Transportation Impact Assessment – Step 4: Analysis

70 & 80 Woodridge Crescent

Prepared for Ferguslea Properties Limited
by IBI Group
February 18, 2022

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TIA Plan Reports - Certification

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associate documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below:

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;

2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;

3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and

4. I am either a licensed[1] or registered[1] professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering □ or transportation planning □.

[1] **License or registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.**

Dated at Ottawa this 18th day of February, 2022.
(City)

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Stamp

Executive Summary

IBI Group (IBI) was retained by Ferguslea Properties Limited to undertake a Transportation Impact Assessment (TIA) in support of a Zoning By-law Amendment application for a proposed high-rise residential development to be located on the eastern portion of 90 Woodridge Crescent in Ottawa. The proposed development consists of two towers of 37 storeys ('west tower' – 80 Woodridge) and 40 storeys ('east tower' – 70 Woodridge), each with a two-storey podium. The total unit count for these two towers will range between 511 and 584 dwelling units and will be further refined during the Site Plan Control application process. For the purposes of this study, 584 units were assumed which represents the upper-limit of the range and therefore will provide a more conservative transportation analysis. The subject site is expected to be built out and fully occupied in a single phase by 2031 and therefore a 2036 horizon year was established for this study.

Primary access for the site will be provided via an existing full-movement connection on Woodridge Crescent (Site Access #1) which presently serves as the eastern access for the 12-storey apartment building at 90 Woodridge. A secondary full-movement connection (Site Access #2) west of 90 Woodridge provides indirect access to Woodridge Crescent through the existing surface parking lot serving that apartment building. A total of approximately 448 parking spaces will be provided, equating to a ratio of 0.78 to 0.88 spaces per unit depending on the final unit count and below the maximum of 1.75 spaces per unit permitted by the City near a rapid transit station.

The proposed development is expected to generate approximately 250 person-trips during the weekday morning and afternoon peak hours. The traffic impacts during the weekday commuter peak hours were established through the application of an 85% non-auto mode share target which is considered appropriate, given that the site is situated within 150 metres of Bayshore Station which will provide access to the City-wide rapid transit network both by bus and by rail. The resulting vehicular traffic contributions for the proposed development were determined to be approximately 35 two-way trips during the weekday morning and afternoon peak hours, resulting in negligible impacts on the adjacent road network.

The significant non-auto mode share target is expected to be achievable through a combination of Transportation Demand Management (TDM) Measures and the planned opening of the Confederation Line LRT West Extension by 2025, which is well in advance of the site's expected occupancy date. Features to help maximize and support sustainable transportation demand include a planned multi-use pathway (by others) abutting the site to the south which will provide a direct, at-grade pedestrian link to Bayshore Transitway Station, as well as an alternative connection to Bayshore Shopping Centre. It should be noted as well that Accora Village is a managed community which regularly collects data on residents' travel characteristics and currently offers incentives to encourage the use of non-auto modes of travel through programs such as bicycle skills training courses and complimentary usage of bikes for all residents, among others. The host of TDM measures already offered for Accora Village residents or measures proposed specifically as part of the subject development, including an ample supply of secure bicycle parking, will help to bridge the gap between the existing transit mode share of 46%, and the City's target of 65% by reducing reliance on private automobile transportation. It is important to recognize, however, that at the zoning application stage, some site-specific details regarding the TDM Program have yet to be determined and may be refined during the Site Plan Control application process.

Based on the capacity analysis conducted for this TIA, all study area intersections were shown to operate well within acceptable levels of service during the weekday morning and afternoon peak hours beyond the 2036 study horizon year. Site-generated traffic will access the subject development via the existing eastern site access serving the 90 Woodridge Crescent which is shown to continue operating at a high level of service (LOS 'A'), with the inclusion of site-generated traffic contributions. Auxiliary lane analyses for this study was limited to the intersections of Woodridge Crescent with Site Access #1 and the Transitway Access, neither of which triggered the need for additional auxiliary turning lanes. Further, a review of auxiliary lane analyses from the recently-conducted 100 Bayshore Drive TIA for the other study area

intersections indicated a surplus of vehicular storage on all existing auxiliary lanes which would easily be able to accommodate nominal site-generated turning volumes and would have a negligible impact on overall traffic operations at each location.

With regards to other travel modes, the Multi-Modal Level of Service (MMLOS) results identified existing deficiencies for other modes, consistent with the recently-completed 100 Bayshore Drive TIA. These deficiencies primarily pertain to user comfort and highlight potential improvements to older transportation infrastructure that could be considered by the City but are not required to safely accommodate the travel demands of the proposed development.

As the multi-modal impact of the proposed development on the adjacent intersections is expected to be insignificant, no off-site transportation network modifications will be required and therefore the TIA does not include a functional design component in support of a Roadway Modification Application (RMA) to the City. Similarly, due to the negligible increases in site-generated traffic expected on the adjacent road network as a result of the proposed development and the longer-term development timeline, a Post-Development Monitoring Plan is not required as part of this TIA.

Based on the findings of this study, it is the overall opinion of IBI Group that the proposed development will integrate well with and can be safely accommodated by the adjacent transportation network.

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1 Introduction

IBI Group (IBI) was retained by Ferguslea Properties Limited to undertake a Transportation Impact Assessment (TIA) in support of a Zoning By-law Amendment application for a proposed high-rise residential development to be located on the eastern portion of 90 Woodridge Crescent in Ottawa.

In accordance with the City of Ottawa's Transportation Impact Assessment Guidelines, published in June 2017, the following report is divided into four major components:

- **Screening** – Prior to the commencement of a TIA, an initial assessment of the proposed development is undertaken to establish the need for a comprehensive review of the site based on three triggers: Trip Generation, Location and Safety.
- **Scoping** – This component of the TIA report describes both the existing and planned conditions in the vicinity of the development and defines study parameters such as the study area, analysis periods and analysis years of the development. It also provides an opportunity to identify any scope exemptions that would eliminate elements of scope described in the TIA Guidelines that are not relevant to the development proposal, based on consultation with City staff.
- **Forecasting** – The Forecasting component of the TIA is intended to review both the development-generated travel demand and the background network travel demand, and provides an opportunity to rationalize this demand to ensure projections are within the capacity constraints of the transportation network.
- **Analysis** – This component documents the results of any analyses undertaken to ensure that the transportation related features of the proposed development are in conformance with prescribed technical standards and that its impacts on the transportation network are both sustainable and effectively managed. It also identifies a development strategy to ensure that what is being proposed is aligned with the City of Ottawa's planning objectives, targets and policies.

Throughout the development of a TIA report, each of the four study components above are submitted in draft form to the City of Ottawa and undergo a review by a designated Transportation Project Manager. Any comments received are addressed to the satisfaction of the City's Transportation Project Manager before proceeding with subsequent components of the study. All technical comments and responses throughout this process are included in **Appendix A**.

2 TIA Screening

An initial screening was completed to confirm the need for a Transportation Impact Assessment by reviewing the following three triggers:

- **Trip Generation**: Based on the proposed number of apartment dwelling units, the minimum development size threshold has been exceeded and therefore the Trip Generation Trigger is satisfied.
- **Location**: The proposed development is located within a Design Priority Area (DPA) and Transit-oriented Development (TOD) zone. As such, the Location Trigger is satisfied.
- **Safety**: Boundary street conditions were reviewed to determine if there is an elevated potential for safety concerns adjacent the site. Based on this review, the Safety Trigger is not satisfied.

As the proposed development meets the Trip Generation and Location triggers, the need to undertake a Transportation Impact Assessment is confirmed.

A copy of the TIA Screening Form is provided in **Appendix B**.

3 Project Scoping

3.1 Description of Proposed Development

3.1.1 Site Location

The proposed development is within the Bayshore community, in the southwest area of the Accora Village development and is approximately 0.9 hectares in size. It is bound by Woodridge Crescent to the north, the Transitway and Highway 417 to the south, a future high-rise residential development to the east and an existing high-rise residential development to the west.

The site location and its surrounding context is illustrated in **Exhibit 1**.

3.1.2 Land Use Details

The subject site is currently an undeveloped greenfield site and is zoned R5A[1923] H(34) – Residential Fifth Density, based on GeoOttawa.

The functional concept plan for this site includes two towers of 37 storeys (‘west tower’ – 80 Woodridge) and 40 storeys (‘east tower’ – 70 Woodridge), each with a two-storey podium. The total unit count for these two towers will range between 511 and 584 dwelling units and will be further refined during the Site Plan Control application process. For the purposes of this study, 584 units were assumed which represents the upper-limit of the range and therefore will provide a more conservative transportation analysis.

In terms of parking supply, the site will provide a total of 448 vehicle stalls divided amongst separate two-storey underground parking garages for each building.

The subject development will be accessed primarily by a full-movement connection on Woodridge Crescent (Site Access #1) which presently serves as the eastern access for the 12-storey apartment building at 90 Woodridge. A secondary full-movement connection (Site Access #2) west of 90 Woodridge provides indirect access to Woodridge Crescent through the existing surface parking lot serving that apartment building.

Access to the underground parking garage entrances for both the existing and proposed buildings will be via Site Access #1.

The configuration of the proposed development is illustrated in **Exhibit 2** below.

3.1.3 Development Phasing & Date of Occupancy

Construction of the proposed development is not anticipated to begin for another 5-10 years. For the purposes of this study, it is assumed that the proposed development will be constructed in a single phase, with both towers expected to be fully built out and occupied by 2031.

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Transportation Impact Assessment

Exhibit 1: Site Location

PROJECT No. 135482

SCALE: 100m 0m 200m

NORTH

Access #2 -
Secondary Access
(Existing)

Access #1 -
Primary Access
(Existing)

Woodridge Crescent

Loading Access

Transitway Access

U/G Parking
Garage Access
East Tower

Pick-up/
Drop-off
Area

90 Woodridge
(Existing)

70 Woodridge
East Tower
37 storeys

100 Bayshore Drive
Lot 'B' - By Others

Future Multi-Use Path (by Others)

Pick-up/
Drop-off
Area

Existing Surface Parking
Lot - 90 Woodridge

80 Woodridge
West Tower
33 storeys

Bayshore Transit Station

Loading Access

U/G Parking
Garage Access
West Tower

Future Multi-Use Path (by Others)

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Exhibit 2: Proposed Development

PROJECT No. 135482

SCALE: 0m 5m 10m

3.2 Existing Conditions

3.2.1 Existing Road Network

3.2.1.1 Roadways

The proposed development is bound by the following street(s):

- **Woodridge Crescent** is an urban collector road under the jurisdiction of the City of Ottawa that forms a loop and connects to Bayshore Drive at two signalized intersections offset by approximately 400m. Woodridge Crescent has a two-lane cross-section with a posted speed limit of 40 km/h and a right-of-way of 24m. Adjacent to the Bayshore Shopping Centre, Woodridge Crescent has a five-lane cross-section with a two-way left-turn lane and a right-of-way of 26m.

Other streets within the context area of the proposed development are as follows:

- **Bayshore Drive** is an urban arterial road under the jurisdiction of the City of Ottawa that extends north-south from Carling Avenue to Richmond Road. It has a 26m right-of-way with a posted speed limit of 40km/h. It generally consists of a four-lane undivided cross-section, however south of Woodridge Crescent it is configured as several ramp-type roads that connect to the upper parking level for Bayshore Shopping Centre, Richmond Road and the westbound Highway 417 off-ramp.
- **Carling Avenue** is an urban arterial road under the jurisdiction of the City of Ottawa that extends from March Road in the west to Bronson Avenue in the east. Through the context area, Carling Avenue consists of a four-lane divided cross-section with a posted speed limit of 60km/h.
- **Richmond Road** is an urban arterial road under the jurisdiction of the City of Ottawa that extends from Robertson Road in the west to Island Park Drive in the east, transitioning to Wellington Street West. Richmond Road has a right-of-way protection of 44.5m within the study area and has a posted speed limit of 70km/h with a four-lane divided cross-section west of Bayshore Drive and a four-lane undivided cross-section east of Bayshore Drive.

3.2.1.2 Driveways Adjacent to Development Access

As discussed previously, the proposed development will utilize an existing site access driveway serving the 90 Woodridge Crescent apartment building. Other driveways within 200m of the proposed development generally serve low-, medium and high-rise residential developments within Accora Village and the Bayshore Transitway Station. These nearby driveways are not expected to be impacted by increased traffic associated with the proposed development. It should be noted, however, that a loading access is proposed at the eastern limit of the property. Its potential impact with the adjacent 100 Bayshore residential development will be discussed in subsequent sections of this study.

Driveways on both sides of Woodridge Crescent within 200 metres of the subject site are illustrated in **Figure 1** below. Driveways serving the subject site are shown in green, while those serving 100 Bayshore Drive to the east are delineated in blue and the remaining vehicular connections serving other adjacent sites are shown in red.

Figure 1 – Driveways within 200m of the Subject Site

3.2.1.3 Intersections

The following intersections have the greatest potential to be impacted by the proposed development:

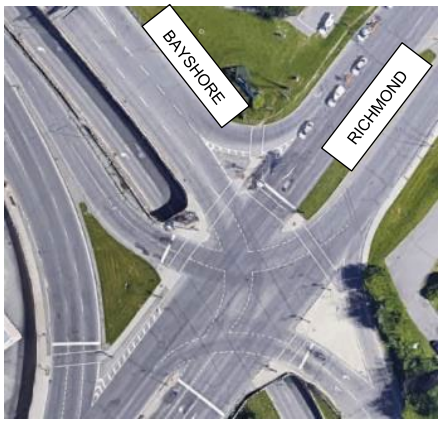
- **Woodridge Crescent (N) & Bayshore Drive** is a four-legged signalized intersection with single through lanes in each direction and an auxiliary left-turn lane on the eastbound approach. The westbound approach provides access to surface parking associated with residential developments including townhomes and a high-rise apartment complex.

- **Woodridge Crescent (S) & Bayshore Drive** is a three-legged, signalized intersection. The northbound approach consists of a single dedicated left-turn lane, a shared through-left lane and an additional through lane separated from other movements by a raised, concrete median. The southbound approach consists of a through lane and a shared through-right lane, while the eastbound approach consists of a left-turn lane and a dual channelized right-turn lane. An unsignalized private driveway access to a high-rise apartment exists on the westbound approach, however, the concrete median extending from the northbound approach through the majority of the intersection restricts movements at this driveway to right-in/right-out.

- **Woodridge Crescent & Transitway Access** is a three-legged unsignalized intersection with a stop-controlled approach for the Transitway access and free-flow along Woodridge Crescent. The Transitway access provides a connection to Bayshore Station for local buses and access to the Bayshore Shopping Centre parking facilities for general traffic. Separate left- and right-turn lanes are provided on the northbound approach. The westbound approach provides separate through and left-turn lanes, while a single shared through/ right lane exists on the eastbound approach.

- **Woodridge Crescent & 220m W of Bayshore Drive** is a three-legged, signalized intersection with two through lanes in either direction along Woodridge Crescent and a private approach with a single through lane on the southbound approach providing access to surface parking for several high-rise apartment buildings. A left-turn auxiliary lane is provided on the west leg only with no dedicated right-turn lanes existing on any approaches. An access to Bayshore Shopping Centre parking garage exists immediately east of the intersection.

Other intersections located within the context area of the proposed development are as follows:



- **Richmond Road & Bayshore Drive/ WB 417 Off-Ramp** is a four-legged signalized intersection with two through lanes on the eastbound approach, three through lanes on the westbound approach and no through lanes on the northbound and southbound approaches. Double left-turn auxiliary lanes exist on the northbound, southbound and eastbound approaches. A signalized, three-lane channelized right-turn exists on the southbound approach, while a single channelized right-turn lane is provided on both the northbound and westbound approaches. Northbound movements from Bayshore Drive are grade-separated through the intersection.

The intersection control and lane configurations for all intersections described above are shown in **Exhibit 3** below.

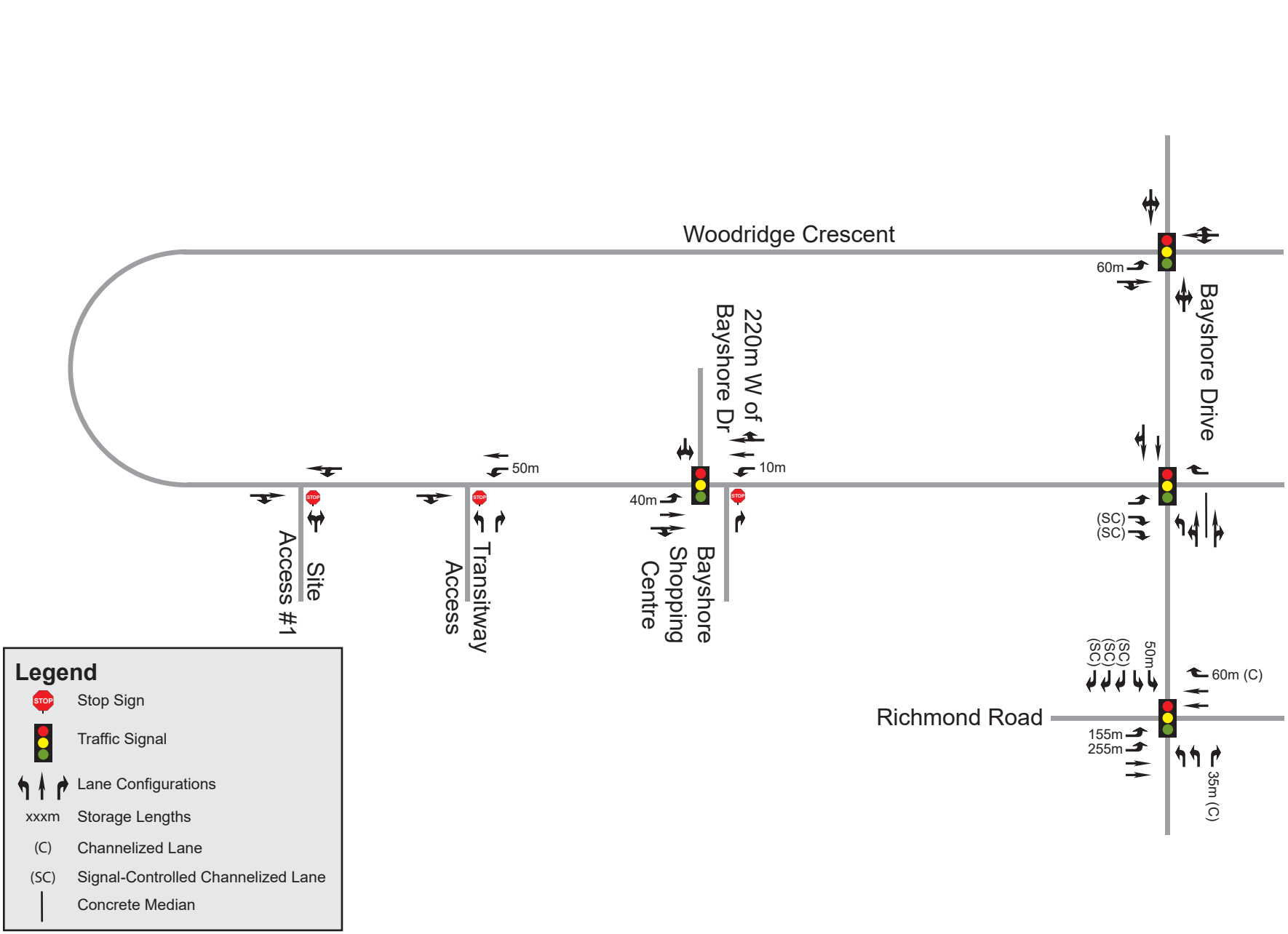


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Exhibit 3:
Existing Lane Configurations &
Intersection Control

PROJECT No. 135482

SCALE: N.T.S.

3.2.1.4 Traffic Management Measures

Traffic calming measures presently exist on Woodridge Crescent within the vicinity of Bayshore Public School. These consist of centreline flexible stakes, electronic speed display signs and other school area signage alerting motorists to drive with extra caution within the school priority area. A school priority zone also exists along Bayshore Drive serving the St. Rose of Lima Catholic Elementary School with traffic calming measures limited to school crossing signs.

A Type 'B' pedestrian cross-over (PXO) exists approximately 165 metres northwest of the site, providing a controlled crossing for pedestrians and encourages motorists to drive at reduced operating speeds along this road segment.

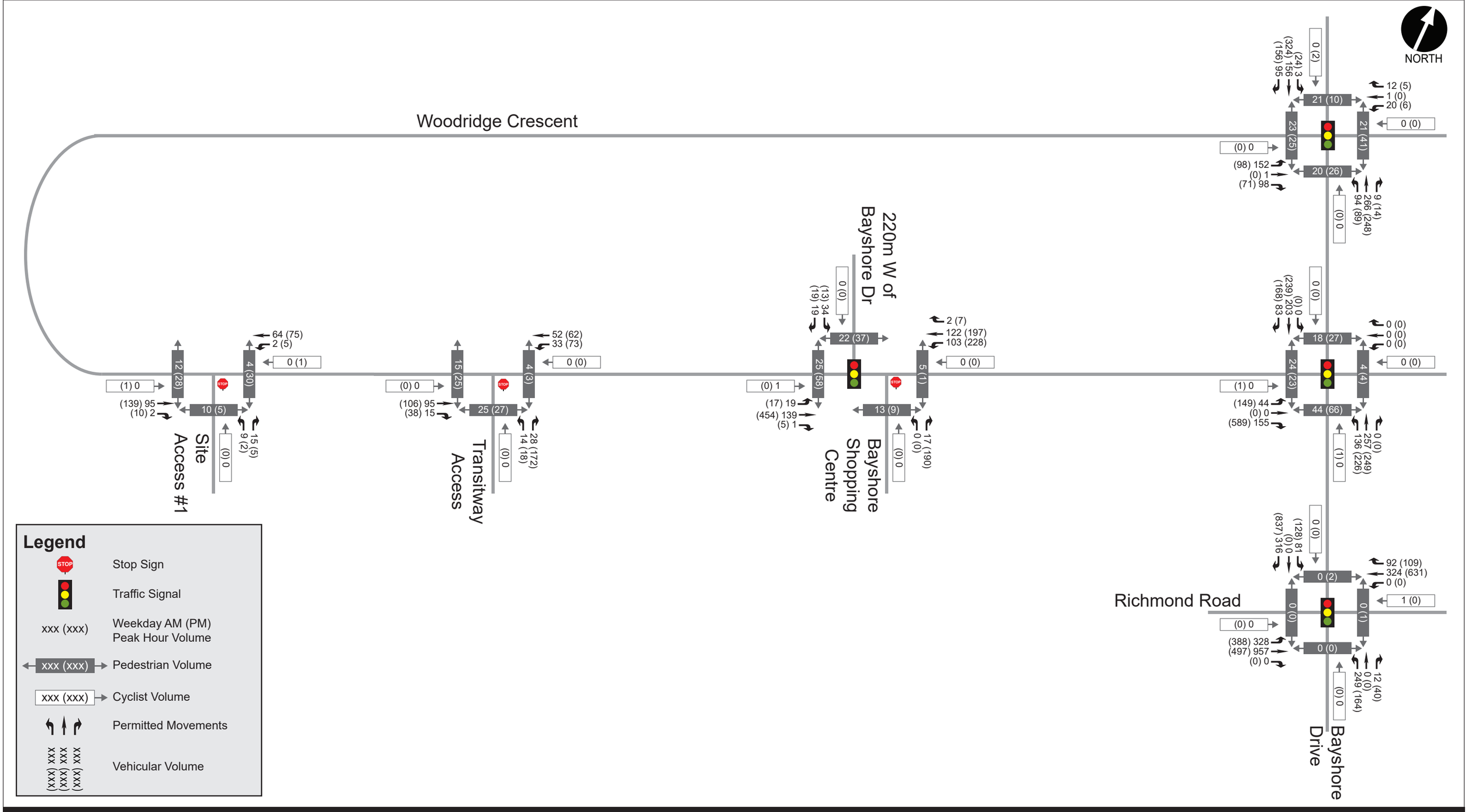
3.2.1.5 Existing Traffic Volumes

As the proposed development will consist of residential land uses, the weekday peak hour traffic conditions will be most affected by any associated increase in traffic. Weekday morning and afternoon peak hour turning movement counts were therefore obtained from the City of Ottawa and supplemented by data collected by IBI at Site Access #1:

- Woodridge Crescent (N) & Bayshore Drive (City of Ottawa, November 2019)
- Woodridge Crescent (S) & Bayshore Drive (City of Ottawa, November 2019)
- Woodridge Crescent & Transitway Access (City of Ottawa, November 2019)
- Woodridge Crescent & Essex/Carleton Access (City of Ottawa, November 2019)
- Richmond Road & Bayshore Drive/ WB 417 Off-Ramp (City of Ottawa, November 2019)
- Woodridge Crescent & Site Access #1 (IBI Group, October 2019)

It should be noted that the traffic count data collected at the intersection of Woodridge & Site Access #1 only assessed whether vehicles were entering or exiting via this private approach and did not take into consideration turning movements. As such, these vehicle trips were assigned to movements based on directional link volumes on Woodridge Crescent just west of the Transitway Access.

Peak hour traffic volumes representative of existing conditions are shown in **Exhibit 4** below. Traffic count data is provided in **Appendix C**.


NORTH
Woodridge Crescent
Site Access #1
Transitway Access
220m W of Bayshore Dr
Bayshore Shopping Centre
Richmond Road
Bayshore Drive
Legend
Stop Sign
Traffic Signal
xxx (xxx) Weekday AM (PM) Peak Hour Volume
Pedestrian Volume
Cyclist Volume
Permitted Movements
Vehicular Volume

3.2.2 Existing Bicycle and Pedestrian Facilities

Pedestrian facilities are provided on most roads within the context area including concrete sidewalks on both sides of Woodridge Crescent, Carling Avenue and Bayshore Drive. Concrete sidewalks are also provided on the north side of Richmond Road, west of Bayshore Drive, as well as on the south side of Richmond Road, east of Bayshore Drive.

Off-road pathways presently exist throughout Accora Village, providing an extensive network of interconnected pathways that promote the use of walking as a direct and convenient means of travel within the community. Some of these pathways provide connections to adjacent neighbourhoods such as the Creek Ends Lane near Holly Acres Road, or the city-wide multi-use pathway (MUP) network such as the Watts Creek Pathway (Trans Canada Trail).

An on-road bike lane was recently implemented on the south side of Woodridge Crescent within the site's frontage and exists between the curbside parallel parking stalls and the vehicular travel lanes. A painted buffer of approximately 0.5 metres is delineated between the designated parking lane and the cycling facility. The facility terminates just west of the Transitway access.

3.2.3 Existing Transit Facilities and Service

The following transit route, operated by OC Transpo, exists within the vicinity of the site:

- **Route #85** provides regular, all-day service between Bayshore Station and Terrasses de la Chaudière in Gatineau, operating on 15-minute headways during peak periods. On weekends, service is reduced to between 15- and 30-minute headways.

The nearest eastbound bus stop serving Route #85 is located approximately 30 metres east of the proposed development, while the nearest westbound bus stop is located directly opposite the subject site on the north side of Woodridge Crescent. The eastbound bus stop provides amenities including a route map, schedule and bench.

Furthermore, the proposed development is located immediately adjacent to Bayshore Station, a major bus rapid transit (BRT) hub that provides access to the City-wide rapid transit network with direct connections to the recently-opened Confederation Light Rail Transit (LRT) Line western terminus at Tunney's Pasture Station.

Transit maps for Route #85 and the City-wide rapid transit network are provided in **Appendix D**.

3.2.4 Collision History

A review of historical collision data has been undertaken for the boundary streets with the vicinity of the proposed development. The TIA Guidelines require a safety review if at least six collisions for any one movement or of a discernible pattern, have occurred over a five-year period. **Table 1** summarizes all reported collisions between January 1, 2014 and December 31, 2018.

Table 1 – Reported Collisions within Vicinity of Proposed Development

LOCATION	# OF REPORTED COLLISIONS
INTERSECTIONS	
Woodridge Crescent (N) & Bayshore Drive	19
Woodridge Crescent (S) & Bayshore Drive	22
Woodridge Crescent @ 220m W of Bayshore Drive	3
Richmond Road & Bayshore Drive	34
SEGMENTS	
Woodridge Crescent - 220m W of Bayshore Drive to Bayshore Drive	9
Woodridge Crescent - 220m W of Bayshore Drive to Transitway Access	2
Woodridge Crescent – Transitway Access to Bayshore Public School	13
Woodridge Crescent – Bayshore Drive to Bayshore Public School	17

Based on a preliminary review of the collision history noted above, intersection and road segments with more than six collisions over the five-year period may require further review.

Detailed collision records are provided in **Appendix E**.

3.3 Planned Conditions

3.3.1 Transportation Network

3.3.1.1 Future Road Network Projects

The 2013 Transportation Master Plan (TMP) outlines future road network modifications required in the 2031 'Affordable Network'. A review of the TMP Affordable Plan indicates that there are no planned changes to the arterial road network within the broader area surrounding the proposed development.

3.3.1.2 Future Transit Facilities and Services

The 2013 TMP outlines the future rapid transit and transit priority (RTTP) network. The following project was noted in the 'Affordable RTTP Network' that will have a significant impact on future travel demand in the vicinity of the proposed development:

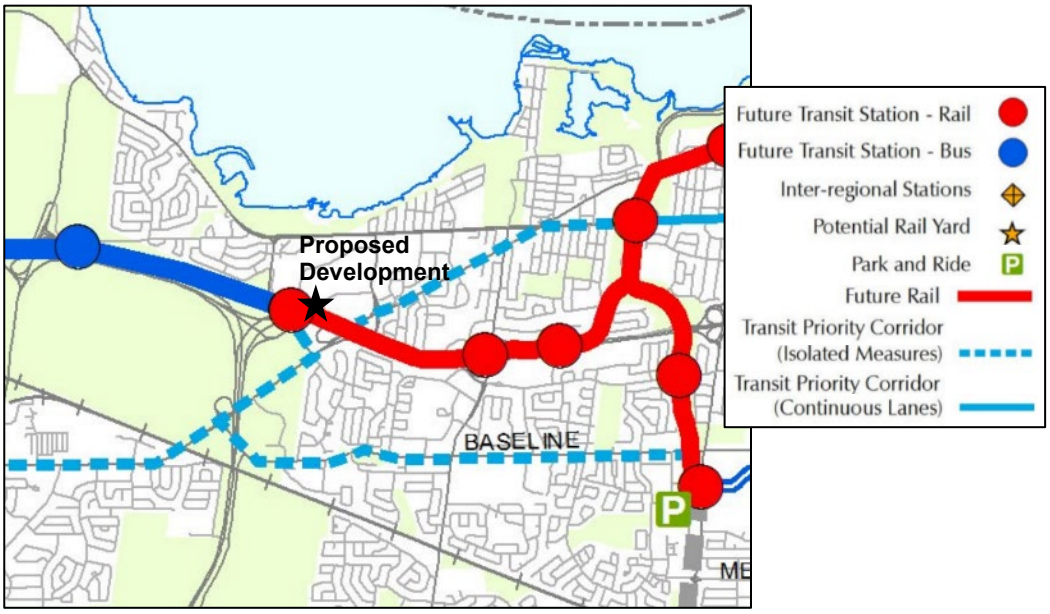
- **Confederation Line Extension** – Extension of the Confederation Line west from its current terminus at Tunney's Pasture Station to Bayshore Station as part of Stage 2 Light Trail Transit (LRT). Note: The *Moodie Light Rail Transit Extension – Environmental Project Report (December 2017)* study builds upon the TMP indicating that the Phase 2 of the Confederation Line will now extend further west to Moodie Station. Based on the official Stage 2 LRT website, the Confederation Line western extension is expected to begin full revenue service by 2025.
- **Baseline BRT (Bus Rapid Transit)** – Originally identified in the TMP as a transit priority project with isolated measures, a Planning and Environmental Assessment (EA) study has since been conducted to support a preferred alternative consisting of median bus-only lanes. This dedicated transit corridor would terminate at Bayshore Station and access the existing bus-only connection to Holly Acres Road. It is understood that no additional

modifications to Bayshore Station would be required to accommodate this transit priority corridor which is currently awaiting funding for its implementation.

- **Richmond Road** is identified as a Transit Priority Corridor (Isolated Measures) in the TMP 'Affordable Network' within the context area. There is no known timeline for the implementation of these measures.

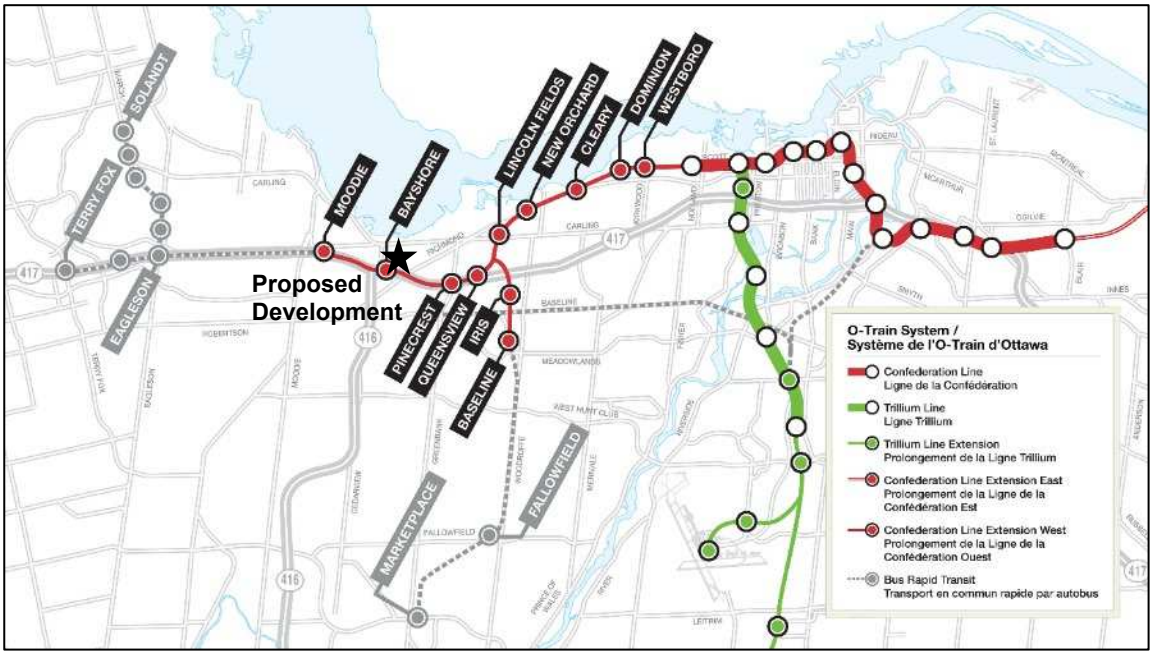
Figure 2 illustrates the transit infrastructure projects in the vicinity of the proposed development that are part of the TMP's 2031 Affordable Network. **Figure 3** identifies the proposed Confederation Line western extension, including the preferred alignment from the Environmental Project Report.

Figure 2 – Future 'Affordable RTTP Network Projects'



Source: 2013 Transportation Master Plan – Map 5 '2031 Affordable Network'

Figure 3 – Stage 2 LRT - Confederation Line West Extension



Source: Stage 2 LRT Website – Trillium Line West Highlight Summary

3.3.1.3 Bayshore Station

The conversion of Bayshore Station to LRT is expected to incorporate a new station plaza and entrance west of the existing all-way stop intersection along the Transitway Access that will provide seamless pedestrian connectivity with the proposed development.

An artistic representation of the proposed Bayshore Station layout is provided in **Figure 4** below.

Figure 4 – Bayshore Station – LRT Stage 2, Artist Rendering

Source: City of Ottawa website, LRT Stage 2

3.3.1.4 Future Cycling and Pedestrian Facilities

The 2013 Ottawa Cycling Plan (OCP) designates Carling Avenue and Richmond Road as 'Spine Routes', which form part of a system linking the commercial, employment, institutional, residential and educational nodes throughout the city. As shown on **Figure 5**, portions of Woodridge Crescent and Bayshore Drive are designated as 'Local Routes', providing connections between 'Spine Routes' and 'Major Pathways'.

The OCP proposes to implement on-street cycling facilities or paved shoulders along Richmond Road from Highway 417 to Carling Avenue as part of Phase 2 (2020-2025) Cycling Plan.

Figure 5 – Future Cycling Facilities within Context Area

Source: GeoOttawa

Furthermore, as indicated on the site plan, a multi-use pathway (MUP) is proposed along the southern boundary of the proposed development which will provide an active transportation linkage to the future Bayshore Light Rail Transit (LRT) Station from Accora Village, as well as the communities west of Holly Acres Road.

It should be noted as well that a pedestrian crossover (PXO) warrant analysis was conducted as part of the 100 Bayshore Drive TIA (IBI, 2020) abutting the subject site to the east and a Level 2 Type 'B' PXO was determined to be suitable for implementation on the west leg of the Woodridge & Transitway Access intersection. It is understood that the Multi-Use Pathway and PXO will be implemented by the City as part of the LRT construction.

3.3.2 Future Adjacent Developments

The City of Ottawa Transportation Impact Assessment (TIA) Guidelines specify that all significant developments proposed within the surrounding area which are likely to occur within the study's horizon year must be identified and taken into consideration in the development of future background traffic projections.

A review of the City's development applications database, DevApps, indicates that there is one development of significance within the context area, the details of which are described below:

- **100 Bayshore Drive (Lot 'B')** – A residential development to be located immediately east of the subject site, consisting of approximately 554 residential dwelling units divided amongst two high-rise towers of 30 storeys (Phase 1) and 27 storeys (Phase 2). Full build-out/occupancy of both phases is expected by 2026, and well in advance of the subject development.

It shall be acknowledged that the adjacent Accora Village community is expected to undergo a Master Planning process in the near future for the potential long-term redevelopment and intensification of those lands. As no concept plans or timeline were available at the time of this study, the magnitude or type of development would be speculative and therefore was not considered in the analysis of future conditions.

3.3.3 Network Concept Screenline

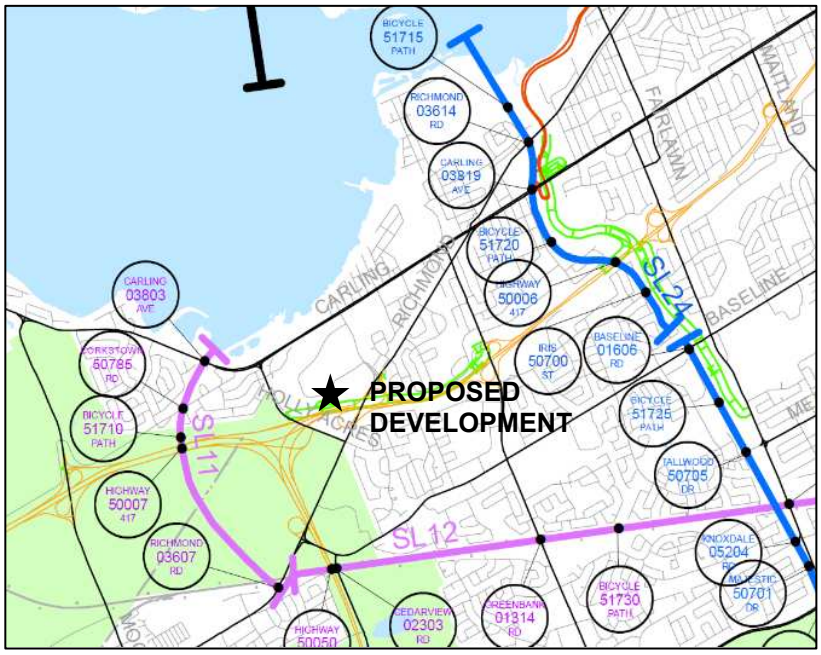
A screenline is an artificial boundary between areas of major traffic generation that captures all significant points of entry from one area to another to compare crossing demand with the available roadway capacity. Screenlines are typically located along geographical barriers such as rivers, rail lines or within the greenbelt. To capture existing flow and model future demand, count stations are established by the City of Ottawa at each crossing point along the screenline.

