5	5		18
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		8
Actuated Green, G (s)	33.7	33.7	33.7	42.7	42.7	42.7		41.0			41.0	41.0
Effective Green, g (s)	34.7	34.7	34.7	43.7	43.7	43.7		42.0			42.0	42.0
Actuated g/C Ratio	0.35	0.35	0.35	0.44	0.44	0.44		0.43			0.43	0.43
Clearance Time (s)	7.0	7.0	7.0	3.0	7.0	7.0		8.0			8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	262	1230	509	462	1549	635		1374			879	613
v/s Ratio Prot		0.09		c0.04	0.17							
v/s Ratio Perm	c0.23		0.01	0.20		0.05		c0.33			0.20	0.07
v/c Ratio	0.66	0.24	0.02	0.55	0.38	0.11		0.77			0.48	0.16
Uniform Delay, d1	27.1	22.7	20.9	18.9	18.4	16.1		24.2			20.4	17.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	6.2	0.1	0.0	1.4	0.2	0.1		2.7			0.4	0.1
Delay (s)	33.3	22.8	20.9	20.3	18.5	16.1		26.9			20.8	17.6
Level of Service	C	C	C	C	B	B		C			C	B
Approach Delay (s)		26.3			18.7			26.9			20.0	
Approach LOS		C			B			C			B	

Intersection Summary				
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	98.7	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	124.0%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

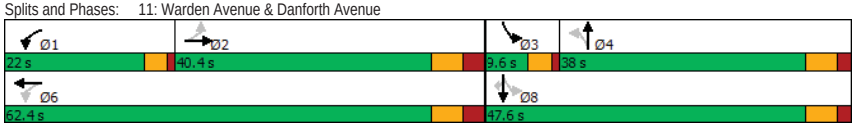
Timings
11: Warden Avenue & Danforth Avenue

06/17/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	10	300	330	645	50	850	80	480	25
Future Volume (vph)	10	300	330	645	50	850	80	480	25
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	pm+pt	NA	Perm
Protected Phases		2	1	6		4	3	8	
Permitted Phases	2		6		4		8		8
Detector Phase	2	2	1	6	4	4	3	8	8
Switch Phase									
Minimum Initial (s)	30.0	30.0	6.0	30.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	37.0	37.0	10.0	37.0	31.0	31.0	9.5	31.0	31.0
Total Split (s)	40.4	40.4	22.0	62.4	38.0	38.0	9.6	47.6	47.6
Total Split (%)	36.7%	36.7%	20.0%	56.7%	34.5%	34.5%	8.7%	43.3%	43.3%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	1.0	3.0	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
Total Lost Time (s)		6.0	3.0	6.0	5.0	5.0	3.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead		Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)		33.3	56.8	53.7	32.3	32.3	41.7	39.7	39.7
Actuated g/C Ratio		0.32	0.54	0.51	0.31	0.31	0.40	0.38	0.38
v/c Ratio		0.38	0.64	0.90	0.37	0.93	0.51	0.75	0.05
Control Delay		29.2	20.4	38.1	39.2	51.0	31.2	36.1	0.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		29.2	20.4	38.1	39.2	51.0	31.2	36.1	0.2
LOS		C	C	D	D	D	C	D	A
Approach Delay		29.2		32.8		50.4		33.9	
Approach LOS		C		C		D		C	

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 104.5			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 38.3		Intersection LOS: D	
Intersection Capacity Utilization 131.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 11: Warden Avenue & Danforth Avenue



Queues
11: Warden Avenue & Danforth Avenue

06/17/2021

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	375	359	837	54	995	87	522	27
v/c Ratio	0.38	0.64	0.90	0.37	0.93	0.51	0.75	0.05
Control Delay	29.2	20.4	38.1	39.2	51.0	31.2	36.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	20.4	38.1	39.2	51.0	31.2	36.1	0.2
Queue Length 50th (m)	33.7	45.5	163.3	9.6	115.2	12.1	99.4	0.0
Queue Length 95th (m)	47.6	67.8	#251.6	22.9	#159.3	23.1	141.5	0.0
Internal Link Dist (m)	94.4		62.9		69.5		309.6	
Turn Bay Length (m)				45.0		40.0		
Base Capacity (vph)	1017	576	980	151	1105	170	757	611
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.62	0.85	0.36	0.90	0.51	0.69	0.04

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
11: Warden Avenue & Danforth Avenue

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	300	35	330	645	125	50	850	65	80	480	25
Future Volume (vph)	10	300	35	330	645	125	50	850	65	80	480	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)		6.0		3.0	6.0		5.0	5.0		3.0	5.0	5.0
Lane Util. Factor		0.95		1.00	1.00		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	1.00	0.93
Flpb, ped/bikes		1.00		0.99	1.00		0.98	1.00		1.00	1.00	1.00
Frt		0.98		1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3425		1641	1790		1623	3455		1652	1842	1378
Flt Permitted		0.89		0.44	1.00		0.28	1.00		0.11	1.00	1.00
Satd. Flow (perm)		3041		766	1790		477	3455		197	1842	1378
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)	11	326	38	359	701	136	54	924	71	87	522	27
RTOR Reduction (vph)	0	8	0	0	6	0	0	5	0	0	0	17
Lane Group Flow (vph)	0	367	0	359	831	0	54	990	0	87	522	10
Confl. Peds. (#/hr)	12		16	16		12	23		14	14		23
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)		32.3		52.7	52.7		31.3	31.3		39.6	39.6	39.6
Effective Green, g (s)		33.3		53.7	53.7		32.3	32.3		40.6	40.6	40.6
Actuated g/C Ratio		0.32		0.51	0.51		0.31	0.31		0.39	0.39	0.39
Clearance Time (s)		7.0		4.0	7.0		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
Lane Grp Cap (vph)		961		535	912		146	1059		149	710	531
v/s Ratio Prot				0.11	c0.46			c0.29		0.03	c0.28	
v/s Ratio Perm		0.12		0.23			0.11			0.20		0.01
v/c Ratio		0.38		0.67	0.91		0.37	0.93		0.58	0.74	0.02
Uniform Delay, d1		28.0		16.5	23.6		28.5	35.5		25.1	27.7	20.0
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.3		3.3	13.0		1.6	14.5		5.7	4.0	0.0
Delay (s)		28.3		19.8	36.6		30.1	50.0		30.8	31.7	20.0
Level of Service		C		B	D		C	D		C	C	C
Approach Delay (s)		28.3			31.6			49.0			31.1	
Approach LOS		C			C			D			C	

Intersection Summary					
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.94				
Actuated Cycle Length (s)	105.3	Sum of lost time (s)		17.0	
Intersection Capacity Utilization	131.2%	ICU Level of Service		H	
Analysis Period (min)	15				

c Critical Lane Group

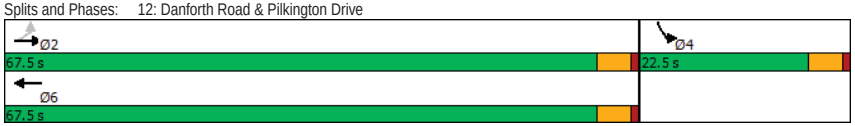
Timings
12: Danforth Road & Pilkington Drive

06/17/2021

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	10	475	825	50
Future Volume (vph)	10	475	825	50
Turn Type	Perm	NA	NA	Prot
Protected Phases		2	6	4
Permitted Phases	2			
Detector Phase	2	2	6	4
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	67.5	67.5	67.5	22.5
Total Split (%)	75.0%	75.0%	75.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		-1.0	-1.0	-1.0
Total Lost Time (s)		3.5	3.5	3.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	None
Act Effct Green (s)		78.0	78.0	9.5
Actuated g/C Ratio		0.85	0.85	0.10
v/c Ratio		0.19	0.32	0.37
Control Delay		1.9	2.3	36.9
Queue Delay		0.0	0.0	0.0
Total Delay		1.9	2.3	36.9
LOS		A	A	D
Approach Delay		1.9	2.3	36.9
Approach LOS		A	A	D

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 91.5			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.37			
Intersection Signal Delay: 3.7		Intersection LOS: A	
Intersection Capacity Utilization 36.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 12: Danforth Road & Pilkington Drive



Queues
12: Danforth Road & Pilkington Drive

06/17/2021

Lane Group	EBT	WBT	SBL
Lane Group Flow (vph)	527	946	70
v/c Ratio	0.19	0.32	0.37
Control Delay	1.9	2.3	36.9
Queue Delay	0.0	0.0	0.0
Total Delay	1.9	2.3	36.9
Queue Length 50th (m)	7.6	15.5	10.1
Queue Length 95th (m)	14.0	26.8	21.6
Internal Link Dist (m)	878.4	128.5	88.0
Turn Bay Length (m)			
Base Capacity (vph)	2788	2957	368
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.19	0.32	0.19

Intersection Summary

HCM Signalized Intersection Capacity Analysis
12: Danforth Road & Pilkington Drive

06/17/2021

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	475	825	45	50	15
Future Volume (vph)	10	475	825	45	50	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.5		3.5	
Lane Util. Factor		0.95	0.95		1.00	
Frpb, ped/bikes		1.00	1.00		1.00	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.99		0.97	
Flt Protected		1.00	1.00		0.96	
Satd. Flow (prot)		3496	3468		1712	
Flt Permitted		0.93	1.00		0.96	
Satd. Flow (perm)		3272	3468		1712	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	516	897	49	54	16
RTOR Reduction (vph)	0	0	2	0	14	0
Lane Group Flow (vph)	0	527	944	0	56	0
Confl. Peds. (#/hr)	2			2	29	4
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)		76.2	76.2		7.3	
Effective Green, g (s)		77.2	77.2		8.3	
Actuated g/C Ratio		0.83	0.83		0.09	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		2730	2894		153	
v/s Ratio Prot			c0.27		c0.03	
v/s Ratio Perm		0.16				
v/c Ratio		0.19	0.33		0.37	
Uniform Delay, d1		1.5	1.7		39.6	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.2	0.3		1.5	
Delay (s)		1.7	2.0		41.1	
Level of Service		A	A		D	
Approach Delay (s)		1.7	2.0		41.1	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	3.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	92.5	Sum of lost time (s)	7.0
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

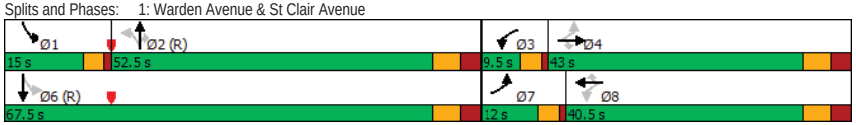
Timings
1: Warden Avenue & St Clair Avenue

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	195	995	135	85	775	230	115	530	265	330	590
Future Volume (vph)	195	995	135	85	775	230	115	530	265	330	590
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases	7	4		3	8			2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	7	4	4	3	8	8	2	2	2	1	6
Switch Phase											
Minimum Initial (s)	6.0	33.0	33.0	5.0	33.0	33.0	35.0	35.0	35.0	6.0	35.0
Minimum Split (s)	10.0	40.0	40.0	9.5	40.0	40.0	42.0	42.0	42.0	10.0	42.0
Total Split (s)	12.0	43.0	43.0	9.5	40.5	40.5	52.5	52.5	52.5	15.0	67.5
Total Split (%)	10.0%	35.8%	35.8%	7.9%	33.8%	33.8%	43.8%	43.8%	43.8%	12.5%	56.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	1.0	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	-1.0
Total Lost Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	C-Min	C-Min	C-Min	None	C-Min
Act Effct Green (s)	56.3	41.8	41.8	46.0	34.3	34.3	39.3	39.3	39.3	57.5	54.5
Actuated g/C Ratio	0.47	0.35	0.35	0.38	0.29	0.29	0.33	0.33	0.33	0.48	0.45
v/c Ratio	0.71	0.86	0.27	0.42	0.82	0.42	0.72	0.50	0.57	0.97	0.57
Control Delay	39.1	45.5	10.7	25.9	47.5	6.5	58.9	33.6	18.4	66.3	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	45.5	10.7	25.9	47.5	6.5	58.9	33.6	18.4	66.3	23.1
LOS	D	D	B	C	D	A	E	C	B	E	C
Approach Delay		41.0			37.2			32.4			35.4
Approach LOS		D			D			C			D

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: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 36.9		Intersection LOS: D	
Intersection Capacity Utilization 115.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: Warden Avenue & St Clair Avenue



Queues
1: Warden Avenue & St Clair Avenue

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	207	1059	144	90	824	245	122	564	282	351	883
v/c Ratio	0.71	0.86	0.27	0.42	0.82	0.42	0.72	0.50	0.57	0.97	0.57
Control Delay	39.1	45.5	10.7	25.9	47.5	6.5	58.9	33.6	18.4	66.3	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	45.5	10.7	25.9	47.5	6.5	58.9	33.6	18.4	66.3	23.1
Queue Length 50th (m)	28.4	123.6	5.6	11.4	99.8	0.0	27.6	61.4	25.9	~61.5	80.4
Queue Length 95th (m)	#89.1	#182.4	22.7	25.0	125.1	19.6	48.6	69.3	48.9	#98.1	85.1
Internal Link Dist (m)		390.8			348.6			207.5			183.8
Turn Bay Length (m)	65.0		60.0	60.0		235.0	65.0		110.0	145.0	
Base Capacity (vph)	292	1231	525	216	1016	580	202	1343	560	361	1738
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.86	0.27	0.42	0.81	0.42	0.60	0.42	0.50	0.97	0.51

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.