The nearest strategic planning screenlines adjacent to the development have been identified:

- **SL12 – CNR West** – This is the nearest east/west screenline with respect to the proposed development, and it follows the Canadian National Railroad (CNR) rail line from Highway 416 to Prince of Wales Drive. This screenline has six crossing points: Highway 416, Cedarview Road, Greenbank Road, Woodroffe Avenue, Merivale Road and Prince of Wales Drive.
- **SL24 – Western Parkway** – This is the nearest north/south screenline that would capture trips from the proposed development heading towards Ottawa's central area, and it roughly follows the Transitway alignment from Lincoln Fields Station to Baseline Station. The screenline has four crossing points: Richmond Road, Carling Avenue, Highway 417 and Iris Street.

SL12 and SL24 are shown in **Figure 6**, as determined from the City of Ottawa's *Road Network Development Report (2013)*, a supporting document to the 2013 Transportation Master Plan (TMP). A review of the above-noted screenlines will be conducted in the Analysis component of this study.

Figure 6 – Screenlines



Source: TRANS Screenline System (2010)

3.4 Study Area

With consideration of the information presented thus far, the following intersections have been identified as being most impacted by the proposed development and will be assessed for vehicular capacity as part of this study:

- Woodridge Crescent (N) & Bayshore Drive
- Woodridge Crescent (S) & Bayshore Drive
- Richmond Road & Bayshore Drive/ WB 417 Off-Ramp
- Woodridge Crescent & 220m W of Bayshore Drive
- Woodridge Crescent & Transitway Access
- Woodridge Crescent & Site Access #1

Beyond the bounds of the above noted-study area intersections, site-generated traffic impacts are expected to be minimal. Motorists have a variety of options to access the broader arterial road network surrounding the site, resulting in a dispersion of vehicular demand within the periphery of the context area. Furthermore, sustainable transportation modes are expected to represent a significant proportion of the overall site generation due to the proximity of this development to an existing bus rapid transit station that will provide access to light rail transit network prior to the proposed development's full build-out.

Multi-Modal Level of Service (MMLOS) analysis will be conducted for all intersections listed above with the possible exceptions of Woodridge Crescent with the Transitway Access and Site Access. Both of these intersections are presently stop-controlled, and no methodology currently exists for evaluating MMLOS at unsignalized intersections. The need to provide alternative means of traffic control (i.e. signals) at either location will be reviewed in the Analysis component of this study to determine whether signals are warranted or operationally-required within the horizon year of this study. Segment-based MMLOS analysis will be limited to Woodridge Crescent along the subject site's frontage.

3.5 Time Periods

Based on the proposed residential land use, traffic generated during the weekday morning and afternoon peak hour is expected to result in the most significant impact to traffic operations on the adjacent road network in terms of combined development-generated and background traffic. These two time periods will therefore be considered for operational analysis in this study.

3.6 Study Horizon Year

The following analysis years will be assessed in this study:

- Year 2031 – Full Build-out / Occupancy of Proposed Development
- Year 2036 – 5 Years Beyond Full Build-out / Occupancy

3.7 Exemptions Review

The TIA Guidelines provide exemption considerations for elements of the Design Review and Network Impact components. **Table 2** summarizes the TIA modules that are not applicable to this study.

Table 2 – Exemptions Review

TIA MODULE	ELEMENT	EXEMPTION CONISDERATIONS	REQUIRED
DESIGN REVIEW COMPONENT			
4.1 Development Design	4.1.2 Circulation and Access	• Only required for site plans	✓
	4.1.3 New Street Networks	• Only required for plans of subdivision	✗
4.2 Parking	4.2.1 Parking Supply	• Only required for site plans	✓
	4.2.2 Spillover Parking	• Only required for site plans where parking supply is 15% below unconstrained demand	✗
NETWORK IMPACT COMPONENT			
4.5 Transportation Demand Management	All Elements	• Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time	✓
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	• Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	✓
4.8 Network Concept	n/a	• Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by established zoning	✗

4 Forecasting

4.1 Development Generated Traffic

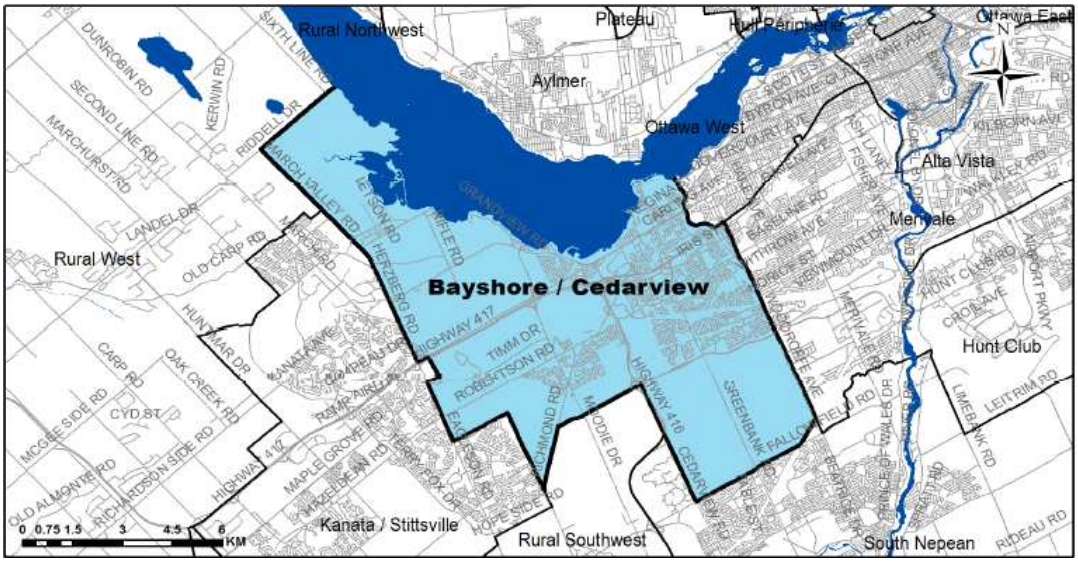
4.1.1 Trip Generation Methodology

Peak hour residential site-generated traffic volumes were developed using the 2020 TRANS Trip Generation Summary Report. The TRANS trip generation rates are based on blended rates derived from the 49 trip generation studies undertaken between 2008 and 2012, the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition) and the 2011 TRANS O-D Travel Survey. Separate peak period person-trip generation rates were developed for single-detached housing, low-rise multifamily housing (i.e. two storeys or less) and high-rise multifamily housing (i.e. three storeys or more). Site-generated peak period person-trips were estimated using these rates and subsequently subdivided based on representative mode share percentages applicable to the study area. Mode-specific adjustment factors were then applied to these peak period person-trips to determine the number of peak hour vehicle, passenger, transit, cycling and pedestrian trips.

Local mode share targets were based on the 2020 TRANS Trip Generation Summary Report which provides blended mode share distributions based on the 2011 TRANS Origin-Destination (O-D) Survey for select land uses for each of the Traffic Assessment Zones (TAZs) in the O-D Survey. The proposed development is located within the Bayshore/Cedarview TAZ, as illustrated in **Figure 7** below.

The local mode share distribution for the Bayshore/Cedarview TAZ considers a broad geographical area and therefore likely represents a much larger share of auto driver trips than would be expected for a development directly adjacent to a rapid transit station. As such, a count of all vehicle, pedestrian/transit and cyclist trips to and from the nearby 90 Woodridge Crescent apartment building was conducted to obtain a local mode share distribution for comparison against the City of Ottawa mode share targets for Transit-Oriented Development (TOD) zones.

Figure 7 – Bayshore/Cedarview TAZ



Source: 2011 TRANS O-D Survey

4.1.2 Trip Generation Results

4.1.2.1 Person Trip Generation

Site-generated trips were derived through the use of the recommended residential person-trip rates for weekday morning and afternoon peak periods (i.e. 7:00am-9:30am and 3:30pm-6:00pm), as presented for 'Multi-Unit (High-Rise)' uses in the 2020 TRANS Trip Generation Manual.

The resulting number of person-trips have been summarized in **Table 3** below.

Table 3 – Peak Period Person-Trip Generation

LAND USE	SIZE	PERIOD	PERSON TRIPS (PPP)		
			IN	OUT	TOTAL
Multi-Unit (High-Rise)	584 units	AM	145	322	467
		PM	305	221	526

Notes: ppp = persons per period

4.1.2.2 Mode Share Proportions

The 2020 TRANS Trip Generation Summary Report provides approximations of the existing modal share within the Bayshore/Cedarview Traffic Assessment Zone (TAZ) for the 'High-Rise Multi-Family Housing' land use, and is generally considered as a baseline when developing mode share projections.

Based on a blend of weekday AM and PM mode share values from the 2020 TRANS Trip Generation Summary Report, a baseline transit mode share of 35% was determined to be realistic, however this falls short of the sustainable mode share targets established by the City for residential Transit-oriented Development (TOD) zones which include 65% transit, 15% active (walking/cycling) and 5% automobile passenger.

TRANS Model Projections

Further review of TRANS model projections provided by the City of Ottawa indicates transit travel demand from the adjacent Accora Village community is expected to increase by 11% from 35% to 46% between 2011 and 2031. This increase in transit use is almost entirely attributable to the planned conversion of Bayshore Station from Bus Rapid Transit (BRT) to Light Rail Transit (LRT) by 2025, as the model assumed negligible population and employment growth would occur in the area during the same period. As such, it can be expected that this increase in transit use will not occur at a gradual rate but will increase suddenly following the opening of the Confederation Line western extension for full revenue service. As completion of the LRT western extension is expected to occur in 2025, an 11% increase in the transit ridership is expected to occur well in advance of the 2031 analysis year. This growth in transit mode share was assumed to result in a corresponding reduction in auto trips. It should be noted that the proportions between the auto driver and auto passenger mode share have been maintained as well.

A Transportation Demand Management (TDM) strategy is required to help bridge the 19% gap and achieve a transit mode share target of 65%, the details of which are discussed in subsequent sections of this report.

Table 4 summarizes the existing mode share and proposed mode share targets for the Bayshore/Cedarview TAZ. The target mode share distribution is assumed to remain unchanged throughout both the 2031 and 2036 future analysis years of this study.

Relevant extracts from the 2011 O-D Survey are provided in **Appendix F**.

Table 4 – Existing Mode Share and Proposed Mode Share Targets

TRAVEL MODE	2020 TRANS TRIP GENERATION [1]		BLENDED MODE SHARE	MODE SHARE TARGETS WITH LRT	MODE SHARE TARGETS (WITH TDM)
	AM	PM			
Auto Driver	40%	40%	40%	32%	15%
Auto Passenger	12%	15%	13%	10%	5%
Transit	38%	33%	35%	46%	65%
Walking	8%	11%	10%	10%	13%
Cycling	2%	1%	2%	2%	2%

[1] - *Residential mode share for High-Rise Multi-Family Housing – Bayshore/Cedarview TAZ – Table 8*

4.1.2.3 Peak Period Trip Generation

The mode share targets identified previously in **Table 3** were segregated by travel mode for both peak periods and are summarized in **Table 5** below.

Table 5 – Peak Period Person-Trips by Mode

MODE	AM		PM	
	IN	OUT	IN	OUT
Auto Driver	22	48	46	33
Auto Passenger	7	16	15	11
Transit	94	210	198	143
Cycling	3	6	6	4
Walking	19	42	40	29
Total Person-Trips	**467**		**526**	

4.1.2.4 Peak Hour Trip Generation

The *peak period* to *peak hour* conversion factors for TRANS trip generation rates vary by trip type and are applied to the peak period trips resulting from the mode share distribution.

The results after applying the appropriate conversion factors have been summarized in **Table 6** below.

Table 6 – Peak Hour Person-Trips by Mode

MODE	PEAK HOUR CONVERSION FACTOR (AM/PM)	AM		PM	
		IN	OUT	IN	OUT
Auto Driver	0.48/0.44	10	23	20	15
Auto Passenger	0.48/0.44	3	8	7	5
Transit	0.55/0.47	52	115	93	67
Walking	0.58/0.42	2	4	3	2
Cycling	0.58/0.52	11	24	21	15
Total Person-Trips	0.50/0.44	**253**		**247**	

Based on the above, the proposed development is expected to generate up to 35 two-way vehicular trips and 167 two-way transit trips during the weekday peak hours.

4.1.3 Trip Distribution and Assignment

According to the 2011 O-D Survey, weekday peak hour travel demand is generally split between 'local' trips that remain within the Bayshore/Cedarview Traffic Assessment Zone (TAZ) and 'regional' trips that are primarily destined to more central areas in Ottawa. The O-D Survey indicates that approximately 37% of all trips generated in the TAZ are considered 'local', which constitutes a significant proportion of the overall travel demand within the zone and justifies the development of separate distributions to distinguish between 'local' and 'regional' trips.

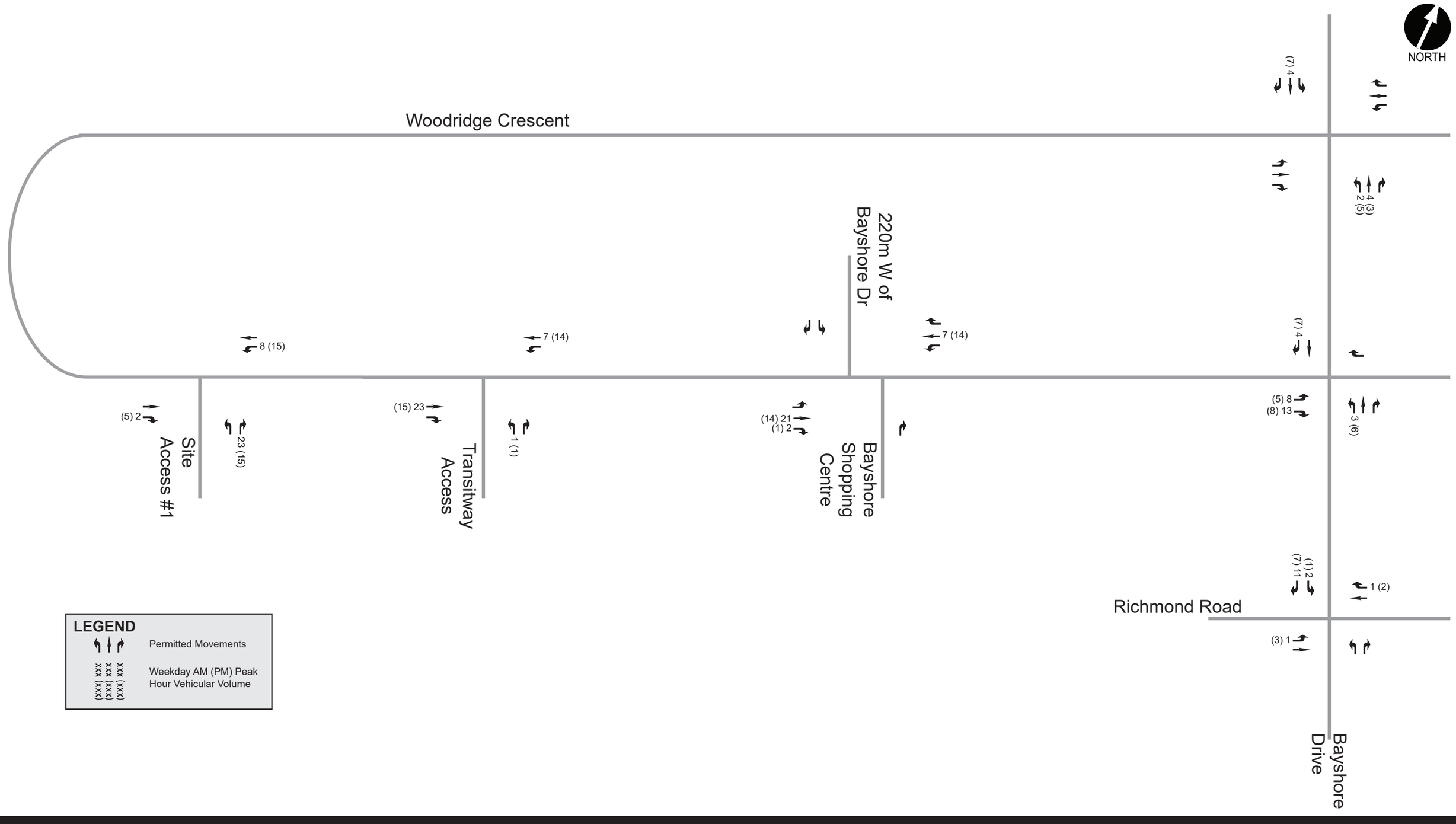
Route selection and weighting for the 'regional' distribution was developed based on a review of travel patterns from the O-D Survey and the configuration of the regional road network surrounding the proposed development. The 'local' distribution was established with consideration given to intersection-level travel patterns obtained from traffic count data and the geographical concentration of employment/commercial areas within the TAZ.

Trips generated by the proposed development were distributed to the adjacent road network as shown in **Table 7** below.

Table 7 – Proposed Development Distribution

REGIONAL (63%)	LOCAL (37%)
85% to/from the East ➢ 60% via Highway 417 ➢ 30% via Carling Avenue ➢ 10% via Richmond Road	40% to/from the East ➢ 70% via Carling Avenue ➢ 30% via Richmond Road
10% to/from the West ➢ 60% via Richmond Road / Highway 417 ➢ 40% via Carling Avenue	40% to/from the West ➢ 50% via Carling Avenue ➢ 50% via Richmond Road
5% to/from the South ➢ 100% via Richmond Road / Highway 416	20% to/from the Bayshore Shopping Centre ➢ 100% via access on Woodridge Crescent

Utilizing the estimated number of new auto trips and applying the above distributions, future site-generated traffic volumes are illustrated in **Exhibit 5** below.


NORTH
Woodridge Crescent
220m W of Bayshore Dr
Site Access #1
Transitway Access
Bayshore Shopping Centre
Richmond Road
Bayshore Drive
LEGEND
Permitted Movements
Weekday AM (PM) Peak Hour Vehicular Volume

4.2 Background Network Traffic

4.2.1 Changes to the Background Transportation Network

To properly assess future traffic conditions, planned modifications to the transportation network that may impact travel patterns or demand within the study area have been considered. The Scoping section of this report reviewed the anticipated changes to the study area transportation network based on the Transportation Master Plan (TMP) and determined that there are currently no planned future road network projects within the study area.

The TMP and Ottawa Cycling Plan (OCP) were also reviewed for planned future transit, cycling and pedestrian network projects. These changes were accounted for in the development of the mode share targets of the subject development. For the purposes of this analysis, the planned improvements to cycling infrastructure were assumed to have a negligible impact on the cycling mode share, but are accounted for in the targeted 15% non-auto mode share.

4.2.2 General Background Growth Rates

The background growth rate is intended to represent regional growth from outside the study area that will travel along the adjacent road network. Based on 2011 and 2031 peak directional traffic volumes obtained from the City's TRANS regional transportation demand model, Richmond Road and Bayshore Drive are projected to experience a growth rate of approximately 0.5% per year. As such, a linear 0.5% growth rate has been applied to through movements along Bayshore Drive and all movements at the intersection of Richmond Road & Bayshore Drive/WB 417 Off-Ramp for the calculation of future background traffic.

4.2.3 Other Area Development

The Scoping section of this report determined that there is presently one development application of significance within the study area for a high-rise residential development immediately east of the subject site at 100 Bayshore Drive (Lot 'B'). The traffic impacts associated with this development have been accounted for explicitly in the development of background traffic.

Further, as discussed previously, a Master Planning process for the potential long-term redevelopment and intensification of the adjacent Accora Village community is expected to begin in the near future, however as no concept plans or timeline are currently available it was not considered in this study as an adjacent development. The impacts of the Accora Village Master Plan will be evaluated as part of a future land use application to the City.

4.3 Demand Rationalization

The purpose of this section is to rationalize future travel demands within the study area to account for potential capacity limitations in the transportation network and its ability to effectively accommodate the additional demand generated by a new development.

4.3.1 Description of Capacity Issues

The recently-prepared TIA for 100 Bayshore Drive - Lot 'B' (IBI, April 2020) indicates all study area intersections are expected to operate at LOS 'A' and 'B' beyond 2031 and well within acceptable limits (i.e. LOS 'E') within a TOD zone. As such, the inclusion of marginal site-generated traffic impacts associated with the subject development and the application of an additional five years of low background growth (i.e. 0.5% per annum) are not expected to result in traffic operational issues at any of the study area intersections within the timeframe of this study.

4.3.1 Adjustment to Background Network Demands

Given the lack of documented capacity issues within the study area during the weekday peak hours, no adjustments have been made to the background network traffic demand.

4.3.2 Adjustment to Development-Generated Demands

As no background capacity issues have been identified, no adjustments to development-generated demand are necessary.

4.4 Traffic Volume Summary

4.4.1 Future Background Traffic Volumes

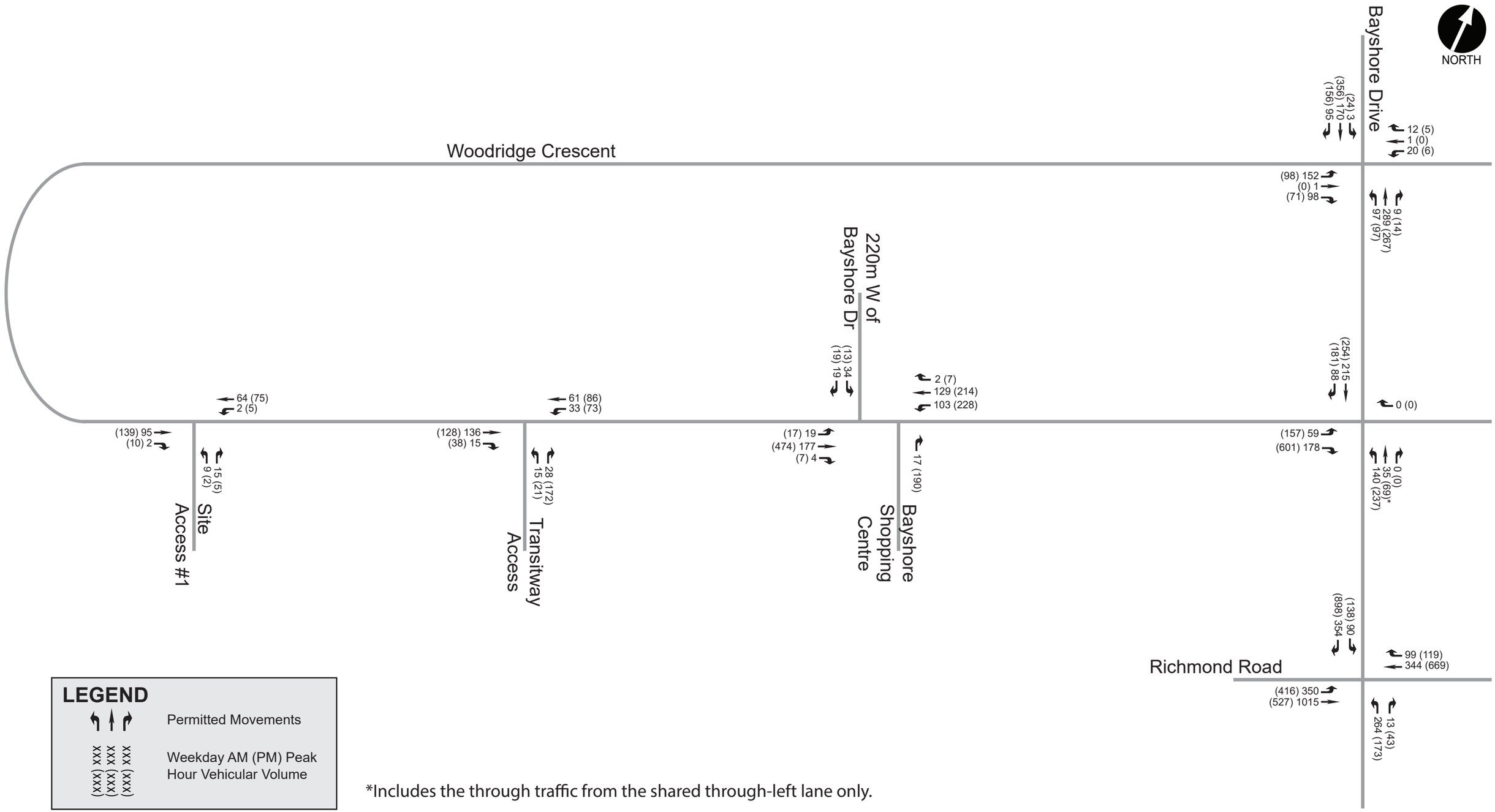
Future background traffic volumes have been established by applying a linear background growth rate to the Existing (2021) Traffic volumes, as described in previous sections of this report.

Exhibit 6 and **Exhibit 7** present the future background traffic volumes anticipated for the 2031 and 2036 analysis years, respectively.

4.4.2 Future Total Traffic Volumes

Future total traffic volumes have been established by combining the site-generated traffic volumes with the future background traffic volumes.

Exhibit 8 and **Exhibit 9** present the future total traffic volumes anticipated for the 2031 and 2036 analysis years, respectively.


NORTH
Bayshore Drive
Woodridge Crescent
220m W of Bayshore Dr
Site Access #1
Transitway Access
Bayshore Shopping Centre
Richmond Road
(24) 3
(356) 170
(156) 95
12 (5)
1 (0)
20 (6)
(98) 152
(0) 1
(71) 98
9 (14)
289 (267)
97 (97)
(254) 215
(181) 88
0 (0)
(13) 34
(19) 19
2 (7)
129 (214)
103 (228)
64 (75)
2 (5)
61 (86)
33 (73)
(139) 95
(10) 2
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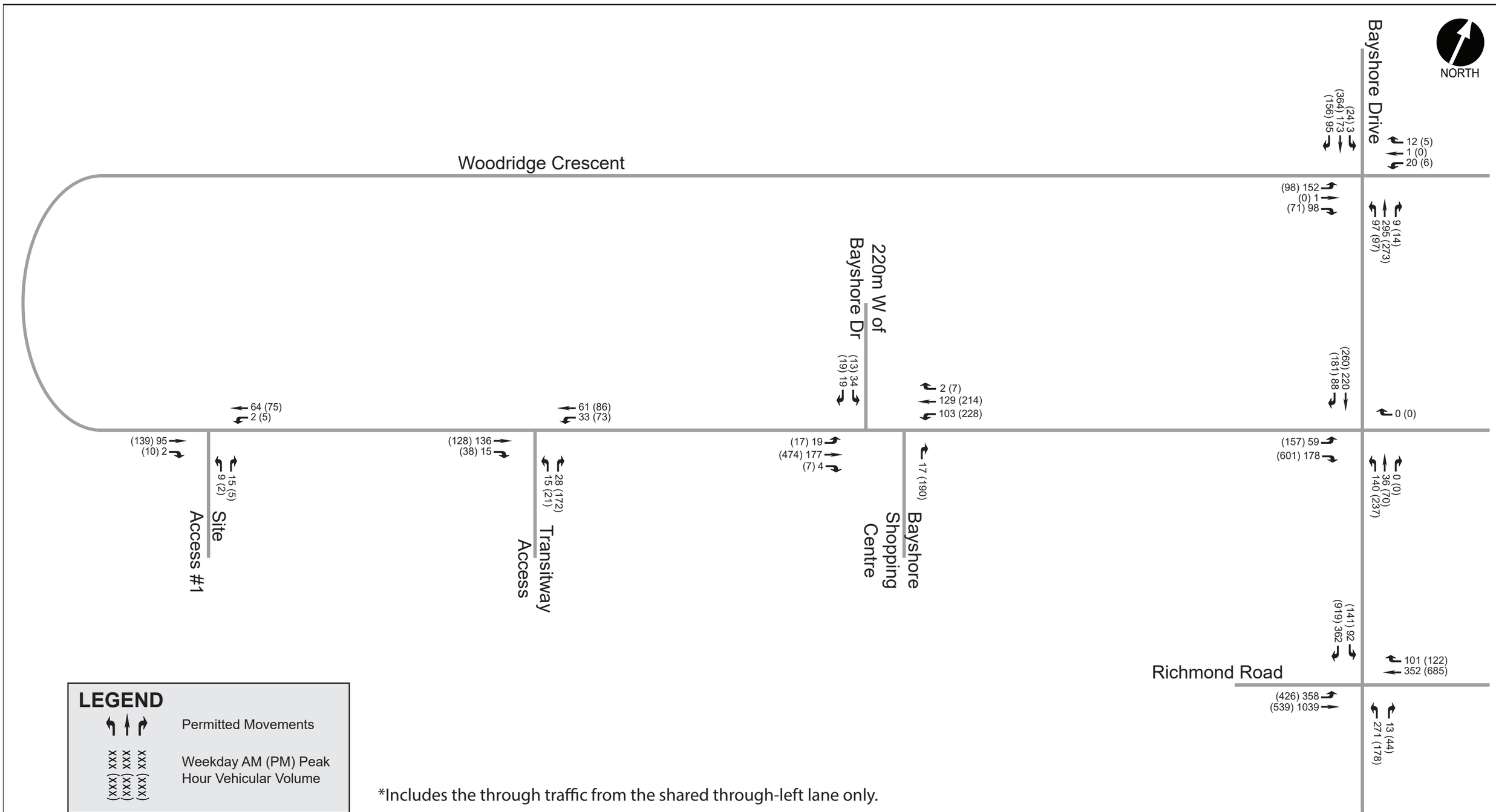
9 (2)
(128) 136
(38) 15
28 (172)
15 (21)
(17) 19
(474) 177
(7) 4
17 (190)
(157) 59
(601) 178
0 (0)
35 (69)*
140 (237)
(138) 90
(898) 354
99 (119)
344 (669)
(416) 350
(527) 1015
13 (43)
264 (173)
LEGEND
Permitted Movements
Weekday AM (PM) Peak Hour Vehicular Volume
*Includes the through traffic from the shared through-left lane only.


NORTH
Bayshore Drive
Woodridge Crescent
220m W of Bayshore Dr
Site Access #1
Transitway Access
Bayshore Shopping Centre
Richmond Road
(24) 3
(364) 173
(156) 95
12 (5)
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20 (6)
(98) 152
(0) 1
(71) 98
9 (14)
295 (273)
97 (97)
(260) 220
(181) 88
0 (0)
(13) 34
(19) 19
2 (7)
129 (214)
103 (228)
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2 (5)
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36 (70)
140 (237)
(141) 92
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352 (685)
(426) 358
(539) 1039
13 (44)
271 (178)
LEGEND
Permitted Movements
Weekday AM (PM) Peak Hour Vehicular Volume
*Includes the through traffic from the shared through-left lane only.

NORTH

Bayshore Drive

Woodridge Crescent

220m W of Bayshore Dr

Site Access #1

Transitway Access

Bayshore Shopping Centre

Richmond Road

(24) 3
(376) 178
(156) 95

12 (5)
1 (0)
20 (6)

(98) 152
(0) 1
(71) 98

9 (14)
300 (274)
103 (111)

(254) 215
(201) 96

5 (5)*

(13) 34
(19) 19

2 (7)
145 (252)
103 (228)

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10 (20)

77 (124)
33 (73)

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9 (2)

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28 (172)
17 (25)

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(9) 9

17 (190)

(170) 82
(622) 214

5 (5)*
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148 (255)

(142) 96
(915) 384

101 (124)
344 (669)

(424) 353
(527) 1015

13 (43)
264 (173)

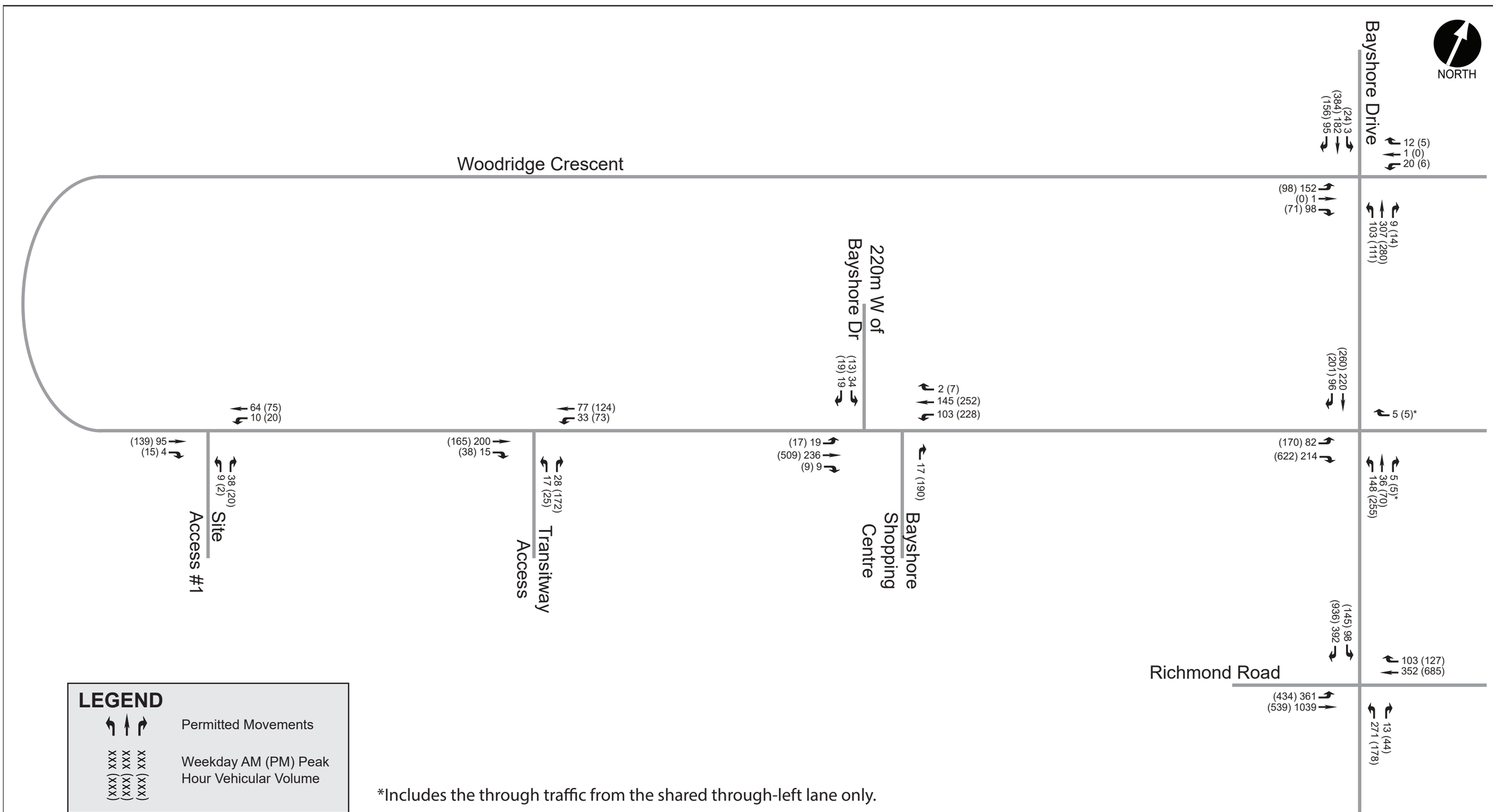
LEGEND

Permitted Movements

XXX (XXX)
XXX (XXX)
XXX (XXX)

Weekday AM (PM) Peak Hour Vehicular Volume

*Includes the through traffic from the shared through-left lane only.



LEGEND

Permitted Movements

XXX (XXX)
XXX (XXX)
XXX (XXX)

Weekday AM (PM) Peak Hour Vehicular Volume

*Includes the through traffic from the shared through-left lane only.

5 Analysis

5.1 Development Design

5.1.1 Design for Sustainable Modes

For consistency with the City of Ottawa's Urban Design Guidelines for High-Rise Buildings and transportation policies, new developments shall provide safe and efficient access for all users, while creating an environment that encourages walking, cycling and transit use.

The proposed development is located within an existing Transit-Oriented Development (TOD) zone and immediately west of the Bayshore Transitway Station, which is planned for conversion to an LRT station by 2025. In addition to providing access to the light-rail transit network, the station will operate as multi-modal transit hub, serving as a terminus station to the Baseline Road Bus Rapid Transit corridor, supplemented with enhanced connections for cyclists and pedestrians. This high-density residential development is well suited in this context, given its proximity to high quality transit service and the numerous amenities offered at Bayshore Shopping Centre.

Both Bayshore Station and Bayshore Shopping Centre are located within a 200-metre walking distance of the site through direct connections to the future multi-use path and Woodridge Crescent. Building entrances are strategically located to provide convenient and direct access to Woodridge Crescent, the future multi-use pathway (MUP), as well as the pick-up/drop-off areas serving each building and facilitating a range of mobility options. The site will also be designed to allow pedestrian permeability between Accora Village, the planned MUP and the transit station.

The above design and infrastructure elements contribute to a development that significantly reduces dependence on private automobile usage by integrating well with the existing and proposed sustainable transportation infrastructure.

The TDM-Supportive Development Design and Infrastructure Checklist was completed and is provided in **Appendix G**. This checklist identifies specific measures that are being considered in association with the proposed development to offset the vehicular impact on the adjacent road network, including the following:

- Integrate street-oriented and active primary building entrances which are not separated from the public realm by vehicular parking.
- Provide secure bicycle parking spaces equivalent to at least the number of dwelling units.
- Allocate separate parking areas for short-term and long-term parking (using signage and physical barriers) to permit access controls and simplify enforcement.

5.1.2 Circulation and Access

The proposed development will be accessed by an existing a full-movement connection on Woodridge Crescent (Site Access #1) which presently serves as the eastern access for the 12-storey apartment building at 90 Woodridge.

Vehicular access to the underground parking garage entrances for both proposed high-rise buildings will be provided via drive aisle connections to the existing surface parking facility.

Each building will have its own dedicated loading access to accommodate moving trucks and waste collection activities. Loading access to the eastern building will be directly from Woodridge Crescent.

5.1.3 New Street Networks

Not Applicable: The New Street Networks element is not relevant to this TIA, as defined in the study scope. This element is not required for development applications involving site plans.

5.2 Parking

5.2.1 Total Parking Supply

As discussed previously, vehicular parking spaces for the proposed development will be housed in separate two-level underground parking garages provided for each building. Designated pick-up and drop-off entrances will serve each building's primary pedestrian entrance.

In terms of parking supply, no off-street vehicle parking, except for visitor parking, is required for the proposed development because it is located within Area 'Z' and Schedule 1A of the Zoning Bylaw, Part 4 - Parking, Queuing and Loading Provisions. As the proposed development is within 600m of a rapid transit station, the maximum allowable parking is 1.75 spaces per unit. The functional concept plan indicates that a total of 448 vehicle parking spaces are proposed. Dependent on the size of dwelling units, the parking ratio will range from 0.78 to 0.88 spaces per unit and well below the maximum ratio permitted in the by-law.

The by-law also specifies that the proposed development must provide at least 0.5 bicycle parking spaces per unit. Within the underground parking garage for each building, a bike parking ratio of one stall per unit is proposed and therefore the minimum requirement is exceeded by two-fold.

5.2.2 Spillover Parking

The ITE Parking Generation Manual (5th Edition) indicates a parking ratio of 0.6 spaces per dwelling unit is the average parking demand for a high-rise residential development within a 'Dense Multi-Use' urban setting and within 0.5 miles (i.e. ~0.8 km) of rail transit. It is important to note that this represents an average amongst North-American cities and does not take into consideration local context or market needs. Applying this parking demand ratio, the overall demand for the site was calculated to be in the range of 307 to 350 parking spaces which is well within the 448 vehicle parking supply proposed for the subject development. As such, no further review of spillover parking within the surrounding community is required as part of this study.

Relevant extracts from the Parking Generation Manual are located in **Appendix E**.

5.3 Boundary Streets

Woodridge Crescent along the site's frontage does not currently have a Complete Streets concept plan, therefore a segment-based Multi-Modal Level of Service (MMLOS) evaluation will be conducted for this road segment.

5.3.1 Mobility

Segment-based Multi-Modal Level of Service (MMLOS) results for Woodridge Crescent within the site's frontage are provided in **Table 8** below.

Details of the Multi-Modal Level of Service (MMLOS) analysis are provided in **Appendix H**.

Table 8 – Segment-based MMLOS Results

LOCATION	LEVEL OF SERVICE BY MODE			
	PEDESTRIAN (PLOS)	BICYCLE (BLOS)	TRANSIT (TLOS)	TRUCK (TkLOS)
SEGMENTS				
Woodridge Crescent – Development Frontage	**B** (Target: A)	B (Target: D)	D (Target: N/A[1])	B (Target: N/A[2])

Notes: [1] No target specified for roads not identified as rapid transit or transit signal priority corridors in the TMP.
[2] No target specified for collector roads not on a truck route within 600 metres of a rapid transit station.

The results of the Segment-based MMLOS indicate that Woodridge Crescent abutting the subject site is currently meeting the minimum desired BLOS target, while the PLOS was found to operate at 'B' which slightly exceeds the target of 'A'. Potential modifications that the City may wish to consider exploring to help achieve the PLOS include the integration of a horizontal separation (i.e. boulevard) between the sidewalk and the curbside parking lane to increase pedestrian comfort and safety.

5.3.2 Road Safety

A summary of all reported collisions within the study period over the past five years was presented in the Scoping section of this TIA. The City requires a safety review if at least six collisions for any one movement or of a discernible pattern have occurred over a five-year period. Preliminary analysis identified some intersections and road segments of potential concern, therefore further review was conducted, as summarized below:

Woodridge Crescent (N) & Bayshore Drive

In the past five years, there have been a total of 19 collisions at this intersection, with 4 involving pedestrians. Compared with the relatively low recorded traffic volumes, this number of pedestrian collisions can be considered significant, given that pedestrian collisions are typically less frequent and of higher severity. A review of the collision details indicates that 3 of the 4 collisions either occurred either in dark or snowy conditions. New trips generated by the proposed development are not expected to exacerbate these concerns. The City may wish to conduct a separate safety review, investigate illumination levels and monitor the interaction between motorists and pedestrians at this intersection. The implementation of enhanced pedestrian features such as an advanced walking phase, ladder crosswalk markings and improved lighting to increase visibility among road users should also be considered.

Woodridge Crescent (S) & Bayshore Drive

In the past five years, there have been eight rear-end collisions at this intersection. Details of these collisions were reviewed to determine if there is any probable cause for these repeated events. Based on the collision data, a variety of environmental factors may be contributing to northbound rear-end collisions. Five of the eight recorded collisions occurred under adverse weather conditions (snowing, freezing rain) or under poor roadway conditions (wet, snow, slush, ice).

Richmond Road & Bayshore Drive

The vast majority of the 34 collisions observed at this intersection are classified as either rear-end or sideswipe collisions. These collisions are relatively evenly distributed amongst the four approaches, with only the eastbound rear-end collision type meeting the City's threshold of six collisions. It should be noted that three of these six rear-end collisions occurred during the weekday morning or afternoon peak periods. Given that traffic volumes passing through this intersection during these peak periods are typically in the order of 2,300 to 2,800 vehicles per

hour, it is expected that a higher frequency of rear-end and sideswipe collisions would be observed.

There is no evident pattern or specific cause for collisions at this location and a review of site conditions does not indicate any geometric deficiencies or visibility restrictions that may contribute to this incident type.

Woodridge Crescent – Transitway Access to Bayshore Public School Access

No significant collision patterns have been observed. Overall, the majority of the collisions appear to be driveway related or collisions with parked vehicles.

Woodridge Crescent – Bayshore Drive to Bayshore Public School Access

Similar to the other segment of Woodridge Crescent that was analysed, no significant collision patterns have been observed. Overall, the majority of the collisions appear to be driveway-related or collisions with parked vehicles.

5.4 Access Intersections

5.4.1 Location and Design of Access

The proposed development will rely on existing access driveways and therefore a review of these driveways with respect to the City of Ottawa Private Approach By-law 2003-447 was not conducted as part of this study.

The proposed loading access at the northeast corner of the site will be accessed directly off of Woodridge Crescent, as identified previously on **Exhibit 2**, and therefore this vehicular connection was reviewed for conformance with the Private Approach By-law:

- Width: A private approach shall have a minimum width of 2.4m and a maximum width of 9.0m.
    - The loading access serving the East Tower shall provide approximately 3.7 metres of clear width. ✓
- Quantity and Spacing of Private Approaches: For sites with frontage between 20 and 34 metres, one (2) two-way or two (2) one-way private approaches are permitted. Any two private approaches must be separated by at least 9.0m on the same property and can be reduced to 2.0m in the case of two one-way driveways. On lots that abut more than one roadway, these provisions apply to each frontage separately.
    - The subject site's frontage on Woodridge Crescent is approximately 67 metres and therefore two, two-way private approaches are compliant with the by-law. ✓
- Distance from Property Line: Private approaches must be at least 3.0m from the abutting property line, however this requirement can be reduced to 0.3m provided that the access is a safe distance from the access serving the adjacent property, sight lines are adequate and that it does not create a traffic hazard.
    - The proposed private approach on Woodridge Crescent will be located approximately 1.7 metres from the eastern property line. ✗
        - The proposed loading access will experience infrequent use by moving trucks and waste collection vehicles and will not serve as a vehicular connection for private automobiles to access the site. As such, it is not expected that the inclusion of this additional vehicular connection will result in traffic operational issues with respect to the planned western site access serving the 100 Bayshore Drive site, despite its location approximately 5 metres east of the loading access.

Based on the Transportation Association of Canada's (TAC) Geometric Design Guide for Canadian Roads (June 2017), for a residential development with more than 200 units a minimum clear throat length of 25 metres is suggested for site access driveways on collector roads. The throat length is provided to ensure that any queues that form due to on-site circulation blockages do not spillback onto the collector road. A clear throat length of approximately 6.0 metres is proposed between Site Access #1 and the pick-up/drop-off area associated with the East Tower. This throat length does not meet this guideline, however, given that the parking garage entrances are far removed from either site access driveway, operational issues are not anticipated as a result of this configuration.

5.4.2 Access Intersection Control

The site access is presently stop-controlled and will continue to operate with this form of traffic control, following full build-out of the subject property.

5.4.2.1 Traffic Signal Warrants

Not Applicable – As discussed above, no traffic signal warrant analysis is necessary for the site access driveways serving the subject development.

5.4.2.2 Roundabout Analysis

Not Applicable - As per the City's Roundabout Implementation Policy, intersections that satisfy any of the following criteria should be screened utilizing the Roundabout Initial Feasibility Screening Tool:

- At any new City intersection
- Where traffic signals are warranted
- At intersections where capacity or safety problems are being experienced

Since the site access driveways do not meet any of the above criteria, no roundabout analysis is required for the site access.

5.4.3 Access Intersection Design (MMLOS)

Not Applicable – The site access will remain as unsignalized, therefore intersection-based Multi-Modal Level of Service (MMLOS) analysis is not required for this study.

5.5 Transportation Demand Management (TDM)

The City of Ottawa is committed to implementing Transportation Demand Management (TDM) measures on a City-wide basis in an effort to reduce automobile dependence, particularly during the weekday peak travel periods. TDM initiatives are aimed at encouraging individuals to use non-auto modes of travel during the peak periods.

5.5.1 Context for TDM

As discussed previously, the proposed development is located immediately adjacent to Bayshore Transitway Station and is well within the Transit-Oriented Development (TOD) zone. This development therefore aligns with the City's policy objectives, which encourages high-density and compact growth within close proximity to rapid transit stations. In keeping with the City's objectives to promote the building of inclusive communities, the proposed development will include dwelling units to accommodate a range of household sizes.

The Forecasting section of this report presented mode share targets used to estimate future development traffic that were based on the TRANS Origin-Destination (O-D) Survey for the Bayshore/Cedarview Traffic Assessment Zone (TAZ) and refined based on a review of population and employment data obtained from the 2031 TRANS travel demand projections. These refined mode share targets were assumed to represent an average of the existing commuter peak period mode share for the proposed development after the conversion of Bayshore Station from BRT to LRT.

5.5.2 Need and Opportunity

Even with the conversion of Bayshore Station from BRT to LRT, a 19% gap is expected to exist between the 46% transit mode share for the site with no specific TDM Measures and the City's target of 65%.

The surrounding community presently has features such as a well-connected pathway network that provides direct connections for both pedestrians and cyclists. The implementation of design and infrastructure elements such as a multi-use pathway (MUP) abutting the site to the south and complemented by Transportation Demand Management (TDM) measures, are expected to further increase the sustainable mode share to help achieve the City's transit target of 65% and non-auto mode share of 15%.

5.5.3 TDM Program

The proposed development conforms to the City's TDM principles by providing convenient and direct connections to adjacent pedestrian, cycling and transit facilities, as well as nearby amenities such as Bayshore Shopping Centre.

It should also be noted that Accora Village is a managed community which regularly collects data on residents' travel characteristics, and currently offers incentives to encourage the use of non-auto modes of travel through programs such as bicycle skills training courses and complimentary usage of bikes for all residents.

The City of Ottawa's TDM Measures Checklist was completed for the proposed development and is provided in **Appendix G**. This checklist indicates measures that are being contemplated as part of this development or are already in use for surrounding residential developments within Accora Village, including the following:

- Include future residents of the proposed development in the regular, periodic surveys which are sent out to residents within Accora Village on a regular basis to identify travel-related behaviours, attitudes, challenges, solutions and to track progress.
- Display local area maps with walking/cycling access routes and key destinations at major entrances.
- Continue to offer on-site cycling courses for residents within Accora Village with the potential to expand this program to include adults or subsidize off-site courses.
- Consistent with other residential developments within Accora Village, offer complimentary usage of bikes to all residents within the proposed development.
- Display relevant transit schedules and route maps in the main lobby for each building.
- Continue to unbundle parking cost from monthly rent to maintain the same pricing structure for existing residential units within Accora Village.
- Include a multi-modal travel option information component as part of the existing welcome package provided to new residents.

5.6 Neighbourhood Traffic Management

5.6.1 Adjacent Neighbourhoods

The subject site is accessed via Woodridge Crescent, a collector road, and therefore a review of Neighbourhood Traffic Management thresholds is required as part of the TIA process.

The TIA Guidelines specify a liveability threshold of 300 vehicles per hour per direction for collector roads. Within the development frontage, Woodridge Crescent is projected to operate with two-way traffic volumes of up to 133 and 159 peak direction vehicles during the weekday morning and afternoon peak hours, respectively, under Future (2036) Total Traffic conditions. Given that both weekday peak hours are expected to operate well within the liveability threshold beyond the horizon year of the study, a Neighbourhood Traffic Management (NTM) plan is not necessary for proposed development.

It should be noted that near Bayshore Drive, traffic volumes are expected to exceed the threshold for collector roads. This is primarily due to traffic associated with the Bayshore Shopping Centre. Site-generated traffic is expected to contribute only 35 two-way vehicle-trips representing a small fraction of the total traffic volumes at this location. It is typical for the volume thresholds to be exceeded on the approach to an arterial road.

5.7 Transit

5.7.1 Route Capacity

The estimated transit ridership demand generated by the proposed development was indicated previously in the Forecasting component of this study. The results have been summarized in **Table 9** below.

Table 9 – Development Generated Transit Demand

PERIOD	PEAK HOUR DEMAND (PERSON-TRIPS)		
	IN	OUT	TOTAL
AM	52	115	167
PM	93	67	160

As shown in **Table 9** above, site-generated two-way transit ridership volumes of roughly 167 and 160 passengers are expected during the weekday morning and afternoon peak hours, respectively. It is expected that these additional transit trips will be easily accommodated by LRT service at Bayshore Station upon its completion in 2025, with an expected two-way capacity in the order of 14,400 passengers per hour for trains operating on 5-minute headways. This equates to approximately 1.2% of the overall LRT capacity at Bayshore Station.

5.7.1 Transit Priority Measures

Transit priority measures are not required at any of the signalized study area intersections to accommodate site-generated transit trips, given that the site will not trigger any traffic congestion for local on-road transit routes, as well as the site's proximity to Bayshore Station.

5.8 Intersection Design

The following sections summarize the methodology and results of the multi-modal intersection capacity analysis conducted for all other intersections within the study area.

5.8.1 Intersection Control

The following section evaluates the need to conduct traffic signal warrant analyses and roundabout analyses at any applicable study area intersections.

5.8.1.1 Traffic Signal Warrants

Not Applicable – All intersections within the study area are presently signalized with the exception of the Transitway Access & Woodridge Crescent, which is configured with stop control on the minor road. The capacity analysis presented in subsequent sections of this report indicates that this intersection is expected to operate at an acceptable level of service (i.e. LOS 'E' or better) beyond the 2036 study horizon year and therefore no traffic signal warrant analysis was required for this TIA.

5.8.1.2 Roundabout Analysis

Not Applicable - None of the study area intersections meet the criteria for consideration of a roundabout.

5.8.2 Intersection Analysis Criteria (Automobile)

The following section outlines the City of Ottawa's methodology for determining motor vehicle Level-of-Service (LOS) at signalized and unsignalized intersections.

5.8.2.1 Signalized Intersections

In qualitative terms, the Level-of-Service (LOS) defines operational conditions within a traffic stream and their perception by motorists. A LOS definition generally describes these conditions in terms of such factors as delay, speed and travel time, freedom to manoeuvre, traffic interruptions, safety, comfort and convenience. LOS can also be related to the ratio of the volume to capacity (v/c) which is simply the relationship of the traffic volume (either measured or forecast) to the capability of the intersection or road section to accommodate a given traffic volume. This capability varies depending on the factors described above. LOS are given letter designations from 'A' to 'F'. LOS 'A' represents the best operating conditions and LOS 'E' represents the level at which the intersection or an approach to the intersection is carrying the maximum traffic volume that can, practicably, be accommodated. LOS 'F' indicates that the intersection is operating beyond its theoretical capacity.

The City of Ottawa has developed criteria as part of the Transportation Impact Assessment Guidelines, which directly relate the volume to capacity (v/c) ratio of a signalized intersection to a LOS designation. These criteria are presented in **Table 10** as follows:

Table 10 – LOS Criteria for Signalized Intersections

LOS	VOLUME TO CAPACITY RATIO (v/c)
A	0 to 0.60
B	0.61 to 0.70
C	0.71 to 0.80
D	0.81 to 0.90
E	0.91 to 1.00
F	> 1.00

The intersection capacity analysis technique provides an indication of the LOS for each movement at the intersection under consideration and for the intersection as a whole. The overall v/c ratio for an intersection is defined as the sum of equivalent volumes for all critical movements at the intersection divided by the sum of capacities for all critical movements.

The Level of Service calculation is based on locally-specific parameters as described in the TIA Guidelines and incorporates existing signal timing plans obtained from the City of Ottawa. The analysis existing conditions utilized a Peak Hour Factor (PHF) of 0.90, while future conditions considers optimized signal timing plans and use of a Peak Hour Factor (PHF) of 1.0 to recognize peak spreading beyond a 15-minute period in congested conditions.

5.8.2.2 Unsignalized Intersections

The capacity of an unsignalized intersection can also be expressed in terms of the LOS it provides. For an unsignalized intersection, the Level of Service is defined in terms of the average movement delays at the intersection. This is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line; this includes the time required for a vehicle to travel from the last-in-queue position to the first-in-queue position. The average delay for any particular minor movement at the un-signalized intersection is a function of the capacity of the approach and the degree of saturation.

The Highway Capacity Manual 2010 (HCM), prepared by the Transportation Research Board, includes the following Levels of Service criteria for un-signalized intersections, related to average movement delays at the intersection, as indicated in **Table 11** below.

Table 11 – LOS Criteria for Unsignalized Intersections

LOS	DELAY (seconds)
A	<10
B	>10 and <15
C	>15 and <25
D	>25 and <35
E	>35 and <50
F	>50

The unsignalized intersection capacity analysis technique included in the HCM and used in the current study provides an indication of the Level of Service for each movement of the intersection under consideration. By this technique, the performance of the unsignalized intersection can be compared under varying traffic scenarios, using the Level of Service concept in a qualitative sense. One unsignalized intersection can be compared with another unsignalized intersection using this concept. Level of Service 'E' represents the capacity of the movement under consideration and generally, in large urban areas. Level of Service 'F' indicates that the movement is operating beyond its design capacity.

For both signalized and unsignalized intersections, Level of Service 'D' is generally considered to represent an acceptable operating condition. Level of Service 'E' is considered an acceptable operating condition for planning purposes for intersections located within Ottawa's Urban Core, within 300 metres of a school and within 600 metres of a rapid transit station.

5.8.3 Intersection Capacity Analysis

Following the established intersection capacity analysis criteria described above, the existing and future conditions are analyzed during the weekday peak hour traffic volumes derived in this study.

The following section presents the results of the intersection capacity analysis. All tables summarize study area intersection LOS results during the weekday morning and afternoon peak hour periods.

Given the site-generated traffic contributions will have a negligible impact on capacity analysis results, the analysis for this study has been limited to Existing (2021), Future (2031) Total and Future (2036) Total Traffic conditions.

The Synchro output files have been provided in **Appendix I**.

5.8.3.1 Existing (2021) Traffic

An intersection capacity analysis has been undertaken using the Existing (2021) Traffic volumes presented in **Exhibit 4**, yielding the following results:

Table 12 – Intersection Capacity Analysis: Existing (2021) Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)
Bayshore Drive & Woodridge Crescent (N)	Signalized	A (0.49)	NBTRL (0.55)	A (0.50)	EBL (0.50)
Bayshore Drive & Woodridge Crescent (S)	Signalized	A (0.28)	SBTR (0.34)	A (0.44)	SBTR (0.48)
Richmond Road & Bayshore Drive	Signalized	A (0.39)	EBL (0.76)	A (0.60)	EBL (0.73)
Woodridge Crescent & 220m W of Bayshore	Signalized	A (0.08)	SBRL (0.34)	A (0.17)	SBRL (0.23)
Woodridge Crescent & Transitway Access	Unsignalized	B (11.1s)	NBL (11.1s)	B (13.2s)	NBL (13.2s)
Woodridge & Site Access #1	Unsignalized	A (9.3s)	NBRL (9.3s)	A (9.7s)	NBRL (9.7s)

Based on the results of the analysis, all study area intersections presently operate at an overall Level of Service of 'B' or better under Existing (2021) Traffic conditions, which is well within acceptable operating conditions. The most critical intersection movement identified is the eastbound left-turn movement at the intersection of Richmond Road & Bayshore Drive with a v/c ratio of 0.76 during the weekday morning peak hour.

5.8.3.2 Future (2031) Total Traffic

An intersection capacity analysis has been undertaken using the Future (2031) Total Traffic volumes presented in **Exhibit 8**, yielding the following results:

Table 13 – Intersection Capacity Analysis: 2031 Total Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)
Bayshore Drive & Woodridge Crescent (N)	Signalized	A (0.48)	EBL (0.59)	A (0.49)	SBTRL (0.49)
Bayshore Drive & Woodridge Crescent (S)	Signalized	A (0.29)	EBL (0.43)	A (0.44)	EBL (0.49)
Richmond Road & Bayshore Drive	Signalized	A (0.39)	EBL (0.76)	A (0.59)	EBL (0.71)
Woodridge Crescent & 220m W of Bayshore	Signalized	A (0.11)	SBRL (0.31)	A (0.17)	SBRL (0.21)
Woodridge Crescent & Transitway Access	Unsignalized	B (12.0s)	NBL (12.0s)	B (14.3s)	NBL (14.3s)
Woodridge Crescent & Site Access	Unsignalized	A (9.2s)	NBRL (9.2s)	A (9.5s)	NBRL (9.5s)

5.8.3.3 Future (2036) Total Traffic

An intersection capacity analysis has been undertaken using the Future (2036) Total Traffic volumes presented in **Exhibit 9**, yielding the following results:

Table 14 – Intersection Capacity Analysis: 2036 Total Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)
Bayshore Drive & Woodridge Crescent (N)	Signalized	A (0.49)	EBL (0.59)	A (0.49)	SBTRL (0.49)
Bayshore Drive & Woodridge Crescent (S)	Signalized	A (0.30)	EBL (0.43)	A (0.44)	EBL (0.49)
Richmond Road & Bayshore Drive	Signalized	A (0.39)	EBL (0.77)	A (0.60)	EBL (0.72)
Woodridge Crescent & 220m W of Bayshore	Signalized	A (0.11)	SBRL (0.31)	A (0.17)	SBRL (0.21)
Woodridge Crescent & Transitway Access	Unsignalized	B (12.0s)	NBL (12.0s)	B (14.3s)	NBL (14.3s)
Woodridge Crescent & Site Access #1	Unsignalized	A (9.2s)	NBRL (9.2s)	A (9.5s)	NBRL (9.5s)

As indicated in **Table 14** above, all study area intersections are expected to continue operating well within acceptable levels of service under Future (2036) Total Traffic conditions.

5.8.4 Intersection Design (MMLOS)

5.8.4.1 Intersection MMLOS Results

An analysis of the future conditions for each mode has been conducted where traffic signals exist or are anticipated, based on the methodology prescribed in the 2017 Multi-Modal Level of Service (MMLOS) Guidelines.

All study area intersections are located in the Transit-oriented Development (TOD) Policy Area, with the exception of Bayshore & Woodridge Crescent (N) which is located in the General Urban Area.

The intersection-based MMLOS results for Existing and Future conditions have been summarized in **Table 15** below.

Detailed intersection MMLOS analysis results are provided **Appendix H**.

Table 15 – Intersection-Based MMLOS – Existing & Future Conditions

LOCATION	SCENARIO	LEVEL OF SERVICE BY MODE			
		PEDESTRIAN (PLOS)	BICYCLE (BLOS)	TRANSIT (TLOS)	TRUCK (TkLOS)
INTERSECTIONS					
Woodridge (N) & Bayshore	Existing & Future Conditions	**D** (Target: C)	**D** (Target: B)	**D** (Target: N/A)	**F** (Target: E)
Woodridge (S) & Bayshore	Existing & Future Conditions	**F** (Target: A)	**F** (Target: D)	**D** (Target: N/A)	**D** (Target: E)
Richmond & Bayshore	Existing & Future Conditions	**F** (Target: A)	**F** (Target: C)	**F** (Target: D)	**A** (Target: D)
Woodridge & 220m W of Bayshore	Existing & Future Conditions	**D** (Target: A)	**E** (Target: D)	**D** (Target: N/A)	**F** (Target: N/A)

5.8.4.2 Summary of Potential Improvements

Based on the MMLOS results outlined in **Table 15**, the following measures have been identified that could improve conditions for each travel mode:

Pedestrians

- The analysis indicates that all study area intersections are presently operating below the City's PLOS target of 'A', with results ranging from 'D' to 'F'. These sub-standard results are primarily a result of the delay to pedestrians associated with the short pedestrian walk times or the effective number of vehicle lanes required to cross the intersection (i.e. crossing distance/3.5m). In circumstances where the Pedestrian Delay Evaluation governs the intersection, there may be opportunities to adjust cycle lengths to improve the PLOS. Otherwise, improving the PLOS would likely involve geometrical improvements to the intersection such as incorporating median refuge islands of at least 2.4m in width at each approach to reduce overall pedestrian crossing distances.

Cyclists

- Based intersection-based BLOS evaluation, none of the study area intersections meet their respective targets, which is primarily due to the high operating speeds along both roadways (i.e. 60 km/h or greater) and/or the number of lanes that cyclists must cross to make a left-turn. Exploring the use of bike boxes may be considered as a viable option to improve BLOS at most intersections within the study area, however this treatment may not be appropriate Richmond & Bayshore due to high operating speeds (>60 km/h) that could pose a safety risk for cyclists. Introducing 'protected intersection' elements would help vastly improve the BLOS, however there are presently no planned upgrades to intersections within the study area.

Automobile

- The vehicular Level of Service at all study area intersections is within the threshold target of 'E', as summarized previously in Section 5.9.3.

Transit

- The Richmond & Bayshore intersection is expected to operate with a TLOS of 'F' throughout the timeframe of this study. According to the Synchro results, the most significant delays at Richmond & Bayshore are expected to be experienced on the east and west legs of the intersection under Future (2036) Total Traffic Conditions. The TMP 2031 'Affordable Network' indicates that transit priority measures are planned in both directions along Richmond Road east and west of Bayshore Drive, which will help to reduce any transit delays experienced along this corridor as a result of background traffic growth.
- The remaining study area intersections will operate with a TLOS of 'D' which is assumed to be acceptable, however there are currently no specific targets provided for roads which are not identified as rapid transit priority or transit priority corridors.

Truck

- The intersections of Richmond & Bayshore, as well as Bayshore & Woodridge (S) meet their respective TkLOS targets with results of 'A' and 'D', respectively.
- The remaining study area intersections exceed the City's targets with a TKLOS of 'F' due to the single-receiving lanes on each approach, as well as the tighter turning radii. It should be noted, however, that intersections experiencing a TkLOS of 'F' are located within the residential portion of the community and not on designated truck routes. As such, these corridors are expected to only accommodate occasional truck traffic. There are no known geometric constraints related to transit vehicles within the study area.

The recommended measures listed above are intended only as suggestions to the City on how the MMLOS within the study area could be improved and do not identify measures to be implemented as a direct consequence of this development. The MMLOS analysis identifies existing deficiencies in the study area and are not expected to be exacerbated by the proposed development.

5.9 Geometric Review

The following section reviews relevant geometric requirements for the study area intersections.

5.9.1 Sight Distance and Corner Clearances

Both site access driveways serving the proposed development are existing and therefore a sightline assessment is not required at either location as part of this study.

The proposed loading access serving the East Tower will be provided on the outside edge of a horizontal curve which will afford motorists a favourable perspective upstream and downstream of the access. Furthermore, the location of the site access driveways allows for visibility of at least 65 metres, as required by TAC for a road with a design speed of 50 km/h. Minimum stopping sight distance is therefore achievable for the proposed loading access driveway.

5.9.2 Auxiliary Lane Analysis

The auxiliary lane analysis for this study was limited to Site Access #1 and the Transitway Access on Woodridge Crescent which are expected to experience the most significant impacts of site-generated traffic. As illustrated previously through the distribution of site-generate traffic volumes presented in **Exhibit 5**, the remaining study area intersections will experience nominal vehicular impacts. Further, a review of the auxiliary lane analyses conducted for the 100 Bayshore Drive TIA (IBI, 2020) indicated that significant additional storage exists to accommodate turning movements at all study area intersections beyond the 2031 horizon year of that study. As such, no storage deficiencies are anticipated with respect to the nominal site-generated traffic contributions.

Excerpts from the auxiliary lane analyses conducted for the 100 Bayshore Drive TIA are provided in **Appendix J**.

5.9.2.1 Auxiliary Left-Turn Lane Requirements

Auxiliary left-turn lane analyses for both unsignalized study area intersections was conducted under Future (2036) Total Traffic conditions.

The MTO Geometric Design Standards for Ontario Highways left-turn warrant was applied to the westbound approaches of the two unsignalized study area intersections using the highest left-turn volume from either the weekday morning or afternoon peak hour. The results of the analysis indicate that neither intersection triggers an auxiliary left-turn lane on its westbound approach under Future (2036) Total Traffic conditions. It can therefore be concluded that no additional left-turn auxiliary lanes are required to accommodate the combined impact of site-generated and projected background traffic volumes within the timeframe of this study.

5.9.2.2 Auxiliary Right-Turn Lane Requirements

The Transportation Association of Canada (TAC) suggests that auxiliary right-turn lanes be considered “when the volume of decelerating or accelerating vehicles compared with through vehicles causes undue hazard.” Consideration for auxiliary right-turn lanes is typically given when the right-turning traffic exceeds 10% of the through volume and is at least 60 vehicles per hour.

The right-turning volumes associated with the Woodridge & Site Access #1 intersection are not projected to exceed these thresholds under Future (2036) Total Traffic conditions. As such, no auxiliary right-turn lane is required to accommodate total traffic volume projections within the timeframe of this study.

5.10 Summary of Recommended Modifications

Based on the intersection capacity, Multi-Modal Level of Service and auxiliary lane analyses results presented above, no off-site improvements to the adjacent road network are required as a direct consequence of the proposed development in order to accommodate multi-modal transportation demands generated by the site.

The MMLOS and Safety Review identified existing deficiencies with respect to user comfort and safety that should be reviewed but do not require addressing to safely accommodate the proposed development.

6 Conclusion

The proposed residential high-rise development at 70 & 80 Woodridge Crescent is expected to generate approximately 250 person-trips during the weekday morning and afternoon peak hours. The traffic impacts were established through the application of an 85% non-auto mode share target which is considered appropriate, given that the site is situated within 150 metres of Bayshore Station and will provide access to the City-wide rapid transit network both by bus and rail. The resulting vehicular traffic contributions for the proposed development were determined to be approximately 35 two-way trips during the weekday morning and afternoon peak hours which is considered to be nominal.

This significant non-auto mode share target is expected to be achievable through a combination of Transportation Demand Management (TDM) Measures and the planned opening of the Confederation Line LRT West Extension by 2025, which is well in advance of the site's expected full build-out/occupancy in 2031. Features to help maximize and support sustainable transportation demand include a planned multi-use pathway (by others) abutting the site to the south which will provide a direct, at-grade pedestrian link to Bayshore Transitway Station, as well as an alternative connection to Bayshore Shopping Centre. It should be noted as well that Accora Village is a managed community which regularly collects data on residents' travel characteristics and currently offers incentives to encourage the use of non-auto modes of travel through programs such as bicycle skills training courses and complimentary usage of bikes for all residents. The host of TDM measures already implemented for Accora Village or measures proposed specifically as part of the subject development, including an ample supply of secure bicycle parking, will help to bridge the gap between the existing transit mode share of 46%, and the City's target of 65% by reducing reliance on private automobile transportation. It is important to recognize, however, that at the zoning application stage, some site-specific details regarding the TDM Program have yet to be determined and may be refined during the Site Plan Control application process.

Based on the capacity analysis conducted for this TIA, all study area intersections were shown to operate well within acceptable levels of service during the weekday morning and afternoon peak hours beyond the 2036 study horizon year. Site-generated traffic will access the subject development via the existing eastern site access serving the 90 Woodridge Crescent which is shown to continue operating at a high level of service (LOS 'A'), with the inclusion of site-generated traffic contributions. Auxiliary lane analyses for this study was limited to the intersections of Woodridge Crescent with Site Access #1 and the Transitway Access, neither of which triggered the need for additional auxiliary turning lanes. Further, a review of auxiliary lane analyses from the recently-conducted 100 Bayshore Drive TIA for the other study area intersections indicates a surplus of vehicular storage on all existing auxiliary lanes which would easily be able to accommodate nominal site-generated turning volumes and would have a negligible impact on overall traffic operations at each location.

With regards to other travel modes, the Multi-Modal Level of Service (MMLOS) results identified existing deficiencies for other modes, consistent with the recently-completed 100 Bayshore Drive TIA. These deficiencies primarily pertain to user comfort and highlight potential improvements to older transportation infrastructure that could be considered for improvement by the City but are not required to safely accommodate the travel demands of the proposed development.

As the multi-modal impact of the proposed development on the adjacent intersections is expected to be insignificant, no off-site transportation network modifications will be required and therefore the TIA does not include a functional design component in support of a Roadway Modification Application (RMA) to the City. Similarly, due to the negligible increases in site-generated traffic expected on the adjacent road network as a result of the proposed development and the longer-term development timeline, a Post-Development Monitoring Plan is not required as part of this TIA.

Based on the findings of this study, it is the overall opinion of IBI Group that the proposed development will integrate well with and can be safely accommodated by the adjacent transportation network.

Appendix A – City Circulation Comments

Step 1 Submission (TIA Screening) Pre-Application Consultation Meeting - Comments

Meeting Held: June 2, 2021
Comments Received: June 17, 2021
Transportation Project Manager: Mike Giampa

Note: The following represent only relevant transportation comments and do not constitute the complete set of comments resulting from the pre-application consultant meeting.

Transportation

1. Follow Traffic Impact Assessment Guidelines
    - Screening form to start, full Traffic Impact Assessment if any of the triggers on the screening for, are satisfied.
    - Start this process as soon as possible.
    - Applicant advised that their application will not be deemed complete until the submission of the draft steps 1-4, including the RMA package if applicable and/or monitoring report (if applicable).

2. Ministry of Transportation will most likely want to review based on the proximity to the 417 and on/off ramps.

3. Manor Park has a master TIA with separate TIAs as the different phases.

4. The TMP is being updated but consultants can work with the status quo.

5. Designing Neighbourhood Collector Streets guidelines have been released.

6. Updated Trans trip manual to be used and can be provided.

7. No updates for LRT completion timeline.

Step 2 Submission (Scoping) – Circulation Comments & Response

Report Submitted: August 5, 2021
Comments Received: August 6, 2021
Transportation Project Manager: Mike Giampa

No comments received for Step 2 Submission. Instructed to proceed to Step 3 - Forecasting.

Step 3 Submission (Forecasting) – Circulation Comments & Response

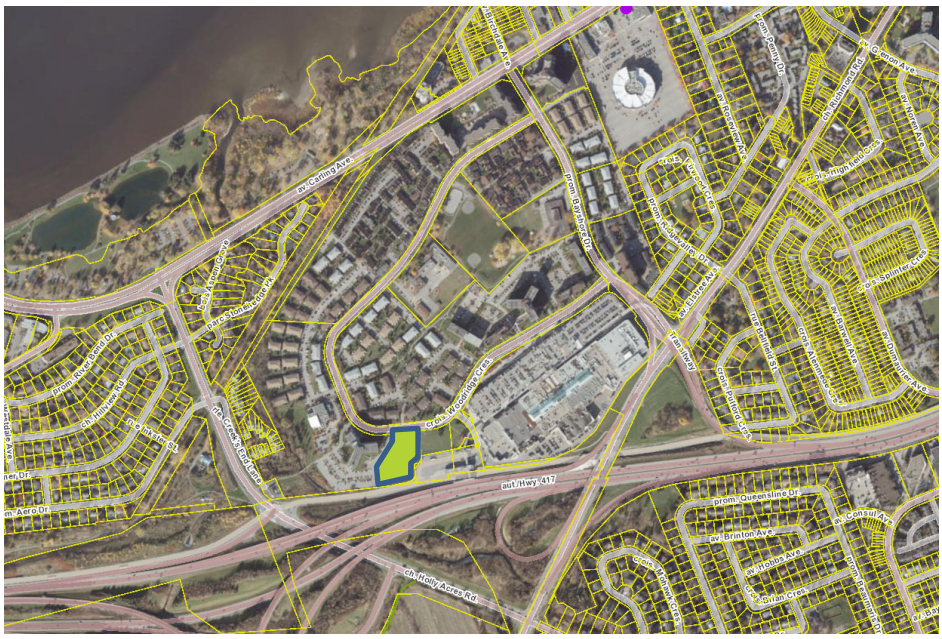
Report Submitted: August 10, 2021
Comments Received: August 17, 2021
Transportation Project Manager: Mike Giampa

No comments received for Step 3 Submission. Instructed to proceed to Step 4 - Analysis.

Appendix B – TIA Screening Form

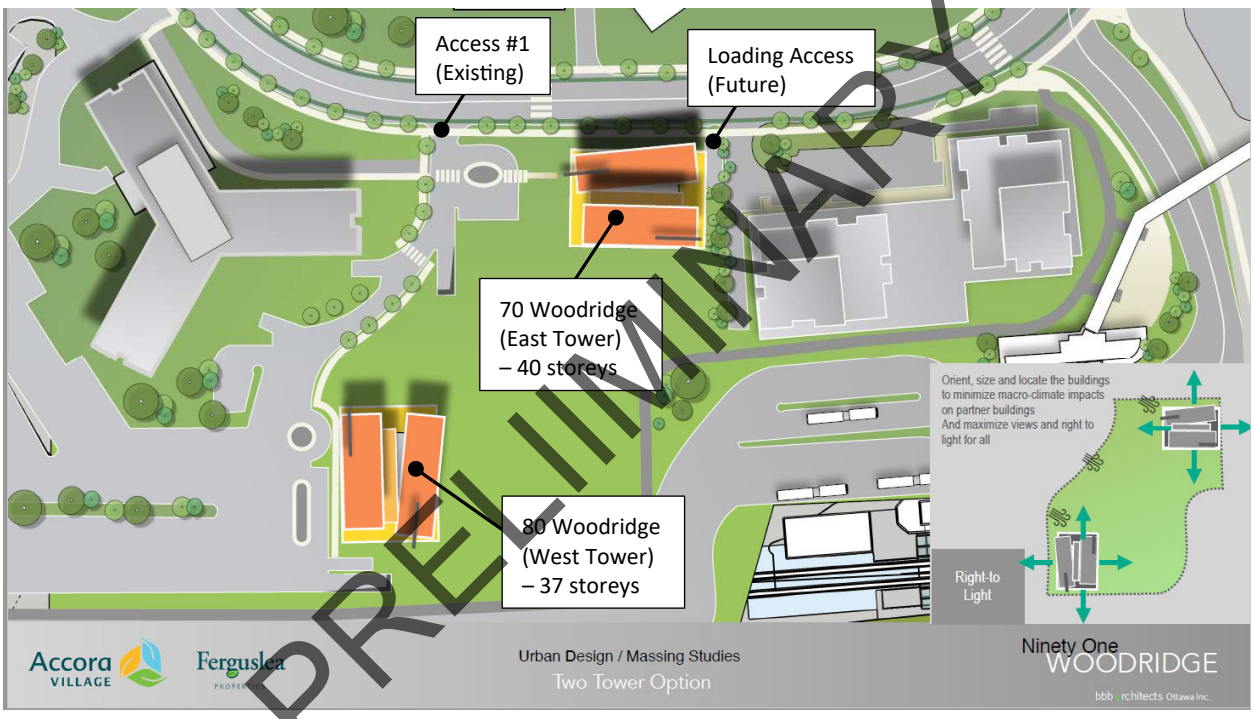
City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	70 & 80 Woodridge Crescent
Description of Location	The site is situated to the west of Bayshore Mall and immediately north of the Bayshore Transitway station, with direct frontage on Woodridge Crescent. 
Land Use Classification	High-Rise Residential
Development Size (units)	511-584 Residential Units
Development Size (m^2)	N/A
Number of Accesses and Locations	One existing full-movement site access driveway with direct connections to Woodridge Crescent One new loading access on Woodridge Crescent
Phase of Development	Single Phase
Buildout Year	2031

If available, please attach a sketch of the development or site plan to this form.