HCM Signalized Intersection Capacity Analysis
1: Warden Avenue & St Clair Avenue

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	995	135	85	775	230	115	530	265	330	590	240
Future Volume (vph)	195	995	135	85	775	230	115	530	265	330	590	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0	3.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.87	1.00	1.00	0.95	1.00	1.00	0.89	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.99	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1651	3535	1304	1661	3535	1411	1607	3466	1201	1635	3320	
Flt Permitted	0.12	1.00	1.00	0.18	1.00	1.00	0.31	1.00	1.00	0.31	1.00	
Satd. Flow (perm)	208	3535	1304	315	3535	1411	522	3466	1201	526	3320	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	207	1059	144	90	824	245	122	564	282	351	628	255
RTOR Reduction (vph)	0	0	71	0	0	175	0	0	105	0	41	0
Lane Group Flow (vph)	207	1059	73	90	824	70	122	564	177	351	842	0
Confl. Peds. (#/hr)	40		115	115		40	60		95	95		60
Heavy Vehicles (%)	2%	1%	0%	1%	1%	1%	3%	3%	12%	2%	1%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	52.5	40.8	40.8	41.0	33.3	33.3	38.3	38.3	38.3	53.5	53.5	
Effective Green, g (s)	53.5	41.8	41.8	43.0	34.3	34.3	39.3	39.3	39.3	54.5	54.5	
Actuated g/C Ratio	0.45	0.35	0.35	0.36	0.29	0.29	0.33	0.33	0.33	0.45	0.45	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	7.0	7.0	7.0	4.0	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	3.0	
Lane Grp Cap (vph)	287	1231	454	210	1010	403	170	1135	393	351	1507	
v/s Ratio Prot	c0.10	c0.30		0.03	0.23			0.16		c0.10	0.25	
v/s Ratio Perm	0.22		0.06	0.12		0.05	0.23		0.15	c0.35		
v/c Ratio	0.72	0.86	0.16	0.43	0.82	0.17	0.72	0.50	0.45	1.00	0.56	
Uniform Delay, d1	24.8	36.4	27.0	26.1	39.9	32.2	35.5	32.4	31.8	29.3	24.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.6	6.3	0.2	1.4	5.2	0.2	22.8	1.6	3.7	48.0	1.5	
Delay (s)	33.4	42.7	27.2	27.5	45.1	32.4	58.3	34.0	35.5	77.4	25.5	
Level of Service	C	D	C	C	D	C	E	C	D	E	C	
Approach Delay (s)		39.8			41.0			37.5			40.2	
Approach LOS		D			D			D			D	

Intersection Summary

HCM 2000 Control Delay	39.7	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)	18.0
Intersection Capacity Utilization	115.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Warden Avenue & Warden TTC South Parking

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	70	840	15	40	770
Future Volume (Veh/h)	10	70	840	15	40	770
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)	11	76	913	16	43	837
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						232
pX, platoon unblocked	0.87					
vC, conflicting volume	1426	464			929	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1187	464			929	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	86			94	
cM capacity (veh/h)	148	544			732	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	87	609	320	322	558
Volume Left	11	0	0	43	0
Volume Right	76	0	16	0	0
cSH	407	1700	1700	732	1700
Volume to Capacity	0.21	0.36	0.19	0.06	0.33
Queue Length 95th (m)	6.4	0.0	0.0	1.5	0.0
Control Delay (s)	16.2	0.0	0.0	2.0	0.0
Lane LOS	C			A	
Approach Delay (s)	16.2	0.0		0.7	
Approach LOS	C				

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	61.0%	ICU Level of Service		B
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Warden Avenue & Woodland Acres Access Road

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	5	5	825	775	5
Future Volume (Veh/h)	5	5	5	825	775	5
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)	5	5	5	878	824	5
Pedestrians	34			31	2	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	3			3	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				244		
pX, platoon unblocked						
vC, conflicting volume	1312	480	863			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1312	480	863			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	99	99			
cM capacity (veh/h)	145	505	754			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	10	298	585	549	280
Volume Left	5	5	0	0	0
Volume Right	5	0	0	0	5
cSH	225	754	1700	1700	1700
Volume to Capacity	0.04	0.01	0.34	0.32	0.16
Queue Length 95th (m)	1.1	0.2	0.0	0.0	0.0
Control Delay (s)	21.7	0.2	0.0	0.0	0.0
Lane LOS	C	A			
Approach Delay (s)	21.7	0.1		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	42.7%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
5: Warden Avenue & Bell Estate Rd

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	835	0	0	785
Future Volume (Veh/h)	0	0	835	0	0	785
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	908	0	0	853
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			155			
pX, platoon unblocked	0.97	0.97			0.97	
vC, conflicting volume	1334	454			908	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1278	368			837	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	153	609			767	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	605	303	284	569
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	767	1700
Volume to Capacity	0.00	0.36	0.18	0.00	0.33
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	0.0	0.0		0.0	
Approach LOS	A				

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		26.4%	ICU Level of Service A
Analysis Period (min)		15	

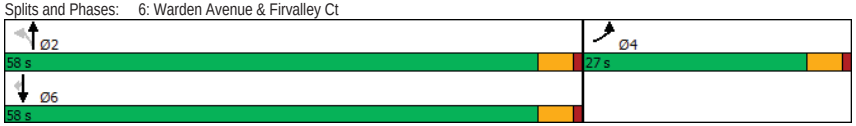
Timings
6: Warden Avenue & Firvalley Ct

06/17/2021

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	35	20	800	750	35
Future Volume (vph)	35	20	800	750	35
Turn Type	Prot	Perm	NA	NA	Perm
Protected Phases	4		2	6	
Permitted Phases		2			6
Detector Phase	4	2	2	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	27.0	58.0	58.0	58.0	58.0
Total Split (%)	31.8%	68.2%	68.2%	68.2%	68.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	Max	Max	Max	Max
Act Effct Green (s)	8.4	70.8	70.8	70.8	70.8
Actuated g/C Ratio	0.10	0.88	0.88	0.88	0.88
v/c Ratio	0.26	0.04	0.28	0.26	0.03
Control Delay	31.8	1.9	1.8	1.8	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	1.9	1.8	1.8	0.7
LOS	C	A	A	A	A
Approach Delay	31.8		1.8	1.7	
Approach LOS	C		A	A	

Intersection Summary		
Cycle Length: 85		
Actuated Cycle Length: 80.2		
Natural Cycle: 45		
Control Type: Semi Act-Uncoord		
Maximum v/c Ratio: 0.28		
Intersection Signal Delay: 2.6		Intersection LOS: A
Intersection Capacity Utilization 42.9%		ICU Level of Service A
Analysis Period (min) 15		

Splits and Phases: 6: Warden Avenue & Firvalley Ct



Queues
6: Warden Avenue & Firvalley Ct

06/17/2021

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	49	22	870	815	38
v/c Ratio	0.26	0.04	0.28	0.26	0.03
Control Delay	31.8	1.9	1.8	1.8	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	1.9	1.8	1.8	0.7
Queue Length 50th (m)	6.1	0.5	12.6	11.5	0.0
Queue Length 95th (m)	16.0	2.0	21.7	20.1	1.6
Internal Link Dist (m)	72.7		123.4	130.6	
Turn Bay Length (m)		40.0			20.0
Base Capacity (vph)	501	525	3089	3089	1309
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.04	0.28	0.26	0.03

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Warden Avenue & Firvalley Ct

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	35	10	20	800	750	35
Future Volume (vph)	35	10	20	800	750	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.0	3.5	3.5	3.0
Total Lost time (s)	3.5		3.5	3.5	3.5	3.5
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frpb, ped/bikes	0.97		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	0.96		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1676		1652	3500	3500	1478
Flt Permitted	0.96		0.34	1.00	1.00	1.00
Satd. Flow (perm)	1676		594	3500	3500	1478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	11	22	870	815	38
RTOR Reduction (vph)	10	0	0	0	0	6
Lane Group Flow (vph)	39	0	22	870	815	32
Confl. Peds. (#/hr)	19	76				
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	4.9		68.2	68.2	68.2	68.2
Effective Green, g (s)	5.9		69.2	69.2	69.2	69.2
Actuated g/C Ratio	0.07		0.84	0.84	0.84	0.84
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	120		500	2950	2950	1245
v/s Ratio Prot	c0.02			c0.25	0.23	
v/s Ratio Perm			0.04			0.02
v/c Ratio	0.32		0.04	0.29	0.28	0.03
Uniform Delay, d1	36.2		1.1	1.3	1.3	1.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6		0.2	0.3	0.2	0.0
Delay (s)	37.8		1.2	1.6	1.6	1.1
Level of Service	D		A	A	A	A
Approach Delay (s)	37.8			1.6	1.5	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	2.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	82.1	Sum of lost time (s)	7.0
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
7: Warden Avenue & Cataraqui Cr

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	20	15	815	750	10
Future Volume (Veh/h)	5	20	15	815	750	10
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)	5	22	16	886	815	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)					148	
pX, platoon unblocked	0.97	0.97	0.97			
vC, conflicting volume	1290	408	826			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1245	339	769			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	97	98			
cM capacity (veh/h)	159	640	820			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	27	311	591	408	408	11
Volume Left	5	16	0	0	0	0
Volume Right	22	0	0	0	0	11
cSH	410	820	1700	1700	1700	1700
Volume to Capacity	0.07	0.02	0.35	0.24	0.24	0.01
Queue Length 95th (m)	1.7	0.5	0.0	0.0	0.0	0.0
Control Delay (s)	14.4	0.7	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	14.4	0.2		0.0		
Approach LOS	B					

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	43.2%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
8: Warden Avenue & Bamblett Dr

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	30	800	20	50	720
Future Volume (Veh/h)	15	30	800	20	50	720
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)	16	33	870	22	54	783
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						276
pX, platoon unblocked						
vC, conflicting volume	1380	446			892	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1380	446			892	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	94			93	
cM capacity (veh/h)	126	560			756	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	49	580	312	54	392	392
Volume Left	16	0	0	54	0	0
Volume Right	33	0	22	0	0	0
cSH	263	1700	1700	756	1700	1700
Volume to Capacity	0.19	0.34	0.18	0.07	0.23	0.23
Queue Length 95th (m)	5.4	0.0	0.0	1.8	0.0	0.0
Control Delay (s)	21.8	0.0	0.0	10.1	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	21.8	0.0		0.7		
Approach LOS	C					

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	39.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
9: Warden Avenue & Burnhill Rd/Mack Ave

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	10	15	5	10	15	20	785	10	10	695	30
Future Volume (Veh/h)	20	10	15	5	10	15	20	785	10	10	695	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	11	16	5	11	16	22	853	11	11	755	33
Pedestrians		18			23			73			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			2			6			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								272				
pX, platoon unblocked	0.94	0.94		0.94	0.94	0.94				0.94		
vC, conflicting volume	1318	1742	485	1420	1754	470	806			887		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1215	1665	485	1322	1677	314	806			757		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	79	87	97	94	87	97	97			99		
cM capacity (veh/h)	104	84	490	82	82	623	803			786		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	49	32	448	438	388	410
Volume Left	22	5	22	0	11	0
Volume Right	16	16	0	11	0	33
cSH	130	145	803	1700	786	1700
Volume to Capacity	0.38	0.22	0.03	0.26	0.01	0.24
Queue Length 95th (m)	12.5	6.4	0.7	0.0	0.3	0.0
Control Delay (s)	48.3	36.7	0.8	0.0	0.4	0.0
Lane LOS	E	E	A		A	
Approach Delay (s)	48.3	36.7	0.4		0.2	
Approach LOS	E	E				

Intersection Summary				
Average Delay		2.3		
Intersection Capacity Utilization		55.9%	ICU Level of Service	B
Analysis Period (min)		15		

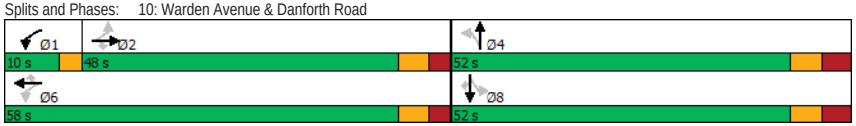
Timings
10: Warden Avenue & Danforth Road

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	235	605	35	200	350	90	15	490	85	455	175
Future Volume (vph)	235	605	35	200	350	90	15	490	85	455	175
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases		2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Detector Phase	2	2	2	1	6	6	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	33.0	33.0	33.0	6.0	33.0	33.0	41.0	41.0	41.0	41.0	41.0
Minimum Split (s)	40.0	40.0	40.0	9.0	40.0	40.0	49.0	49.0	49.0	49.0	49.0
Total Split (s)	48.0	48.0	48.0	10.0	58.0	58.0	52.0	52.0	52.0	52.0	52.0
Total Split (%)	43.6%	43.6%	43.6%	9.1%	52.7%	52.7%	47.3%	47.3%	47.3%	47.3%	47.3%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	0.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	2.0	6.0	6.0		7.0		7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes							
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	37.6	37.6	37.6	51.7	47.6	47.6		42.6		42.6	42.6
Actuated g/C Ratio	0.36	0.36	0.36	0.50	0.46	0.46		0.41		0.41	0.41
v/c Ratio	0.78	0.52	0.07	0.65	0.24	0.14		0.61		0.67	0.30
Control Delay	47.0	27.3	0.7	25.6	17.2	3.7		23.8		29.9	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	47.0	27.3	0.7	25.6	17.2	3.7		23.8		29.9	13.7
LOS	D	C	A	C	B	A		C		C	B
Approach Delay		31.6			17.9			23.8		25.9	
Approach LOS		C			B			C		C	