Proposed Development:



2. Trip Generation Trigger

Considering the Development's Land Use type and Size (as filled out in the previous section), please refer to the Trip Generation Trigger checks below.

Land Use Type	Minimum Development Size
Single-family homes	40 units
Townhomes or apartments	90 units ✓
Office	3,500 m^2
Industrial	5,000 m^2
Fast-food restaurant or coffee shop	100 m^2
Destination retail	1,000 m^2
Gas station or convenience market	75 m^2

** If the development has a land use type other than what is presented in the table above, estimates of person-trip generation may be made based on average trip generation characteristics represented in the current edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual.*

- **Based on the results above, the Trip Generation Trigger is satisfied.**

3. Location Triggers

	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?		✓
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?*	✓	

**DPA and TOD are identified in the City of Ottawa Official Plan (DPA in Section 2.5.1 and Schedules A and B; TOD in Annex 6). See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA).*

- **Based on the results above, the Location Trigger is satisfied.**

4. Safety Triggers

	Yes	No
Are posted speed limits on a boundary street are 80 km/hr or greater?		✓
Are there any horizontal/vertical curvatures on a boundary street that limits sight lines at a proposed driveway?		✓
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?		✓
Is the proposed driveway within auxiliary lanes of an intersection?		✓
Does the proposed driveway make use of an existing median break that serves an existing site?		✓
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?		✓
Does the development include a drive-thru facility?		✓

- **Based on the results above, the Safety Trigger is NOT satisfied.**

5. Summary

	Yes	No
Does the development satisfy the Trip Generation Trigger?	✓	
Does the development satisfy the Location Trigger?	✓	
Does the development satisfy the Safety Trigger?		✓

CONCLUSION: The Trip Generation and Location Triggers are satisfied, therefore a TIA is required.

Appendix C – Traffic Data

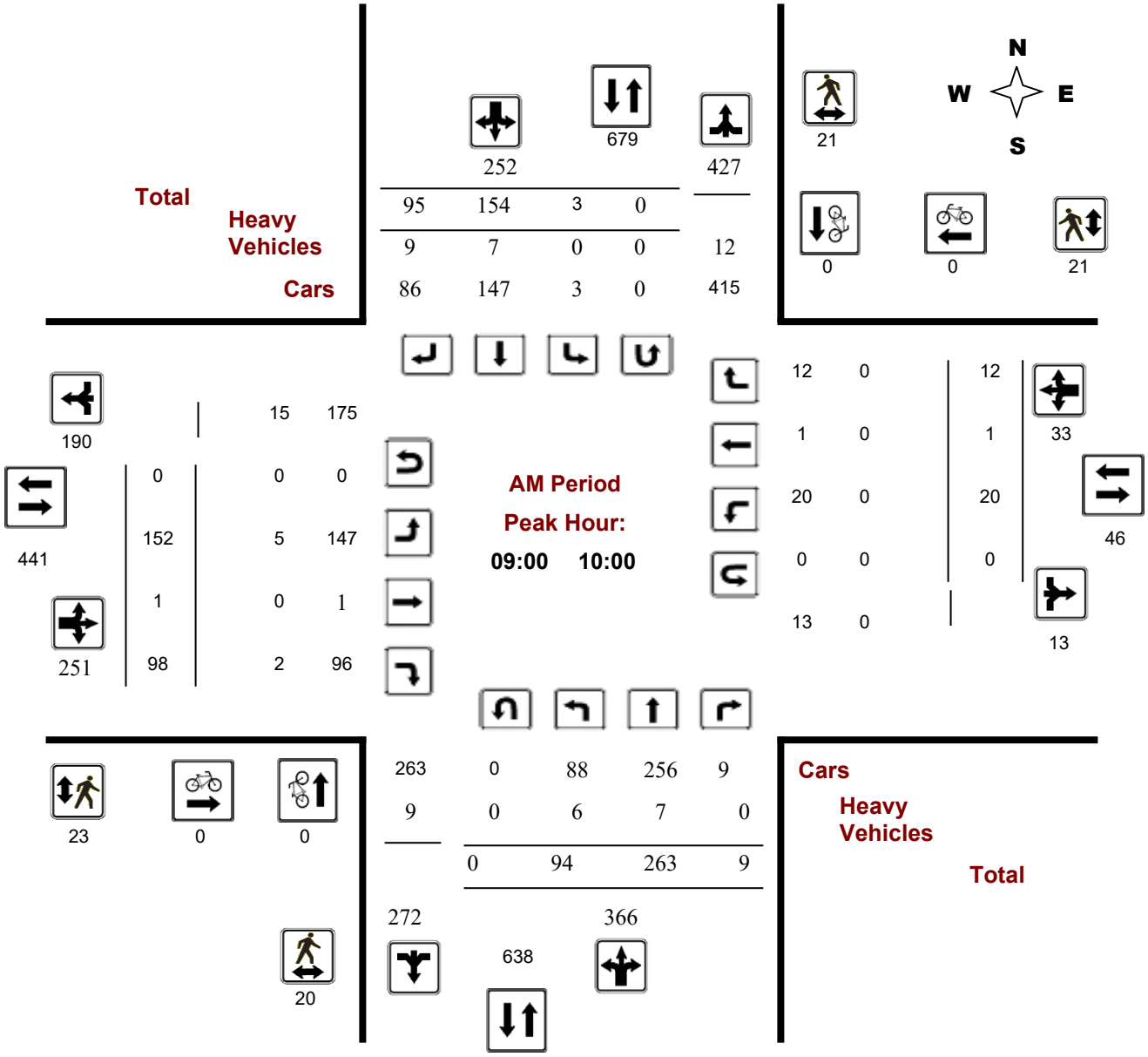
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BAYSHORE DR @ WOODRIDGE CRES N

Survey Date: Tuesday, November 05, 2019 **WO No:** 38937

Start Time: 07:00 **Device:** Miovision



Comments

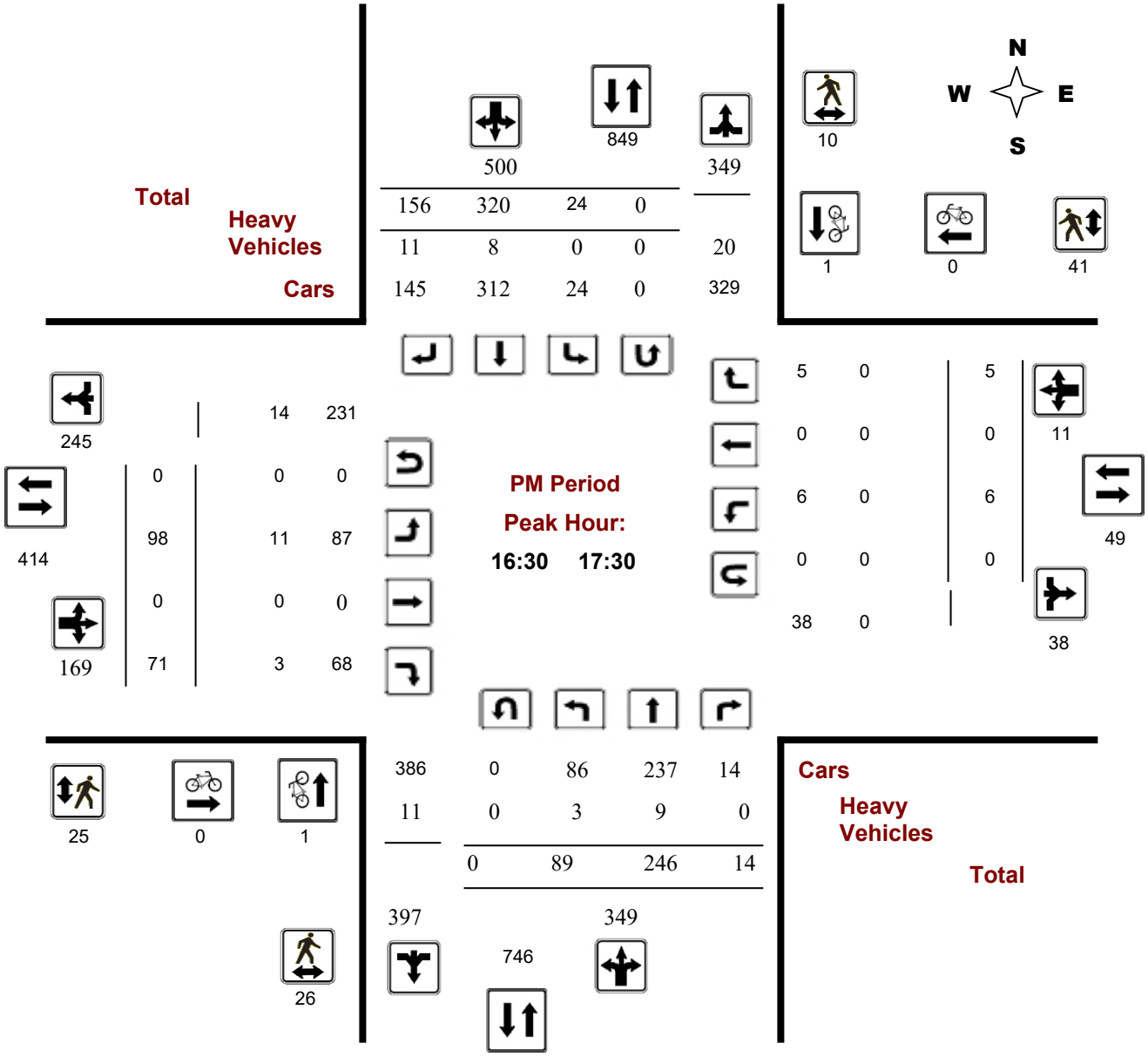
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BAYSHORE DR @ WOODRIDGE CRES N

Survey Date: Tuesday, November 05, 2019 **WO No:** 38937

Start Time: 07:00 **Device:** Miovision



Comments

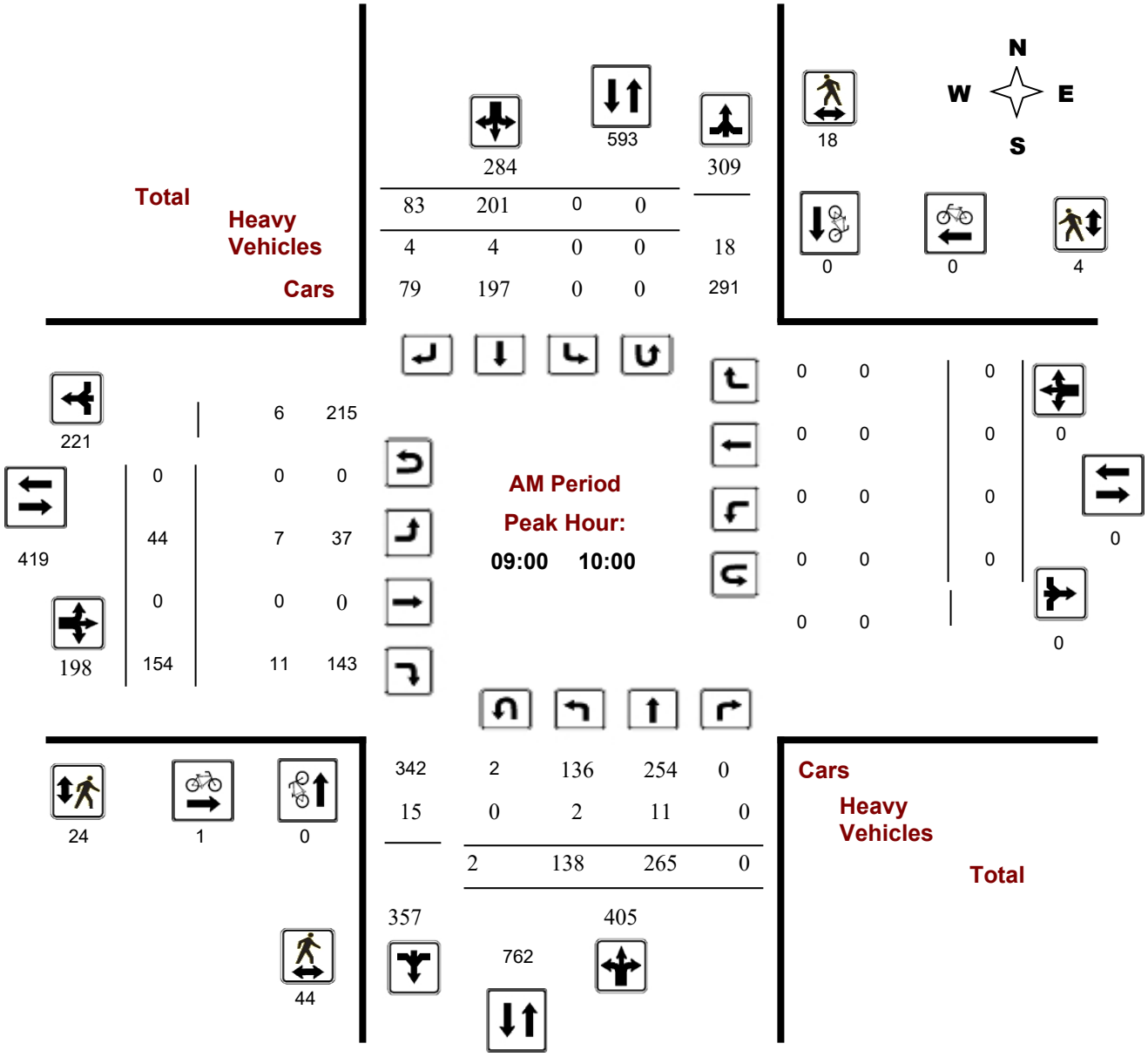
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BAYSHORE DR @ WOODRIDGE CRES S

Survey Date: Tuesday, November 05, 2019 **WO No:** 38938

Start Time: 07:00 **Device:** Miovision



Comments

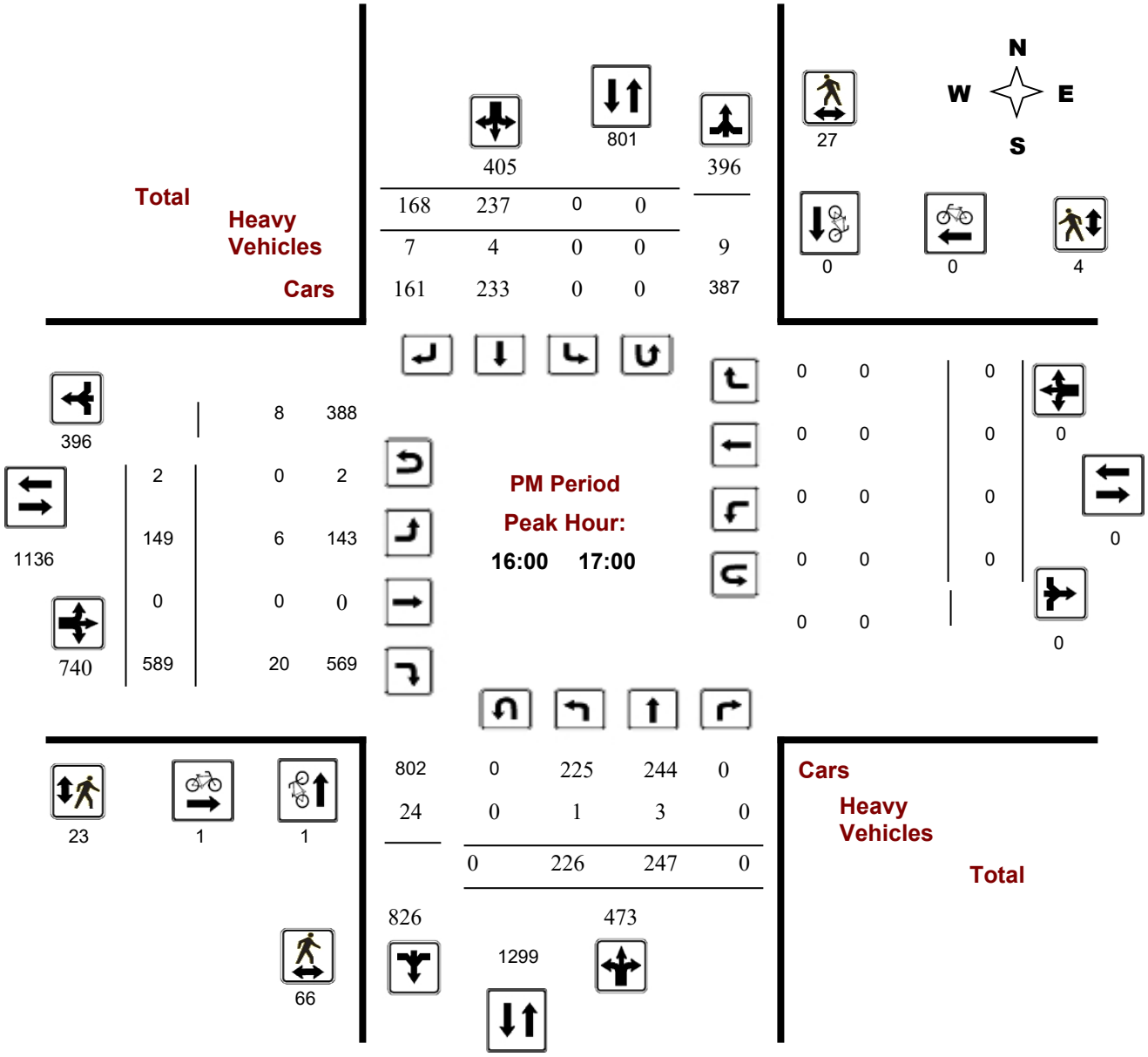
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BAYSHORE DR @ WOODRIDGE CRES S

Survey Date: Tuesday, November 05, 2019 **WO No:** 38938

Start Time: 07:00 **Device:** Miovision



Comments

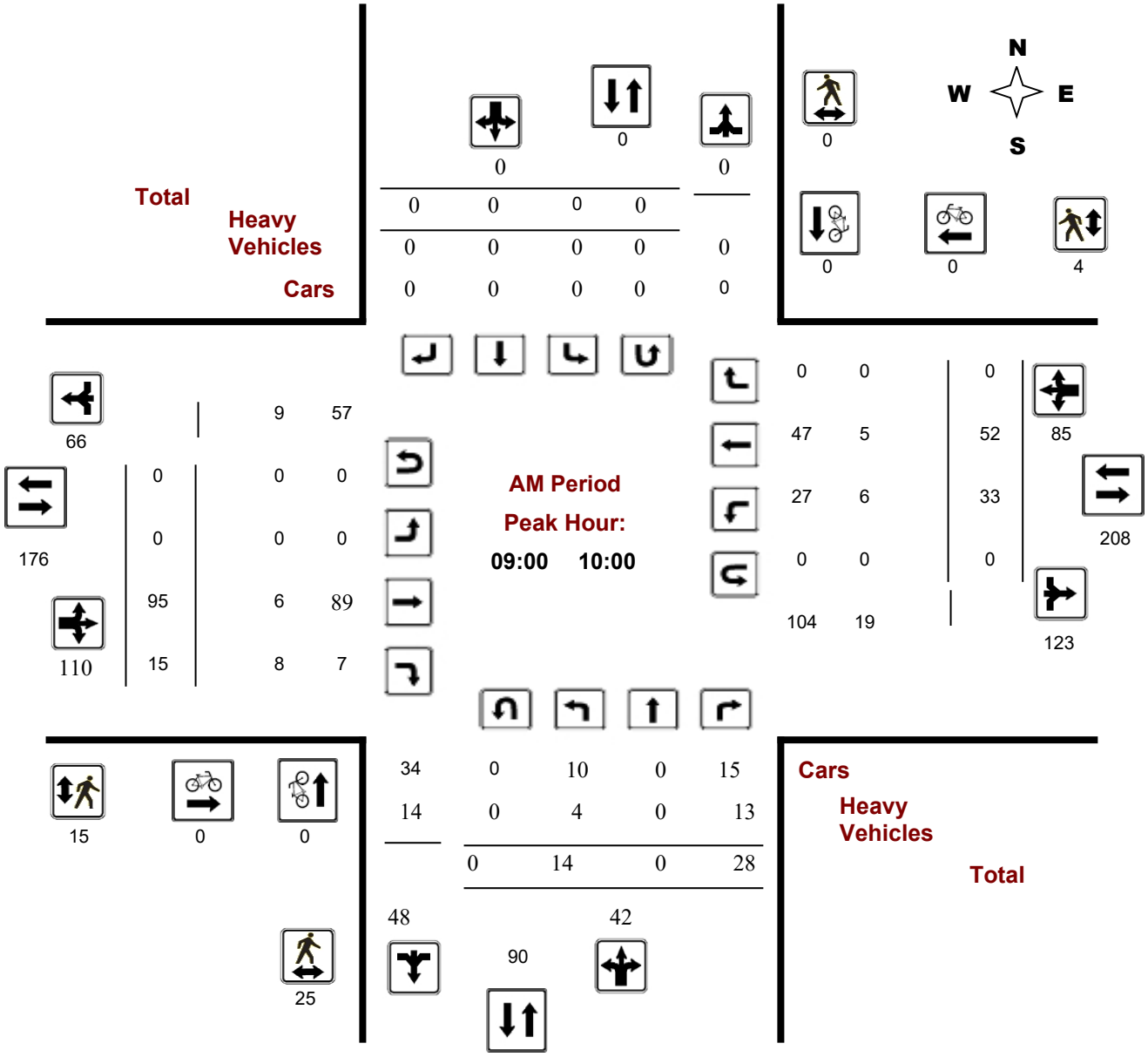
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

WOODRIDGE CRES @ TRANSITWAY LINK

Survey Date: Tuesday, November 05, 2019 **WO No:** 39001

Start Time: 07:00 **Device:** Miovision



Comments

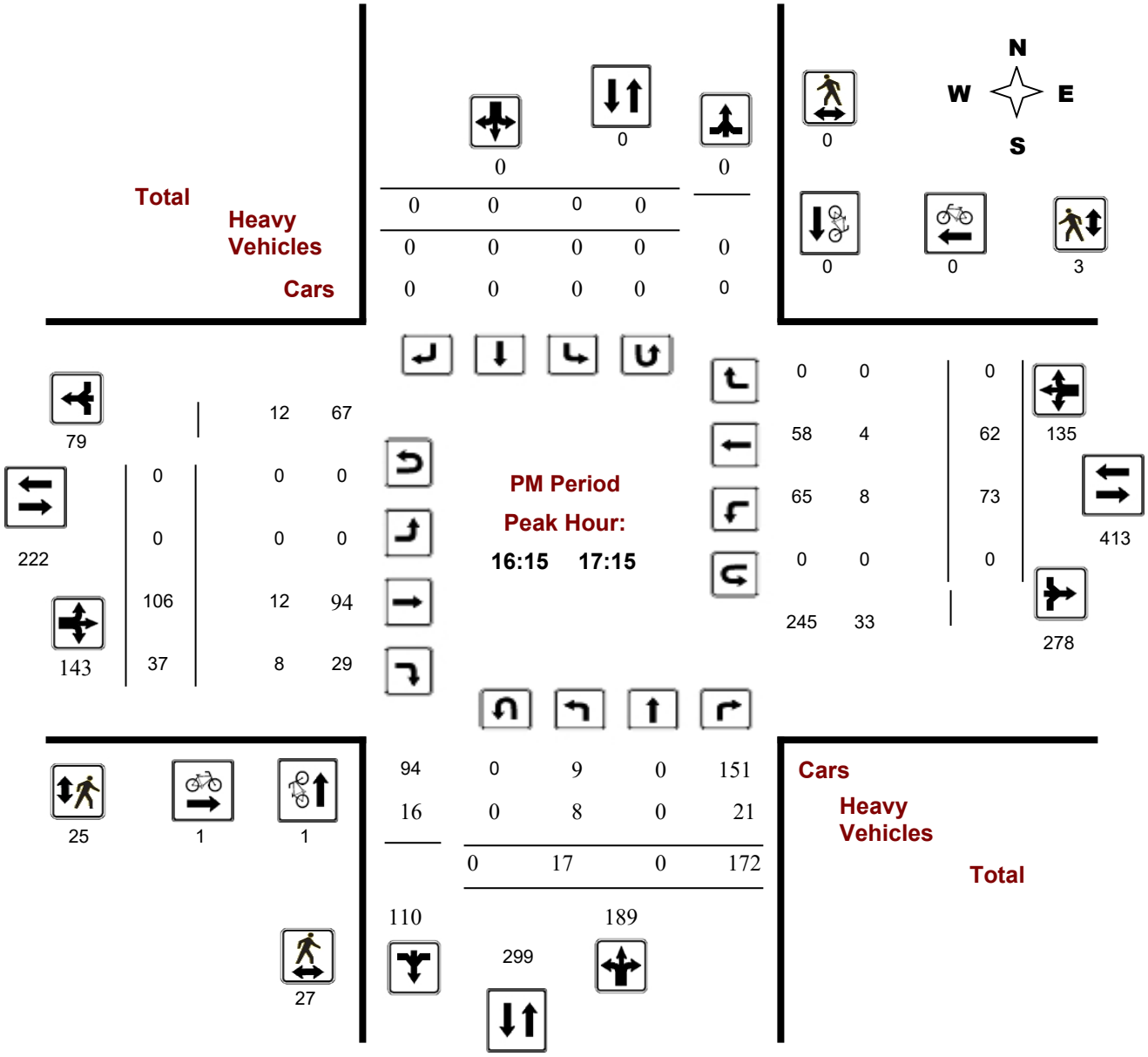
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

WOODRIDGE CRES @ TRANSITWAY LINK

Survey Date: Tuesday, November 05, 2019 **WO No:** 39001

Start Time: 07:00 **Device:** Miovision



Comments

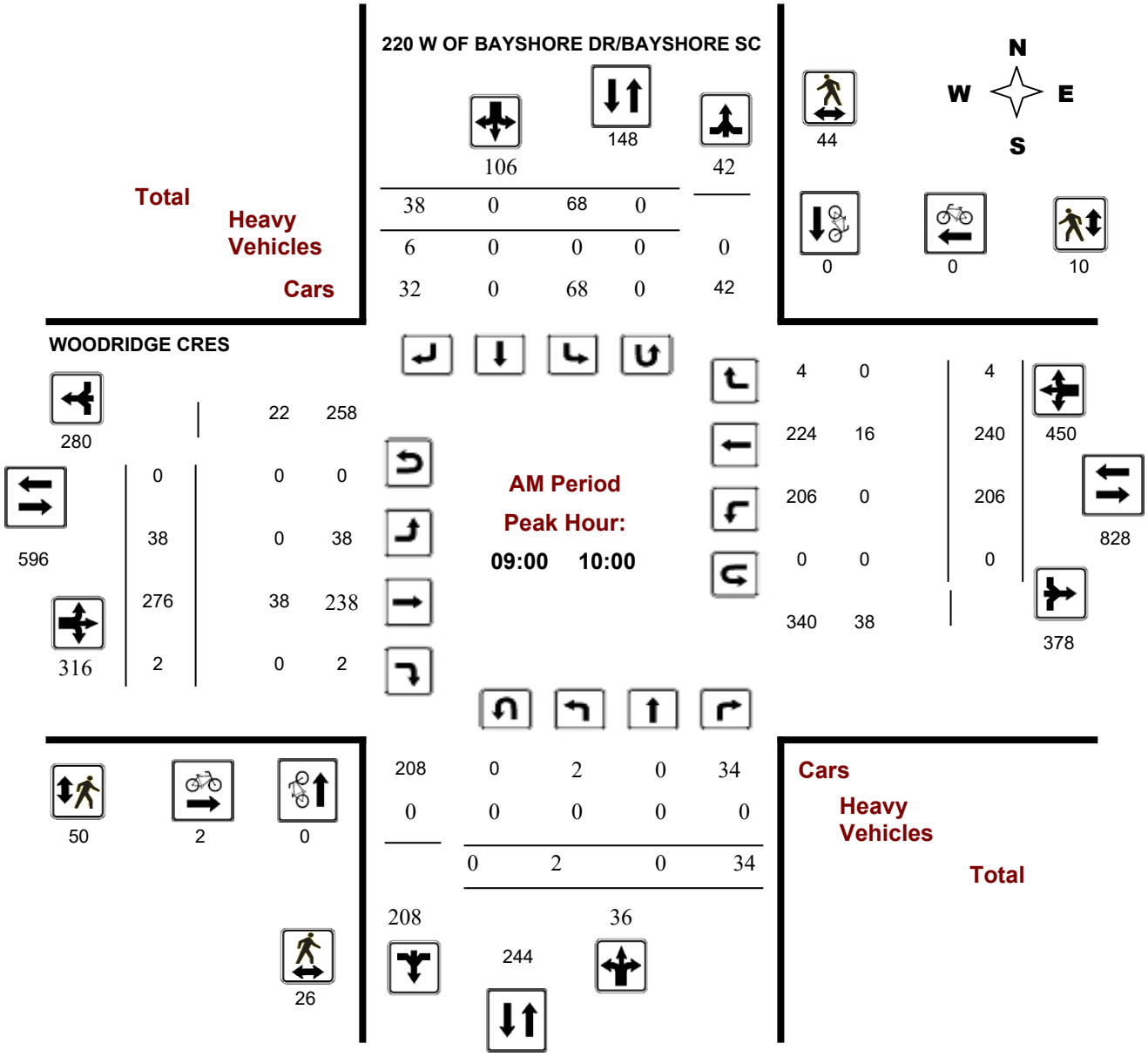
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

WOODRIDGE CRES @ 220 W OF BAYSHORE DR/BAYSHORE

Survey Date: Tuesday, November 05, 2019 **WO No:** 38940

Start Time: 07:00 **Device:** Miovision



Comments

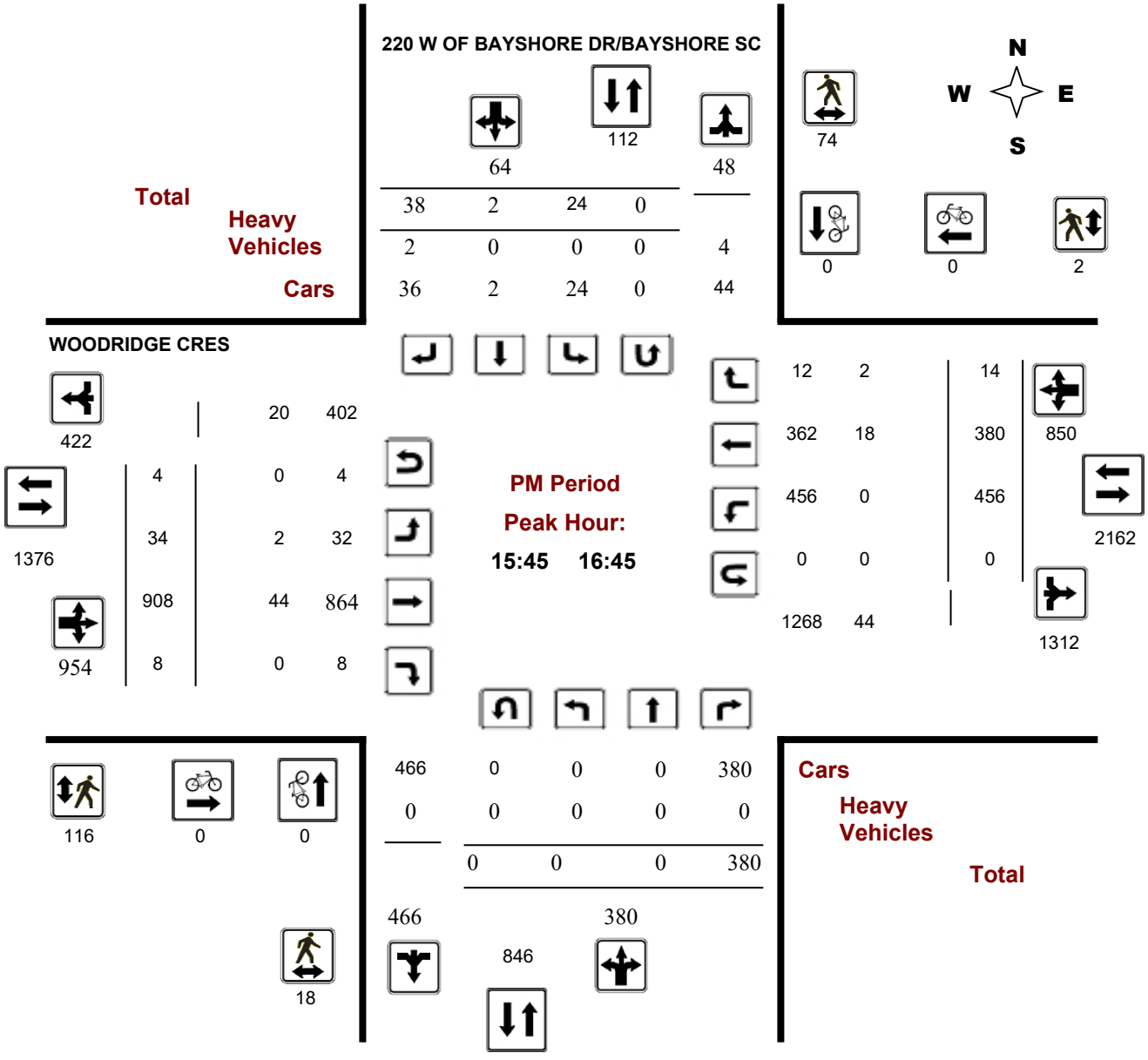
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

WOODRIDGE CRES @ 220 W OF BAYSHORE DR/BAYSHORE

Survey Date: Tuesday, November 05, 2019 **WO No:** 38940

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

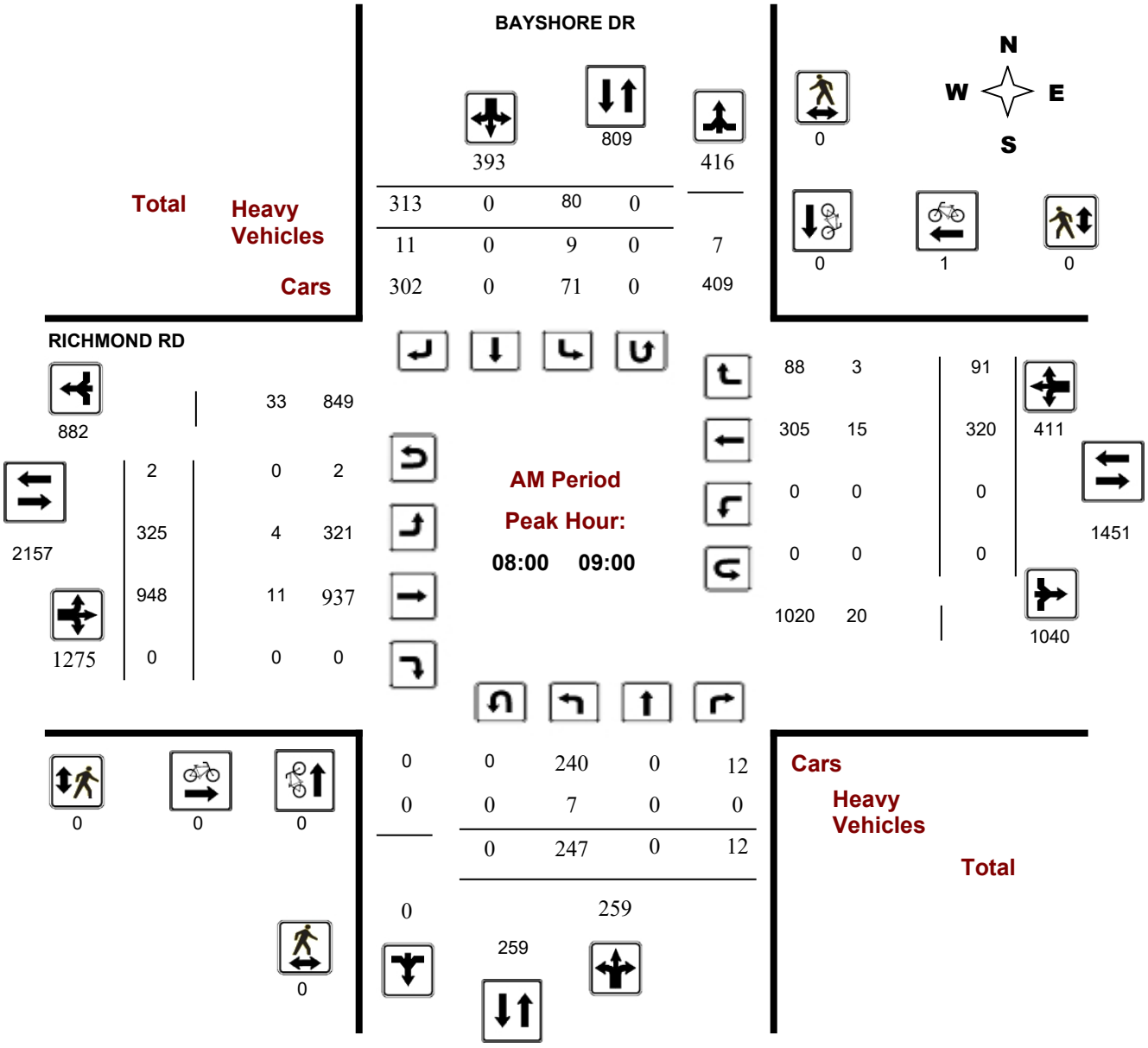
Turning Movement Count - Study Results

BAYSHORE DR @ RICHMOND RD

Survey Date: Wednesday, November 13, 2019 **WO No:** 38939

Start Time: 07:00 **Device:** Miovision

AM Period Peak Hour Diagram



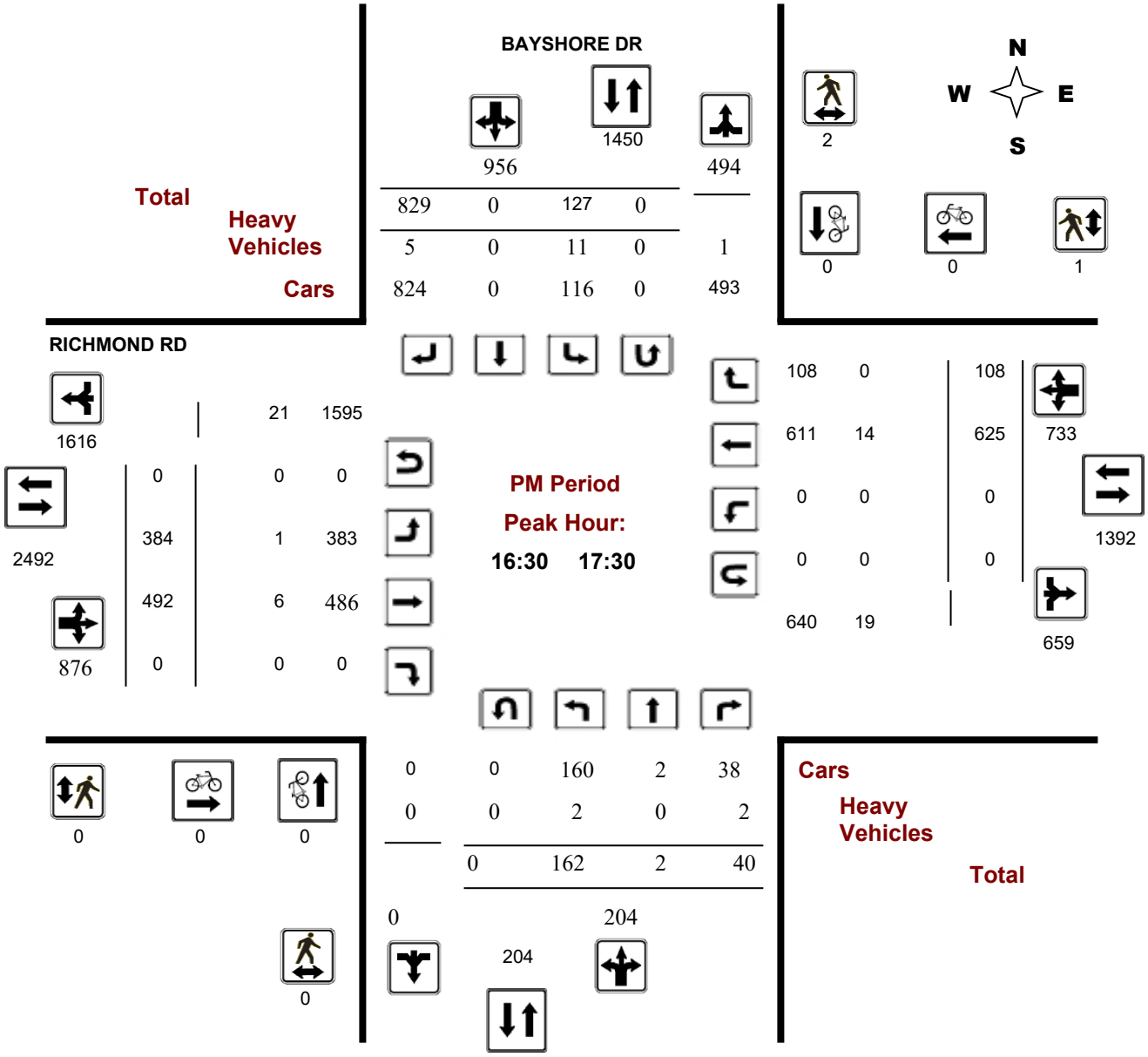
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BAYSHORE DR @ RICHMOND RD