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 103.3			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 25.3		Intersection LOS: C	
Intersection Capacity Utilization 145.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 10: Warden Avenue & Danforth Road



Queues
10: Warden Avenue & Danforth Road

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	255	658	38	217	380	98	810	587	190
v/c Ratio	0.78	0.52	0.07	0.65	0.24	0.14	0.61	0.67	0.30
Control Delay	47.0	27.3	0.7	25.6	17.2	3.7	23.8	29.9	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	27.3	0.7	25.6	17.2	3.7	23.8	29.9	13.7
Queue Length 50th (m)	46.7	55.8	0.0	25.0	24.4	0.0	60.5	51.0	14.6
Queue Length 95th (m)	#90.9	76.3	1.0	42.4	36.1	9.0	87.8	77.7	33.3
Internal Link Dist (m)		140.6			880.1		308.1	248.6	
Turn Bay Length (m)	50.0		30.0	50.0		30.0			10.0
Base Capacity (vph)	367	1425	629	335	1764	767	1396	921	673
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.46	0.06	0.65	0.22	0.13	0.58	0.64	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
10: Warden Avenue & Danforth Road

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	605	35	200	350	90	15	490	240	85	455	175
Future Volume (vph)	235	605	35	200	350	90	15	490	240	85	455	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.0	6.0	6.0	2.0	6.0	6.0		7.0			7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97		0.99			1.00	0.98
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.95			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00			0.99	1.00
Satd. Flow (prot)	1630	3500	1433	1649	3500	1427		3298			3470	1445
Flt Permitted	0.53	1.00	1.00	0.28	1.00	1.00		0.94			0.60	1.00
Satd. Flow (perm)	903	3500	1433	493	3500	1427		3088			2114	1445
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)	255	658	38	217	380	98	16	533	261	92	495	190
RTOR Reduction (vph)	0	0	24	0	0	53	0	52	0	0	0	45
Lane Group Flow (vph)	255	658	14	217	380	45	0	758	0	0	587	145
Confl. Peds. (#/hr)	24		20	20		24	14		20	20		14
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2		2	6		6	4			8		8
Actuated Green, G (s)	36.7	36.7	36.7	46.7	46.7	46.7		41.6			41.6	41.6
Effective Green, g (s)	37.7	37.7	37.7	47.7	47.7	47.7		42.6			42.6	42.6
Actuated g/C Ratio	0.36	0.36	0.36	0.46	0.46	0.46		0.41			0.41	0.41
Clearance Time (s)	7.0	7.0	7.0	3.0	7.0	7.0		8.0			8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	329	1277	522	317	1616	658		1273			871	595
v/s Ratio Prot		0.19		c0.05	0.11							
v/s Ratio Perm	c0.28		0.01	0.26		0.03		0.25			c0.28	0.10
v/c Ratio	0.78	0.52	0.03	0.68	0.24	0.07		0.60			0.67	0.24
Uniform Delay, d1	29.0	25.7	21.0	18.7	16.8	15.5		23.6			24.7	19.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	10.9	0.4	0.0	6.0	0.1	0.0		0.8			2.1	0.2
Delay (s)	39.9	26.0	21.1	24.7	16.9	15.5		24.4			26.8	20.0
Level of Service	D	C	C	C	B	B		C			C	C
Approach Delay (s)		29.5			19.1			24.4			25.1	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	24.9	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.71				
Actuated Cycle Length (s)	103.3	Sum of lost time (s)		15.0	
Intersection Capacity Utilization	145.0%	ICU Level of Service		H	
Analysis Period (min)	15				

c Critical Lane Group

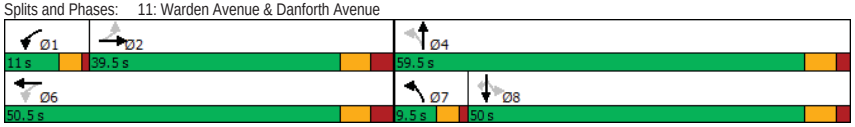
Timings
11: Warden Avenue & Danforth Avenue

06/17/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	20	655	170	320	70	665	45	595	50
Future Volume (vph)	20	655	170	320	70	665	45	595	50
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		2	1	6	7	4		8	
Permitted Phases	2		6		4		8		8
Detector Phase	2	2	1	6	7	4	8	8	8
Switch Phase									
Minimum Initial (s)	30.0	30.0	6.0	30.0	5.0	25.0	25.0	25.0	25.0
Minimum Split (s)	37.0	37.0	10.0	37.0	9.5	31.0	31.0	31.0	31.0
Total Split (s)	39.5	39.5	11.0	50.5	9.5	59.5	50.0	50.0	50.0
Total Split (%)	35.9%	35.9%	10.0%	45.9%	8.6%	54.1%	45.5%	45.5%	45.5%
Yellow Time (s)	4.0	4.0	3.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	1.0	3.0	1.0	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)		6.0	3.0	6.0	3.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead		Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)		33.0	47.2	44.2	49.1	47.1	39.8	39.8	39.8
Actuated g/C Ratio		0.32	0.46	0.43	0.48	0.46	0.39	0.39	0.39
v/c Ratio		0.83	0.82	0.53	0.44	0.61	0.31	0.90	0.09
Control Delay		41.0	50.8	26.0	21.7	20.8	28.5	47.2	0.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		41.0	50.8	26.0	21.7	20.8	28.5	47.2	0.3
LOS		D	D	C	C	C	C	D	A
Approach Delay		41.0		33.6		20.9		42.6	
Approach LOS		D		C		C		D	

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 102.4			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 33.6		Intersection LOS: C	
Intersection Capacity Utilization 114.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 11: Warden Avenue & Danforth Avenue



Queues
11: Warden Avenue & Danforth Avenue

06/17/2021

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	854	185	413	76	957	49	647	54
v/c Ratio	0.83	0.82	0.53	0.44	0.61	0.31	0.90	0.09
Control Delay	41.0	50.8	26.0	21.7	20.8	28.5	47.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	50.8	26.0	21.7	20.8	28.5	47.2	0.3
Queue Length 50th (m)	94.2	26.2	69.1	8.4	72.5	7.3	130.8	0.0
Queue Length 95th (m)	#129.2	#62.5	101.2	16.4	92.5	18.3	#198.1	0.0
Internal Link Dist (m)	45.9		64.5		51.7		308.1	
Turn Bay Length (m)				45.0		40.0		
Base Capacity (vph)	1067	225	796	173	1830	182	822	686
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.82	0.52	0.44	0.52	0.27	0.79	0.08

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
11: Warden Avenue & Danforth Avenue

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	655	110	170	320	60	70	665	215	45	595	50
Future Volume (vph)	20	655	110	170	320	60	70	665	215	45	595	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)		6.0		3.0	6.0		3.0	5.0		5.0	5.0	5.0
Lane Util. Factor		0.95		1.00	1.00		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes		0.99		1.00	1.00		1.00	0.99		1.00	1.00	0.94
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.99	1.00	1.00
Frt		0.98		1.00	0.98		1.00	0.96		1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3393		1650	1791		1652	3342		1643	1842	1394
Flt Permitted		0.93		0.14	1.00		0.09	1.00		0.24	1.00	1.00
Satd. Flow (perm)		3175		250	1791		162	3342		411	1842	1394
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)	22	712	120	185	348	65	76	723	234	49	647	54
RTOR Reduction (vph)	0	12	0	0	6	0	0	30	0	0	0	33
Lane Group Flow (vph)	0	842	0	185	407	0	76	927	0	49	647	21
Confl. Peds. (#/hr)	16		22	22		16	18		20	20		18
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		2		1	6		7	4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)		32.0		43.1	43.1		47.0	47.0		38.8	38.8	38.8
Effective Green, g (s)		33.0		44.1	44.1		48.0	48.0		39.8	39.8	39.8
Actuated g/C Ratio		0.32		0.43	0.43		0.47	0.47		0.39	0.39	0.39
Clearance Time (s)		7.0		4.0	7.0		4.0	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)		1016		216	766		150	1555		158	711	538
v/s Ratio Prot				c0.07	0.23		0.03	c0.28			c0.35	
v/s Ratio Perm		0.27		c0.30			0.21			0.12		0.01
v/c Ratio		0.83		0.86	0.53		0.51	0.60		0.31	0.91	0.04
Uniform Delay, d1		32.4		22.0	21.9		21.5	20.4		22.1	30.0	19.7
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		5.7		26.7	0.7		2.7	0.6		1.1	15.5	0.0
Delay (s)		38.1		48.7	22.6		24.2	21.0		23.2	45.5	19.8
Level of Service		D		D	C		C	C		C	D	B
Approach Delay (s)		38.1			30.6			21.2			42.2	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	103.1	Sum of lost time (s)	17.0
Intersection Capacity Utilization	114.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

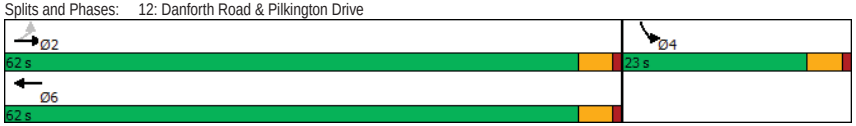
Timings
12: Danforth Road & Pilkington Drive

06/17/2021

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	5	880	605	25
Future Volume (vph)	5	880	605	25
Turn Type	Perm	NA	NA	Prot
Protected Phases		2	6	4
Permitted Phases	2			
Detector Phase	2	2	6	4
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	62.0	62.0	62.0	23.0
Total Split (%)	72.9%	72.9%	72.9%	27.1%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		-1.0	-1.0	-1.0
Total Lost Time (s)		3.5	3.5	3.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	None
Act Effct Green (s)		75.4	75.4	8.0
Actuated g/C Ratio		0.89	0.89	0.09
v/c Ratio		0.32	0.23	0.22
Control Delay		1.8	1.5	32.0
Queue Delay		0.0	0.0	0.0
Total Delay		1.8	1.5	32.0
LOS		A	A	C
Approach Delay		1.8	1.5	32.0
Approach LOS		A	A	C

Intersection Summary			
Cycle Length: 85			
Actuated Cycle Length: 84.5			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.32			
Intersection Signal Delay: 2.3		Intersection LOS: A	
Intersection Capacity Utilization 39.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 12: Danforth Road & Pilkington Drive



Queues
12: Danforth Road & Pilkington Drive

06/17/2021

Lane Group	EBT	WBT	SBL
Lane Group Flow (vph)	962	712	38
v/c Ratio	0.32	0.23	0.22
Control Delay	1.8	1.5	32.0
Queue Delay	0.0	0.0	0.0
Total Delay	1.8	1.5	32.0
Queue Length 50th (m)	13.8	8.8	4.6
Queue Length 95th (m)	23.8	15.6	14.1
Internal Link Dist (m)	880.1	57.7	74.2
Turn Bay Length (m)			
Base Capacity (vph)	2976	3079	403
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.32	0.23	0.09

Intersection Summary

HCM Signalized Intersection Capacity Analysis
12: Danforth Road & Pilkington Drive

06/17/2021

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	880	605	50	25	10
Future Volume (vph)	5	880	605	50	25	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.5		3.5	
Lane Util. Factor		0.95	0.95		1.00	
Frpb, ped/bikes		1.00	1.00		1.00	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.99		0.96	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		3499	3446		1701	
Flt Permitted		0.95	1.00		0.97	
Satd. Flow (perm)		3334	3446		1701	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	957	658	54	27	11
RTOR Reduction (vph)	0	0	3	0	10	0
Lane Group Flow (vph)	0	962	709	0	28	0
Confl. Peds. (#/hr)	14			14	38	3
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)		72.9	72.9		4.6	
Effective Green, g (s)		73.9	73.9		5.6	
Actuated g/C Ratio		0.85	0.85		0.06	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		2848	2944		110	
v/s Ratio Prot			0.21		c0.02	
v/s Ratio Perm		c0.29				
v/c Ratio		0.34	0.24		0.25	
Uniform Delay, d1		1.3	1.2		38.5	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.3	0.2		1.2	
Delay (s)		1.6	1.3		39.7	
Level of Service		A	A		D	
Approach Delay (s)		1.6	1.3		39.7	
Approach LOS		A	A		D	

Intersection Summary				
HCM 2000 Control Delay	2.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	86.5	Sum of lost time (s)	7.0
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

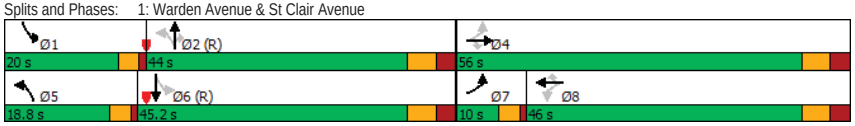
Timings
1: Warden Avenue & St Clair Avenue

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	130	750	95	65	1015	325	225	830	290	245	400
Future Volume (vph)	130	750	95	65	1015	325	225	830	290	245	400
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4			8		5	2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	7	4	4	8	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	6.0	33.0	33.0	33.0	33.0	33.0	5.0	35.0	35.0	6.0	35.0
Minimum Split (s)	10.0	40.0	40.0	40.0	40.0	40.0	9.5	42.0	42.0	10.0	42.0
Total Split (s)	10.0	56.0	56.0	46.0	46.0	46.0	18.8	44.0	44.0	20.0	45.2
Total Split (%)	8.3%	46.7%	46.7%	38.3%	38.3%	38.3%	15.7%	36.7%	36.7%	16.7%	37.7%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0	3.0	1.0	3.0	3.0	1.0	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	-1.0
Total Lost Time (s)	3.0	6.0	6.0	6.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	Min	Min	Min	Min	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	53.5	50.5	50.5	39.7	39.7	39.7	55.6	37.9	37.9	59.3	39.8
Actuated g/C Ratio	0.45	0.42	0.42	0.33	0.33	0.33	0.46	0.32	0.32	0.49	0.33
v/c Ratio	0.84	0.55	0.17	0.40	0.93	0.53	0.65	0.81	0.71	0.90	0.60
Control Delay	61.7	28.1	4.9	39.6	54.0	8.5	26.3	44.6	33.1	60.9	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.7	28.1	4.9	39.6	54.0	8.5	26.3	44.6	33.1	60.9	31.4
LOS	E	C	A	D	D	A	C	D	C	E	C
Approach Delay		30.3			42.8			39.1			39.8
Approach LOS		C			D			D			D

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: 105		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.93		
Intersection Signal Delay: 38.5	Intersection LOS: D	
Intersection Capacity Utilization 116.1%	ICU Level of Service H	
Analysis Period (min) 15		

Splits and Phases: 1: Warden Avenue & St Clair Avenue



Queues
1: Warden Avenue & St Clair Avenue

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	138	798	101	69	1080	346	239	883	309	261	655
v/c Ratio	0.84	0.55	0.17	0.40	0.93	0.53	0.65	0.81	0.71	0.90	0.60
Control Delay	61.7	28.1	4.9	39.6	54.0	8.5	26.3	44.6	33.1	60.9	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.7	28.1	4.9	39.6	54.0	8.5	26.3	44.6	33.1	60.9	31.4
Queue Length 50th (m)	20.4	77.7	0.0	13.1	135.3	7.3	32.9	105.4	44.3	44.7	62.0
Queue Length 95th (m)	#57.5	98.0	10.8	28.6	#177.7	33.6	50.4	131.4	80.7	#94.6	82.4
Internal Link Dist (m)		390.8			348.6			183.7			66.3
Turn Bay Length (m)	65.0		60.0	60.0		235.0	65.0		110.0	145.0	
Base Capacity (vph)	165	1443	602	172	1166	660	383	1106	440	294	1101
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.55	0.17	0.40	0.93	0.52	0.62	0.80	0.70	0.89	0.59

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: Warden Avenue & St Clair Avenue

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	750	95	65	1015	325	225	830	290	245	400	215
Future Volume (vph)	130	750	95	65	1015	325	225	830	290	245	400	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	6.0	6.0	6.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.88	1.00	1.00	0.94	1.00	1.00	0.90	1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.96	1.00	1.00	0.99	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1620	3433	1294	1578	3500	1375	1643	3466	1146	1572	3128	
Flt Permitted	0.09	1.00	1.00	0.31	1.00	1.00	0.28	1.00	1.00	0.12	1.00	
Satd. Flow (perm)	160	3433	1294	518	3500	1375	493	3466	1146	205	3128	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	138	798	101	69	1080	346	239	883	309	261	426	229
RTOR Reduction (vph)	0	0	58	0	0	203	0	0	75	0	59	0
Lane Group Flow (vph)	138	798	43	69	1080	143	239	883	234	261	596	0
Confl. Peds. (#/hr)	45		105	105		45	60		90	90		60
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	3%	18%	7%	4%	8%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	49.5	49.5	49.5	38.7	38.7	38.7	50.6	36.9	36.9	54.4	38.8	
Effective Green, g (s)	50.5	50.5	50.5	39.7	39.7	39.7	52.6	37.9	37.9	56.4	39.8	
Actuated g/C Ratio	0.42	0.42	0.42	0.33	0.33	0.33	0.44	0.32	0.32	0.47	0.33	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	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	3.0	
Lane Grp Cap (vph)	162	1444	544	171	1157	454	356	1094	361	285	1037	
v/s Ratio Prot	c0.06	0.23			c0.31		0.08	0.25		c0.13	0.19	
v/s Ratio Perm	0.30		0.03	0.13		0.10	0.21		0.20	c0.30		
v/c Ratio	0.85	0.55	0.08	0.40	0.93	0.32	0.67	0.81	0.65	0.92	0.57	
Uniform Delay, d1	27.9	26.2	20.8	31.0	38.9	30.0	22.9	37.7	35.3	30.3	33.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	32.6	0.5	0.1	1.6	13.4	0.4	4.9	6.4	8.7	31.9	2.3	
Delay (s)	60.5	26.7	20.9	32.6	52.3	30.4	27.8	44.1	44.1	62.2	35.4	
Level of Service	E	C	C	C	D	C	C	D	D	E	D	
Approach Delay (s)		30.6			46.3			41.4			43.1	
Approach LOS		C			D			D			D	

Intersection Summary				
HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	116.1%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
2: Warden Avenue & Warden TTC South Parking

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	30	1315	15	45	515
Future Volume (Veh/h)	5	30	1315	15	45	515
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)	5	33	1429	16	49	560
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						208
pX, platoon unblocked	0.97					
vC, conflicting volume	1815	722			1445	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1778	722			1445	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	91			89	
cM capacity (veh/h)	64	369			465	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	38	953	492	236	373
Volume Left	5	0	0	49	0
Volume Right	33	0	16	0	0
cSH	226	1700	1700	465	1700
Volume to Capacity	0.17	0.56	0.29	0.11	0.22
Queue Length 95th (m)	4.7	0.0	0.0	2.8	0.0
Control Delay (s)	24.1	0.0	0.0	4.1	0.0
Lane LOS	C			A	
Approach Delay (s)	24.1	0.0		1.6	
Approach LOS	C				

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	58.8%	ICU Level of Service	B	
Analysis Period (min)	15			

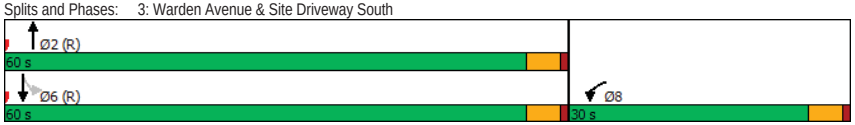
Timings
3: Warden Avenue & Site Driveway South

06/17/2021

Lane Group	WBL	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	80	1160	25	495
Future Volume (vph)	80	1160	25	495
Turn Type	Prot	NA	Perm	NA
Protected Phases	8	2		6
Permitted Phases			6	
Detector Phase	8	2	6	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	30.0	60.0	60.0	60.0
Total Split (%)	33.3%	66.7%	66.7%	66.7%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0
Total Lost Time (s)	3.5	3.5		3.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	C-Max	C-Max	C-Max
Act Effct Green (s)	12.6	70.4		70.4
Actuated g/C Ratio	0.14	0.78		0.78
v/c Ratio	0.59	0.47		0.24
Control Delay	32.6	4.5		3.3
Queue Delay	0.0	0.0		0.0
Total Delay	32.6	4.5		3.3
LOS	C	A		A
Approach Delay	32.6	4.5		3.3
Approach LOS	C	A		A

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 6.5	Intersection LOS: A
Intersection Capacity Utilization 48.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Warden Avenue & Site Driveway South



Queues
3: Warden Avenue & Site Driveway South

06/17/2021

Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	169	1283	565
v/c Ratio	0.59	0.47	0.24
Control Delay	32.6	4.5	3.3
Queue Delay	0.0	0.0	0.0
Total Delay	32.6	4.5	3.3
Queue Length 50th (m)	19.8	32.2	11.0
Queue Length 95th (m)	37.7	58.3	21.6
Internal Link Dist (m)	74.6	34.8	38.4
Turn Bay Length (m)			
Base Capacity (vph)	541	2731	2362
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.31	0.47	0.24

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3: Warden Avenue & Site Driveway South

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	80	75	1160	20	25	495
Future Volume (vph)	80	75	1160	20	25	495
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5		3.5			3.5
Lane Util. Factor	1.00		0.95			0.95
Frt	0.93		1.00			1.00
Flt Protected	0.97		1.00			1.00
Satd. Flow (prot)	1712		3492			3495
Flt Permitted	0.97		1.00			0.86
Satd. Flow (perm)	1712		3492			3019
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	82	1261	22	27	538
RTOR Reduction (vph)	46	0	1	0	0	0
Lane Group Flow (vph)	123	0	1282	0	0	565
Heavy Vehicles (%)	0%	0%	2%	0%	0%	2%
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	11.6		69.4			69.4
Effective Green, g (s)	12.6		70.4			70.4
Actuated g/C Ratio	0.14		0.78			0.78
Clearance Time (s)	4.5		4.5			4.5
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	239		2731			2361
v/s Ratio Prot	c0.07		c0.37			
v/s Ratio Perm						0.19
v/c Ratio	0.52		0.47			0.24
Uniform Delay, d1	35.9		3.4			2.6
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	1.9		0.6			0.2
Delay (s)	37.8		4.0			2.9
Level of Service	D		A			A
Approach Delay (s)	37.8		4.0			2.9
Approach LOS	D		A			A

Intersection Summary				
HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	48.4%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
4: Warden Avenue & Woodland Acres Access Road

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	0	0	1175	575	0
Future Volume (Veh/h)	5	0	0	1175	575	0
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	0	1237	605	0
Pedestrians	22			23	2	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	2			2	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				244	59	
pX, platoon unblocked	0.97	0.97	0.97			
vC, conflicting volume	1248	348	627			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1045	254	544			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	214	694	969			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	5	412	825	403	202
Volume Left	5	0	0	0	0
Volume Right	0	0	0	0	0
cSH	214	969	1700	1700	1700
Volume to Capacity	0.02	0.00	0.49	0.24	0.12
Queue Length 95th (m)	0.6	0.0	0.0	0.0	0.0
Control Delay (s)	22.2	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	22.2	0.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
5: Warden Avenue & Bell Estate Rd

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	1175	0	0	570
Future Volume (Veh/h)	0	0	1175	0	0	570
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1277	0	0	620
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			155			148
pX, platoon unblocked	0.94	0.93			0.93	
vC, conflicting volume	1587	638			1277	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1435	464			1149	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	117	508			562	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	851	426	207	413
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	562	1700
Volume to Capacity	0.00	0.50	0.25	0.00	0.24
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	0.0	0.0		0.0	
Approach LOS	A				

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		35.8%	ICU Level of Service A
Analysis Period (min)		15	

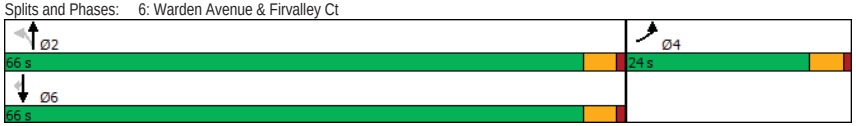
Timings
6: Warden Avenue & Firvalley Ct

06/17/2021

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	15	15	1165	560	15
Future Volume (vph)	15	15	1165	560	15
Turn Type	Prot	Perm	NA	NA	Perm
Protected Phases	4		2	6	
Permitted Phases		2			6
Detector Phase	4	2	2	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	24.0	66.0	66.0	66.0	66.0
Total Split (%)	26.7%	73.3%	73.3%	73.3%	73.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	Max	Max	Max	Max
Act Effct Green (s)	7.7	80.1	80.1	80.1	80.1
Actuated g/C Ratio	0.09	0.93	0.93	0.93	0.93
v/c Ratio	0.20	0.02	0.39	0.19	0.01
Control Delay	27.8	1.3	1.5	1.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	1.3	1.5	1.0	0.7
LOS	C	A	A	A	A
Approach Delay	27.8		1.5	1.0	
Approach LOS	C		A	A	

Intersection Summary		
Cycle Length: 90		
Actuated Cycle Length: 86.1		
Natural Cycle: 50		
Control Type: Semi Act-Uncoord		
Maximum v/c Ratio: 0.39		
Intersection Signal Delay: 1.8		Intersection LOS: A
Intersection Capacity Utilization 49.9%		ICU Level of Service A
Analysis Period (min) 15		

Splits and Phases: 6: Warden Avenue & Firvalley Ct



Queues
6: Warden Avenue & Firvalley Ct

06/17/2021

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	32	16	1266	609	16
v/c Ratio	0.20	0.02	0.39	0.19	0.01
Control Delay	27.8	1.3	1.5	1.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	1.3	1.5	1.0	0.7
Queue Length 50th (m)	2.4	0.0	0.0	0.0	0.0
Queue Length 95th (m)	11.6	1.4	32.4	12.7	0.9
Internal Link Dist (m)	72.7		123.4	130.6	
Turn Bay Length (m)		40.0			20.0
Base Capacity (vph)	402	681	3258	3258	1377
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.02	0.39	0.19	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Warden Avenue & Firvalley Ct