Survey Date: Wednesday, November 13, 2019 **WO No:** 38939

Start Time: 07:00 **Device:** Miovision



Comments

Date: Tuesday, October 29, 2019
Weather: cloudy

Access 1 - eastern access for 90 Woodridge apartment building

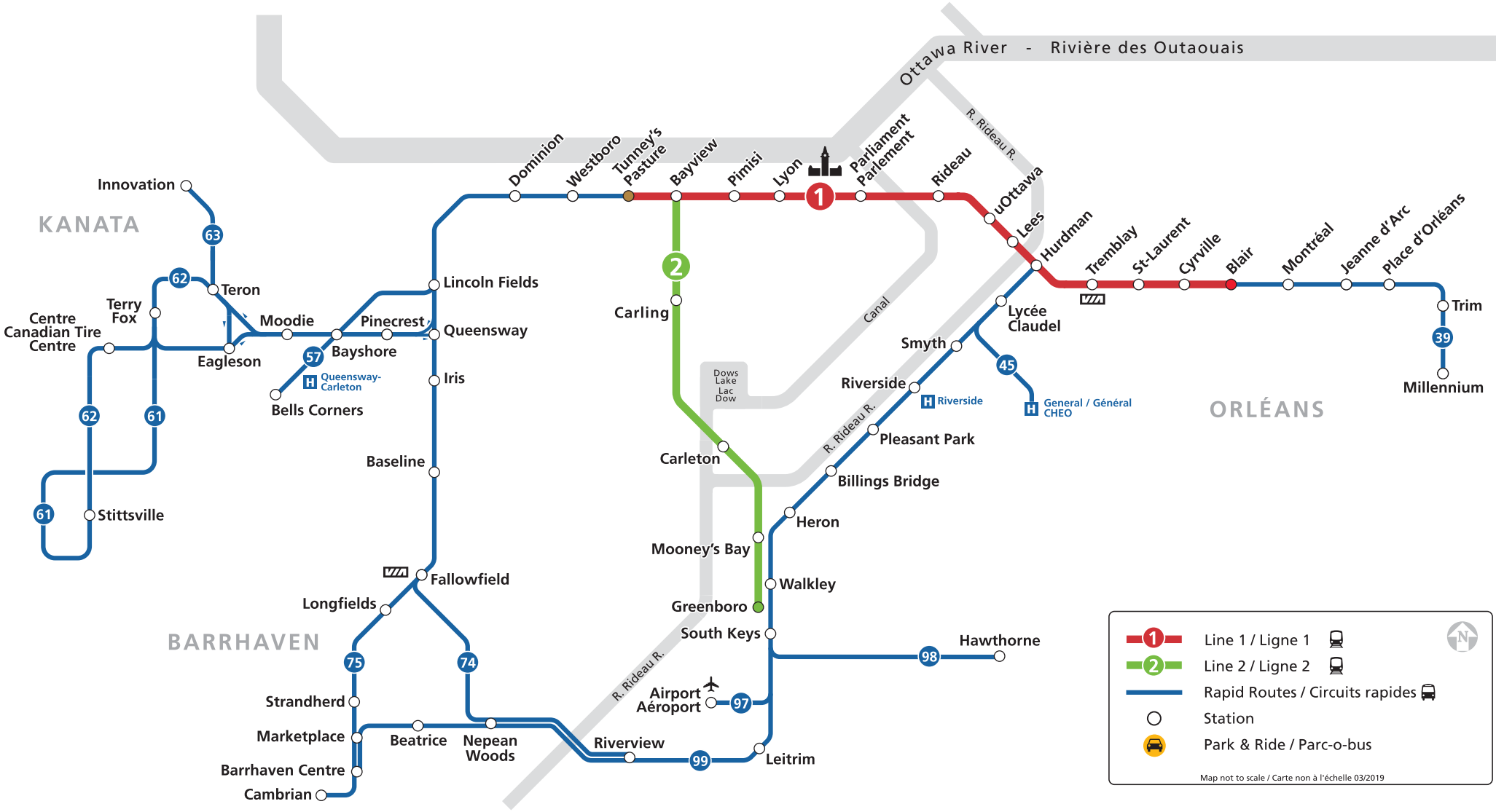
AM Peak Hour

START TIME		END TIME		TIME PERIOD	Auto IN	Auto OUT	Ped IN	Ped OUT	Bike IN	Bike OUT	Total	Hourly Total
7	30	7	45	730-745am	0	4	0	1	0	0	5	34
7	45	8	00	745-800am	0	0	0	4	0	0	4	38
8	00	8	15	800-815am	1	9	1	3	0	0	14	43
8	15	8	30	815-830am	1	7	0	3	0	0	11	39
8	30	8	45	830-845am	0	5	3	1	0	0	9	38
8	45	9	00	845-900am	2	3	1	3	0	0	9	
9	00	9	15	900-915am	3	7	0	0	0	0	10	
9	15	9	30	915-930am	1	7	1	1	0	0	10	
				Total AM Peak Hour	**4**	**24**	**5**	**10**	**0**	**0**		

PM Peak Hour

START TIME		END TIME		TIME PERIOD	Auto IN	Auto OUT	Ped IN	Ped OUT	Bike IN	Bike OUT	Total	
4	00	4	15	400-415pm	3	1	0	1	0	0	5	33
4	15	4	30	415-430pm	4	3	4	0	0	0	11	32
4	30	4	45	430-445pm	3	2	0	1	0	0	6	30
4	45	5	00	445-500pm	5	1	2	3	0	0	11	31
5	00	5	15	500-515pm	0	3	1	0	0	0	4	30
5	15	5	30	515-530pm	7	0	0	2	0	0	9	
5	30	5	45	530-545pm	2	4	1	0	0	0	7	
5	45	6	00	545-600pm	4	3	3	0	0	0	10	
				Total PM Peak Hour	**15**	**7**	**6**	**5**	**0**	**0**		

Appendix D – OC Transpo Routes


Ottawa River - Rivière des Outaouais
KANATA
BARRHAVEN
ORLÉANS
Innovation
Teron
Terry Fox
Centre Canadian Tire Centre
Eagleson
Moodie
Pinecrest
Bayshore
Queensway-Carleton
Bells Corners
Stittsville
Lincoln Fields
Queensway
Iris
Baseline
Fallowfield
Longfields
Strandherd
Marketplace
Barrhaven Centre
Cambrian
Beatrice
Nepean Woods
Dominion
Westboro
Tunney's Pasture
Bayview
Pimisi
Lyon
Parliament Parlement
Rideau
uOttawa
Lees
Hurdman
Tremblay
St-Laurent
Cyrville
Blair
Montréal
Jeanne d'Arc
Place d'Orléans
Trim
Millennium
Carling
Carleton
Mooney's Bay
Greenboro
South Keys
Airport Aéroport
Riverview
Leitrim
Walkley
Heron
Billings Bridge
Pleasant Park
Riverside
Riverside
General / Général CHEO
Lycée Claudel
Smyth
Hawthorne
Dows Lake Lac Dow
Canal
R. Rideau R.
Line 1 / Ligne 1
Line 2 / Ligne 2
Rapid Routes / Circuits rapides
Station
Park & Ride / Parc-o-bus
Map not to scale / Carte non à l'échelle 03/2019

85

Fréquent

GATINEAU

BAYSHORE

7 days a week / 7 jours par semaine

All day service

Service toute la journée

GATINEAU

BAYSHORE

○	Station
▲	Timepoint / Heures de passage

2019.07

1

Future route after O-Train Line 1 is open
Trajet du circuit après l'ouverture de la Ligne 1 de l'O-Train

Lost and Found / Objets perdus..... **613-563-4011**

Security / Sécurité **613-741-2478**

OC Transpo

INFO 613-741-4390
octranspo.com

Appendix E – Collision Data

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2018

Location: BAYSHORE DR @ BAYSHORE CS

Traffic Control: Traffic signal

Total Collisions: 4

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Sep-13, Sat,15:10	Rain	Angle	P.D. only	Wet	East	Turning left	Pick-up truck	Other motor vehicle	
					North	Going ahead	Passenger van	Other motor vehicle	
2014-Jan-24, Fri,14:34	Clear	Rear end	Non-fatal injury	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Mar-26, Sat,12:23	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Pick-up truck	Other motor vehicle	
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2017-May-08, Mon,11:57	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: BAYSHORE DR @ RICHMOND RD

Traffic Control: Traffic signal

Total Collisions: 34

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Jan-22, Wed,07:45	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	

					East	Stopped	Automobile, station wagon	Other motor vehicle
2014-May-31, Sat,22:21	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle
2014-Jul-03, Thu,15:54	Clear	Rear end	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2014-Jul-30, Wed,10:27	Clear	Other	P.D. only	Dry	North	Reversing	Delivery van	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Dec-27, Sat,11:10	Clear	Sideswipe	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle
					East	Turning left	Pick-up truck	Other motor vehicle
2014-Dec-15, Mon,18:05	Clear	Turning movement	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Turning left	Pick-up truck	Other motor vehicle
2014-Aug-25, Mon,10:55	Clear	Other	P.D. only	Dry	North	Reversing	Construction equipment	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2014-Jan-12, Sun,16:00	Clear	Sideswipe	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Unattended vehicle

					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Apr-01, Tue,23:00	Clear	SMV other	P.D. only	Dry	South	Turning right	Automobile, station wagon	Steel guide rail
2015-Mar-03, Tue,07:35	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Pick-up truck	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2015-Mar-10, Tue,17:23	Clear	Rear end	Non-fatal injury	Wet	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2015-Oct-15, Thu,17:35	Rain	Rear end	Non-fatal injury	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2015-May-30, Sat,16:30	Rain	Turning movement	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Turning left	Automobile, station wagon	Other motor vehicle
2016-Jan-28, Thu,06:30	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Pick-up truck	Other motor vehicle
					East	Going ahead	Passenger van	Other motor vehicle
2016-Feb-11, Thu,08:40	Snow	Sideswipe	P.D. only	Loose snow	East	Changing lanes	Pick-up truck	Other motor vehicle
					East	Turning left	Automobile, station wagon	Other motor vehicle

2016-Mar-08, Tue,19:45	Clear	Rear end	P.D. only	Wet	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					South	Stopped	Pick-up truck	Other motor vehicle
2016-Oct-18, Tue,07:58	Clear	SMV other	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Steel guide rail
2016-Nov-19, Sat,12:54	Clear	Other	P.D. only	Dry	West	Reversing	Pick-up truck	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2016-Dec-31, Sat,14:13	Snow	Sideswipe	P.D. only	Loose snow	South	Changing lanes	Pick-up truck	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle
2016-Dec-03, Sat,16:56	Clear	Turning movement	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2016-Aug-10, Wed,10:16	Clear	Angle	P.D. only	Dry	West	Going ahead	Delivery van	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2016-Nov-01, Tue,10:54	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Aug-02, Wed,14:01	Clear	Rear end	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle

					West	Turning left	Automobile, station wagon	Other motor vehicle
2017-Aug-29, Tue,16:30	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2017-May-11, Thu,08:11	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2017-May-20, Sat,19:13	Clear	Rear end	Non-fatal injury	Dry	South	Going ahead	Motorcycle	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2017-May-29, Mon,13:40	Rain	Rear end	P.D. only	Wet	East	Slowing or stopping	Passenger van	Other motor vehicle
					East	Slowing or stopping	Pick-up truck	Other motor vehicle
2017-Oct-16, Mon,09:07	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Turning left	Passenger van	Other motor vehicle
2017-Feb-11, Sat,13:37	Snow	Rear end	P.D. only	Loose snow	East	Slowing or stopping	Unknown	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2018-Apr-20, Fri,09:40	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle

					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2018-Sep-04, Tue,14:32	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2018-Aug-17, Fri,12:25	Rain	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Sep-15, Sat,17:52	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Feb-02, Fri,20:00	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	

Location: BAYSHORE DR @ WOODRIDGE CRES N

Traffic Control: Traffic signal **Total Collisions:** 19

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-May-02, Sat,16:03	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Pick-up truck	Other motor vehicle	
2015-Jun-14, Sun,14:59	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

2015-Jul-07, Tue,16:30	Clear	Rear end	P.D. only	Dry	South	Going ahead	Passenger van	Other motor vehicle	
					South	Stopped	Passenger van	Other motor vehicle	
2015-Jul-22, Wed,11:46	Clear	Turning movement	P.D. only	Dry	North	Making "U" turn	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Pick-up truck	Other motor vehicle	
2015-Oct-29, Thu,15:39	Clear	Rear end	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Feb-21, Sat,02:25	Clear	SMV other	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Pedestrian	1
2015-Dec-10, Thu,08:31	Clear	SMV other	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Pedestrian	1
2016-Feb-04, Thu,20:02	Clear	SMV other	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Pedestrian	1
2016-Feb-16, Tue,13:09	Snow	SMV other	Non-fatal injury	Loose snow	East	Turning left	Municipal transit bus	Pedestrian	1
2016-Apr-09, Sat,11:27	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2016-Nov-20, Sun,14:45	Snow	Rear end	P.D. only	Ice	North	Slowing or stopping	Automobile, station wagon	Skidding/sliding	

					North	Stopped	Automobile, station wagon	Other motor vehicle
2016-Dec-26, Mon,19:23	Freezing Rain	Rear end	P.D. only	Ice	East	Changing lanes	Automobile, station wagon	Other motor vehicle
					East	Turning right	Automobile, station wagon	Other motor vehicle
2017-Sep-23, Sat,00:49	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Nov-20, Mon,18:17	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Nov-26, Sun,00:35	Snow	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Turning right	Passenger van	Other motor vehicle
2017-Dec-18, Mon,19:27	Snow	Rear end	P.D. only	Slush	East	Going ahead	Municipal transit bus	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2018-Jun-03, Sun,10:18	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Jun-09, Sat,12:00	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle

					North	Stopped	Pick-up truck	Other motor vehicle	
2018-Dec-14, Fri,15:05	Rain	Rear end	P.D. only	Slush	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	

Location: BAYSHORE DR @ WOODRIDGE CRES S

Traffic Control: Traffic signal **Total Collisions:** 22

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Feb-01, Sat,13:52	Snow	Rear end	P.D. only	Slush	North	Turning left	Pick-up truck	Other motor vehicle	
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2014-Feb-05, Wed,13:18	Snow	Rear end	P.D. only	Loose snow	North	Slowing or stopping	Pick-up truck	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2014-Feb-05, Wed,14:32	Snow	Sideswipe	P.D. only	Loose snow	North	Changing lanes	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Pick-up truck	Other motor vehicle	
2014-Feb-26, Wed,17:05	Clear	Rear end	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2014-Aug-23, Sat,17:16	Clear	Rear end	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Turning left	Automobile, station wagon	Other motor vehicle	

					North	Turning left	Automobile, station wagon	Other motor vehicle
2014-Oct-09, Thu,08:20	Clear	Sideswipe	P.D. only	Dry	East	Turning right	Truck - closed	Other motor vehicle
					East	Turning right	Automobile, station wagon	Other motor vehicle
2015-Feb-02, Mon,13:00	Snow	Rear end	P.D. only	Ice	North	Slowing or stopping	Passenger van	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2014-May-22, Thu,21:24	Clear	Rear end	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2015-Jan-14, Wed,21:21	Clear	Other	Non-fatal injury	Wet	North	Turning left	Automobile, station wagon	Curb
					North	Going ahead	Pick-up truck	Other motor vehicle
2015-Jun-30, Tue,14:00	Clear	Rear end	P.D. only	Dry	East	Turning right	Pick-up truck	Other motor vehicle
					East	Turning right	Automobile, station wagon	Other motor vehicle
2016-Dec-04, Sun,23:42	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Aug-20, Sun,20:53	Clear	Rear end	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle

					East	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Sep-28, Thu,15:58	Clear	SMV other	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Pedestrian	1
2017-Dec-21, Thu,09:25	Clear	Angle	Non-fatal injury	Ice	South	Slowing or stopping	Automobile, station wagon	Skidding/sliding	
					East	Going ahead	Truck - closed	Other motor vehicle	
2017-Mar-14, Tue,14:09	Clear	Rear end	P.D. only	Dry	North	Unknown	Automobile, station wagon	Other motor vehicle	
					North	Unknown	Automobile, station wagon	Other motor vehicle	
2018-Mar-03, Sat,14:45	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jan-13, Sat,13:11	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-21, Wed,18:59	Drifting Snow	Rear end	P.D. only	Loose snow	South	Slowing or stopping	Bus (other)	Other motor vehicle	
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2018-Nov-23, Fri,15:06	Clear	Sideswipe	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	

					East	Turning left	Automobile, station wagon	Other motor vehicle	
2018-Dec-14, Fri,20:28	Freezing Rain	Rear end	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Nov-30, Fri,17:30	Clear	Rear end	Non-fatal injury	Wet	North	Slowing or stopping	Pick-up truck	Other motor vehicle	
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2018-May-25, Fri,16:30	Clear	SMV other	Non-fatal injury	Dry	East	Turning right	Automobile, station wagon	Pedestrian	1

Location: BAYSHORE DR btwn CARLING AVE & WOODRIDGE CRES N

Traffic Control: No control

Total Collisions: 10

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Mar-14, Fri,14:02	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Mar-13, Fri,17:44	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Apr-30, Sat,10:50	Clear	Turning movement	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	
					East	Turning right	Automobile, station wagon	Other motor vehicle	

2017-Aug-25, Fri,23:40	Clear	SMV other	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Ran off road	
2017-Jan-06, Fri,19:20	Clear	Sideswipe	P.D. only	Wet	North	Changing lanes	Unknown	Other motor vehicle	
					North	Stopped	Municipal transit bus	Other motor vehicle	
2014-May-26, Mon,08:35	Clear	SMV other	Non-fatal injury	Dry	North	Going ahead	Pick-up truck	Pedestrian	2
2015-Jun-30, Tue,16:45	Clear	SMV other	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Pedestrian	2
2018-Nov-28, Wed,18:28	Clear	Turning movement	P.D. only	Wet	North	Making "U" turn	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-25, Sun,01:11	Freezing Rain	Sideswipe	P.D. only	Wet	North	Changing lanes	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Oct-19, Fri,23:21	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: BAYSHORE DR btwn WOODRIDGE CRES & HWY417 IC130 RAMP66

Traffic Control: No control **Total Collisions:** 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Dec-18, Sun,17:16	Clear	Sideswipe	P.D. only	Packed snow	North	Overtaking	Ambulance	Other motor vehicle	

					North	Pulling onto shoulder or toward curb	Pick-up truck	Other motor vehicle	

Location: BAYSHORE DR btwn WOODRIDGE CRES N & BAYSHORE CS

Traffic Control: No control

Total Collisions: 9

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Sep-04, Thu,00:59	Clear	SMV other	Non-fatal injury	Dry	North	Going ahead	Motorcycle	Curb	
2014-May-02, Fri,11:00	Clear	Rear end	P.D. only	Dry	South	Overtaking	Passenger van	Other motor vehicle	
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2016-May-07, Sat,12:54	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Pick-up truck	Other motor vehicle	
					North	Going ahead	Passenger van	Other motor vehicle	
2017-Oct-06, Fri,18:44	Clear	Rear end	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Dec-22, Fri,15:14	Clear	Turning movement	P.D. only	Wet	North	Turning left	Pick-up truck	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jul-27, Fri,19:33	Clear	Rear end	Non-fatal injury	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

2018-Oct-13, Sat,16:28	Clear	Angle	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-17, Sat,22:00	Clear	Rear end	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Turning right	Automobile, station wagon	Other motor vehicle	
					West	Turning right	Automobile, station wagon	Other motor vehicle	
2018-Nov-05, Mon,07:40	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: BAYSHORE DR btwn WOODRIDGE CRES S & BAYSHORE CS

Traffic Control: No control

Total Collisions: 33

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Jan-06, Mon,18:22	Clear	Turning movement	P.D. only	Slush	North	Making "U" turn	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Jan-22, Wed,19:30	Clear	Turning movement	P.D. only	Ice	North	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Apr-22, Tue,16:43	Rain	Turning movement	P.D. only	Wet	North	Making "U" turn	Pick-up truck	Other motor vehicle	
					North	Going ahead	Delivery van	Other motor vehicle	

2014-May-09, Fri,10:07	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Delivery van	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2014-May-20, Tue,14:06	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Passenger van	Other motor vehicle
2014-Jul-12, Sat,10:00	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Aug-03, Sun,15:59	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Pick-up truck	Other motor vehicle
2014-Aug-25, Mon,08:30	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Jan-09, Thu,13:00	Clear	Turning movement	P.D. only	Dry	North	Making "U" turn	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Jan-08, Wed,18:11	Clear	Sideswipe	P.D. only	Wet	South	Going ahead	Unknown	Other motor vehicle
					South	Stopped	Municipal transit bus	Other motor vehicle

2014-Mar-26, Wed,18:50	Clear	SMV other	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Pedestrian	1
2015-Feb-16, Mon,13:17	Clear	Sideswipe	P.D. only	Wet	North	Changing lanes	Passenger van	Other motor vehicle	
					North	Going ahead	Pick-up truck	Other motor vehicle	
2015-Oct-21, Wed,18:50	Rain	Rear end	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Mar-25, Wed,16:23	Clear	Turning movement	P.D. only	Dry	North	Making "U" turn	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Oct-27, Thu,08:33	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Passenger van	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Dec-26, Mon,12:37	Freezing Rain	Angle	P.D. only	Ice	South	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Dec-23, Fri,15:16	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2016-Dec-10, Sat,16:50	Clear	Angle	P.D. only	Wet	East	Turning left	Pick-up truck	Other motor vehicle	

					South	Unknown	Unknown	Other motor vehicle
2016-Feb-10, Wed,19:26	Snow	Approaching	P.D. only	Slush	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Turning left	Automobile, station wagon	Other motor vehicle
2017-Mar-03, Fri,11:42	Clear	Turning movement	P.D. only	Dry	North	Making "U" turn	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Feb-14, Tue,19:59	Snow	Sideswipe	P.D. only	Loose snow	East	Pulling away from shoulder or curb	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Dec-27, Wed,15:56	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Nov-02, Thu,10:04	Rain	Rear end	Non-fatal injury	Wet	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					North	Stopped	Pick-up truck	Other motor vehicle
2018-Jan-01, Mon,15:38	Clear	Turning movement	Non-fatal injury	Dry	North	Making "U" turn	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Feb-21, Wed,18:29	Clear	Sideswipe	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle

					South	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Apr-10, Tue,17:50	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Passenger van	Other motor vehicle
2018-May-13, Sun,18:23	Clear	Turning movement	P.D. only	Dry	North	Making "U" turn	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Sep-04, Tue,09:23	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Passenger van	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Sep-08, Sat,15:56	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Dec-08, Sat,17:35	Clear	Turning movement	Non-fatal injury	Dry	North	Making "U" turn	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Nov-07, Wed,14:16	Rain	Turning movement	P.D. only	Wet	North	Making "U" turn	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Dec-18, Tue,20:34	Clear	Turning movement	P.D. only	Dry	North	Making "U" turn	Automobile, station wagon	Other motor vehicle

					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Oct-25, Sat,16:37	Clear	Approaching	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Turning left	Automobile, station wagon	Other motor vehicle	

Location: BAYSHORE DR NB btwn WOODRIDGE CRES & RICHMOND RD

Traffic Control: No control

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Oct-02, Fri,11:57	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					North	Slowing or stopping	Pick-up truck	Other motor vehicle	

Location: BAYSHORE DR SB btwn WOODRIDGE CRES & BAYSHORE DR SB RAMPS TO RICHMOND

Traffic Control: No control

Total Collisions: 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Apr-27, Mon,07:05	Clear	SMV other	Non-fatal injury	Dry	North	Changing lanes	Passenger van	Building or wall	
2016-Dec-27, Tue,16:55	Snow	Sideswipe	P.D. only	Ice	East	Merging	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Jan-02, Mon,14:51	Clear	Angle	P.D. only	Wet	North	Turning right	Passenger van	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: CARLING AVE @ BAYSHORE DR/BIRCHDALE AVE

Traffic Control: Traffic signal **Total Collisions:** 53

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Feb-08, Sat,17:10	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Passenger van	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-May-27, Tue,18:07	Clear	SMV other	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Pedestrian	1
2014-Jun-16, Mon,08:05	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle	
					East	Stopped	Passenger van	Other motor vehicle	
					East	Stopped	Passenger van	Other motor vehicle	
2014-Jun-27, Fri,15:51	Clear	Turning movement	P.D. only	Dry	East	Turning right	Pick-up truck	Other motor vehicle	
					East	Going ahead	Motorcycle	Other motor vehicle	
2014-Sep-29, Mon,19:30	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Pick-up truck	Other motor vehicle	
2014-Dec-03, Wed,16:41	Rain	Sideswipe	P.D. only	Slush	West	Changing lanes	Pick-up truck	Other motor vehicle	
					West	Going ahead	Pick-up truck	Other motor vehicle	
2014-Oct-26, Sun,13:00	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	

					North	Stopped	Passenger van	Other motor vehicle
2015-Jan-29, Thu,19:30	Clear	Turning movement	P.D. only	Loose snow	West	Turning left	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Jun-25, Wed,15:13	Clear	Rear end	Non-fatal injury	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Slowing or stopping	Pick-up truck	Other motor vehicle
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2014-Oct-02, Thu,21:00	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Jun-26, Fri,11:57	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle
					North	Turning right	Pick-up truck	Other motor vehicle
2015-Aug-29, Sat,19:13	Rain	Turning movement	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Jul-08, Wed,22:25	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle

2015-Nov-26, Thu,14:58	Clear	Angle	P.D. only	Dry	South	Going ahead	Passenger van	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Jan-14, Thu,06:42	Snow	Rear end	P.D. only	Loose snow	North	Going ahead	Unknown	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2016-Jan-13, Wed,06:39	Snow	Turning movement	P.D. only	Loose snow	East	Making "U" turn	Pick-up truck	Other motor vehicle
					East	Going ahead	Pick-up truck	Other motor vehicle
2016-Feb-18, Thu,08:36	Clear	Sideswipe	P.D. only	Wet	East	Overtaking	Pick-up truck	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2015-Jan-22, Thu,07:45	Clear	Rear end	P.D. only	Dry	East	Going ahead	Unknown	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2016-Mar-06, Sun,16:28	Clear	Rear end	P.D. only	Dry	East	Turning right	Pick-up truck	Other motor vehicle
					East	Turning right	Passenger van	Other motor vehicle
2016-Jul-16, Sat,14:44	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle
					North	Turning right	Pick-up truck	Other motor vehicle

2016-Sep-09, Fri,19:36	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle
					North	Turning right	Passenger van	Other motor vehicle
2016-Dec-29, Thu,13:44	Clear	Rear end	Non-fatal injury	Ice	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2016-Dec-27, Tue,13:32	Clear	Sideswipe	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Changing lanes	Automobile, station wagon	Other motor vehicle
2016-Dec-14, Wed,15:30	Snow	Turning movement	P.D. only	Slush	West	Turning left	Pick-up truck	Other motor vehicle
					East	Turning right	Pick-up truck	Other motor vehicle
2016-Mar-29, Tue,20:26	Clear	Rear end	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle
					East	Turning right	Automobile, station wagon	Other motor vehicle
2016-Jan-16, Sat,19:03	Snow	Rear end	P.D. only	Loose snow	North	Turning right	Automobile, station wagon	Other motor vehicle
					North	Turning right	Pick-up truck	Other motor vehicle
2017-Feb-15, Wed,14:47	Clear	Turning movement	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle

2017-Aug-12, Sat,13:45	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Sep-25, Mon,15:50	Clear	Sideswipe	P.D. only	Dry	North	Unknown	Automobile, station wagon	Other motor vehicle
					North	Unknown	Automobile, station wagon	Other motor vehicle
2017-Sep-27, Wed,12:08	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2017-Oct-04, Wed,07:10	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2017-Jun-24, Sat,12:30	Clear	Rear end	P.D. only	Dry	North	Turning right	Passenger van	Other motor vehicle
					North	Turning right	Pick-up truck	Other motor vehicle
2017-Oct-21, Sat,14:39	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2017-Jul-04, Tue,18:37	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle

2017-Oct-15, Sun,18:04	Rain	Rear end	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Dec-23, Sat,14:16	Snow	Sideswipe	P.D. only	Loose snow	North	Going ahead	Pick-up truck	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Dec-30, Sat,17:47	Clear	Turning movement	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Mar-20, Mon,14:02	Clear	Rear end	Non-fatal injury	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2017-Sep-08, Fri,12:22	Clear	Rear end	Non-fatal injury	Wet	North	Turning right	Automobile, station wagon	Other motor vehicle	
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2017-Jan-07, Sat,16:20	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2014-May-29, Thu,11:29	Clear	SMV other	Non-fatal injury	Dry	North	Turning right	Truck and trailer	Curb	2

2018-Feb-21, Wed,18:26	Clear	Sideswipe	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2018-Jan-29, Mon,18:25	Clear	Rear end	Non-fatal injury	Packed snow	North	Turning right	Automobile, station wagon	Other motor vehicle	
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2018-Feb-19, Mon,09:21	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jul-18, Wed,16:21	Clear	Rear end	P.D. only	Dry	East	Stopped	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-27, Wed,22:33	Rain	Turning movement	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jul-19, Thu,18:50	Clear	Sideswipe	P.D. only	Dry	North	Unknown	Unknown	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Sep-24, Mon,09:51	Clear	SMV other	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Pedestrian	1
2018-Jan-03, Wed,21:45	Clear	Rear end	P.D. only	Wet	East	Stopped	Automobile, station wagon	Other motor vehicle	

					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jan-18, Thu,07:15	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Merging	Automobile, station wagon	Other motor vehicle	
2018-Dec-07, Fri,08:04	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-26, Mon,18:48	Rain	SMV other	Non-fatal injury	Wet	East	Turning right	Automobile, station wagon	Pedestrian	1
2018-Dec-26, Wed,23:06	Clear	SMV other	P.D. only	Wet	North	Turning right	Automobile, station wagon	Pole (sign, parking meter)	

Location: WOODRIDGE CRES @ 220 W OF BAYSHORE DR/BAYSHORE

Traffic Control: Traffic signal **Total Collisions:** 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Nov-26, Thu,09:01	Clear	Angle	Non-fatal injury	Dry	South	Reversing	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Truck - closed	Other motor vehicle	
2016-Dec-29, Thu,16:05	Snow	Angle	P.D. only	Slush	North	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Pick-up truck	Other motor vehicle	
2018-Jan-19, Fri,11:21	Clear	Rear end	P.D. only	Wet	West	Going ahead	Truck - tractor	Other motor vehicle	

					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	

Location: WOODRIDGE CRES btwn 220 W OF BAYSHORE DR/BAYSHORE SC & BAYSHORE DR

Traffic Control: No control **Total Collisions:** 9

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Mar-06, Thu,10:30	Clear	Turning movement	P.D. only	Dry	East	Turning left	Truck and trailer	Other motor vehicle	
					East	Turning left	Pick-up truck	Other motor vehicle	
2014-Jan-22, Wed,18:00	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Jun-13, Fri,19:12	Clear	Sideswipe	P.D. only	Wet	West	Changing lanes	Pick-up truck	Other motor vehicle	
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2014-Nov-05, Wed,19:51	Clear	SMV other	Non-fatal injury	Dry	West	Turning right	Police vehicle	Skidding/sliding	
2014-Feb-06, Thu,13:25	Clear	Rear end	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Oct-30, Fri,18:00	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

2017-Apr-23, Sun,09:53	Clear	Angle	Non-fatal injury	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Pick-up truck	Other motor vehicle	
2018-Oct-26, Fri,20:17	Clear	Rear end	Non-fatal injury	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Nov-23, Fri,14:32	Clear	Angle	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: WOODRIDGE CRES btwn 220 W OF BAYSHORE DR/BAYSHORE SC & TRANSITWAY LINK

Traffic Control: No control

Total Collisions: 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Mar-01, Sat,21:01	Snow	Rear end	Non-fatal injury	Slush	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Turning right	Passenger van	Other motor vehicle	
2014-Dec-12, Fri,19:45	Clear	Rear end	P.D. only	Slush	West	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Turning left	Automobile, station wagon	Other motor vehicle	

Location: WOODRIDGE CRES btwn BAYSHORE DR & BAYSHORE PS

Traffic Control: No control

Total Collisions: 17

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-May-26, Mon,17:38	Clear	Turning movement	P.D. only	Dry	West	Turning left	Passenger van	Other motor vehicle	

					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-May-25, Sun,17:56	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Passenger van	Other motor vehicle
					East	Turning left	Passenger van	Other motor vehicle
2014-May-22, Thu,15:50	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2014-Aug-27, Wed,19:35	Clear	Angle	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Feb-05, Thu,14:49	Clear	Turning movement	P.D. only	Wet	West	Turning left	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Jan-28, Tue,17:00	Clear	SMV unattended vehicle	P.D. only	Slush	Unknown	Unknown	Unknown	Unattended vehicle
2014-Jul-11, Fri,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle
2015-Jan-18, Sun,14:37	Rain	Angle	Non-fatal injury	Wet	South	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

2015-Aug-20, Thu,11:30	Clear	Angle	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2016-Jun-20, Mon,21:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle
2016-Jun-10, Fri,11:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle
2016-Aug-13, Sat,05:00	Rain	SMV unattended vehicle	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Unattended vehicle
2017-Nov-22, Wed,19:30	Clear	SMV unattended vehicle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Unattended vehicle
2017-Feb-11, Sat,16:30	Clear	Turning movement	P.D. only	Loose snow	North	Turning right	Automobile, station wagon	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2018-Aug-24, Fri,00:23	Clear	SMV unattended vehicle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Unattended vehicle
2018-Nov-03, Sat,16:58	Rain	Turning movement	P.D. only	Wet	West	Turning left	Passenger van	Other motor vehicle
					West	Turning left	Automobile, station wagon	Other motor vehicle
2018-Nov-05, Mon,17:45	Rain	Turning movement	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle
					West	Overtaking	Automobile, station wagon	Other motor vehicle

Location: WOODRIDGE CRES btwn BAYSHORE PS & TRANSITWAY LINK

Traffic Control: No control

Total Collisions: 13

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Feb-21, Fri,21:45	Freezing Rain	Approaching	P.D. only	Ice	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-May-30, Fri,13:08	Clear	SMV unattended vehicle	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Unattended vehicle	
2014-Jan-19, Sun,16:30	Snow	SMV unattended vehicle	P.D. only	Wet	Unknown	Unknown	Unknown	Unattended vehicle	
2015-Jun-02, Tue,15:12	Clear	Angle	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Delivery van	Other motor vehicle	
2016-May-07, Sat,16:00	Clear	SMV other	Non-fatal injury	Dry	East	Changing lanes	Automobile, station wagon	Pedestrian	1
2016-Jun-05, Sun,14:15	Clear	Sideswipe	P.D. only	Wet	West	Changing lanes	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Jul-15, Fri,14:39	Clear	Sideswipe	P.D. only	Dry	South	Pulling away from shoulder or curb	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Apr-01, Sat,12:10	Clear	SMV unattended vehicle	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Unattended vehicle	

2017-Oct-29, Sun,00:00	Rain	SMV unattended vehicle	P.D. only	Wet	Unknown	Unknown	Unknown	Unattended vehicle
2017-May-31, Wed,17:00	Clear	Turning movement	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Apr-10, Mon,15:25	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Jun-18, Sun,15:40	Clear	Angle	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2018-Jan-16, Tue,10:23	Snow	SMV other	P.D. only	Slush	West	Going ahead	Automobile, station wagon	Skidding/sliding

Appendix F – Trip & Parking Generation Data

Bayshore/Cedarview

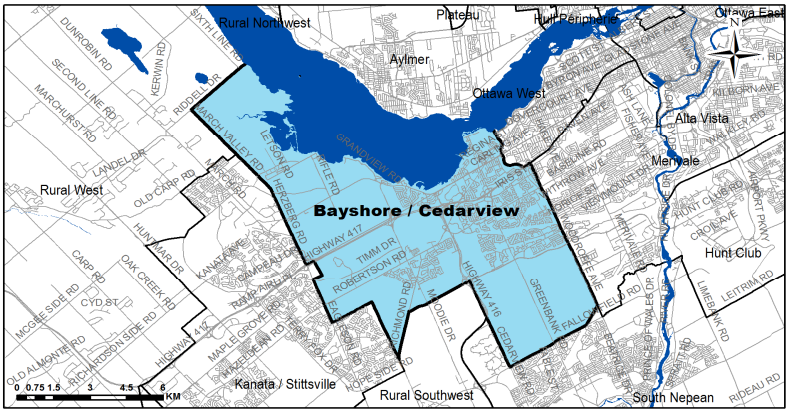
Demographic Characteristics

Population	79,250	Actively Travelled	62,250
Employed Population	35,600	Number of Vehicles	40,010
Households	32,230	Area (km^2)	113.1

Occupation Status (age 5+)	Male	Female	Total
Full Time Employed	16,910	14,100	31,010
Part Time Employed	1,630	2,960	4,590
Student	8,780	8,700	17,480
Retiree	6,350	9,710	16,050
Unemployed	1,190	1,000	2,190
Homemaker	40	2,560	2,600
Other	490	700	1,200
Total:	35,390	39,730	75,120

Traveller Characteristics	Male	Female	Total
Transit Pass Holders	6,780	8,880	15,660
Licensed Drivers	26,530	27,160	53,690
Telecommuters	200	140	330
Trips made by residents	94,770	102,970	197,750

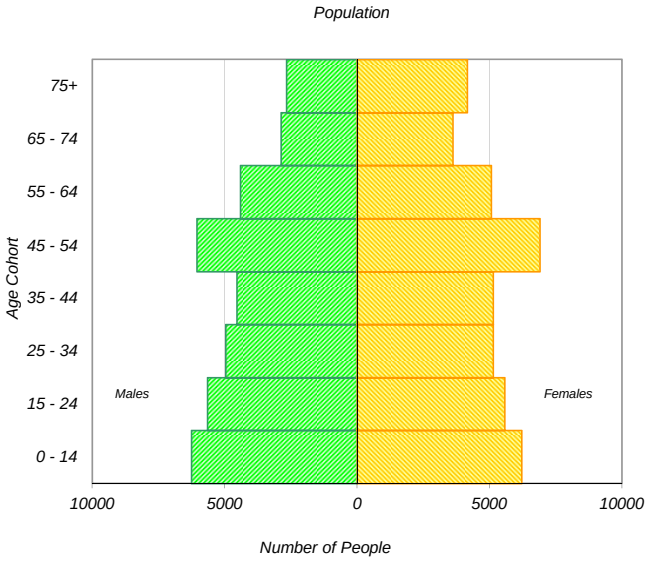
Selected Indicators	
Daily Trips per Person (age 5+)	2.63
Vehicles per Person	0.50
Number of Persons per Household	2.46
Daily Trips per Household	6.14
Vehicles per Household	1.24
Workers per Household	1.10
Population Density (Pop/km2)	700

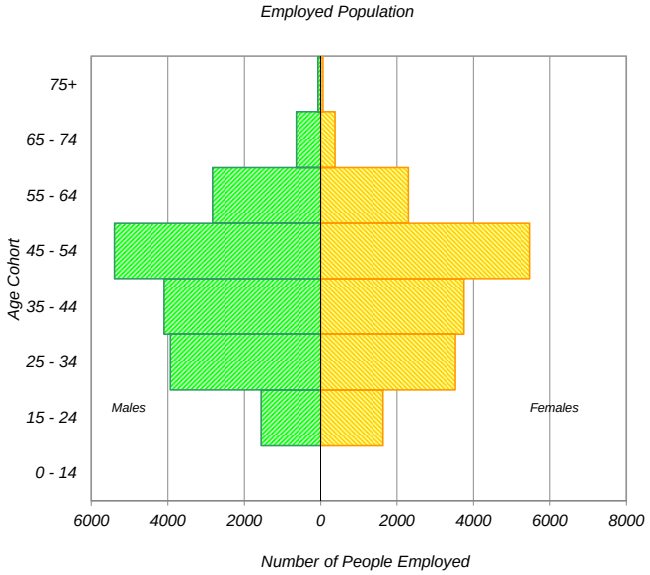


Household Size		
1 person	9,360	29%
2 persons	11,130	35%
3 persons	5,140	16%
4 persons	4,390	14%
5+ persons	2,210	7%
Total:	32,230	100%

Households by Vehicle Availability		
0 vehicles	4,670	14%
1 vehicle	17,170	53%
2 vehicles	8,710	27%
3 vehicles	1,380	4%
4+ vehicles	310	1%
Total:	32,230	100%

Households by Dwelling Type		
Single-detached	11,410	35%
Semi-detached	2,870	9%
Townhouse	7,590	24%
Apartment/Condo	10,360	32%
Total:	32,230	100%



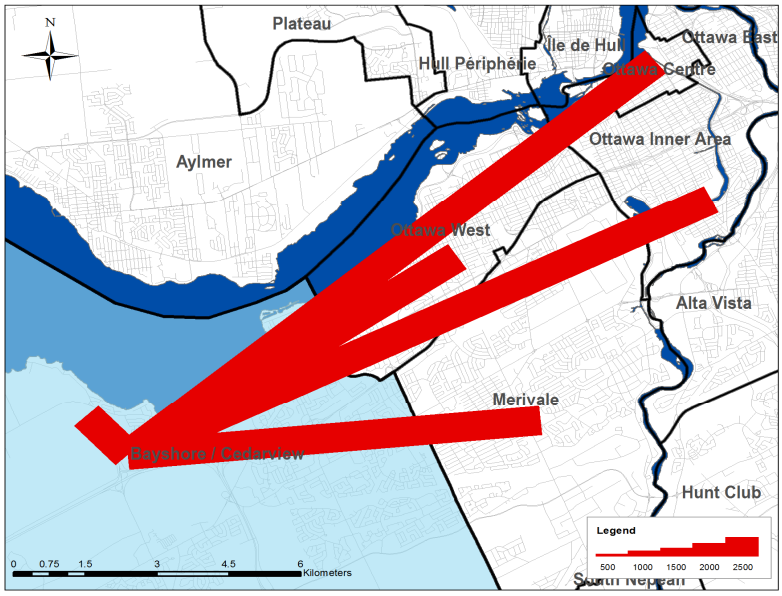


* In 2005 data was only collected for household members aged 11+ therefore these results cannot be compared to the 2011 data.