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	15	15	1165	560	15
Future Volume (vph)	15	15	15	1165	560	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.0	3.5	3.5	3.0
Total Lost time (s)	3.5		3.5	3.5	3.5	3.5
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frpb, ped/bikes	0.97		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.93		1.00	1.00	1.00	0.85
Flt Protected	0.98		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1629		1652	3500	3500	1478
Flt Permitted	0.98		0.42	1.00	1.00	1.00
Satd. Flow (perm)	1629		733	3500	3500	1478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	16	16	1266	609	16
RTOR Reduction (vph)	15	0	0	0	0	2
Lane Group Flow (vph)	17	0	16	1266	609	14
Confl. Peds. (#/hr)	20	30				
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	3.0		76.9	76.9	76.9	76.9
Effective Green, g (s)	4.0		77.9	77.9	77.9	77.9
Actuated g/C Ratio	0.04		0.88	0.88	0.88	0.88
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	73		642	3066	3066	1295
v/s Ratio Prot	c0.01			c0.36	0.17	
v/s Ratio Perm			0.02			0.01
v/c Ratio	0.23		0.02	0.41	0.20	0.01
Uniform Delay, d1	41.0		0.7	1.1	0.8	0.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6		0.1	0.4	0.1	0.0
Delay (s)	42.6		0.8	1.5	1.0	0.7
Level of Service	D		A	A	A	A
Approach Delay (s)	42.6			1.5	1.0	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	2.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	88.9	Sum of lost time (s)	7.0
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
7: Warden Avenue & Cataraqui Cr

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	25	15	1175	575	0
Future Volume (Veh/h)	15	25	15	1175	575	0
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)	16	27	16	1277	625	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					148	
pX, platoon unblocked						
vC, conflicting volume	1296	312	625			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1296	312	625			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	96	98			
cM capacity (veh/h)	151	683	952			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	43	442	851	312	312	0
Volume Left	16	16	0	0	0	0
Volume Right	27	0	0	0	0	0
cSH	296	952	1700	1700	1700	1700
Volume to Capacity	0.15	0.02	0.50	0.18	0.18	0.00
Queue Length 95th (m)	4.0	0.4	0.0	0.0	0.0	0.0
Control Delay (s)	19.2	0.5	0.0	0.0	0.0	0.0
Lane LOS	C	A				
Approach Delay (s)	19.2	0.2		0.0		
Approach LOS	C					

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	53.1%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
8: Warden Avenue & Bamblett Dr

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	75	1115	30	30	570
Future Volume (Veh/h)	40	75	1115	30	30	570
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)	43	82	1212	33	33	620
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						276
pX, platoon unblocked						
vC, conflicting volume	1604	622			1245	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1604	622			1245	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	52	81			94	
cM capacity (veh/h)	90	429			555	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	125	808	437	33	310	310
Volume Left	43	0	0	33	0	0
Volume Right	82	0	33	0	0	0
cSH	187	1700	1700	555	1700	1700
Volume to Capacity	0.67	0.48	0.26	0.06	0.18	0.18
Queue Length 95th (m)	31.8	0.0	0.0	1.5	0.0	0.0
Control Delay (s)	55.9	0.0	0.0	11.9	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	55.9	0.0		0.6		
Approach LOS	F					

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	45.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
9: Warden Avenue & Burnhill Rd/Mack Ave

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	15	15	5	10	10	10	1105	5	5	595	10
Future Volume (Veh/h)	30	15	15	5	10	10	10	1105	5	5	595	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	16	16	5	11	11	11	1201	5	5	647	11
Pedestrians		25			104			43			29	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		2			8			3			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								272				
pX, platoon unblocked	0.77	0.77		0.77	0.77	0.77				0.77		
vC, conflicting volume	1356	2020	397	1730	2022	736	683			1310		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	853	1720	397	1342	1724	44	683			794		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	77	73	97	90	81	98	99			99		
cM capacity (veh/h)	142	60	570	53	59	696	888			577		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	65	27	612	606	328	334
Volume Left	33	5	11	0	5	0
Volume Right	16	11	0	5	0	11
cSH	123	91	888	1700	577	1700
Volume to Capacity	0.53	0.30	0.01	0.36	0.01	0.20
Queue Length 95th (m)	20.0	8.9	0.3	0.0	0.2	0.0
Control Delay (s)	63.2	60.4	0.3	0.0	0.3	0.0
Lane LOS	F	F	A		A	
Approach Delay (s)	63.2	60.4	0.2		0.1	
Approach LOS	F	F				

Intersection Summary					
Average Delay		3.1			
Intersection Capacity Utilization		56.5%	ICU Level of Service		B
Analysis Period (min)		15			

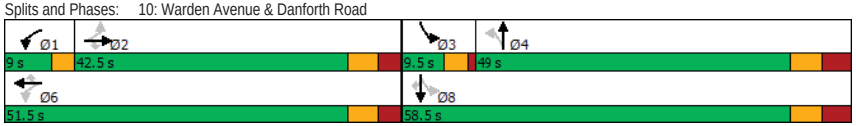
Timings
10: Warden Avenue & Danforth Road

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	165	275	25	235	535	120	10	835	60	380	175
Future Volume (vph)	165	275	25	235	535	120	10	835	60	380	175
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	pm+pt	NA	Perm
Protected Phases		2		1	6			4	3	8	
Permitted Phases	2		2	6		6	4		8		8
Detector Phase	2	2	2	1	6	6	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	33.0	33.0	33.0	6.0	33.0	33.0	41.0	41.0	5.0	41.0	41.0
Minimum Split (s)	40.0	40.0	40.0	9.0	40.0	40.0	49.0	49.0	9.5	49.0	49.0
Total Split (s)	42.5	42.5	42.5	9.0	51.5	51.5	49.0	49.0	9.5	58.5	58.5
Total Split (%)	38.6%	38.6%	38.6%	8.2%	46.8%	46.8%	44.5%	44.5%	8.6%	53.2%	53.2%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	0.0	3.0	3.0	4.0	4.0	1.0	4.0	4.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	2.0	6.0	6.0		7.0		7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	34.9	34.9	34.9	47.9	43.9	43.9		42.0		42.0	42.0
Actuated g/C Ratio	0.35	0.35	0.35	0.48	0.44	0.44		0.42		0.42	0.42
v/c Ratio	0.68	0.24	0.05	0.51	0.37	0.19		0.79		0.54	0.28
Control Delay	42.4	23.2	0.2	20.1	19.2	4.9		29.3		24.3	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	42.4	23.2	0.2	20.1	19.2	4.9		29.3		24.3	9.9
LOS	D	C	A	C	B	A		C		C	A
Approach Delay		28.8			17.5			29.3		20.2	
Approach LOS		C			B			C		C	

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 98.9			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 23.8		Intersection LOS: C	
Intersection Capacity Utilization 127.7%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 10: Warden Avenue & Danforth Road



Queues
10: Warden Avenue & Danforth Road

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	179	299	27	255	582	130	1093	478	190
v/c Ratio	0.68	0.24	0.05	0.51	0.37	0.19	0.79	0.54	0.28
Control Delay	42.4	23.2	0.2	20.1	19.2	4.9	29.3	24.3	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	23.2	0.2	20.1	19.2	4.9	29.3	24.3	9.9
Queue Length 50th (m)	30.4	22.1	0.0	30.2	40.0	1.9	94.4	36.3	10.2
Queue Length 95th (m)	#62.0	32.5	0.0	47.9	53.5	12.4	127.0	54.8	26.0
Internal Link Dist (m)		140.6			878.4		309.6	248.6	
Turn Bay Length (m)	50.0		30.0	50.0		30.0			10.0
Base Capacity (vph)	275	1291	609	500	1610	720	1384	1078	799
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.23	0.04	0.51	0.36	0.18	0.79	0.44	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
10: Warden Avenue & Danforth Road

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	275	25	235	535	120	10	835	160	60	380	175
Future Volume (vph)	165	275	25	235	535	120	10	835	160	60	380	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.0	6.0	6.0	2.0	6.0	6.0		7.0			7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.97		1.00			1.00	0.98
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.98			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00			0.99	1.00
Satd. Flow (prot)	1639	3500	1450	1648	3500	1435		3406			3476	1441
Flt Permitted	0.43	1.00	1.00	0.54	1.00	1.00		0.95			0.59	1.00
Satd. Flow (perm)	746	3500	1450	930	3500	1435		3230			2071	1441
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)	179	299	27	255	582	130	11	908	174	65	413	190
RTOR Reduction (vph)	0	0	17	0	0	63	0	13	0	0	0	60
Lane Group Flow (vph)	179	299	10	255	582	67	0	1080	0	0	478	130
Confl. Peds. (#/hr)	19		8	8		19	18		5	5		18
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		8
Actuated Green, G (s)	33.9	33.9	33.9	42.9	42.9	42.9		41.0			41.0	41.0
Effective Green, g (s)	34.9	34.9	34.9	43.9	43.9	43.9		42.0			42.0	42.0
Actuated g/C Ratio	0.35	0.35	0.35	0.44	0.44	0.44		0.42			0.42	0.42
Clearance Time (s)	7.0	7.0	7.0	3.0	7.0	7.0		8.0			8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	263	1235	511	463	1553	636		1371			879	611
v/s Ratio Prot		0.09		c0.04	0.17							
v/s Ratio Perm	c0.24		0.01	0.21		0.05		c0.33			0.23	0.09
v/c Ratio	0.68	0.24	0.02	0.55	0.37	0.11		0.79			0.54	0.21
Uniform Delay, d1	27.3	22.6	20.8	18.8	18.3	16.0		24.6			21.3	18.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	7.1	0.1	0.0	1.4	0.2	0.1		3.1			0.7	0.2
Delay (s)	34.3	22.7	20.9	20.3	18.5	16.1		27.7			22.0	18.2
Level of Service	C	C	C	C	B	B		C			C	B
Approach Delay (s)		26.7			18.6			27.7			20.9	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	23.4	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.75				
Actuated Cycle Length (s)	98.9	Sum of lost time (s)		18.0	
Intersection Capacity Utilization	127.7%	ICU Level of Service		H	
Analysis Period (min)	15				

c Critical Lane Group

Timings
11: Warden Avenue & Danforth Avenue

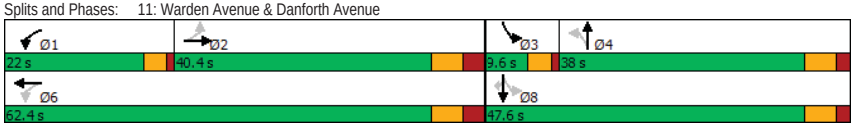
06/17/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	10	300	330	645	50	860	100	515	25
Future Volume (vph)	10	300	330	645	50	860	100	515	25
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	pm+pt	NA	Perm
Protected Phases		2	1	6		4	3	8	
Permitted Phases	2		6		4		8		8
Detector Phase	2	2	1	6	4	4	3	8	8
Switch Phase									
Minimum Initial (s)	30.0	30.0	6.0	30.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	37.0	37.0	10.0	37.0	31.0	31.0	9.5	31.0	31.0
Total Split (s)	40.4	40.4	22.0	62.4	38.0	38.0	9.6	47.6	47.6
Total Split (%)	36.7%	36.7%	20.0%	56.7%	34.5%	34.5%	8.7%	43.3%	43.3%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	1.0	3.0	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
Total Lost Time (s)		6.0	3.0	6.0	5.0	5.0	3.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead		Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)		33.6	57.3	54.3	33.0	33.0	44.6	42.6	42.6
Actuated g/C Ratio		0.31	0.53	0.50	0.31	0.31	0.41	0.39	0.39
v/c Ratio		0.41	0.66	0.94	0.42	0.95	0.65	0.77	0.05
Control Delay		30.2	21.5	43.6	42.7	55.2	40.2	37.5	0.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		30.2	21.5	43.6	42.7	55.2	40.2	37.5	0.2
LOS		C	C	D	D	E	D	D	A
Approach Delay		30.2		37.1		54.5		36.5	
Approach LOS		C		D		D		D	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 107.9
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 41.7 — Intersection LOS: D
Intersection Capacity Utilization 133.6% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 11: Warden Avenue & Danforth Avenue



Queues
11: Warden Avenue & Danforth Avenue

06/17/2021

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	375	359	848	54	1006	109	560	27
v/c Ratio	0.41	0.66	0.94	0.42	0.95	0.65	0.77	0.05
Control Delay	30.2	21.5	43.6	42.7	55.2	40.2	37.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.2	21.5	43.6	42.7	55.2	40.2	37.5	0.2
Queue Length 50th (m)	33.8	45.5	167.7	9.8	117.1	15.4	109.8	0.0
Queue Length 95th (m)	48.0	67.8	#257.8	23.7	#162.1	#32.2	155.8	0.0
Internal Link Dist (m)	94.4		62.9		69.5		309.6	
Turn Bay Length (m)				45.0		40.0		
Base Capacity (vph)	941	558	940	130	1062	168	727	590
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.64	0.90	0.42	0.95	0.65	0.77	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
11: Warden Avenue & Danforth Avenue