Travel Patterns

Top Five Destinations of Trips from Bayshore/Cedarview

AM Peak Period



Summary of Trips to and from Bayshore/Cedarview

AM Peak Period (6:30 - 8:59)	Destinations of Trips From District	% Total	Origins of Trips To District	% Total
Districts				
Ottawa Centre	3,510	9%	170	0%
Ottawa Inner Area	2,860	7%	830	2%
Ottawa East	310	1%	280	1%
Beacon Hill	550	1%	240	1%
Alta Vista	2,330	6%	830	2%
Hunt Club	230	1%	540	2%
Merivale	4,710	12%	2,850	8%
Ottawa West	4,870	12%	1,940	6%
Bayshore / Cedarview	14,570	37%	14,570	41%
Orléans	310	1%	1,210	3%
Rural East	20	0%	50	0%
Rural Southeast	40	0%	180	1%
South Gloucester / Leitrim	70	0%	170	0%
South Nepean	700	2%	3,230	9%
Rural Southwest	190	0%	810	2%
Kanata / Stittsvile	2,420	6%	5,010	14%
Rural West	380	1%	760	2%
Île de Hull	620	2%	70	0%
Hull Périphérie	220	1%	470	1%
Plateau	0	0%	110	0%
Aylmer	0	0%	470	1%
Rural Northwest	0	0%	100	0%
Pointe Gatineau	50	0%	60	0%
Gatineau Est	60	0%	130	0%
Rural Northeast	0	0%	70	0%
Buckingham / Masson-Angers	20	0%	0	0%
Ontario Sub-Total:	38,070	98%	33,670	96%
Québec Sub-Total:	970	2%	1,480	4%
Total:	39,040	100%	35,150	100%

Trips by Trip Purpose

24 Hours	From District		To District		Within District	
Work or related	25,540	22%	22,500	20%	7,290	10%
School	7,410	6%	3,270	3%	6,870	9%
Shopping	14,050	12%	14,680	13%	9,710	13%
Leisure	11,800	10%	9,490	8%	7,230	10%
Medical	2,850	2%	3,050	3%	1,840	3%
Pick-up / drive passenger	7,190	6%	7,450	6%	6,260	9%
Return Home	41,180	36%	49,600	43%	30,180	41%
Other	4,680	4%	4,750	4%	3,540	5%
Total:	114,700	100%	114,790	100%	72,920	100%

AM Peak (06:30 - 08:59)	From District		To District		Within District	
Work or related	15,460	63%	13,800	67%	3,710	25%
School	4,740	19%	2,910	14%	6,170	42%
Shopping	490	2%	310	2%	250	2%
Leisure	760	3%	320	2%	420	3%
Medical	420	2%	420	2%	310	2%
Pick-up / drive passenger	1,390	6%	1,390	7%	1,710	12%
Return Home	610	2%	730	4%	980	7%
Other	610	2%	690	3%	1,020	7%
Total:	24,480	100%	20,570	100%	14,570	100%

PM Peak (15:30 - 17:59)	From District		To District		Within District	
Work or related	890	3%	740	3%	270	2%
School	240	1%	30	0%	70	0%
Shopping	2,770	11%	3,540	12%	2,290	14%
Leisure	2,360	9%	2,140	7%	1,500	9%
Medical	480	2%	300	1%	210	1%
Pick-up / drive passenger	2,590	10%	2,420	8%	1,590	10%
Return Home	15,960	61%	19,170	66%	9,690	60%
Other	940	4%	710	2%	650	4%
Total:	26,230	100%	29,050	100%	16,270	100%

Peak Period (%)	Total:	% of 24 Hours	Within District (%)
24 Hours	302,410		24%
AM Peak Period	59,620	20%	24%
PM Peak Period	71,550	24%	23%

Trips by Primary Travel Mode

24 Hours	From District		To District		Within District	
Auto Driver	73,150	64%	73,010	64%	34,470	47%
Auto Passenger	18,520	16%	18,710	16%	10,600	15%
Transit	17,480	15%	17,570	15%	5,270	7%
Bicycle	1,200	1%	1,130	1%	1,160	2%
Walk	1,210	1%	1,120	1%	15,610	21%
Other	3,150	3%	3,270	3%	5,810	8%
Total:	114,710	100%	114,810	100%	72,920	100%

AM Peak (06:30 - 08:59)	From District		To District		Within District	
Auto Driver	12,840	52%	14,600	71%	5,130	35%
Auto Passenger	2,900	12%	2,150	10%	1,860	13%
Transit	7,070	29%	1,840	9%	1,380	9%
Bicycle	350	1%	280	1%	330	2%
Walk	170	1%	120	1%	3,120	21%
Other	1,140	5%	1,570	8%	2,750	19%
Total:	24,470	100%	20,560	100%	14,570	100%

PM Peak (15:30 - 17:59)	From District		To District		Within District	
Auto Driver	18,490	70%	16,320	56%	7,960	49%
Auto Passenger	4,030	15%	4,580	16%	2,990	18%
Transit	2,080	8%	6,750	23%	930	6%
Bicycle	420	2%	330	1%	230	1%
Walk	190	1%	390	1%	3,200	20%
Other	1,020	4%	660	2%	960	6%
Total:	26,230	100%	29,030	100%	16,270	100%

Avg Vehicle Occupancy	From District	To District	Within District
24 Hours	1.25	1.26	1.31
AM Peak Period	1.23	1.15	1.36
PM Peak Period	1.22	1.28	1.38

Transit Modal Split	From District	To District	Within District
24 Hours	16%	16%	10%
AM Peak Period	31%	10%	16%
PM Peak Period	8%	24%	8%

3.2 Recommended Residential Trip Generation Rates

A blended trip rate was developed from the three data sources through application of a rank-sum weighting process, considering the strengths and weaknesses of each dataset for the dwelling type in question. The recommended blended **residential person-trip rates** are presented in **Table 3**. All rates represent person-trips per dwelling unit and are to be applied to the **AM or PM peak period.**

Table 3: Recommended Residential Person-trip Rates

ITE Land Use Code	Dwelling Unit Type	Period	Person-Trip Rate
210	Single-detached	AM	2.05
		PM	2.48
220	Multi-Unit (Low-Rise)	AM	1.35
		PM	1.58
221 & 222	Multi-Unit (High-Rise)	AM	0.80
		PM	0.90

3.3 Adjustment Factors – Peak Period to Peak Hour

The various trip generation data sources require some adjustment to standardize the data for developing robust blended trip rates. The peak period conversion factor in **Table 4** may be used where applicable to develop trip generation rate estimates in the desired format.

Table 4: Adjustment Factors for Residential Trip Generation Rates

Factor	Application	Apply To	Period	Value
Peak Period Conversion Factor	**Peak period to peak hour conversion.** Because the 2020 TRANS Trip Generation Study reports trip generation rates by peak period, factors must be applied if the practitioner requires peak hour rates. In practice, the conversion to peak hour trip rates should occur **after** the application of modal shares.	Person-trip rates per peak period	AM	0.50
			PM	0.44
		Vehicle trip rates per peak period	AM	0.48
			PM	0.44
		Transit trip rates per peak period	AM	0.55
			PM	0.47
		Cycling trip rates per peak period	AM	0.58
			PM	0.48
		Walking trip rates per peak period	AM	0.58
			PM	0.52

Table 8: Residential Mode Share for High-Rise Multifamily Housing

District	Period	Mode				
		Auto Driver	Auto Pass.	Transit	Cycling	Walking
Ottawa Centre	AM	18%	2%	26%	1%	52%
	PM	17%	9%	21%	1%	52%
Ottawa Inner Area	AM	26%	6%	28%	5%	34%
	PM	25%	8%	21%	6%	39%
Île de Hull	AM	27%	3%	37%	12%	21%
	PM	26%	8%	27%	11%	28%
Ottawa East	AM	39%	7%	38%	2%	13%
	PM	40%	14%	28%	3%	15%
Beacon Hill	AM	48%	9%	30%	3%	10%
	PM	52%	16%	28%	0%	4%
Alta Vista	AM	38%	12%	42%	2%	7%
	PM	45%	16%	28%	2%	9%
Hunt Club	AM	39%	6%	44%	1%	9%
	PM	44%	11%	35%	2%	9%
Merivale	AM	41%	6%	42%	2%	8%
	PM	41%	11%	33%	2%	13%
Ottawa West	AM	28%	11%	41%	3%	16%
	PM	33%	11%	26%	7%	23%
Bayshore/Cedarview	AM	40%	12%	38%	2%	8%
	PM	40%	15%	33%	1%	11%
Hull Périphérie	AM	48%	11%	30%	1%	10%
	PM	47%	15%	23%	3%	13%
Orleans	AM	54%	7%	29%	0%	10%
	PM	61%	13%	21%	0%	6%
South Gloucester / Leitrim	AM	50%	15%	25%	1%	9%
	PM	53%	17%	21%	1%	9%
South Nepean	AM	58%	6%	30%	2%	4%
	PM	54%	15%	25%	0%	7%
Kanata - Stittsville	AM	43%	26%	28%	0%	4%
	PM	55%	19%	21%	0%	5%
Plateau	AM	53%	9%	35%	3%	1%
	PM	65%	7%	25%	2%	1%
Aylmer	AM	45%	17%	25%	0%	13%
	PM	31%	21%	23%	4%	20%
Pointe Gatineau	AM	44%	15%	24%	3%	14%
	PM	52%	15%	20%	2%	11%
Gatineau Est	AM	53%	10%	25%	0%	12%
	PM	61%	10%	25%	0%	4%
Masson-Angers	AM	63%	15%	19%	0%	3%
	PM	64%	18%	16%	0%	1%
Other Rural Districts	AM	63%	15%	19%	0%	3%
	PM	64%	18%	16%	0%	1%

Land Use: 222 Multifamily Housing (High-Rise)

Description

High-rise multifamily housing includes apartments and condominiums that have more than 10 levels (floors) of residence. They are likely to have one or more elevators. Multifamily housing (low-rise) (Land Use 220), multifamily housing (mid-rise) (Land Use 221), and affordable housing (Land Use 223) are related land uses.

Additional Data

In prior editions of *Parking Generation*, the high-rise multifamily housing sites were further divided into rental and condominium categories. An investigation of parking demand data found no clear differences in parking demand patterns between the rental and condominium sites within the ITE database. As more data are compiled for future editions, this land use classification can be reinvestigated.

The average parking supply ratios for the study sites with parking supply information are shown in the table below.

Setting	Proximity to Rail Transit	Parking Supply Ratio	
		Per Dwelling Unit	Per Bedroom
Center City Core	Within ½ mile of rail transit	0.7 (14 sites)	0.6 (13 sites)
Dense Multi-Use Urban	Within ½ mile of rail transit	0.6 (6 sites)	0.5 (6 sites)
	Not within ½ mile of rail transit	0.6 (1 site)	0.3 (1 site)
General Urban/ Suburban	Within ½ mile of rail transit	Not Available	Not Available
	Not within ½ mile of rail transit	1.2 (6 sites)	0.9 (1 site)

The sites were surveyed in the 1980s, the 2000s, and the 2010s in District of Columbia, Tennessee, and Virginia.

It is expected that the number of bedrooms and number of residents are likely correlated to the parking demand generated by a residential site. Parking studies of multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex). Future parking studies should also indicate the number of levels contained in the residential building.

Source Numbers

71, 402, 583

Appendix G – TDM Checklists

TDM-Supportive Development Design and Infrastructure Checklist:
Residential Developments (multi-family or condominium)

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☒
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☒
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☒
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☒
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☒

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks *(see Official Plan policy 4.3.10)*	☒
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps *(see Official Plan policy 4.3.10)*	☒
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians *(see Official Plan policy 4.3.11)*	☒
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☒
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☒
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☒
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☒
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☒

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☒
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☒
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☒
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	☒
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☒
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☒
	2.3	**Bicycle repair station**	
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☒
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☒
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	☒

TDM Measures Checklist:
Residential Developments (multi-family, condominium or subdivision)

Legend

BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER — The measure could maximize support for users of sustainable modes, and optimize development performance

★ — The measure is one of the most dependably effective tools to encourage the use of sustainable modes

		TDM measures: *Residential developments*	Check if proposed & add descriptions
	1.	**TDM PROGRAM MANAGEMENT**	
	1.1	**Program coordinator**	
BASIC ★	1.1.1	Designate an internal coordinator, or contract with an external coordinator	☐ Under Consideration.
	1.2	**Travel surveys**	
BETTER	1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☑ Can incorporate into existing regular surveys.
	2.	**WALKING AND CYCLING**	
	2.1	**Information on walking/cycling routes & destinations**	
BASIC	2.1.1	Display local area maps with walking/cycling access routes and key destinations at major entrances *(multi-family, condominium)*	☑ Can include on website, in rec center and in lobby.
	2.2	**Bicycle skills training**	
BETTER	2.2.1	Offer on-site cycling courses for residents, or subsidize off-site courses	☑ Can expand existing courses to include adults. Bikes and cycle tours available.

			TDM measures: *Residential developments*	Check if proposed & add descriptions
		3.	**TRANSIT**	
		3.1	**Transit information**	
BASIC		3.1.1	Display relevant transit schedules and route maps at entrances *(multi-family, condominium)*	☑ Can display in lobbies of all highrises.
BETTER		3.1.2	Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐ Under consideration
		3.2	**Transit fare incentives**	
BASIC	★	3.2.1	Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	☐ Under consideration
BETTER		3.2.2	Offer at least one year of free monthly transit passes on residence purchase/move-in	☐ Under consideration
		3.3	**Enhanced public transit service**	
BETTER	★	3.3.1	Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels *(subdivision)*	☐ Not required due to proximity to Bayshore Station.
		3.4	**Private transit service**	
BETTER		3.4.1	Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	☐ Not required due to residence type and proximity to Bayshore Shopping Mall.
		4.	**CARSHARING & BIKESHARING**	
		4.1	**Bikeshare stations & memberships**	
BETTER		4.1.1	Contract with provider to install on-site bikeshare station (*multi-family)*	☐ Under consideration - Possible expansion on existing available bicycles.
BETTER		4.1.2	Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☐ Under consideration - Existing complimentary bicycle use.
		4.2	**Carshare vehicles & memberships**	
BETTER		4.2.1	Contract with provider to install on-site carshare vehicles and promote their use by residents	☐ Under consideration.
BETTER		4.2.2	Provide residents with carshare memberships, either free or subsidized	☐ Under consideration.
		5.	**PARKING**	
		5.1	**Priced parking**	
BASIC	★	5.1.1	Unbundle parking cost from purchase price *(condominium)*	☐
BASIC	★	5.1.2	Unbundle parking cost from monthly rent *(multi-family)*	☑ Parking is already an additional fee.

TDM measures: *Residential developments*				Check if proposed & add descriptions
		6.	**TDM MARKETING & COMMUNICATIONS**	
		6.1	**Multimodal travel information**	
BASIC	★	6.1.1	Provide a multimodal travel option information package to new residents	☑ Can include in existing welcome packages and on website.
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☐ Can direct to OC Transpo website.

Appendix H – MMLOS Analyses

Multi-Modal Level of Service - Segments Form

Consultant	**IBI Group**	**Project**	**90 (91&92) Woodridge Cresc.**
Scenario	**Existing & Future Conditions**	**Date**	**10-Feb-22**
Comments			

SEGMENTS		**Woodridge - Site Frontage**	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8	Section 9
Pedestrian	Sidewalk Width Boulevard Width	**B**	≥ 2 m < 0.5								
	Avg Daily Curb Lane Traffic Volume		≤ 3000								
	Operating Speed On-Street Parking		> 30 to 50 km/h yes								
	Exposure to Traffic PLoS		**B**	-	-	-	-	-	-	-	-
	Effective Sidewalk Width		2.0 m								
	Pedestrian Volume		500 ped /hr								
	Crowding PLoS		**B**	-	-	-	-	-	-	-	-
	Level of Service		**B**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Bicycle	Type of Cycling Facility	**B**	Curbside Bike Lane								
	Number of Travel Lanes		≤ 1 each direction								
	Operating Speed		≤ 50 km/h								
	# of Lanes & Operating Speed LoS		**A**	-	-	-	-	-	-	-	-
	Bike Lane (+ Parking Lane) Width		≥1.5 to <1.8 m								
	Bike Lane Width LoS		**B**	-	-	-	-	-	-	-	-
	Bike Lane Blockages		Rare								
	Blockage LoS		**A**	-	-	-	-	-	-	-	-
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge								
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes								
	Sidestreet Operating Speed		>40 to 50 km/h								
	Unsignalized Crossing - Lowest LoS		**B**	-	-	-	-	-	-	-	-
	Level of Service		**B**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Transit	Facility Type	**D**	Mixed Traffic								
	Friction or Ratio Transit:Posted Speed		Vt/Vp ≥ 0.8								
	Level of Service		**D**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Truck	Truck Lane Width	**B**	> 3.7 m								
	Travel Lanes per Direction		1								
	Level of Service		**B**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Multi-Modal Level of Service - Intersections Form

Consultant	**IBI Group**	**Project**	**90 (91&92) Woodridge Cresc.**
Scenario	**Existing & Future Conditions**	**Date**	**10-Feb-22**
Comments			

To add intersections
Select columns LMNO, right-click and *Copy;*
Then select column P, right-click and *Insert Copied Cells*

INTERSECTIONS		Woodridge Crescent (N) & Bayhore Drive				Woodridge Crescent (S) & Bayshore Drive				Richmond Road & Bayshore Drive			
	Crossing Side	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	4	4	3	4	5	9		8	8	4	6	
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	Median > 2.4 m	No Median - 2.4 m		Median > 2.4 m	No Median - 2.4 m	No Median - 2.4 m	Median > 2.4 m	
	Conflicting Left Turns	Permissive	Permissive	Permissive	Permissive	Protected	No left turn / Prohib.		No left turn / Prohib.	Protected	No left turn / Prohib.	Protected	
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	No right turn	Protected		Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control	
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR prohibited		RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	
	Ped Signal Leading Interval?	No	No	No	No	No	No		No	No	No	No	
	Right Turn Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Right Turn		Conventional with Receiving Lane	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	
	Corner Radius	5-10m	No Right Turn	No Right Turn	No Right Turn	5-10m	No Right Turn		15-25m	>25m	15-25m	15-25m	
	Crosswalk Type	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings		Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	
	PETSI Score	**54**	**59**	**76**	**59**	**57**	**-3**		**2**	**-3**	**68**	**35**	
	Ped. Exposure to Traffic LoS	**D**	**D**	**B**	**D**	**D**	**F**	**-**	**F**	**F**	**C**	**E**	**-**
	Cycle Length	75	75	75	75	80	80	80	80	125	125	125	125
	Effective Walk Time	7	7	7	7	7	7	7	7	7	7	7	7
	Average Pedestrian Delay	**31**	**31**	**31**	**31**	**33**	**33**	**33**	**33**	**56**	**56**	**56**	**56**
	Pedestrian Delay LoS	**D**	**D**	**D**	**D**	**D**	**D**	**D**	**D**	**E**	**E**	**E**	**E**
	Level of Service	**D**	**D**	**D**	**D**	**D**	**F**	**D**	**F**	**F**	**E**	**E**	**E**
		D				**F**				**F**			
	Approach From	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic		Mixed Traffic	Mixed Traffic		Mixed Traffic	Mixed Traffic
	IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank>								> 50 m			> 50 m	
	Dedicated Right Turning Speed								>25 km/h	>25 km/h		≤ 25 km/h	
	Cyclist Through Movement							-	F		-	F	
	Separated or Mixed Traffic	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**-**	**Mixed Traffic**	**Mixed Traffic**	**-**	**Mixed Traffic**	**Mixed Traffic**
	Left Turn Approach	No lane crossed	No lane crossed	No lane crossed	One lane crossed	No lane crossed	No lane crossed	No lane crossed	No lane crossed	≥ 2 lanes crossed			≥ 2 lanes crossed
	Operating Speed	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 50 to < 60 km/h			≥ 60 km/h
	Left Turning Cyclist	**B**	**B**	**B**	**D**	**B**	**B**	**B**	**B**	**F**	**-**	**-**	**F**
	Level of Service	**B**	**B**	**B**	**D**	**B**	**B**	**-**	**F**	**F**	**-**	**-**	**F**
		D				**F**				**F**			
Transit	Average Signal Delay	≤ 10 sec	≤ 10 sec	≤ 20 sec	≤ 30 sec	≤ 20 sec	≤ 30 sec		≤ 20 sec	≤ 30 sec	> 40 sec	≤ 40 sec	≤ 40 sec
	Level of Service	**B**	**B**	**C**	**D**	**C**	**D**	**-**	**C**	**D**	**F**	**E**	**E**
		D				**D**				**F**			
Truck	Effective Corner Radius	< 10 m	< 10 m	< 10 m	< 10 m	< 10 m			> 15 m	> 15 m	> 15 m	> 15 m	
	Number of Receiving Lanes on Departure from Intersection	1	1	1	1	≥ 2			≥ 2	≥ 2	≥ 2	≥ 2	
	Level of Service	**F**	**F**	**F**	**F**	**D**	**-**	**-**	**A**	**A**	**A**	**A**	**-**
		F				**D**				**A**			
Auto	Volume to Capacity Ratio	0.0 - 0.60				0.0 - 0.60				0.0 - 0.60			
	Level of Service	**A**				**A**				**A**			

Multi-Modal Level of Service - Intersections Form

Consultant	**IBI Group**	**Project**	**90 (91&92) Woodridge Cresc.**
Scenario	**Existing & Future Conditions**	**Date**	**10-Feb-22**
Comments			

To add intersections
Select columns LMNO, right-click and *Copy;*
Then select column P, right-click and *Insert Copied Cells*

INTERSECTIONS		**Woodridge Crescent & 220m W of Bayshore Drive**											
	Crossing Side	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**
Pedestrian	Lanes	0 - 2			5								
	Median	No Median - 2.4 m			No Median - 2.4 m								
	Conflicting Left Turns	Permissive			No left turn / Prohib.								
	Conflicting Right Turns	Permissive or yield control			Permissive or yield control								
	Right Turns on Red (RToR) ?	RTOR allowed			RTOR allowed								
	Ped Signal Leading Interval?	No			No								
	Right Turn Channel	No Right Turn			No Right Turn								
	Corner Radius	5-10m			5-10m								
	Crosswalk Type	Std transverse markings			Std transverse markings								
	PETSI Score	**90**			**50**								
	Ped. Exposure to Traffic LoS	**A**	**-**	**-**	**D**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Cycle Length	75			75								
	Effective Walk Time	7			7								
	Average Pedestrian Delay	**31**			**31**								
	Pedestrian Delay LoS	**D**	**-**	**-**	**D**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Level of Service	**D**	**-**	**-**	**D**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		D				**-**				**-**			
	Approach From	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**
Bicycle	Bicycle Lane Arrangement on Approach IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank> Dedicated Right Turning Speed	Mixed Traffic		Mixed Traffic	Mixed Traffic								
	Cyclist Through Movement		**-**			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Separated or Mixed Traffic	**Mixed Traffic**	**-**	**Mixed Traffic**	**Mixed Traffic**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Left Turn Approach	No lane crossed			≥ 2 lanes crossed								
	Operating Speed	> 40 to ≤ 50 km/h		> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h								
	Left Turning Cyclist	**B**	**-**	**-**	**E**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Level of Service	**B**	**-**	**-**	**E**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		E				**-**				**-**			
Transit	Average Signal Delay	≤ 30 sec		≤ 10 sec	≤ 10 sec								
	Level of Service	**D**	**-**	**B**	**B**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		D				**-**				**-**			
Truck	Effective Corner Radius	< 10 m		< 10 m									
	Number of Receiving Lanes on Departure from Intersection	≥ 2		1									
	Level of Service	**D**	**-**	**F**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		F				**-**				**-**			
Auto	Volume to Capacity Ratio	0.0 - 0.60											
	Level of Service	**A**				**-**				**-**			

Appendix I – Intersection Capacity Analyses

Appendix J – Auxiliary Lane Analyses

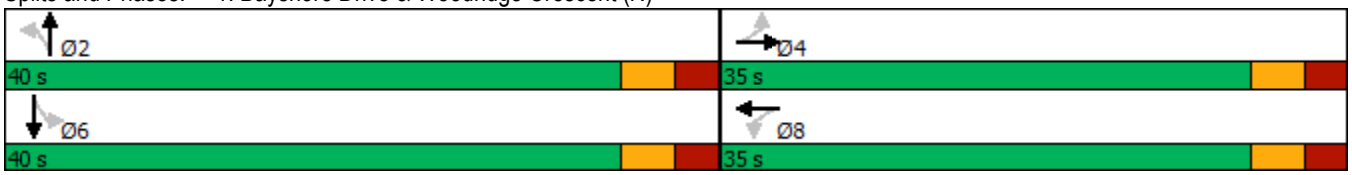
Existing (2021) Traffic

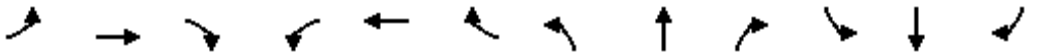
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	1	98	20	1	12	94	266	9	3	156	95
Future Volume (vph)	152	1	98	20	1	12	94	266	9	3	156	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.97			0.98			0.99			0.98	
Frt		0.851			0.951			0.997			0.949	
Flt Protected	0.950				0.970			0.987			0.999	
Satd. Flow (prot)	1679	1469	0	0	1658	0	0	1725	0	0	1584	0
Flt Permitted	0.734				0.805			0.848			0.997	
Satd. Flow (perm)	1269	1469	0	0	1361	0	0	1473	0	0	1581	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		109			13			2			53	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		186.3			207.9			394.4			121.4	
Travel Time (s)		13.4			15.0			28.4			8.7	
Confl. Peds. (#/hr)	21		20	20		21	23		21	21		23
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	0%	2%	0%	0%	0%	6%	3%	0%	0%	5%	9%
Adj. Flow (vph)	169	1	109	22	1	13	104	296	10	3	173	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	169	110	0	0	36	0	0	410	0	0	282	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		26.6	26.6		26.6	26.6	
Total Split (s)	35.0	35.0		35.0	35.0		40.0	40.0		40.0	40.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	29.5	29.5		29.5	29.5		34.4	34.4		34.4	34.4	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5			5.5			5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	13.5	13.5			13.5			37.3			37.3	
Actuated g/C Ratio	0.22	0.22			0.22			0.60			0.60	
v/c Ratio	0.61	0.27			0.12			0.46			0.29	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	30.6	6.1			13.7			10.0			6.6	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	30.6	6.1			13.7			10.0			6.6	
LOS	C	A			B			B			A	
Approach Delay		21.0			13.7			10.0			6.6	
Approach LOS		C			B			B			A	
Queue Length 50th (m)	16.3	0.1			2.0			21.3			10.1	
Queue Length 95th (m)	31.9	9.4			7.6			52.6			27.5	
Internal Link Dist (m)		162.3			183.9			370.4			97.4	
Turn Bay Length (m)	60.0											
Base Capacity (vph)	607	760			658			887			972	
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	0.28	0.14			0.05			0.46			0.29	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 62			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 12.2		Intersection LOS: B	
Intersection Capacity Utilization 67.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Bayshore Drive & Woodridge Crescent (N)



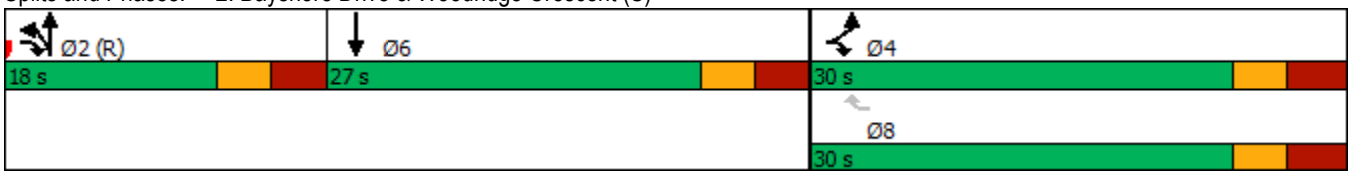


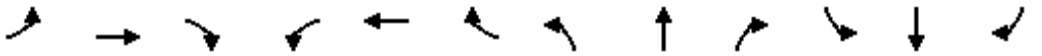
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	0	155	0	0	0	136	33	0	0	203	83
Future Volume (vph)	44	0	155	0	0	0	136	33	0	0	203	83
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.97						0.98	0.99			0.99	
Frt			0.850								0.957	
Flt Protected	0.950						0.950	0.971				
Satd. Flow (prot)	1491	0	2545	0	0	1820	1626	1478	0	0	3181	0
Flt Permitted	0.950						0.950	0.971				
Satd. Flow (perm)	1447	0	2545	0	0	1820	1598	1462	0	0	3181	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)											81	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		150.9			229.8			179.2			394.4	
Travel Time (s)		13.6			20.7			12.9			28.4	
Confl. Peds. (#/hr)	18		44	44		18	24		4	4		24
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	16%	0%	7%	0%	0%	0%	1%	33%	0%	0%	2%	5%
Adj. Flow (vph)	49	0	172	0	0	0	151	37	0	0	226	92
Shared Lane Traffic (%)							38%					
Lane Group Flow (vph)	49	0	172	0	0	0	94	94	0	0	318	0
Turn Type	Prot		pt+ov			Perm	Split	NA			NA	
Protected Phases	4		4 2				2	2			6	
Permitted Phases						8						
Detector Phase	4		4 2			8	2	2			6	
Switch Phase												
Minimum Initial (s)	5.0					5.0	5.0	5.0			5.0	
Minimum Split (s)	29.5					11.5	11.2	11.2			26.2	
Total Split (s)	30.0					30.0	18.0	18.0			27.0	
Total Split (%)	40.0%					40.0%	24.0%	24.0%			36.0%	
Maximum Green (s)	23.5					23.5	11.8	11.8			20.8	
Yellow Time (s)	3.0					3.0	3.0	3.0			3.0	
All-Red Time (s)	3.5					3.5	3.2	3.2			3.2	
Lost Time Adjust (s)	0.0					0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.5					6.5	6.2	6.2			6.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0					3.0	3.0	3.0			3.0	
Recall Mode	None					None	C-Max	C-Max			Max	
Walk Time (s)	7.0										7.0	
Flash Dont Walk (s)	16.0										13.0	
Pedestrian Calls (#/hr)	0										0	
Act Effct Green (s)	8.2		41.5				27.1	27.1			20.8	
Actuated g/C Ratio	0.11		0.55				0.36	0.36			0.28	
v/c Ratio	0.30		0.12				0.16	0.18			0.34	
Control Delay	34.9		8.3				18.0	18.3			17.1	
Queue Delay	0.0		0.0				0.0	0.0			0.0	
Total Delay	34.9		8.3				18.0	18.3			17.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C		A				B	B			B	
Approach Delay		14.2						18.1			17.1	
Approach LOS		B						B			B	
Queue Length 50th (m)	6.5		6.0				9.2	9.2			13.7	
Queue Length 95th (m)	15.5		10.7				20.5	20.8			23.7	
Internal Link Dist (m)		126.9			205.8			155.2			370.4	
Turn Bay Length (m)												
Base Capacity (vph)	467		1408				586	533			940	
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		0.12				0.16	0.18			0.34	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.34			
Intersection Signal Delay: 16.5		Intersection LOS: B	
Intersection Capacity Utilization 44.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Bayshore Drive & Woodridge Crescent (S)





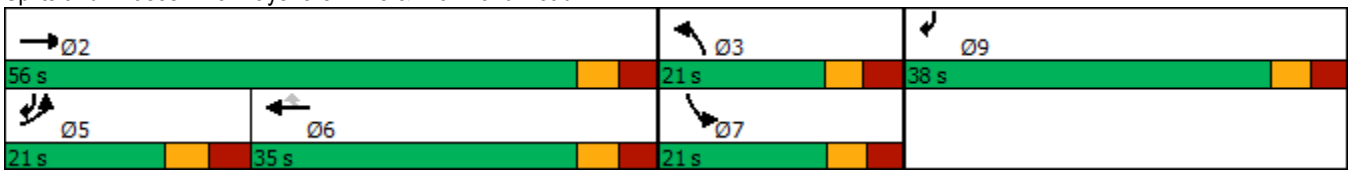
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	957	0	0	324	92	249	0	12	81	0	316
Future Volume (vph)	328	957	0	0	324	92	249	0	12	81	0	316
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	205.0		0.0	0.0		60.0	0.0		35.0	50.0		0.0
Storage Lanes	2		0	0		1	2		1	1		3
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.97	1.00	0.76
Ped Bike Factor						0.99						
Frt						0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3321	3424	0	0	4732	1502	3257	0	1547	3022	0	3391
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3321	3424	0	0	4732	1483	3257	0	1547	3022	0	3391
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)						169			236			
Link Speed (k/h)		70			70			50			50	
Link Distance (m)		676.3			322.3			173.9			198.6	
Travel Time (s)		34.8			16.6			12.5			14.3	
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	0%	0%	5%	3%	3%	0%	0%	11%	0%	4%
Adj. Flow (vph)	364	1063	0	0	360	102	277	0	13	90	0	351
Shared Lane Traffic (%)												
Lane Group Flow (vph)	364	1063	0	0	360	102	277	0	13	90	0	351
Turn Type	Prot	NA			NA	Perm	Prot		Free	Prot		pt+ov
Protected Phases	5	2			6		3			7		5 9
Permitted Phases						6			Free			
Detector Phase	5	2			6	6	3			7		5 9
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0			5.0		
Minimum Split (s)	12.3	32.1			32.1	32.1	11.9			11.6		
Total Split (s)	21.0	56.0			35.0	35.0	21.0			21.0		
Total Split (%)	18.3%	48.7%			30.4%	30.4%	18.3%			18.3%		
Maximum Green (s)	13.7	48.9			27.9	27.9	14.1			14.4		
Yellow Time (s)	3.7	3.7			3.7	3.7	3.3			3.3		
All-Red Time (s)	3.6	3.4			3.4	3.4	3.6			3.3		
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0			0.0		
Total Lost Time (s)	7.3	7.1			7.1	7.1	6.9			6.6		
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0			3.0		
Recall Mode	None	Max			Max	Max	None			None		
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		18.0			18.0	18.0						
Pedestrian Calls (#/hr)		0			0	0						
Act Effct Green (s)	13.6	49.0			28.1	28.1	12.5		94.8	12.0		32.9
Actuated g/C Ratio	0.14	0.52			0.30	0.30	0.13		1.00	0.13		0.35
v/c Ratio	0.76	0.60			0.26	0.18	0.65		0.01	0.24		0.30

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	11.6
Total Split (s)	38.0
Total Split (%)	33%
Maximum Green (s)	31.4
Yellow Time (s)	3.3
All-Red Time (s)	3.3
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	51.5	18.4			26.7	1.3	46.8		0.0	38.7		23.4
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0	0.0		0.0
Total Delay	51.5	18.4			26.7	1.3	46.8		0.0	38.7		23.4
LOS	D	B			C	A	D		A	D		C
Approach Delay		26.8			21.1			44.7			26.6	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	33.7	69.5			18.5	0.0	25.1		0.0	7.6		20.4
Queue Length 95th (m)	#56.1	97.4			27.9	1.8	39.2		0.0	15.1		29.7
Internal Link Dist (m)		652.3			298.3			149.9			174.6	
Turn Bay Length (m)	205.0					60.0			35.0	50.0		
Base Capacity (vph)	480	1769			1401	558	485		1547	459		1186
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	0.76	0.60			0.26	0.18	0.57		0.01	0.20		0.30

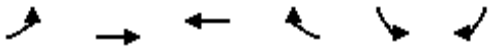
Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 94.8			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 27.8		Intersection LOS: C	
Intersection Capacity Utilization 47.1%		ICU Level of Service A	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: Bayshore Drive & Richmond Road

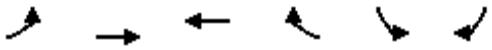


Lane Group	Ø9
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



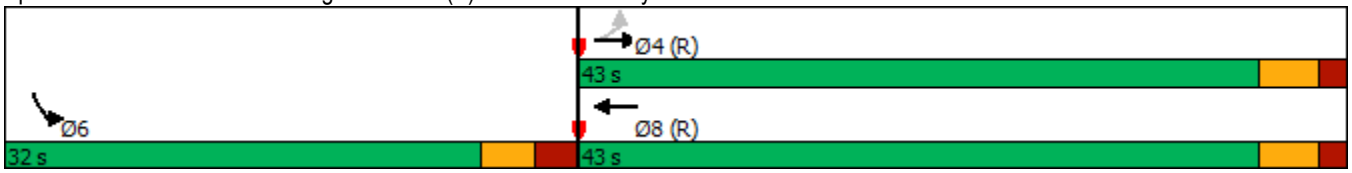
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	19	140	120	2	34	19
Future Volume (vph)	19	140	120	2	34	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.94		1.00		0.99	
Frt			0.998		0.952	
Flt Protected	0.950				0.969	
Satd. Flow (prot)	1729	3033	3224	0	1569	0
Flt Permitted	0.666				0.969	
Satd. Flow (perm)	1143	3033	3224	0	1569	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			2		21	
Link Speed (k/h)		40	40		50	
Link Distance (m)		172.9	23.2		196.3	
Travel Time (s)		15.6	2.1		14.1	
Confl. Peds. (#/hr)	22			22		25
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	14%	7%	0%	0%	16%
Adj. Flow (vph)	21	156	133	2	38	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	156	135	0	59	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Detector Phase	4	4	8		6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	10.0	10.0	17.0		29.4	
Total Split (s)	43.0	43.0	43.0		32.0	
Total Split (%)	57.3%	57.3%	57.3%		42.7%	
Maximum Green (s)	38.0	38.0	38.0		26.6	
Yellow Time (s)	3.3	3.3	3.3		3.0	
All-Red Time (s)	1.7	1.7	1.7		2.4	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.4	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	C-Max	C-Max	C-Max		None	
Walk Time (s)			7.0		7.0	
Flash Dont Walk (s)			5.0		17.0	
Pedestrian Calls (#/hr)			0		0	
Act Effct Green (s)	63.5	63.5	63.5		7.5	
Actuated g/C Ratio	0.85	0.85	0.85		0.10	
v/c Ratio	0.02	0.06	0.05		0.34	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Control Delay	2.7	2.2	2.2		27.1	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	2.7	2.2	2.2		27.1	
LOS	A	A	A		C	
Approach Delay		2.3	2.2		27.1	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.5	2.1	1.7		5.1	
Queue Length 95th (m)	2.2	4.8	4.2		14.8	
Internal Link Dist (m)		148.9	0.1		172.3	
Turn Bay Length (m)	40.0					
Base Capacity (vph)	967	2568	2730		570	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.02	0.06	0.05		0.10	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.34			
Intersection Signal Delay: 6.2		Intersection LOS: A	
Intersection Capacity Utilization 38.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Woodridge Crescent (S) & 220m W of Bayshore



Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	95	15	33	52	14	28
Future Vol, veh/h	95	15	33	52	14	28
Conflicting Peds, #/hr	0	25	25	0	15	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	6	53	18	10	29	46
Mvmt Flow	106	17	37	58	16	31

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	148	0	287	144
Stage 1	-	-	-	-	140	-
Stage 2	-	-	-	-	147	-
Critical Hdwy	-	-	4.28	-	6.69	6.66
Critical Hdwy Stg 1	-	-	-	-	5.69	-
Critical Hdwy Stg 2	-	-	-	-	5.69	-
Follow-up Hdwy	-	-	2.362	-	3.761	3.714
Pot Cap-1 Maneuver	-	-	1341	-	650	799
Stage 1	-	-	-	-	825	-
Stage 2	-	-	-	-	818	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1310	-	608	778
Mov Cap-2 Maneuver	-	-	-	-	608	-
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	784	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	608	778	-	-	1310	-
HCM Lane V/C Ratio	0.026	0.04	-	-	0.028	-
HCM Control Delay (s)	11.1	9.8	-	-	7.8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	95	2	2	64	9	15
Future Vol, veh/h	95	2	2	64	9	15
Conflicting Peds, #/hr	0	10	10	0	12	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	106	2	2	71	10	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	118	0	204	121
Stage 1	-	-	-	-	117	-
Stage 2	-	-	-	-	87	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1483	-	789	936
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	941	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1469	-	772	924
Mov Cap-2 Maneuver	-	-	-	-	772	-
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	930	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.3
HCM LOS			A

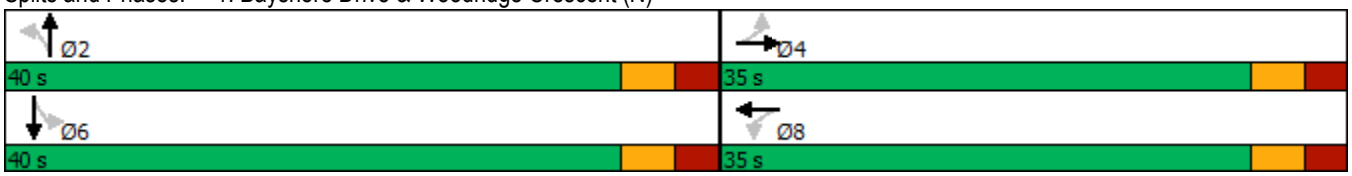
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	860	-	-	1469	-
HCM Lane V/C Ratio	0.031	-	-	0.002	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	0	71	6	0	5	89	248	14	24	324	156
Future Volume (vph)	98	0	71	6	0	5	89	248	14	24	324	156
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.96			0.98			0.99			0.98	
Frt		0.850			0.938			0.994			0.958	
Flt Protected	0.950				0.974			0.987			0.998	
Satd. Flow (prot)	1558	1429	0	0	1646	0	0	1717	0	0	1648	0
Flt Permitted	0.749				0.831			0.778			0.973	
Satd. Flow (perm)	1215	1429	0	0	1385	0	0	1349	0	0	1604	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		342			38			4			40	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		186.3			207.9			394.4			121.4	
Travel Time (s)		13.4			15.0			28.4			8.7	
Confl. Peds. (#/hr)	10		26	26		10	25		41	41		25
Confl. Bikes (#/hr)												2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	11%	0%	4%	0%	0%	0%	3%	4%	0%	0%	2%	7%
Adj. Flow (vph)	109	0	79	7	0	6	99	276	16	27	360	173
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	79	0	0	13	0	0	391	0	0	560	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		26.6	26.6		26.6	26.6	
Total Split (s)	35.0	35.0		35.0	35.0		40.0	40.0		40.0	40.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	29.5	29.5		29.5	29.5		34.4	34.4		34.4	34.4	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5			5.5			5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	10.4	10.4			10.2			39.6			39.6	
Actuated g/C Ratio	0.18	0.18			0.18			0.69			0.69	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.50	0.15			0.05			0.42			0.50	
Control Delay	28.7	0.6			2.4			7.9			8.1	
Queue Delay	0.0	0.0			0.0			0.0			0.2	
Total Delay	28.7	0.6			2.4			7.9			8.3	
LOS	C	A			A			A			A	
Approach Delay		16.9			2.4			7.9			8.3	
Approach LOS		B			A			A			A	
Queue Length 50th (m)	10.0	0.0			0.0			17.6			25.1	
Queue Length 95th (m)	22.0	0.0			1.3			42.7			59.3	
Internal Link Dist (m)		162.3			183.9			370.4			97.4	
Turn Bay Length (m)	60.0											
Base Capacity (vph)	624	900			730			930			1117	
Starvation Cap Reductn	0	0			0			0			127	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.17	0.09			0.02			0.42			0.57	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 57.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 9.5		Intersection LOS: A	
Intersection Capacity Utilization 76.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Bayshore Drive & Woodridge Crescent (N)

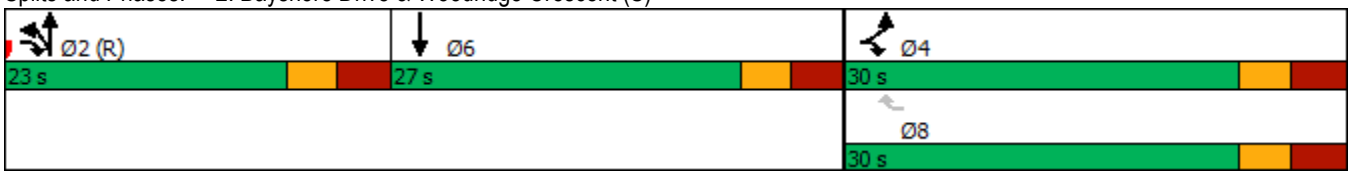


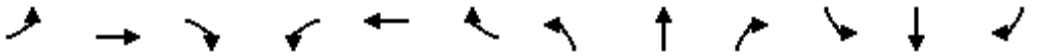
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	0	589	0	0	0	226	65	0	0	239	168
Future Volume (vph)	149	0	589	0	0	0	226	65	0	0	239	168
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.95						0.99	0.99			0.98	
Frt			0.850								0.938	
Flt Protected	0.950						0.950	0.973				
Satd. Flow (prot)	1662	0	2643	0	0	1820	1643	1646	0	0	3104	0
Flt Permitted	0.950						0.950	0.973				
Satd. Flow (perm)	1584	0	2643	0	0	1820	1618	1632	0	0	3104	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)											187	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		150.9			229.8			179.2			394.4	
Travel Time (s)		13.6			20.7			12.9			28.4	
Confl. Peds. (#/hr)	27		66	66		27	23		4	4		23
Confl. Bikes (#/hr)			1						1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	0%	3%	0%	0%	0%	0%	5%	0%	0%	2%	4%
Adj. Flow (vph)	166	0	654	0	0	0	251	72	0	0	266	187
Shared Lane Traffic (%)							36%					
Lane Group Flow (vph)	166	0	654	0	0	0	161	162	0	0	453	0
Turn Type	Prot		pt+ov			Perm	Split	NA			NA	
Protected Phases	4		4 2				2	2			6	
Permitted Phases						8						
Detector Phase	4		4 2			8	2	2			6	
Switch Phase												
Minimum Initial (s)	5.0					5.0	5.0	5.0			5.0	
Minimum Split (s)	29.5					11.5	11.2	11.2			26.2	
Total Split (s)	30.0					30.0	23.0	23.0			27.0	
Total Split (%)	37.5%					37.5%	28.8%	28.8%			33.8%	
Maximum Green (s)	23.5					23.5	16.8	16.8			20.8	
Yellow Time (s)	3.0					3.0	3.0	3.0			3.0	
All-Red Time (s)	3.5					3.5	3.2	3.2			3.2	
Lost Time Adjust (s)	0.0					0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.5					6.5	6.2	6.2			6.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0					3.0	3.0	3.0			3.0	
Recall Mode	None					None	C-Max	C-Max			Max	
Walk Time (s)	7.0										7.0	
Flash Dont Walk (s)	16.0										13.0	
Pedestrian Calls (#/hr)	0										0	
Act Effct Green (s)	17.4		46.5				22.9	22.9			20.8	
Actuated g/C Ratio	0.22		0.58				0.29	0.29			0.26	
v/c Ratio	0.46		0.43				0.34	0.34			0.48	
Control Delay	30.4		10.4				26.9	26.9			16.2	
Queue Delay	0.0		0.0				0.0	0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	30.4		10.4				26.9	26.9			16.2	
LOS	C		B				C	C			B	
Approach Delay		14.4						26.9			16.2	
Approach LOS		B						C			B	
Queue Length 50th (m)	22.0		28.7				20.3	20.4			17.2	
Queue Length 95th (m)	35.4		40.7				41.2	41.4			30.3	
Internal Link Dist (m)		126.9			205.8			155.2			370.4	
Turn Bay Length (m)												
Base Capacity (vph)	488		1515				470	470			945	
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	0.34		0.43				0.34	0.34			0.48	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay: 17.5		Intersection LOS: B	
Intersection Capacity Utilization 53.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Bayshore Drive & Woodridge Crescent (S)





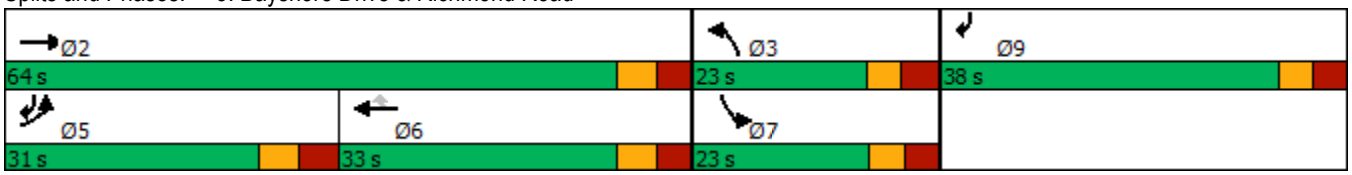
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	388	497	0	0	631	109	164	0	40	128	0	837
Future Volume (vph)	388	497	0	0	631	109	164	0	40	128	0	837
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	205.0		0.0	0.0		60.0	0.0		35.0	50.0		0.0
Storage Lanes	2		0	0		1	2		1	1		3
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.97	1.00	0.76
Ped Bike Factor	1.00					0.99			0.99	1.00		
Frt						0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3354	3424	0	0	4871	1547	3321	0	1473	3077	0	3492
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3350	3424	0	0	4871	1524	3321	0	1455	3066	0	3492
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)						155			217			
Link Speed (k/h)		70			70			50			50	
Link Distance (m)		676.3			322.3			173.9			198.6	
Travel Time (s)		34.8			16.6			12.5			14.3	
Confl. Peds. (#/hr)	2					2			1	1		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	1%	0%	5%	9%	0%	1%
Adj. Flow (vph)	431	552	0	0	701	121	182	0	44	142	0	930
Shared Lane Traffic (%)												
Lane Group Flow (vph)	431	552	0	0	701	121	182	0	44	142	0	930
Turn Type	Prot	NA			NA	Perm	Prot		Free	Prot		pt+ov
Protected Phases	5	2			6		3			7		5 9
Permitted Phases						6			Free			
Detector Phase	5	2			6	6	3			7		5 9
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0			5.0		
Minimum Split (s)	12.3	32.1			32.1	32.1	11.9			11.6		
Total Split (s)	31.0	64.0			33.0	33.0	23.0			23.0		
Total Split (%)	24.8%	51.2%			26.4%	26.4%	18.4%			18.4%		
Maximum Green (s)	23.7	56.9			25.9	25.9	16.1			16.4		
Yellow Time (s)	3.7	3.7			3.7	3.7	3.3			3.3		
All-Red Time (s)	3.6	3.4			3.4	3.4	3.6			3.3		
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0			0.0		
Total Lost Time (s)	7.3	7.1			7.1	7.1	6.9			6.6		
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0			3.0		
Recall Mode	None	Max			Max	Max	None			None		
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		18.0			18.0	18.0						
Pedestrian Calls (#/hr)		0			0	0						
Act Effct Green (s)	20.8	57.0			29.0	29.0	11.7		117.1	12.0		55.1
Actuated g/C Ratio	0.18	0.49			0.25	0.25	0.10		1.00	0.10		0.47
v/c Ratio	0.73	0.33			0.58	0.25	0.55		0.03	0.45		0.57

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	24.6
Total Split (s)	38.0
Total Split (%)	30%
Maximum Green (s)	31.4
Yellow Time (s)	3.3
All-Red Time (s)	3.3
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	53.4	19.9			42.6	4.0	57.2		0.1	54.7		23.7
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0	0.0		0.0
Total Delay	53.4	19.9			42.6	4.0	57.2		0.1	54.7		23.7
LOS	D	B			D	A	E		A	D		C
Approach Delay		34.6			36.9			46.1			27.8	
Approach LOS		C			D			D			C	
Queue Length 50th (m)	47.7	39.8			53.4	0.0	20.9		0.0	16.0		63.4
Queue Length 95th (m)	68.4	58.4			72.8	8.2	33.0		0.0	26.7		82.1
Internal Link Dist (m)		652.3			298.3			149.9			174.6	
Turn Bay Length (m)	205.0					60.0			35.0	50.0		
Base Capacity (vph)	680	1667			1204	493	457		1455	431		1695
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	0.63	0.33			0.58	0.25	0.40		0.03	0.33		0.55

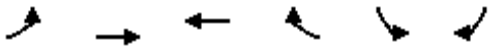
Intersection Summary			
Area Type:	Other		
Cycle Length: 125			
Actuated Cycle Length: 117.1			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 33.7		Intersection LOS: C	
Intersection Capacity Utilization 62.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Bayshore Drive & Richmond Road

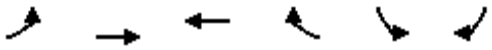


Lane Group	Ø9
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



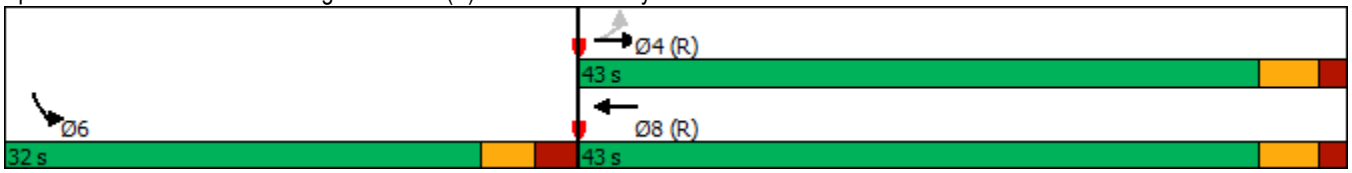
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	17	446	190	7	13	19
Future Volume (vph)	17	446	190	7	13	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.91		1.00		0.96	
Frt			0.995		0.919	
Flt Protected	0.950				0.980	
Satd. Flow (prot)	1631	3293	3251	0	1529	0
Flt Permitted	0.615				0.980	
Satd. Flow (perm)	966	3293	3251	0	1529	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			7		21	
Link Speed (k/h)		40	40		50	
Link Distance (m)		172.9	23.2		196.3	
Travel Time (s)		15.6	2.1		14.1	
Confl. Peds. (#/hr)	37			37		58
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	5%	5%	14%	0%	5%
Adj. Flow (vph)	19	496	211	8	14	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	496	219	0	35	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Detector Phase	4	4	8		6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	10.0	10.0	17.0		29.4	
Total Split (s)	43.0	43.0	43.0		32.0	
Total Split (%)	57.3%	57.3%	57.3%		42.7%	
Maximum Green (s)	38.0	38.0	38.0		26.6	
Yellow Time (s)	3.3	3.3	3.3		3.0	
All-Red Time (s)	1.7	1.7	1.7		2.4	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.4	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	C-Max	C-Max	C-Max		None	
Walk Time (s)			7.0		7.0	
Flash Dont Walk (s)			5.0		17.0	
Pedestrian Calls (#/hr)			0		0	
Act Effct Green (s)	67.7	67.7	67.7		6.6	
Actuated g/C Ratio	0.90	0.90	0.90		0.09	
v/c Ratio	0.02	0.17	0.07		0.23	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Control Delay	2.0	1.6	1.4		22.2	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	2.0	1.6	1.4		22.2	
LOS	A	A	A		C	
Approach Delay		1.6	1.4		22.3	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.0	0.0	0.0		1.9	
Queue Length 95th (m)	1.8	12.4	5.5		9.5	
Internal Link Dist (m)		148.9	0.1		172.3	
Turn Bay Length (m)	40.0					
Base Capacity (vph)	871	2971	2933		555	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.02	0.17	0.07		0.06	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.23			
Intersection Signal Delay: 2.5		Intersection LOS: A	
Intersection Capacity Utilization 41.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Woodridge Crescent (S) & 220m W of Bayshore



Intersection	
Int Delay, s/veh	5.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	106	38	73	62	18	172
Future Vol, veh/h	106	38	73	62	18	172
Conflicting Peds, #/hr	0	27	27	0	25	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	11	21	11	6	44	12
Mvmt Flow	118	42	81	69	20	191

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	187	0	422	169
Stage 1	-	-	-	-	166	-
Stage 2	-	-	-	-	256	-
Critical Hdwy	-	-	4.21	-	6.84	6.32
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.299	-	3.896	3.408
Pot Cap-1 Maneuver	-	-	1335	-	516	850
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	698	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1302	-	461	827
Mov Cap-2 Maneuver	-	-	-	-	461	-
Stage 1	-	-	-	-	752	-
Stage 2	-	-	-	-	639	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.3	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	461	827	-	-	1302	-
HCM Lane V/C Ratio	0.043	0.231	-	-	0.062	-
HCM Control Delay (s)	13.2	10.7	-	-	7.9	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.9	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	139	10	5	75	2	5
Future Vol, veh/h	139	10	5	75	2	5
Conflicting Peds, #/hr	0	5	5	0	28	30
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	154	11	6	83	2	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	170	0	288	195
Stage 1	-	-	-	-	165	-
Stage 2	-	-	-	-	123	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1420	-	707	851
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	907	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1413	-	682	824
Mov Cap-2 Maneuver	-	-	-	-	682	-
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	880	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	778	-	-	1413	-
HCM Lane V/C Ratio	0.01	-	-	0.004	-
HCM Control Delay (s)	9.7	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

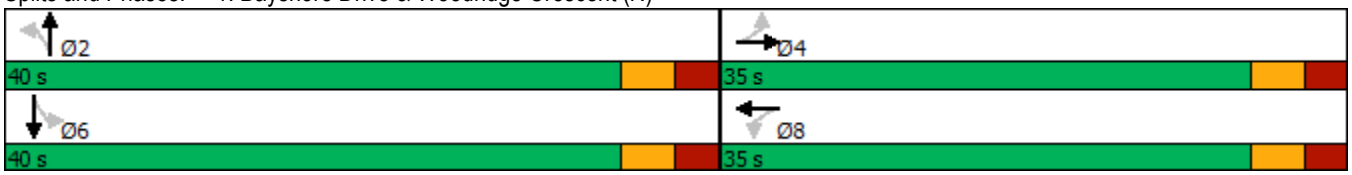
Future (2031) Total Traffic

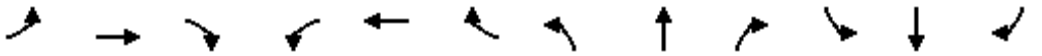
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	1	98	20	1	12	103	300	9	3	178	95
Future Volume (vph)	152	1	98	20	1	12	103	300	9	3	178	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.97			0.98			0.99			0.98	
Frt		0.852			0.951			0.997			0.954	
Flt Protected	0.950				0.971			0.988			0.999	
Satd. Flow (prot)	1679	1471	0	0	1660	0	0	1727	0	0	1598	0
Flt Permitted	0.736				0.807			0.852			0.997	
Satd. Flow (perm)	1273	1471	0	0	1364	0	0	1480	0	0	1594	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		98			12			2			47	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		186.3			207.9			394.4			121.4	
Travel Time (s)		13.4			15.0			28.4			8.7	
Confl. Peds. (#/hr)	21		20	20		21	23		21	21		23
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	0%	2%	0%	0%	0%	6%	3%	0%	0%	5%	9%
Adj. Flow (vph)	152	1	98	20	1	12	103	300	9	3	178	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	152	99	0	0	33	0	0	412	0	0	276	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		26.6	26.6		26.6	26.6	
Total Split (s)	35.0	35.0		35.0	35.0		40.0	40.0		40.0	40.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	29.5	29.5		29.5	29.5		34.4	34.4		34.4	34.4	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5			5.5			5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	12.4	12.4			12.4			37.3			37.3	
Actuated g/C Ratio	0.20	0.20			0.20			0.61			0.61	
v/c Ratio	0.59	0.26			0.11			0.45			0.28	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	30.3	6.7			14.2			9.2			6.2	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	30.3	6.7			14.2			9.2			6.2	
LOS	C	A			B			A			A	
Approach Delay		21.0			14.2			9.2			6.2	
Approach LOS		C			B			A			A	
Queue Length 50th (m)	14.4	0.1			1.8			20.5			9.7	
Queue Length 95th (m)	29.3	9.1			7.3			48.5			25.0	
Internal Link Dist (m)		162.3			183.9			370.4			97.4	
Turn Bay Length (m)	60.0											
Base Capacity (vph)	620	767			671			907			994	
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	0.25	0.13			0.05			0.45			0.28	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 60.8			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 11.6		Intersection LOS: B	
Intersection Capacity Utilization 70.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Bayshore Drive & Woodridge Crescent (N)



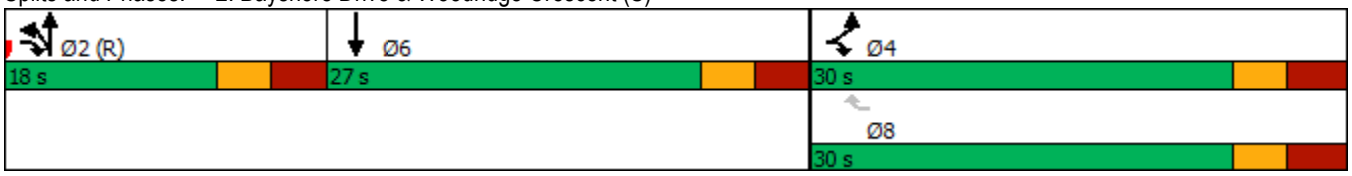


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	0	214	0	0	0	148	35	0	0	215	96
Future Volume (vph)	82	0	214	0	0	0	148	35	0	0	215	96
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.97						0.98	0.99			0.99	
Frt			0.850								0.954	
Flt Protected	0.950						0.950	0.970				
Satd. Flow (prot)	1491	0	2545	0	0	1820	1626	1484	0	0	3167	0
Flt Permitted	0.950						0.950	0.970				
Satd. Flow (perm)	1447	0	2545	0	0	1820	1598	1467	0	0	3167	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)											94	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		150.9			229.8			179.2			394.4	
Travel Time (s)		13.6			20.7			12.9			28.4	
Confl. Peds. (#/hr)	18		44	44		18	24		4	4		24
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	16%	0%	7%	0%	0%	0%	1%	33%	0%	0%	2%	5%
Adj. Flow (vph)	82	0	214	0	0	0	148	35	0	0	215	96
Shared Lane Traffic (%)							39%					
Lane Group Flow (vph)	82	0	214	0	0	0	90	93	0	0	311	0
Turn Type	Prot		pt+ov			Perm	Split	NA			NA	
Protected Phases	4		4 2				2	2			6	
Permitted Phases						8						
Detector Phase	4		4 2			8	2	2			6	
Switch Phase												
Minimum Initial (s)	5.0					5.0	5.0	5.0			5.0	
Minimum Split (s)	29.5					11.5	11.2	11.2			26.2	
Total Split (s)	30.0					30.0	18.0	18.0			27.0	
Total Split (%)	40.0%					40.0%	24.0%	24.0%			36.0%	
Maximum Green (s)	23.5					23.5	11.8	11.8			20.8	
Yellow Time (s)	3.0					3.0	3.0	3.0			3.0	
All-Red Time (s)	3.5					3.5	3.2	3.2			3.2	
Lost Time Adjust (s)	0.0					0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.5					6.5	6.2	6.2			6.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0					3.0	3.0	3.0			3.0	
Recall Mode	None					None	C-Max	C-Max			Max	
Walk Time (s)	7.0										7.0	
Flash Dont Walk (s)	16.0										13.0	
Pedestrian Calls (#/hr)	0										0	
Act Effct Green (s)	9.7		41.5				25.6	25.6			20.8	
Actuated g/C Ratio	0.13		0.55				0.34	0.34			0.28	
v/c Ratio	0.43		0.15				0.16	0.18			0.33	
Control Delay	36.2		8.5				19.4	19.8			15.9	
Queue Delay	0.0		0.0				0.0	0.0			0.0	
Total Delay	36.2		8.5				19.4	19.8			15.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	D		A				B	B			B	
Approach Delay		16.2						19.6			15.9	
Approach LOS		B						B			B	
Queue Length 50th (m)	10.9		7.7				9.1	9.4			12.4	
Queue Length 95th (m)	22.1		13.1				20.9	21.8			22.2	
Internal Link Dist (m)		126.9			205.8			155.2			370.4	
Turn Bay Length (m)												
Base Capacity (vph)	467		1408				555	506			946	
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	0.18		0.15				0.16	0.18			0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 16.9		Intersection LOS: B	
Intersection Capacity Utilization 44.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Bayshore Drive & Woodridge Crescent (S)



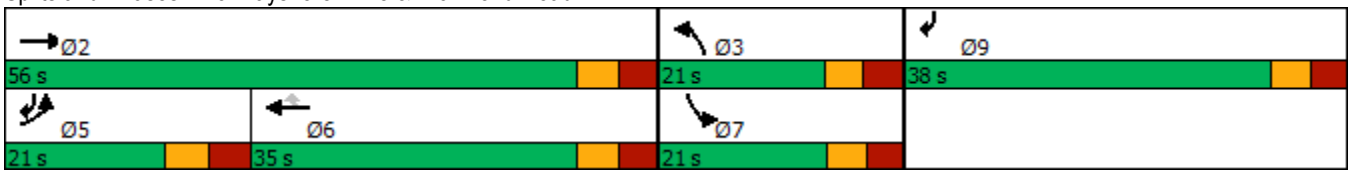
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	353	1015	0	0	344	101	264	0	13	96	0	384
Future Volume (vph)	353	1015	0	0	344	101	264	0	13	96	0	384
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	205.0		0.0	0.0		60.0	0.0		35.0	50.0		0.0
Storage Lanes	2		0	0		1	2		1	1		3
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.97	1.00	0.76
Ped Bike Factor						0.99						
Frt						0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3321	3424	0	0	4732	1502	3257	0	1547	3022	0	3391
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3321	3424	0	0	4732	1483	3257	0	1547	3022	0	3391
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)						169			236			
Link Speed (k/h)		70			70			50			50	
Link Distance (m)		676.3			322.3			173.9			198.6	
Travel Time (s)		34.8			16.6			12.5			14.3	
Confl. Bikes (#/hr)						1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	0%	0%	5%	3%	3%	0%	0%	11%	0%	4%
Adj. Flow (vph)	353	1015	0	0	344	101	264	0	13	96	0	384
Shared Lane Traffic (%)												
Lane Group Flow (vph)	353	1015	0	0	344	101	264	0	13	96	0	384
Turn Type	Prot	NA			NA	Perm	Prot		Free	Prot		pt+ov
Protected Phases	5	2			6		3			7		5 9
Permitted Phases						6			Free			
Detector Phase	5	2			6	6	3			7		5 9
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0			5.0		
Minimum Split (s)	12.3	32.1			32.1	32.1	11.9			11.6		
Total Split (s)	21.0	56.0			35.0	35.0	21.0			21.0		
Total Split (%)	18.3%	48.7%			30.4%	30.4%	18.3%			18.3%		
Maximum Green (s)	13.7	48.9			27.9	27.9	14.1			14.4		
Yellow Time (s)	3.7	3.7			3.7	3.7	3.3			3.3		
All-Red Time (s)	3.6	3.4			3.4	3.4	3.6			3.3		
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0			0.0		
Total Lost Time (s)	7.3	7.1			7.1	7.1	6.9			6.6		
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0			3.0		
Recall Mode	None	Max			Max	Max	None			None		
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		18.0			18.0	18.0						
Pedestrian Calls (#/hr)		0			0	0						
Act Effct Green (s)	13.4	49.0			28.2	28.2	12.3		95.3	11.9		33.4
Actuated g/C Ratio	0.14	0.51			0.30	0.30	0.13		1.00	0.12		0.35
v/c Ratio	0.76	0.58			0.25	0.18	0.63		0.01	0.25		0.32

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	11.6
Total Split (s)	38.0
Total Split (%)	33%
Maximum Green (s)	31.4
Yellow Time (s)	3.3
All-Red Time (s)	3.3
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	51.4	18.3			26.8	1.2	46.8		0.0	39.4		23.6
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0	0.0		0.0
Total Delay	51.4	18.3			26.8	1.2	46.8		0.0	39.4		23.6
LOS	D	B			C	A	D		A	D		C
Approach Delay		26.8			21.0			44.6			26.7	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	32.7	65.7			17.8	0.0	24.0		0.0	8.2		22.5
Queue Length 95th (m)	#54.2	93.3			27.1	1.6	37.8		0.0	16.0		32.5
Internal Link Dist (m)		652.3			298.3			149.9			174.6	
Turn Bay Length (m)	205.0					60.0			35.0	50.0		
Base Capacity (vph)	478	1759			1402	558	482		1547	457		1201
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	0.74	0.58			0.25	0.18	0.55		0.01	0.21		0.32

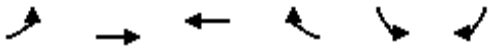
Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 95.3			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 27.7		Intersection LOS: C	
Intersection Capacity Utilization 49.2%		ICU Level of Service A	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: Bayshore Drive & Richmond Road

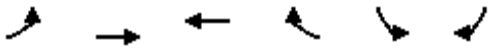


Lane Group	Ø9
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



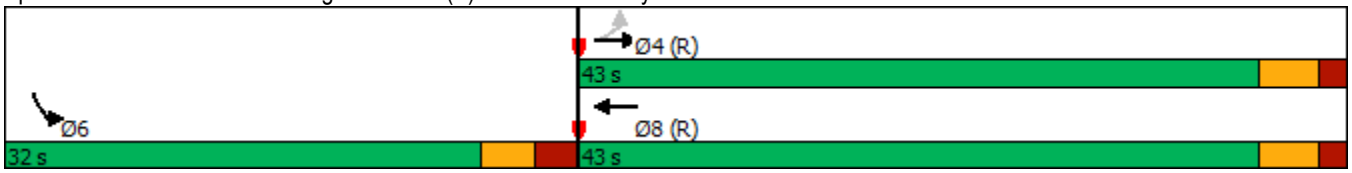
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	19	245	145	2	34	19
Future Volume (vph)	19	245	145	2	34	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.94		1.00		0.99	
Frt			0.998		0.952	
Flt Protected	0.950				0.969	
Satd. Flow (prot)	1729	3033	3224	0	1568	0
Flt Permitted	0.659				0.969	
Satd. Flow (perm)	1132	3033	3224	0	1568	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			2		19	
Link Speed (k/h)		40	40		50	
Link Distance (m)		172.9	23.2		196.3	
Travel Time (s)		15.6	2.1		14.1	
Confl. Peds. (#/hr)	22			22		25
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	14%	7%	0%	0%	16%
Adj. Flow (vph)	19	245	145	2	34	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	245	147	0	53	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Detector Phase	4	4	8		6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	10.0	10.0	17.0		29.4	
Total Split (s)	43.0	43.0	43.0		32.0	
Total Split (%)	57.3%	57.3%	57.3%		42.7%	
Maximum Green (s)	38.0	38.0	38.0		26.6	
Yellow Time (s)	3.3	3.3	3.3		3.0	
All-Red Time (s)	1.7	1.7	1.7		2.4	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.4	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	C-Max	C-Max	C-Max		None	
Walk Time (s)			7.0		7.0	
Flash Dont Walk (s)			5.0		17.0	
Pedestrian Calls (#/hr)			0		0	
Act Effct Green (s)	63.7	63.7	63.7		7.3	
Actuated g/C Ratio	0.85	0.85	0.85		0.10	
v/c Ratio	0.02	0.10	0.05		0.31	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Control Delay	2.6	2.2	2.1		26.9	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	2.6	2.2	2.1		26.9	
LOS	A	A	A		C	
Approach Delay		2.2	2.1		26.9	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.5	3.3	1.9		4.6	
Queue Length 95th (m)	2.0	7.0	4.4		13.7	
Internal Link Dist (m)		148.9	0.1		172.3	
Turn Bay Length (m)	40.0					
Base Capacity (vph)	961	2575	2737		568	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.02	0.10	0.05		0.09	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.31			
Intersection Signal Delay: 5.0		Intersection LOS: A	
Intersection Capacity Utilization 38.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Woodridge Crescent (S) & 220m W of Bayshore



Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	200	15	33	77	17	28
Future Vol, veh/h	200	15	33	77	17	28
Conflicting Peds, #/hr	0	25	25	0	15	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	6	53	18	10	29	46
Mvmt Flow	200	15	33	77	17	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	240	0	391	237
Stage 1	-	-	-	-	233	-
Stage 2	-	-	-	-	158	-
Critical Hdwy	-	-	4.28	-	6.69	6.66
Critical Hdwy Stg 1	-	-	-	-	5.69	-
Critical Hdwy Stg 2	-	-	-	-	5.69	-
Follow-up Hdwy	-	-	2.362	-	3.761	3.714
Pot Cap-1 Maneuver	-	-	1238	-	564	705
Stage 1	-	-	-	-	746	-
Stage 2	-	-	-	-	809	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1209	-	528	686
Mov Cap-2 Maneuver	-	-	-	-	528	-
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	777	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	11.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	528	686	-	-	1209	-
HCM Lane V/C Ratio	0.032	0.041	-	-	0.027	-
HCM Control Delay (s)	12	10.5	-	-	8.1	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	95	4	10	64	9	38
Future Vol, veh/h	95	4	10	64	9	38
Conflicting Peds, #/hr	0	10	10	0	12	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	95	4	10	64	9	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	109	0	203	111
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	96	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1494	-	790	948
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	933	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1480	-	769	936
Mov Cap-2 Maneuver	-	-	-	-	769	-
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	916	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	9.2
HCM LOS			A