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	300	35	330	645	135	50	860	65	100	515	25
Future Volume (vph)	10	300	35	330	645	135	50	860	65	100	515	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)		6.0		3.0	6.0		5.0	5.0		3.0	5.0	5.0
Lane Util. Factor		0.95		1.00	1.00		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	1.00	0.93
Flpb, ped/bikes		1.00		0.99	1.00		0.98	1.00		1.00	1.00	1.00
Frt		0.98		1.00	0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3425		1641	1786		1625	3456		1652	1842	1376
Flt Permitted		0.85		0.44	1.00		0.25	1.00		0.11	1.00	1.00
Satd. Flow (perm)		2930		760	1786		425	3456		193	1842	1376
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)	11	326	38	359	701	147	54	935	71	109	560	27
RTOR Reduction (vph)	0	8	0	0	7	0	0	5	0	0	0	16
Lane Group Flow (vph)	0	367	0	359	841	0	54	1001	0	109	560	11
Confl. Peds. (#/hr)	12		16	16		12	23		14	14		23
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)		32.6		53.4	53.4		32.0	32.0		41.6	41.6	41.6
Effective Green, g (s)		33.6		54.4	54.4		33.0	33.0		42.6	42.6	42.6
Actuated g/C Ratio		0.31		0.50	0.50		0.31	0.31		0.39	0.39	0.39
Clearance Time (s)		7.0		4.0	7.0		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
Lane Grp Cap (vph)		911		528	899		129	1056		165	726	542
v/s Ratio Prot				0.11	c0.47			c0.29		0.04	c0.30	
v/s Ratio Perm		0.13		0.23			0.13			0.22		0.01
v/c Ratio		0.40		0.68	0.94		0.42	0.95		0.66	0.77	0.02
Uniform Delay, d1		29.3		17.3	25.2		29.9	36.7		25.6	28.5	20.0
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.3		3.5	16.5		2.2	16.5		9.5	5.1	0.0
Delay (s)		29.6		20.8	41.6		32.1	53.2		35.1	33.5	20.0
Level of Service		C		C	D		C	D		D	C	B
Approach Delay (s)		29.6			35.4			52.1			33.3	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	39.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	133.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

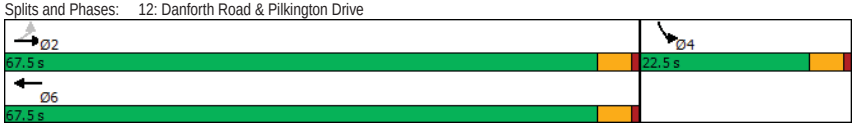
Timings
12: Danforth Road & Pilkington Drive

06/17/2021

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	10	475	825	50
Future Volume (vph)	10	475	825	50
Turn Type	Perm	NA	NA	Prot
Protected Phases		2	6	4
Permitted Phases	2			
Detector Phase	2	2	6	4
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	67.5	67.5	67.5	22.5
Total Split (%)	75.0%	75.0%	75.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		-1.0	-1.0	-1.0
Total Lost Time (s)		3.5	3.5	3.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	None
Act Effct Green (s)		78.0	78.0	9.5
Actuated g/C Ratio		0.85	0.85	0.10
v/c Ratio		0.19	0.32	0.37
Control Delay		1.9	2.3	36.9
Queue Delay		0.0	0.0	0.0
Total Delay		1.9	2.3	36.9
LOS		A	A	D
Approach Delay		1.9	2.3	36.9
Approach LOS		A	A	D

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 91.5			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.37			
Intersection Signal Delay: 3.7		Intersection LOS: A	
Intersection Capacity Utilization 36.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 12: Danforth Road & Pilkington Drive



Queues
12: Danforth Road & Pilkington Drive

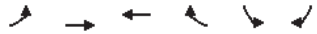
06/17/2021

Lane Group	EBT	WBT	SBL
Lane Group Flow (vph)	527	946	70
v/c Ratio	0.19	0.32	0.37
Control Delay	1.9	2.3	36.9
Queue Delay	0.0	0.0	0.0
Total Delay	1.9	2.3	36.9
Queue Length 50th (m)	7.6	15.5	10.1
Queue Length 95th (m)	14.0	26.8	21.6
Internal Link Dist (m)	878.4	128.5	88.0
Turn Bay Length (m)			
Base Capacity (vph)	2788	2957	368
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.19	0.32	0.19

Intersection Summary

HCM Signalized Intersection Capacity Analysis
12: Danforth Road & Pilkington Drive

06/17/2021



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	475	825	45	50	15
Future Volume (vph)	10	475	825	45	50	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.5		3.5	
Lane Util. Factor		0.95	0.95		1.00	
Frpb, ped/bikes		1.00	1.00		1.00	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.99		0.97	
Flt Protected		1.00	1.00		0.96	
Satd. Flow (prot)		3496	3468		1712	
Flt Permitted		0.93	1.00		0.96	
Satd. Flow (perm)		3272	3468		1712	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	516	897	49	54	16
RTOR Reduction (vph)	0	0	2	0	14	0
Lane Group Flow (vph)	0	527	944	0	56	0
Confl. Peds. (#/hr)	2			2	29	4
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)		76.2	76.2		7.3	
Effective Green, g (s)		77.2	77.2		8.3	
Actuated g/C Ratio		0.83	0.83		0.09	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		2730	2894		153	
v/s Ratio Prot			c0.27		c0.03	
v/s Ratio Perm		0.16				
v/c Ratio		0.19	0.33		0.37	
Uniform Delay, d1		1.5	1.7		39.6	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.2	0.3		1.5	
Delay (s)		1.7	2.0		41.1	
Level of Service		A	A		D	
Approach Delay (s)		1.7	2.0		41.1	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	3.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	92.5	Sum of lost time (s)	7.0
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
13: Warden Avenue & Site Driveway North

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	80	1230	5	10	510
Future Volume (Veh/h)	10	80	1230	5	10	510
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)	11	87	1337	5	11	554
Pedestrians	29		9			2
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	2		1			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			62			
pX, platoon unblocked	0.87	0.87			0.87	
vC, conflicting volume	1676	702			1371	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1479	358			1127	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	84			98	
cM capacity (veh/h)	96	541			523	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	98	891	451	196	369
Volume Left	11	0	0	11	0
Volume Right	87	0	5	0	0
cSH	356	1700	1700	523	1700
Volume to Capacity	0.28	0.52	0.27	0.02	0.22
Queue Length 95th (m)	8.8	0.0	0.0	0.5	0.0
Control Delay (s)	18.9	0.0	0.0	0.9	0.0
Lane LOS	C			A	
Approach Delay (s)	18.9	0.0		0.3	
Approach LOS	C				

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization		47.0%	ICU Level of Service A
Analysis Period (min)		15	

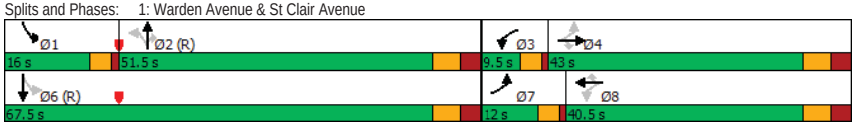
Timings
1: Warden Avenue & St Clair Avenue

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	195	995	180	90	775	230	135	580	270	330	645
Future Volume (vph)	195	995	180	90	775	230	135	580	270	330	645
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases	7	4		3	8			2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	7	4	4	3	8	8	2	2	2	1	6
Switch Phase											
Minimum Initial (s)	6.0	33.0	33.0	5.0	33.0	33.0	35.0	35.0	35.0	6.0	35.0
Minimum Split (s)	10.0	40.0	40.0	9.5	40.0	40.0	42.0	42.0	42.0	10.0	42.0
Total Split (s)	12.0	43.0	43.0	9.5	40.5	40.5	51.5	51.5	51.5	16.0	67.5
Total Split (%)	10.0%	35.8%	35.8%	7.9%	33.8%	33.8%	42.9%	42.9%	42.9%	13.3%	56.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	1.0	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	-1.0
Total Lost Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0	3.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	C-Min	C-Min	C-Min	None	C-Min
Act Effct Green (s)	53.3	39.9	39.9	45.0	34.3	34.3	41.2	41.2	41.2	60.4	57.4
Actuated g/C Ratio	0.44	0.33	0.33	0.38	0.29	0.29	0.34	0.34	0.34	0.50	0.48
v/c Ratio	0.82	0.90	0.37	0.48	0.82	0.42	0.85	0.52	0.56	0.96	0.58
Control Delay	53.2	50.2	13.8	29.8	47.5	6.4	75.9	32.7	18.0	59.6	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	50.2	13.8	29.8	47.5	6.4	75.9	32.7	18.0	59.6	22.1
LOS	D	D	B	C	D	A	E	C	B	E	C
Approach Delay		45.9			37.4			34.6			32.3
Approach LOS		D			D			C			C

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: 105		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.96		
Intersection Signal Delay: 38.0	Intersection LOS: D	
Intersection Capacity Utilization 115.0%	ICU Level of Service H	
Analysis Period (min) 15		

Splits and Phases: 1: Warden Avenue & St Clair Avenue



Queues
1: Warden Avenue & St Clair Avenue

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	207	1059	191	96	824	245	144	617	287	351	941
v/c Ratio	0.82	0.90	0.37	0.48	0.82	0.42	0.85	0.52	0.56	0.96	0.58
Control Delay	53.2	50.2	13.8	29.8	47.5	6.4	75.9	32.7	18.0	59.6	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	50.2	13.8	29.8	47.5	6.4	75.9	32.7	18.0	59.6	22.1
Queue Length 50th (m)	33.0	136.2	11.7	14.1	99.8	0.0	32.1	62.2	24.8	51.5	77.8
Queue Length 95th (m)	#89.1	#182.4	32.5	26.4	125.1	19.6	#68.8	77.5	51.9	#100.3	93.5
Internal Link Dist (m)		390.8			348.6			207.5			183.8
Turn Bay Length (m)	65.0		60.0	60.0		235.0	65.0		110.0	145.0	
Base Capacity (vph)	251	1176	518	202	1016	580	187	1314	550	367	1739
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.90	0.37	0.48	0.81	0.42	0.77	0.47	0.52	0.96	0.54

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: Warden Avenue & St Clair Avenue

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	995	180	90	775	230	135	580	270	330	645	240
Future Volume (vph)	195	995	180	90	775	230	135	580	270	330	645	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0	3.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.87	1.00	1.00	0.95	1.00	1.00	0.89	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.99	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1651	3535	1304	1661	3535	1411	1609	3466	1201	1638	3333	
Flt Permitted	0.12	1.00	1.00	0.18	1.00	1.00	0.29	1.00	1.00	0.28	1.00	
Satd. Flow (perm)	208	3535	1304	315	3535	1411	495	3466	1201	487	3333	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	207	1059	191	96	824	245	144	617	287	351	686	255
RTOR Reduction (vph)	0	0	84	0	0	175	0	0	101	0	34	0
Lane Group Flow (vph)	207	1059	107	96	824	70	144	617	186	351	907	0
Confl. Peds. (#/hr)	40		115	115		40	60		95	95		60
Heavy Vehicles (%)	2%	1%	0%	1%	1%	1%	3%	3%	12%	2%	1%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	49.6	38.9	38.9	40.0	33.3	33.3	40.2	40.2	40.2	56.4	56.4	
Effective Green, g (s)	50.6	39.9	39.9	42.0	34.3	34.3	41.2	41.2	41.2	57.4	57.4	
Actuated g/C Ratio	0.42	0.33	0.33	0.35	0.29	0.29	0.34	0.34	0.34	0.48	0.48	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	7.0	7.0	7.0	4.0	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	3.0	
Lane Grp Cap (vph)	247	1175	433	196	1010	403	169	1189	412	359	1594	
v/s Ratio Prot	c0.09	c0.30		0.03	0.23			0.18		c0.11	0.27	
v/s Ratio Perm	0.26		0.08	0.14		0.05	0.29		0.15	c0.36		
v/c Ratio	0.84	0.90	0.25	0.49	0.82	0.17	0.85	0.52	0.45	0.98	0.57	
Uniform Delay, d1	26.7	38.2	29.1	26.9	39.9	32.2	36.6	31.5	30.6	26.3	22.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	21.3	9.7	0.3	1.9	5.2	0.2	38.8	1.6	3.5	41.1	1.5	
Delay (s)	48.0	47.8	29.4	28.8	45.1	32.4	75.3	33.1	34.2	67.4	23.9	
Level of Service	D	D	C	C	D	C	E	C	C	E	C	
Approach Delay (s)		45.4			41.1			39.2			35.7	
Approach LOS		D			D			D			D	

Intersection Summary

HCM 2000 Control Delay	40.6	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)	18.0
Intersection Capacity Utilization	115.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Warden Avenue & Warden TTC South Parking

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	70	915	15	40	875
Future Volume (Veh/h)	10	70	915	15	40	875
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)	11	76	995	16	43	951
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						232
pX, platoon unblocked	0.85					
vC, conflicting volume	1564	506			1011	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1318	506			1011	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	85			94	
cM capacity (veh/h)	119	512			681	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	87	663	348	360	634
Volume Left	11	0	0	43	0
Volume Right	76	0	16	0	0
cSH	361	1700	1700	681	1700
Volume to Capacity	0.24	0.39	0.20	0.06	0.37
Queue Length 95th (m)	7.4	0.0	0.0	1.6	0.0
Control Delay (s)	18.1	0.0	0.0	2.0	0.0
Lane LOS	C			A	
Approach Delay (s)	18.1	0.0		0.7	
Approach LOS	C				

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

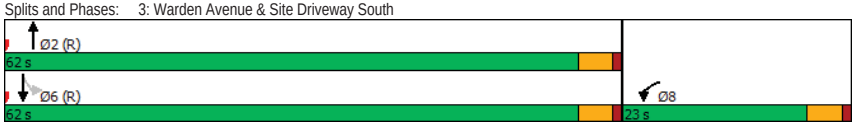
Timings
3: Warden Avenue & Site Driveway South

06/17/2021

Lane Group	WBL	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	40	850	55	785
Future Volume (vph)	40	850	55	785
Turn Type	Prot	NA	Perm	NA
Protected Phases	8	2		6
Permitted Phases			6	
Detector Phase	8	2	6	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	23.0	62.0	62.0	62.0
Total Split (%)	27.1%	72.9%	72.9%	72.9%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0
Total Lost Time (s)	3.5	3.5		3.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	C-Max	C-Max	C-Max
Act Effct Green (s)	8.9	71.8		71.8
Actuated g/C Ratio	0.10	0.84		0.84
v/c Ratio	0.38	0.34		0.37
Control Delay	25.9	2.4		2.7
Queue Delay	0.0	0.0		0.0
Total Delay	25.9	2.4		2.7
LOS	C	A		A
Approach Delay	25.9	2.4		2.7
Approach LOS	C	A		A

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.38	
Intersection Signal Delay: 3.5	Intersection LOS: A
Intersection Capacity Utilization 63.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Warden Avenue & Site Driveway South



Queues
3: Warden Avenue & Site Driveway South

06/17/2021

Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	81	989	913
v/c Ratio	0.38	0.34	0.37
Control Delay	25.9	2.4	2.7
Queue Delay	0.0	0.0	0.0
Total Delay	25.9	2.4	2.7
Queue Length 50th (m)	6.9	15.1	15.1
Queue Length 95th (m)	19.3	27.6	28.1
Internal Link Dist (m)	39.3	30.0	42.8
Turn Bay Length (m)			
Base Capacity (vph)	422	2933	2439
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.19	0.34	0.37

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3: Warden Avenue & Site Driveway South

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	35	850	60	55	785
Future Volume (vph)	40	35	850	60	55	785
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5		3.5			3.5
Lane Util. Factor	1.00		0.95			0.95
Frt	0.94		0.99			1.00
Flt Protected	0.97		1.00			1.00
Satd. Flow (prot)	1714		3470			3493
Flt Permitted	0.97		1.00			0.82
Satd. Flow (perm)	1714		3470			2889
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	38	924	65	60	853
RTOR Reduction (vph)	35	0	3	0	0	0
Lane Group Flow (vph)	46	0	986	0	0	913
Heavy Vehicles (%)	0%	0%	2%	0%	0%	2%
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	6.8		69.2			69.2
Effective Green, g (s)	7.8		70.2			70.2
Actuated g/C Ratio	0.09		0.83			0.83
Clearance Time (s)	4.5		4.5			4.5
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	157		2865			2385
v/s Ratio Prot	c0.03		0.28			
v/s Ratio Perm						c0.32
v/c Ratio	0.30		0.34			0.38
Uniform Delay, d1	36.0		1.8			1.9
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	1.1		0.3			0.5
Delay (s)	37.1		2.1			2.4
Level of Service	D		A			A
Approach Delay (s)	37.1		2.1			2.4
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	3.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
4: Warden Avenue & Woodland Acres Access Road

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	5	5	900	820	5
Future Volume (Veh/h)	5	5	5	900	820	5
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)	5	5	5	957	872	5
Pedestrians	34			31	2	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	3			3	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				244	54	
pX, platoon unblocked	0.95	0.94	0.94			
vC, conflicting volume	1399	504	911			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1268	355	787			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	99	99			
cM capacity (veh/h)	147	574	760			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	10	324	638	581	296
Volume Left	5	5	0	0	0
Volume Right	5	0	0	0	5
cSH	234	760	1700	1700	1700
Volume to Capacity	0.04	0.01	0.38	0.34	0.17
Queue Length 95th (m)	1.1	0.2	0.0	0.0	0.0
Control Delay (s)	21.1	0.2	0.0	0.0	0.0
Lane LOS	C	A			
Approach Delay (s)	21.1	0.1		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	44.8%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
5: Warden Avenue & Bell Estate Rd

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	910	0	0	830
Future Volume (Veh/h)	0	0	910	0	0	830
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	989	0	0	902
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			155			144
pX, platoon unblocked	0.98	0.96			0.96	
vC, conflicting volume	1440	494			989	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1220	379			896	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	168	592			720	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	659	330	301	601
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	720	1700
Volume to Capacity	0.00	0.39	0.19	0.00	0.35
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	0.0	0.0		0.0	
Approach LOS	A				

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	28.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Timings
6: Warden Avenue & Firvalley Ct

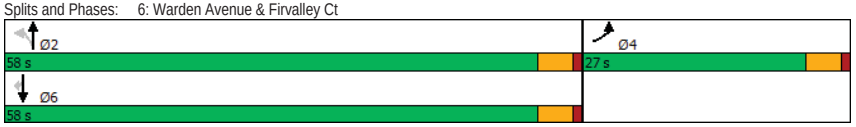
06/17/2021

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	35	20	875	795	35
Future Volume (vph)	35	20	875	795	35
Turn Type	Prot	Perm	NA	NA	Perm
Protected Phases	4		2	6	
Permitted Phases		2			6
Detector Phase	4	2	2	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	27.0	58.0	58.0	58.0	58.0
Total Split (%)	31.8%	68.2%	68.2%	68.2%	68.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.5	3.5	3.5	3.5	3.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	Max	Max	Max	Max
Act Effct Green (s)	8.4	70.8	70.8	70.8	70.8
Actuated g/C Ratio	0.10	0.88	0.88	0.88	0.88
v/c Ratio	0.26	0.04	0.31	0.28	0.03
Control Delay	31.8	2.0	1.9	1.8	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	2.0	1.9	1.8	0.8
LOS	C	A	A	A	A
Approach Delay	31.8		1.9	1.8	
Approach LOS	C		A	A	

Intersection Summary

Cycle Length: 85
Actuated Cycle Length: 80.2
Natural Cycle: 45
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.31
Intersection Signal Delay: 2.6 — Intersection LOS: A
Intersection Capacity Utilization 45.0% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 6: Warden Avenue & Firvalley Ct



Queues
6: Warden Avenue & Firvalley Ct

06/17/2021

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	49	22	951	864	38
v/c Ratio	0.26	0.04	0.31	0.28	0.03
Control Delay	31.8	2.0	1.9	1.8	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	2.0	1.9	1.8	0.8
Queue Length 50th (m)	6.1	0.5	14.3	12.5	0.1
Queue Length 95th (m)	16.0	2.0	24.5	21.5	1.7
Internal Link Dist (m)	72.7		123.4	130.6	
Turn Bay Length (m)		40.0			20.0
Base Capacity (vph)	501	496	3089	3089	1308
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.04	0.31	0.28	0.03

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Warden Avenue & Firvalley Ct

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	35	10	20	875	795	35
Future Volume (vph)	35	10	20	875	795	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.0	3.5	3.5	3.0
Total Lost time (s)	3.5		3.5	3.5	3.5	3.5
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frpb, ped/bikes	0.97		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	0.96		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1676		1652	3500	3500	1478
Flt Permitted	0.96		0.32	1.00	1.00	1.00
Satd. Flow (perm)	1676		563	3500	3500	1478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	11	22	951	864	38
RTOR Reduction (vph)	10	0	0	0	0	5
Lane Group Flow (vph)	39	0	22	951	864	33
Confl. Peds. (#/hr)	19	76				
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	4.9		68.2	68.2	68.2	68.2
Effective Green, g (s)	5.9		69.2	69.2	69.2	69.2
Actuated g/C Ratio	0.07		0.84	0.84	0.84	0.84
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	120		474	2950	2950	1245
v/s Ratio Prot	c0.02			c0.27	0.25	
v/s Ratio Perm			0.04			0.02
v/c Ratio	0.32		0.05	0.32	0.29	0.03
Uniform Delay, d1	36.2		1.1	1.4	1.3	1.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6		0.2	0.3	0.3	0.0
Delay (s)	37.8		1.2	1.7	1.6	1.1
Level of Service	D		A	A	A	A
Approach Delay (s)	37.8			1.7	1.6	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	2.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	82.1	Sum of lost time (s)	7.0
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
7: Warden Avenue & Cataraqui Cr

06/17/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	20	15	890	795	10
Future Volume (Veh/h)	5	20	15	890	795	10
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)	5	22	16	967	864	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)					148	
pX, platoon unblocked	0.97	0.97	0.97			
vC, conflicting volume	1380	432	875			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1325	346	804			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	97	98			
cM capacity (veh/h)	139	629	790			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	27	338	645	432	432	11
Volume Left	5	16	0	0	0	0
Volume Right	22	0	0	0	0	11
cSH	381	790	1700	1700	1700	1700
Volume to Capacity	0.07	0.02	0.38	0.25	0.25	0.01
Queue Length 95th (m)	1.8	0.5	0.0	0.0	0.0	0.0
Control Delay (s)	15.2	0.7	0.0	0.0	0.0	0.0
Lane LOS	C	A				
Approach Delay (s)	15.2	0.2		0.0		
Approach LOS	C					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
8: Warden Avenue & Bamblett Dr

06/17/2021

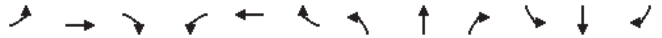
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	30	875	20	50	765
Future Volume (Veh/h)	15	30	875	20	50	765
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	33	951	22	54	832
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						276
pX, platoon unblocked						
vC, conflicting volume	1486	486			973	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1486	486			973	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	94			92	
cM capacity (veh/h)	106	527			704	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	49	634	339	54	416	416
Volume Left	16	0	0	54	0	0
Volume Right	33	0	22	0	0	0
cSH	230	1700	1700	704	1700	1700
Volume to Capacity	0.21	0.37	0.20	0.08	0.24	0.24
Queue Length 95th (m)	6.3	0.0	0.0	2.0	0.0	0.0
Control Delay (s)	24.8	0.0	0.0	10.5	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	24.8	0.0		0.6		
Approach LOS	C					

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	41.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
9: Warden Avenue & Burnhill Rd/Mack Ave

06/17/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	10	15	5	10	15	20	860	10	10	740	30
Future Volume (Veh/h)	20	10	15	5	10	15	20	860	10	10	740	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	11	16	5	11	16	22	935	11	11	804	33
Pedestrians		18			23			73			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			2			6			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								272				
pX, platoon unblocked	0.89	0.89		0.89	0.89	0.89				0.89		
vC, conflicting volume	1408	1874	510	1526	1884	511	855			969		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1218	1739	510	1350	1751	214	855			726		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	77	85	97	93	84	98	97			99		
cM capacity (veh/h)	96	71	472	72	70	685	769			765		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	49	32	490	478	413	435
Volume Left	22	5	22	0	11	0
Volume Right	16	16	0	11	0	33
cSH	118	128	769	1700	765	1700
Volume to Capacity	0.42	0.25	0.03	0.28	0.01	0.26
Queue Length 95th (m)	14.2	7.4	0.7	0.0	0.4	0.0
Control Delay (s)	55.9	42.2	0.8	0.0	0.4	0.0
Lane LOS	F	E	A		A	
Approach Delay (s)	55.9	42.2	0.4		0.2	
Approach LOS	F	E				

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	57.9%	ICU Level of Service	B	
Analysis Period (min)	15			

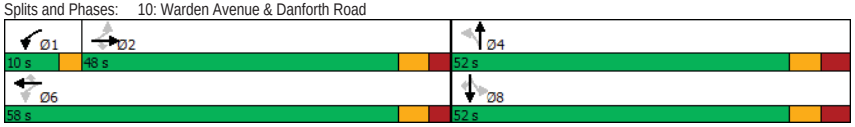
Timings
10: Warden Avenue & Danforth Road

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	245	605	35	200	350	90	15	555	85	480	195
Future Volume (vph)	245	605	35	200	350	90	15	555	85	480	195
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases		2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Detector Phase	2	2	2	1	6	6	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	33.0	33.0	33.0	6.0	33.0	33.0	41.0	41.0	41.0	41.0	41.0
Minimum Split (s)	40.0	40.0	40.0	9.0	40.0	40.0	49.0	49.0	49.0	49.0	49.0
Total Split (s)	48.0	48.0	48.0	10.0	58.0	58.0	52.0	52.0	52.0	52.0	52.0
Total Split (%)	43.6%	43.6%	43.6%	9.1%	52.7%	52.7%	47.3%	47.3%	47.3%	47.3%	47.3%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	0.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	2.0	6.0	6.0		7.0		7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes							
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	38.1	38.1	38.1	52.1	48.1	48.1		43.0		43.0	43.0
Actuated g/C Ratio	0.37	0.37	0.37	0.50	0.46	0.46		0.41		0.41	0.41
v/c Ratio	0.81	0.51	0.07	0.65	0.24	0.14		0.66		0.73	0.33
Control Delay	50.2	27.4	0.7	25.8	17.3	3.8		25.9		32.4	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	50.2	27.4	0.7	25.8	17.3	3.8		25.9		32.4	14.5
LOS	D	C	A	C	B	A		C		C	B
Approach Delay		32.7			18.1			25.9		27.8	
Approach LOS		C			B			C		C	

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 104.2			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 26.7		Intersection LOS: C	
Intersection Capacity Utilization 145.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 10: Warden Avenue & Danforth Road



Queues
10: Warden Avenue & Danforth Road

06/17/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	266	658	38	217	380	98	880	614	212
v/c Ratio	0.81	0.51	0.07	0.65	0.24	0.14	0.66	0.73	0.33
Control Delay	50.2	27.4	0.7	25.8	17.3	3.8	25.9	32.4	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	27.4	0.7	25.8	17.3	3.8	25.9	32.4	14.5
Queue Length 50th (m)	49.5	55.8	0.0	25.0	24.4	0.0	73.0	57.4	17.8
Queue Length 95th (m)	#96.5	76.3	1.0	42.4	36.1	9.0	100.1	83.8	37.5
Internal Link Dist (m)		140.6			880.1		308.1	248.6	
Turn Bay Length (m)	50.0		30.0	50.0		30.0			10.0
Base Capacity (vph)	364	1413	625	334	1750	762	1385	882	671
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.47	0.06	0.65	0.22	0.13	0.64	0.70	0.32

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
10: Warden Avenue & Danforth Road

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	605	35	200	350	90	15	555	240	85	480	195
Future Volume (vph)	245	605	35	200	350	90	15	555	240	85	480	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.0	6.0	6.0	2.0	6.0	6.0		7.0			7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97		0.99			1.00	0.98
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.96			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00			0.99	1.00
Satd. Flow (prot)	1630	3500	1433	1649	3500	1427		3314			3472	1445
Flt Permitted	0.53	1.00	1.00	0.28	1.00	1.00		0.94			0.58	1.00
Satd. Flow (perm)	903	3500	1433	493	3500	1427		3105			2040	1445
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)	266	658	38	217	380	98	16	603	261	92	522	212
RTOR Reduction (vph)	0	0	24	0	0	53	0	42	0	0	0	48
Lane Group Flow (vph)	266	658	14	217	380	45	0	838	0	0	614	164
Confl. Peds. (#/hr)	24		20	20		24	14		20	20		14
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2		2	6		6	4			8		8
Actuated Green, G (s)	37.1	37.1	37.1	47.1	47.1	47.1		42.0			42.0	42.0
Effective Green, g (s)	38.1	38.1	38.1	48.1	48.1	48.1		43.0			43.0	43.0
Actuated g/C Ratio	0.37	0.37	0.37	0.46	0.46	0.46		0.41			0.41	0.41
Clearance Time (s)	7.0	7.0	7.0	3.0	7.0	7.0		8.0			8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	330	1280	524	316	1617	659		1282			842	596
v/s Ratio Prot		0.19		c0.05	0.11							
v/s Ratio Perm	c0.29		0.01	0.26		0.03		0.27			c0.30	0.11
v/c Ratio	0.81	0.51	0.03	0.69	0.24	0.07		0.65			0.73	0.27
Uniform Delay, d1	29.7	25.8	21.1	18.8	16.9	15.6		24.6			25.7	20.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	13.4	0.4	0.0	6.1	0.1	0.0		1.2			3.2	0.3
Delay (s)	43.0	26.1	21.1	24.9	17.0	15.6		25.8			28.8	20.5
Level of Service	D	C	C	C	B	B		C			C	C
Approach Delay (s)		30.6			19.3			25.8			26.7	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	104.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	145.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

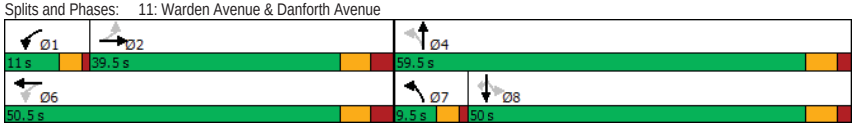
Timings
11: Warden Avenue & Danforth Avenue

06/17/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	20	655	170	320	70	705	50	615	50
Future Volume (vph)	20	655	170	320	70	705	50	615	50
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		2	1	6	7	4		8	
Permitted Phases	2		6		4		8		8
Detector Phase	2	2	1	6	7	4	8	8	8
Switch Phase									
Minimum Initial (s)	30.0	30.0	6.0	30.0	5.0	25.0	25.0	25.0	25.0
Minimum Split (s)	37.0	37.0	10.0	37.0	9.5	31.0	31.0	31.0	31.0
Total Split (s)	39.5	39.5	11.0	50.5	9.5	59.5	50.0	50.0	50.0
Total Split (%)	35.9%	35.9%	10.0%	45.9%	8.6%	54.1%	45.5%	45.5%	45.5%
Yellow Time (s)	4.0	4.0	3.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	1.0	3.0	1.0	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)		6.0	3.0	6.0	3.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead		Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)		33.1	47.3	44.3	50.1	48.1	40.9	40.9	40.9
Actuated g/C Ratio		0.32	0.46	0.43	0.48	0.46	0.40	0.40	0.40
v/c Ratio		0.83	0.84	0.57	0.44	0.63	0.36	0.92	0.09
Control Delay		41.8	53.5	27.0	22.0	21.4	31.2	49.4	0.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		41.8	53.5	27.0	22.0	21.4	31.2	49.4	0.3
LOS		D	D	C	C	C	C	D	A
Approach Delay		41.8		34.9		21.4		44.7	
Approach LOS		D		C		C		D	

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 103.5			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 34.6		Intersection LOS: C	
Intersection Capacity Utilization 116.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 11: Warden Avenue & Danforth Avenue



Queues
11: Warden Avenue & Danforth Avenue

06/17/2021

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	854	185	440	76	1000	54	668	54
v/c Ratio	0.83	0.84	0.57	0.44	0.63	0.36	0.92	0.09
Control Delay	41.8	53.5	27.0	22.0	21.4	31.2	49.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	53.5	27.0	22.0	21.4	31.2	49.4	0.3
Queue Length 50th (m)	94.3	26.2	74.5	8.4	77.8	8.3	137.4	0.0
Queue Length 95th (m)	#129.5	#63.4	108.8	16.4	98.7	20.6	#208.9	0.0
Internal Link Dist (m)	45.9		64.5		51.7		308.1	
Turn Bay Length (m)				45.0		40.0		
Base Capacity (vph)	1050	221	781	171	1810	167	811	679
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.84	0.56	0.44	0.55	0.32	0.82	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
11: Warden Avenue & Danforth Avenue

06/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	655	110	170	320	85	70	705	215	50	615	50
Future Volume (vph)	20	655	110	170	320	85	70	705	215	50	615	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)		6.0		3.0	6.0		3.0	5.0		5.0	5.0	5.0
Lane Util. Factor		0.95		1.00	1.00		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes		0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.94
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.99	1.00	1.00
Frt		0.98		1.00	0.97		1.00	0.96		1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3393		1650	1774		1652	3348		1643	1842	1394
Flt Permitted		0.93		0.14	1.00		0.09	1.00		0.22	1.00	1.00
Satd. Flow (perm)		3171		246	1774		158	3348		379	1842	1394
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)	22	712	120	185	348	92	76	766	234	54	668	54
RTOR Reduction (vph)	0	12	0	0	9	0	0	28	0	0	0	33
Lane Group Flow (vph)	0	842	0	185	431	0	76	972	0	54	668	21
Confl. Peds. (#/hr)	16		22	22		16	18		20	20		18
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		2		1	6		7	4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)		32.1		43.2	43.2		48.1	48.1		39.9	39.9	39.9
Effective Green, g (s)		33.1		44.2	44.2		49.1	49.1		40.9	40.9	40.9
Actuated g/C Ratio		0.32		0.42	0.42		0.47	0.47		0.39	0.39	0.39
Clearance Time (s)		7.0		4.0	7.0		4.0	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)		1006		213	751		148	1576		148	722	546
v/s Ratio Prot				c0.07	0.24		0.03	c0.29			c0.36	
v/s Ratio Perm		0.27		c0.30			0.21			0.14		0.02
v/c Ratio		0.84		0.87	0.57		0.51	0.62		0.36	0.93	0.04
Uniform Delay, d1		33.1		22.5	22.9		21.9	20.6		22.5	30.2	19.6
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		6.2		29.1	1.1		3.0	0.7		1.5	17.6	0.0
Delay (s)		39.3		51.6	24.0		24.9	21.3		24.0	47.9	19.6
Level of Service		D		D	C		C	C		C	D	B
Approach Delay (s)		39.3			32.1			21.6			44.3	
Approach LOS		D			C			C			D	

Intersection Summary

HCM 2000 Control Delay	33.4	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.91				
Actuated Cycle Length (s)	104.3	Sum of lost time (s)		17.0	
Intersection Capacity Utilization	116.0%	ICU Level of Service		H	
Analysis Period (min)	15				

c Critical Lane Group

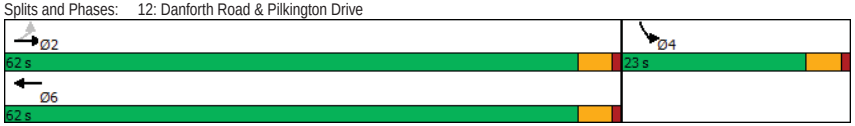
Timings
12: Danforth Road & Pilkington Drive

06/17/2021

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	5	880	605	25
Future Volume (vph)	5	880	605	25
Turn Type	Perm	NA	NA	Prot
Protected Phases		2	6	4
Permitted Phases	2			
Detector Phase	2	2	6	4
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	62.0	62.0	62.0	23.0
Total Split (%)	72.9%	72.9%	72.9%	27.1%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		-1.0	-1.0	-1.0
Total Lost Time (s)		3.5	3.5	3.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	Max	None
Act Effct Green (s)		75.4	75.4	8.0
Actuated g/C Ratio		0.89	0.89	0.09
v/c Ratio		0.32	0.23	0.22
Control Delay		1.8	1.5	32.0
Queue Delay		0.0	0.0	0.0
Total Delay		1.8	1.5	32.0
LOS		A	A	C
Approach Delay		1.8	1.5	32.0
Approach LOS		A	A	C

Intersection Summary			
Cycle Length: 85			
Actuated Cycle Length: 84.5			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.32			
Intersection Signal Delay: 2.3		Intersection LOS: A	
Intersection Capacity Utilization 39.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 12: Danforth Road & Pilkington Drive



Queues
12: Danforth Road & Pilkington Drive

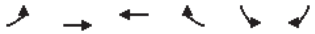
06/17/2021

Lane Group	EBT	WBT	SBL
Lane Group Flow (vph)	962	712	38
v/c Ratio	0.32	0.23	0.22
Control Delay	1.8	1.5	32.0
Queue Delay	0.0	0.0	0.0
Total Delay	1.8	1.5	32.0
Queue Length 50th (m)	13.8	8.8	4.6
Queue Length 95th (m)	23.8	15.6	14.1
Internal Link Dist (m)	880.1	57.7	74.2
Turn Bay Length (m)			
Base Capacity (vph)	2976	3079	403
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.32	0.23	0.09

Intersection Summary

HCM Signalized Intersection Capacity Analysis
12: Danforth Road & Pilkington Drive

06/17/2021



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	880	605	50	25	10
Future Volume (vph)	5	880	605	50	25	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.5		3.5	
Lane Util. Factor		0.95	0.95		1.00	
Frpb, ped/bikes		1.00	1.00		1.00	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.99		0.96	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		3499	3446		1701	
Flt Permitted		0.95	1.00		0.97	
Satd. Flow (perm)		3334	3446		1701	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	957	658	54	27	11
RTOR Reduction (vph)	0	0	3	0	10	0
Lane Group Flow (vph)	0	962	709	0	28	0
Confl. Peds. (#/hr)	14			14	38	3
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)		72.9	72.9		4.6	
Effective Green, g (s)		73.9	73.9		5.6	
Actuated g/C Ratio		0.85	0.85		0.06	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		2848	2944		110	
v/s Ratio Prot			0.21		c0.02	
v/s Ratio Perm		c0.29				
v/c Ratio		0.34	0.24		0.25	
Uniform Delay, d1		1.3	1.2		38.5	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.3	0.2		1.2	
Delay (s)		1.6	1.3		39.7	
Level of Service		A	A		D	
Approach Delay (s)		1.6	1.3		39.7	
Approach LOS		A	A		D	

Intersection Summary				
HCM 2000 Control Delay	2.3	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.33			
Actuated Cycle Length (s)	86.5	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	39.7%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
13: Warden Avenue & Site Driveway North

06/17/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	40	870	15	50	835
Future Volume (Veh/h)	5	40	870	15	50	835
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)	5	43	946	16	54	908
Pedestrians	38		2			14
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		0			1
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			67			
pX, platoon unblocked	0.94	0.94			0.94	
vC, conflicting volume	1556	533			1000	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1456	362			862	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	92			92	
cM capacity (veh/h)	101	569			704	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	48	631	331	357	605
Volume Left	5	0	0	54	0
Volume Right	43	0	16	0	0
cSH	383	1700	1700	704	1700
Volume to Capacity	0.13	0.37	0.19	0.08	0.36
Queue Length 95th (m)	3.4	0.0	0.0	2.0	0.0
Control Delay (s)	15.7	0.0	0.0	2.4	0.0
Lane LOS	C			A	
Approach Delay (s)	15.7	0.0		0.9	
Approach LOS	C				

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	66.6%	ICU Level of Service	C	
Analysis Period (min)	15			