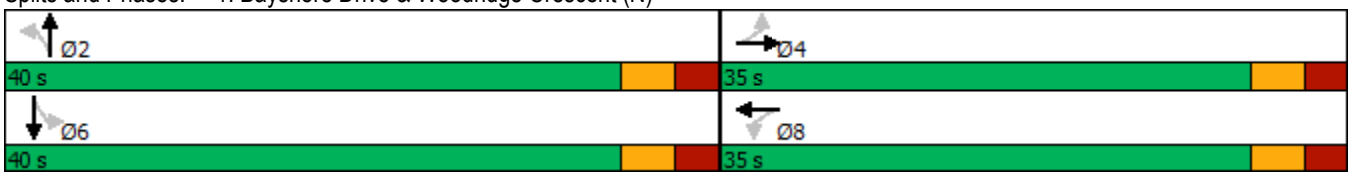
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	899	-	-	1480	-
HCM Lane V/C Ratio	0.052	-	-	0.007	-
HCM Control Delay (s)	9.2	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	0	71	6	0	5	111	274	14	24	376	156
Future Volume (vph)	98	0	71	6	0	5	111	274	14	24	376	156
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.96			0.98			0.99			0.98	
Frt		0.850			0.939			0.995			0.962	
Flt Protected	0.950				0.973			0.986			0.998	
Satd. Flow (prot)	1558	1429	0	0	1646	0	0	1718	0	0	1660	0
Flt Permitted	0.750				0.829			0.756			0.977	
Satd. Flow (perm)	1217	1429	0	0	1383	0	0	1312	0	0	1623	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		327			38			3			35	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		186.3			207.9			394.4			121.4	
Travel Time (s)		13.4			15.0			28.4			8.7	
Confl. Peds. (#/hr)	10		26	26		10	25		41	41		25
Confl. Bikes (#/hr)												2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	11%	0%	4%	0%	0%	0%	3%	4%	0%	0%	2%	7%
Adj. Flow (vph)	98	0	71	6	0	5	111	274	14	24	376	156
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	71	0	0	11	0	0	399	0	0	556	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		26.6	26.6		26.6	26.6	
Total Split (s)	35.0	35.0		35.0	35.0		40.0	40.0		40.0	40.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	29.5	29.5		29.5	29.5		34.4	34.4		34.4	34.4	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5			5.5			5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	9.9	9.9			9.8			40.3			40.3	
Actuated g/C Ratio	0.17	0.17			0.17			0.70			0.70	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.47	0.14			0.04			0.44			0.49	
Control Delay	28.5	0.6			1.6			7.9			7.6	
Queue Delay	0.0	0.0			0.0			0.0			0.2	
Total Delay	28.5	0.6			1.6			7.9			7.8	
LOS	C	A			A			A			A	
Approach Delay		16.8			1.6			7.9			7.8	
Approach LOS		B			A			A			A	
Queue Length 50th (m)	8.9	0.0			0.0			17.8			24.1	
Queue Length 95th (m)	20.3	0.0			0.8			43.2			56.0	
Internal Link Dist (m)		162.3			183.9			370.4			97.4	
Turn Bay Length (m)	60.0											
Base Capacity (vph)	623	891			727			916			1143	
Starvation Cap Reductn	0	0			0			0			137	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.16	0.08			0.02			0.44			0.55	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 57.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 9.1		Intersection LOS: A	
Intersection Capacity Utilization 83.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Bayshore Drive & Woodridge Crescent (N)

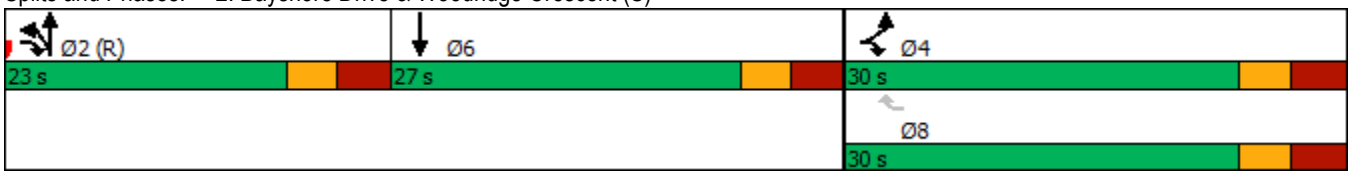


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	0	622	0	0	0	255	69	0	0	254	201
Future Volume (vph)	170	0	622	0	0	0	255	69	0	0	254	201
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.95						0.99	0.99			0.98	
Frt			0.850								0.934	
Flt Protected	0.950						0.950	0.972				
Satd. Flow (prot)	1662	0	2643	0	0	1820	1643	1646	0	0	3085	0
Flt Permitted	0.950						0.950	0.972				
Satd. Flow (perm)	1584	0	2643	0	0	1820	1618	1632	0	0	3085	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)											201	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		150.9			229.8			179.2			394.4	
Travel Time (s)		13.6			20.7			12.9			28.4	
Confl. Peds. (#/hr)	27		66	66		27	23		4	4		23
Confl. Bikes (#/hr)			1						1			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	0%	3%	0%	0%	0%	0%	5%	0%	0%	2%	4%
Adj. Flow (vph)	170	0	622	0	0	0	255	69	0	0	254	201
Shared Lane Traffic (%)							37%					
Lane Group Flow (vph)	170	0	622	0	0	0	161	163	0	0	455	0
Turn Type	Prot		pt+ov			Perm	Split	NA			NA	
Protected Phases	4		4 2				2	2			6	
Permitted Phases						8						
Detector Phase	4		4 2			8	2	2			6	
Switch Phase												
Minimum Initial (s)	5.0					5.0	5.0	5.0			5.0	
Minimum Split (s)	29.5					11.5	11.2	11.2			26.2	
Total Split (s)	30.0					30.0	23.0	23.0			27.0	
Total Split (%)	37.5%					37.5%	28.8%	28.8%			33.8%	
Maximum Green (s)	23.5					23.5	16.8	16.8			20.8	
Yellow Time (s)	3.0					3.0	3.0	3.0			3.0	
All-Red Time (s)	3.5					3.5	3.2	3.2			3.2	
Lost Time Adjust (s)	0.0					0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.5					6.5	6.2	6.2			6.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0					3.0	3.0	3.0			3.0	
Recall Mode	None					None	C-Max	C-Max			Max	
Walk Time (s)	7.0										7.0	
Flash Dont Walk (s)	16.0										13.0	
Pedestrian Calls (#/hr)	0										0	
Act Effct Green (s)	16.8		46.5				23.5	23.5			20.8	
Actuated g/C Ratio	0.21		0.58				0.29	0.29			0.26	
v/c Ratio	0.49		0.40				0.33	0.34			0.48	
Control Delay	31.7		10.2				26.2	26.3			15.5	
Queue Delay	0.0		0.0				0.0	0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	31.7		10.2				26.2	26.3			15.5	
LOS	C		B				C	C			B	
Approach Delay		14.8						26.3			15.5	
Approach LOS		B						C			B	
Queue Length 50th (m)	22.9		26.8				20.1	20.3			16.3	
Queue Length 95th (m)	36.8		38.4				40.8	41.3			29.3	
Internal Link Dist (m)		126.9			205.8			155.2			370.4	
Turn Bay Length (m)												
Base Capacity (vph)	488		1485				482	483			950	
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	0.35		0.42				0.33	0.34			0.48	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 55.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Bayshore Drive & Woodridge Crescent (S)



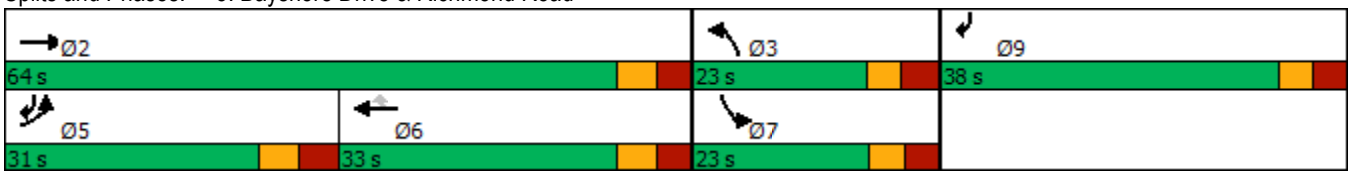
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	424	527	0	0	669	124	173	0	43	142	0	915
Future Volume (vph)	424	527	0	0	669	124	173	0	43	142	0	915
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	205.0		0.0	0.0		60.0	0.0		35.0	50.0		0.0
Storage Lanes	2		0	0		1	2		1	1		3
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.97	1.00	0.76
Ped Bike Factor	1.00					0.99			0.99	1.00		
Frt						0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3354	3424	0	0	4871	1547	3321	0	1473	3077	0	3492
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3350	3424	0	0	4871	1524	3321	0	1455	3066	0	3492
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)						155			217			
Link Speed (k/h)		70			70			50			50	
Link Distance (m)		676.3			322.3			173.9			198.6	
Travel Time (s)		34.8			16.6			12.5			14.3	
Confl. Peds. (#/hr)	2					2			1	1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	1%	0%	5%	9%	0%	1%
Adj. Flow (vph)	424	527	0	0	669	124	173	0	43	142	0	915
Shared Lane Traffic (%)												
Lane Group Flow (vph)	424	527	0	0	669	124	173	0	43	142	0	915
Turn Type	Prot	NA			NA	Perm	Prot		Free	Prot		pt+ov
Protected Phases	5	2			6		3			7		5 9
Permitted Phases						6			Free			
Detector Phase	5	2			6	6	3			7		5 9
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0			5.0		
Minimum Split (s)	12.3	32.1			32.1	32.1	11.9			11.6		
Total Split (s)	31.0	64.0			33.0	33.0	23.0			23.0		
Total Split (%)	24.8%	51.2%			26.4%	26.4%	18.4%			18.4%		
Maximum Green (s)	23.7	56.9			25.9	25.9	16.1			16.4		
Yellow Time (s)	3.7	3.7			3.7	3.7	3.3			3.3		
All-Red Time (s)	3.6	3.4			3.4	3.4	3.6			3.3		
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0			0.0		
Total Lost Time (s)	7.3	7.1			7.1	7.1	6.9			6.6		
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0			3.0		
Recall Mode	None	Max			Max	Max	None			None		
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		18.0			18.0	18.0						
Pedestrian Calls (#/hr)		0			0	0						
Act Effct Green (s)	20.6	57.0			29.1	29.1	11.3		116.3	11.6		54.5
Actuated g/C Ratio	0.18	0.49			0.25	0.25	0.10		1.00	0.10		0.47
v/c Ratio	0.71	0.31			0.55	0.25	0.54		0.03	0.46		0.56

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	24.6
Total Split (s)	38.0
Total Split (%)	30%
Maximum Green (s)	31.4
Yellow Time (s)	3.3
All-Red Time (s)	3.3
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	52.6	19.3			41.5	4.3	56.8		0.0	55.0		23.5
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0	0.0		0.0
Total Delay	52.6	19.3			41.5	4.3	56.8		0.0	55.0		23.5
LOS	D	B			D	A	E		A	D		C
Approach Delay		34.2			35.7			45.5			27.7	
Approach LOS		C			D			D			C	
Queue Length 50th (m)	46.5	37.1			49.9	0.0	19.6		0.0	16.0		61.8
Queue Length 95th (m)	66.9	55.2			68.9	9.2	31.7		0.0	26.8		79.7
Internal Link Dist (m)		652.3			298.3			149.9			174.6	
Turn Bay Length (m)	205.0					60.0			35.0	50.0		
Base Capacity (vph)	684	1679			1219	497	460		1455	435		1662
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	0.62	0.31			0.55	0.25	0.38		0.03	0.33		0.55

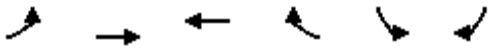
Intersection Summary			
Area Type:	Other		
Cycle Length: 125			
Actuated Cycle Length: 116.3			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 33.1		Intersection LOS: C	
Intersection Capacity Utilization 64.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Bayshore Drive & Richmond Road

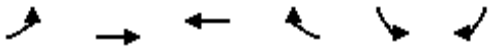


Lane Group	Ø9
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



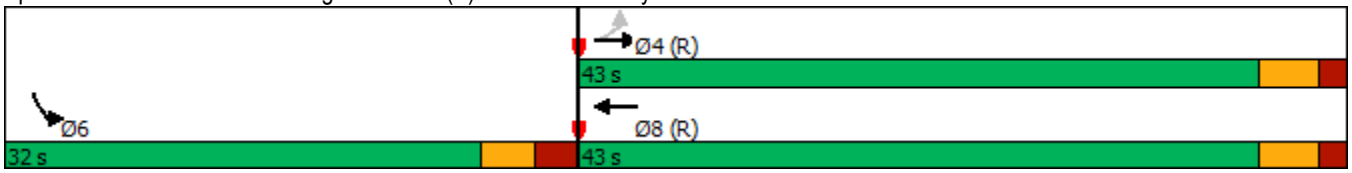
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	17	505	252	7	13	19
Future Volume (vph)	17	505	252	7	13	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.92		1.00		0.96	
Frt			0.996		0.920	
Flt Protected	0.950				0.980	
Satd. Flow (prot)	1631	3293	3261	0	1532	0
Flt Permitted	0.592				0.980	
Satd. Flow (perm)	934	3293	3261	0	1532	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			5		19	
Link Speed (k/h)		40	40		50	
Link Distance (m)		172.9	23.2		196.3	
Travel Time (s)		15.6	2.1		14.1	
Confl. Peds. (#/hr)	37			37		58
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	5%	5%	14%	0%	5%
Adj. Flow (vph)	17	505	252	7	13	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	505	259	0	32	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Detector Phase	4	4	8		6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	10.0	10.0	17.0		29.4	
Total Split (s)	43.0	43.0	43.0		32.0	
Total Split (%)	57.3%	57.3%	57.3%		42.7%	
Maximum Green (s)	38.0	38.0	38.0		26.6	
Yellow Time (s)	3.3	3.3	3.3		3.0	
All-Red Time (s)	1.7	1.7	1.7		2.4	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.4	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	C-Max	C-Max	C-Max		None	
Walk Time (s)			7.0		7.0	
Flash Dont Walk (s)			5.0		17.0	
Pedestrian Calls (#/hr)			0		0	
Act Effct Green (s)	67.7	67.7	67.7		6.5	
Actuated g/C Ratio	0.90	0.90	0.90		0.09	
v/c Ratio	0.02	0.17	0.09		0.21	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Control Delay	2.0	1.5	1.4		22.4	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	2.0	1.5	1.4		22.4	
LOS	A	A	A		C	
Approach Delay		1.6	1.4		22.4	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.0	0.0	0.0		1.8	
Queue Length 95th (m)	1.7	12.4	6.4		9.0	
Internal Link Dist (m)		148.9	0.1		172.3	
Turn Bay Length (m)	40.0					
Base Capacity (vph)	843	2973	2945		555	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.02	0.17	0.09		0.06	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.21			
Intersection Signal Delay: 2.3		Intersection LOS: A	
Intersection Capacity Utilization 41.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Woodridge Crescent (S) & 220m W of Bayshore



Intersection	
Int Delay, s/veh	4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	165	38	73	124	25	172
Future Vol, veh/h	165	38	73	124	25	172
Conflicting Peds, #/hr	0	27	27	0	25	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	11	21	11	6	44	12
Mvmt Flow	165	38	73	124	25	172

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	230	0	506	214
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	295	-
Critical Hdwy	-	-	4.21	-	6.84	6.32
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.299	-	3.896	3.408
Pot Cap-1 Maneuver	-	-	1287	-	459	801
Stage 1	-	-	-	-	734	-
Stage 2	-	-	-	-	669	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1255	-	412	779
Mov Cap-2 Maneuver	-	-	-	-	412	-
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	615	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	412	779	-	-	1255	-
HCM Lane V/C Ratio	0.061	0.221	-	-	0.058	-
HCM Control Delay (s)	14.3	10.9	-	-	8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.8	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	139	15	20	75	2	20
Future Vol, veh/h	139	15	20	75	2	20
Conflicting Peds, #/hr	0	5	5	0	28	30
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	139	15	20	75	2	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	159	0	295	182
Stage 1	-	-	-	-	152	-
Stage 2	-	-	-	-	143	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1433	-	700	866
Stage 1	-	-	-	-	881	-
Stage 2	-	-	-	-	889	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1426	-	669	838
Mov Cap-2 Maneuver	-	-	-	-	669	-
Stage 1	-	-	-	-	877	-
Stage 2	-	-	-	-	853	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	819	-	-	1426	-
HCM Lane V/C Ratio	0.027	-	-	0.014	-
HCM Control Delay (s)	9.5	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

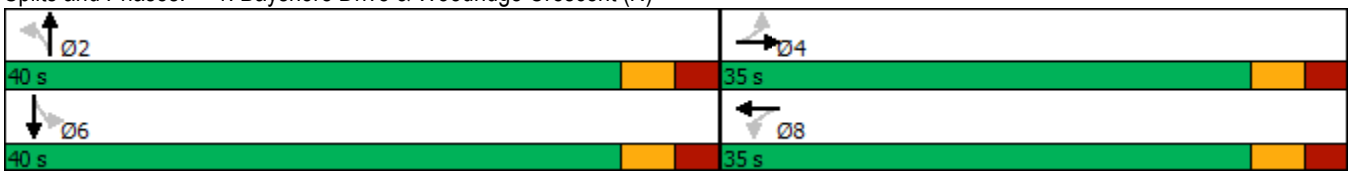
Future (2036) Total Traffic

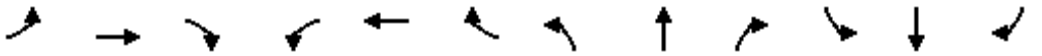
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	1	98	20	1	12	103	307	9	3	182	95
Future Volume (vph)	152	1	98	20	1	12	103	307	9	3	182	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.97			0.98			0.99			0.98	
Frt		0.852			0.951			0.997			0.954	
Flt Protected	0.950				0.971			0.988			0.999	
Satd. Flow (prot)	1679	1471	0	0	1660	0	0	1727	0	0	1598	0
Flt Permitted	0.736				0.807			0.853			0.997	
Satd. Flow (perm)	1273	1471	0	0	1364	0	0	1482	0	0	1595	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		98			12			2			46	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		186.3			207.9			394.4			121.4	
Travel Time (s)		13.4			15.0			28.4			8.7	
Confl. Peds. (#/hr)	21		20	20		21	23		21	21		23
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	0%	2%	0%	0%	0%	6%	3%	0%	0%	5%	9%
Adj. Flow (vph)	152	1	98	20	1	12	103	307	9	3	182	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	152	99	0	0	33	0	0	419	0	0	280	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		26.6	26.6		26.6	26.6	
Total Split (s)	35.0	35.0		35.0	35.0		40.0	40.0		40.0	40.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	29.5	29.5		29.5	29.5		34.4	34.4		34.4	34.4	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5			5.5			5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	12.4	12.4			12.4			37.3			37.3	
Actuated g/C Ratio	0.20	0.20			0.20			0.61			0.61	
v/c Ratio	0.59	0.26			0.11			0.46			0.28	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	30.3	6.7			14.2			9.4			6.2	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	30.3	6.7			14.2			9.4			6.2	
LOS	C	A			B			A			A	
Approach Delay		21.0			14.2			9.4			6.2	
Approach LOS		C			B			A			A	
Queue Length 50th (m)	14.4	0.1			1.8			21.0			9.9	
Queue Length 95th (m)	29.3	9.1			7.3			49.6			25.4	
Internal Link Dist (m)		162.3			183.9			370.4			97.4	
Turn Bay Length (m)	60.0											
Base Capacity (vph)	620	767			671			908			994	
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	0.25	0.13			0.05			0.46			0.28	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 60.8			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 11.6		Intersection LOS: B	
Intersection Capacity Utilization 70.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Bayshore Drive & Woodridge Crescent (N)



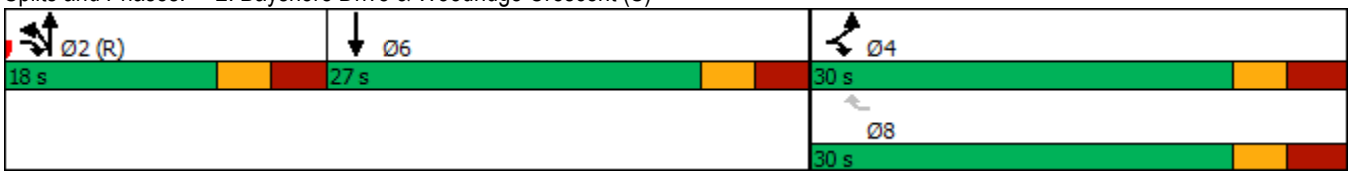


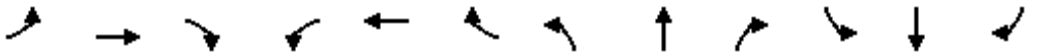
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	0	214	0	0	0	148	36	0	0	220	96
Future Volume (vph)	82	0	214	0	0	0	148	36	0	0	220	96
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.97						0.98	0.99			0.99	
Frt			0.850								0.954	
Flt Protected	0.950						0.950	0.970				
Satd. Flow (prot)	1491	0	2545	0	0	1820	1626	1477	0	0	3168	0
Flt Permitted	0.950						0.950	0.970				
Satd. Flow (perm)	1447	0	2545	0	0	1820	1598	1462	0	0	3168	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)											91	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		150.9			229.8			179.2			394.4	
Travel Time (s)		13.6			20.7			12.9			28.4	
Confl. Peds. (#/hr)	18		44	44		18	24		4	4		24
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	16%	0%	7%	0%	0%	0%	1%	33%	0%	0%	2%	5%
Adj. Flow (vph)	82	0	214	0	0	0	148	36	0	0	220	96
Shared Lane Traffic (%)							38%					
Lane Group Flow (vph)	82	0	214	0	0	0	92	92	0	0	316	0
Turn Type	Prot		pt+ov			Perm	Split	NA			NA	
Protected Phases	4		4 2				2	2			6	
Permitted Phases						8						
Detector Phase	4		4 2			8	2	2			6	
Switch Phase												
Minimum Initial (s)	5.0					5.0	5.0	5.0			5.0	
Minimum Split (s)	29.5					11.5	11.2	11.2			26.2	
Total Split (s)	30.0					30.0	18.0	18.0			27.0	
Total Split (%)	40.0%					40.0%	24.0%	24.0%			36.0%	
Maximum Green (s)	23.5					23.5	11.8	11.8			20.8	
Yellow Time (s)	3.0					3.0	3.0	3.0			3.0	
All-Red Time (s)	3.5					3.5	3.2	3.2			3.2	
Lost Time Adjust (s)	0.0					0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.5					6.5	6.2	6.2			6.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0					3.0	3.0	3.0			3.0	
Recall Mode	None					None	C-Max	C-Max			Max	
Walk Time (s)	7.0										7.0	
Flash Dont Walk (s)	16.0										13.0	
Pedestrian Calls (#/hr)	0										0	
Act Effct Green (s)	9.7		41.5				25.6	25.6			20.8	
Actuated g/C Ratio	0.13		0.55				0.34	0.34			0.28	
v/c Ratio	0.43		0.15				0.17	0.18			0.33	
Control Delay	36.2		8.5				19.5	19.8			16.3	
Queue Delay	0.0		0.0				0.0	0.0			0.0	
Total Delay	36.2		8.5				19.5	19.8			16.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	D		A				B	B			B	
Approach Delay		16.2						19.6			16.3	
Approach LOS		B						B			B	
Queue Length 50th (m)	10.9		7.7				9.3	9.4			12.9	
Queue Length 95th (m)	22.1		13.1				21.3	21.5			22.9	
Internal Link Dist (m)		126.9			205.8			155.2			370.4	
Turn Bay Length (m)												
Base Capacity (vph)	467		1408				555	504			944	
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	0.18		0.15				0.17	0.18			0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 17.0		Intersection LOS: B	
Intersection Capacity Utilization 44.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Bayshore Drive & Woodridge Crescent (S)





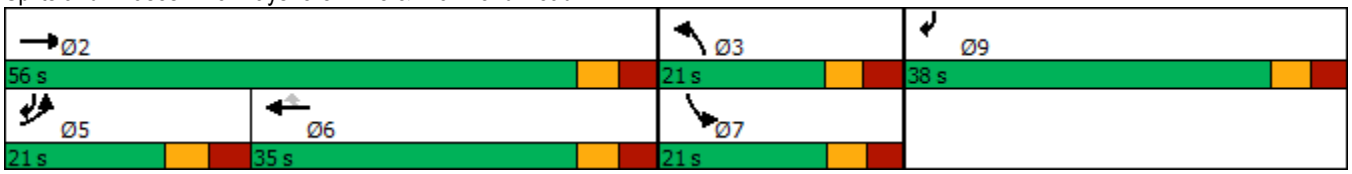
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	361	1039	0	0	352	103	271	0	13	98	0	392
Future Volume (vph)	361	1039	0	0	352	103	271	0	13	98	0	392
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	205.0		0.0	0.0		60.0	0.0		35.0	50.0		0.0
Storage Lanes	2		0	0		1	2		1	1		3
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.97	1.00	0.76
Ped Bike Factor						0.99						
Frt						0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3321	3424	0	0	4732	1502	3257	0	1547	3022	0	3391
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3321	3424	0	0	4732	1483	3257	0	1547	3022	0	3391
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)						169			236			
Link Speed (k/h)		70			70			50			50	
Link Distance (m)		676.3			322.3			173.9			198.6	
Travel Time (s)		34.8			16.6			12.5			14.3	
Confl. Bikes (#/hr)						1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	0%	0%	5%	3%	3%	0%	0%	11%	0%	4%
Adj. Flow (vph)	361	1039	0	0	352	103	271	0	13	98	0	392
Shared Lane Traffic (%)												
Lane Group Flow (vph)	361	1039	0	0	352	103	271	0	13	98	0	392
Turn Type	Prot	NA			NA	Perm	Prot		Free	Prot		pt+ov
Protected Phases	5	2			6		3			7		5 9
Permitted Phases						6			Free			
Detector Phase	5	2			6	6	3			7		5 9
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0			5.0		
Minimum Split (s)	12.3	32.1			32.1	32.1	11.9			11.6		
Total Split (s)	21.0	56.0			35.0	35.0	21.0			21.0		
Total Split (%)	18.3%	48.7%			30.4%	30.4%	18.3%			18.3%		
Maximum Green (s)	13.7	48.9			27.9	27.9	14.1			14.4		
Yellow Time (s)	3.7	3.7			3.7	3.7	3.3			3.3		
All-Red Time (s)	3.6	3.4			3.4	3.4	3.6			3.3		
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0			0.0		
Total Lost Time (s)	7.3	7.1			7.1	7.1	6.9			6.6		
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0			3.0		
Recall Mode	None	Max			Max	Max	None			None		
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		18.0			18.0	18.0						
Pedestrian Calls (#/hr)		0			0	0						
Act Effct Green (s)	13.6	49.0			28.1	28.1	12.5		95.7	12.0		33.8
Actuated g/C Ratio	0.14	0.51			0.29	0.29	0.13		1.00	0.13		0.35
v/c Ratio	0.77	0.59			0.25	0.19	0.64		0.01	0.26		0.33

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	11.6
Total Split (s)	38.0
Total Split (%)	33%
Maximum Green (s)	31.4
Yellow Time (s)	3.3
All-Red Time (s)	3.3
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	52.3	18.7			27.1	1.4	47.3		0.0	39.6		23.6
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0	0.0		0.0
Total Delay	52.3	18.7			27.1	1.4	47.3		0.0	39.6		23.6
LOS	D	B			C	A	D		A	D		C
Approach Delay		27.4			21.3			45.1			26.8	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	33.7	68.6			18.3	0.0	24.8		0.0	8.4		23.1
Queue Length 95th (m)	#56.4	96.8			27.8	2.0	38.9		0.0	16.3		33.1
Internal Link Dist (m)		652.3			298.3			149.9			174.6	
Turn Bay Length (m)	205.0					60.0			35.0	50.0		
Base Capacity (vph)	476	1753			1391	555	480		1547	455		1203
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	0.76	0.59			0.25	0.19	0.56		0.01	0.22		0.33

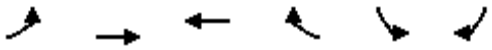
Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 95.7			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 28.1		Intersection LOS: C	
Intersection Capacity Utilization 50.1%		ICU Level of Service A	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: Bayshore Drive & Richmond Road

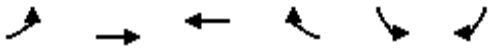


Lane Group	Ø9
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



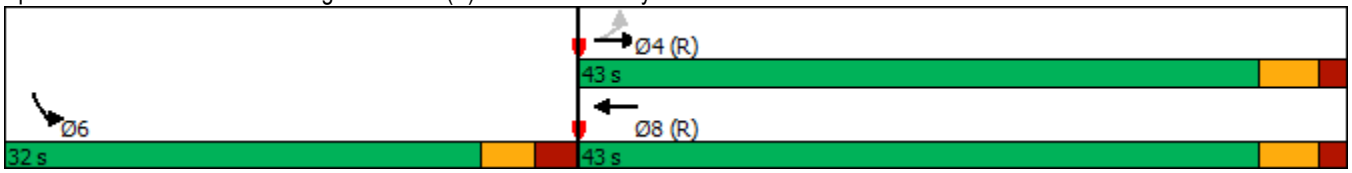
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	19	245	145	2	34	19
Future Volume (vph)	19	245	145	2	34	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.94		1.00		0.99	
Frt			0.998		0.952	
Flt Protected	0.950				0.969	
Satd. Flow (prot)	1729	3033	3224	0	1568	0
Flt Permitted	0.659				0.969	
Satd. Flow (perm)	1132	3033	3224	0	1568	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			2		19	
Link Speed (k/h)		40	40		50	
Link Distance (m)		172.9	23.2		196.3	
Travel Time (s)		15.6	2.1		14.1	
Confl. Peds. (#/hr)	22			22		25
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	14%	7%	0%	0%	16%
Adj. Flow (vph)	19	245	145	2	34	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	245	147	0	53	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Detector Phase	4	4	8		6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	10.0	10.0	17.0		29.4	
Total Split (s)	43.0	43.0	43.0		32.0	
Total Split (%)	57.3%	57.3%	57.3%		42.7%	
Maximum Green (s)	38.0	38.0	38.0		26.6	
Yellow Time (s)	3.3	3.3	3.3		3.0	
All-Red Time (s)	1.7	1.7	1.7		2.4	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.4	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	C-Max	C-Max	C-Max		None	
Walk Time (s)			7.0		7.0	
Flash Dont Walk (s)			5.0		17.0	
Pedestrian Calls (#/hr)			0		0	
Act Effct Green (s)	63.7	63.7	63.7		7.3	
Actuated g/C Ratio	0.85	0.85	0.85		0.10	
v/c Ratio	0.02	0.10	0.05		0.31	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Control Delay	2.6	2.2	2.1		26.9	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	2.6	2.2	2.1		26.9	
LOS	A	A	A		C	
Approach Delay		2.2	2.1		26.9	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.5	3.3	1.9		4.6	
Queue Length 95th (m)	2.0	7.0	4.4		13.7	
Internal Link Dist (m)		148.9	0.1		172.3	
Turn Bay Length (m)	40.0					
Base Capacity (vph)	961	2575	2737		568	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.02	0.10	0.05		0.09	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.31			
Intersection Signal Delay: 5.0		Intersection LOS: A	
Intersection Capacity Utilization 38.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Woodridge Crescent (S) & 220m W of Bayshore



Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	200	15	33	77	17	28
Future Vol, veh/h	200	15	33	77	17	28
Conflicting Peds, #/hr	0	25	25	0	15	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	6	53	18	10	29	46
Mvmt Flow	200	15	33	77	17	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	240	0	391	237
Stage 1	-	-	-	-	233	-
Stage 2	-	-	-	-	158	-
Critical Hdwy	-	-	4.28	-	6.69	6.66
Critical Hdwy Stg 1	-	-	-	-	5.69	-
Critical Hdwy Stg 2	-	-	-	-	5.69	-
Follow-up Hdwy	-	-	2.362	-	3.761	3.714
Pot Cap-1 Maneuver	-	-	1238	-	564	705
Stage 1	-	-	-	-	746	-
Stage 2	-	-	-	-	809	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1209	-	528	686
Mov Cap-2 Maneuver	-	-	-	-	528	-
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	777	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	11.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	528	686	-	-	1209	-
HCM Lane V/C Ratio	0.032	0.041	-	-	0.027	-
HCM Control Delay (s)	12	10.5	-	-	8.1	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-

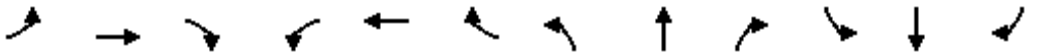
Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	95	4	10	64	9	38
Future Vol, veh/h	95	4	10	64	9	38
Conflicting Peds, #/hr	0	10	10	0	12	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	95	4	10	64	9	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	109	0	203	111
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	96	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1494	-	790	948
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	933	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1480	-	769	936
Mov Cap-2 Maneuver	-	-	-	-	769	-
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	916	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	899	-	-	1480	-
HCM Lane V/C Ratio	0.052	-	-	0.007	-
HCM Control Delay (s)	9.2	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

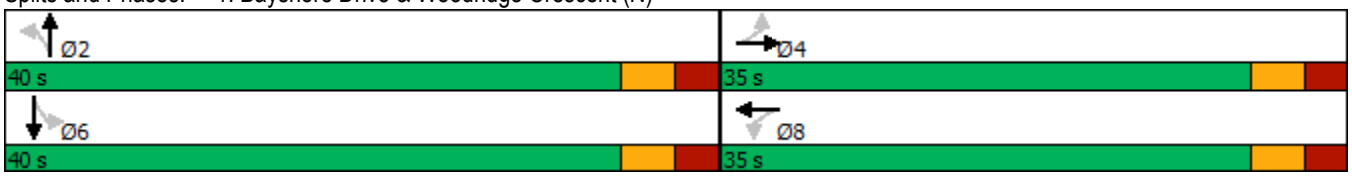


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	0	71	6	0	5	111	280	14	24	384	156
Future Volume (vph)	98	0	71	6	0	5	111	280	14	24	384	156
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.96			0.98			0.99			0.98	
Frt		0.850			0.939			0.995			0.963	
Flt Protected	0.950				0.973			0.986			0.998	
Satd. Flow (prot)	1558	1429	0	0	1646	0	0	1718	0	0	1663	0
Flt Permitted	0.750				0.829			0.756			0.977	
Satd. Flow (perm)	1217	1429	0	0	1383	0	0	1312	0	0	1625	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		319			38			3			34	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		186.3			207.9			394.4			121.4	
Travel Time (s)		13.4			15.0			28.4			8.7	
Confl. Peds. (#/hr)	10		26	26		10	25		41	41		25
Confl. Bikes (#/hr)												2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	11%	0%	4%	0%	0%	0%	3%	4%	0%	0%	2%	7%
Adj. Flow (vph)	98	0	71	6	0	5	111	280	14	24	384	156
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	71	0	0	11	0	0	405	0	0	564	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		26.6	26.6		26.6	26.6	
Total Split (s)	35.0	35.0		35.0	35.0		40.0	40.0		40.0	40.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	29.5	29.5		29.5	29.5		34.4	34.4		34.4	34.4	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5			5.5			5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	9.9	9.9			9.8			40.3			40.3	
Actuated g/C Ratio	0.17	0.17			0.17			0.70			0.70	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.47	0.14			0.04			0.44			0.49	
Control Delay	28.5	0.6			1.6			8.0			7.7	
Queue Delay	0.0	0.0			0.0			0.0			0.2	
Total Delay	28.5	0.6			1.6			8.0			7.9	
LOS	C	A			A			A			A	
Approach Delay		16.8			1.6			8.0			7.9	
Approach LOS		B			A			A			A	
Queue Length 50th (m)	8.9	0.0			0.0			18.1			24.6	
Queue Length 95th (m)	20.3	0.0			0.8			44.1			57.6	
Internal Link Dist (m)		162.3			183.9			370.4			97.4	
Turn Bay Length (m)	60.0											
Base Capacity (vph)	623	888			727			916			1144	
Starvation Cap Reductn	0	0			0			0			136	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.16	0.08			0.02			0.44			0.56	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 57.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 9.2		Intersection LOS: A	
Intersection Capacity Utilization 84.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Bayshore Drive & Woodridge Crescent (N)

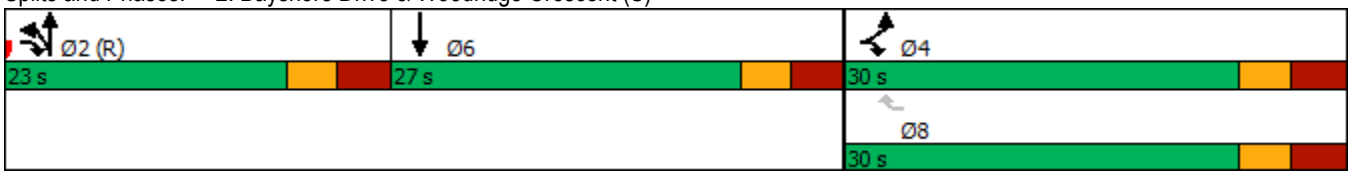


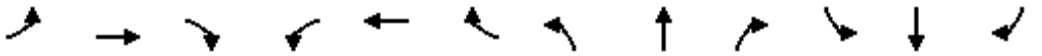
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	0	622	0	0	0	255	70	0	0	260	201
Future Volume (vph)	170	0	622	0	0	0	255	70	0	0	260	201
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.95						0.99	0.99			0.98	
Frt			0.850								0.935	
Flt Protected	0.950						0.950	0.972				
Satd. Flow (prot)	1662	0	2643	0	0	1820	1643	1645	0	0	3089	0
Flt Permitted	0.950						0.950	0.972				
Satd. Flow (perm)	1584	0	2643	0	0	1820	1619	1632	0	0	3089	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)											201	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		150.9			229.8			179.2			394.4	
Travel Time (s)		13.6			20.7			12.9			28.4	
Confl. Peds. (#/hr)	27		66	66		27	23		4	4		23
Confl. Bikes (#/hr)			1						1			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	0%	3%	0%	0%	0%	0%	5%	0%	0%	2%	4%
Adj. Flow (vph)	170	0	622	0	0	0	255	70	0	0	260	201
Shared Lane Traffic (%)							37%					
Lane Group Flow (vph)	170	0	622	0	0	0	161	164	0	0	461	0
Turn Type	Prot		pt+ov			Perm	Split	NA			NA	
Protected Phases	4		4 2				2	2			6	
Permitted Phases						8						
Detector Phase	4		4 2			8	2	2			6	
Switch Phase												
Minimum Initial (s)	5.0					5.0	5.0	5.0			5.0	
Minimum Split (s)	29.5					11.5	11.2	11.2			26.2	
Total Split (s)	30.0					30.0	23.0	23.0			27.0	
Total Split (%)	37.5%					37.5%	28.8%	28.8%			33.8%	
Maximum Green (s)	23.5					23.5	16.8	16.8			20.8	
Yellow Time (s)	3.0					3.0	3.0	3.0			3.0	
All-Red Time (s)	3.5					3.5	3.2	3.2			3.2	
Lost Time Adjust (s)	0.0					0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.5					6.5	6.2	6.2			6.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0					3.0	3.0	3.0			3.0	
Recall Mode	None					None	C-Max	C-Max			Max	
Walk Time (s)	7.0										7.0	
Flash Dont Walk (s)	16.0										13.0	
Pedestrian Calls (#/hr)	0										0	
Act Effct Green (s)	16.8		46.5				23.5	23.5			20.8	
Actuated g/C Ratio	0.21		0.58				0.29	0.29			0.26	
v/c Ratio	0.49		0.40				0.33	0.34			0.48	
Control Delay	31.7		10.2				26.2	26.3			15.7	
Queue Delay	0.0		0.0				0.0	0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	31.7		10.2				26.2	26.3			15.7	
LOS	C		B				C	C			B	
Approach Delay		14.8						26.3			15.7	
Approach LOS		B						C			B	
Queue Length 50th (m)	22.9		26.8				20.1	20.4			16.7	
Queue Length 95th (m)	36.8		38.4				40.8	41.5			30.0	
Internal Link Dist (m)		126.9			205.8			155.2			370.4	
Turn Bay Length (m)												
Base Capacity (vph)	488		1485				482	483			951	
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	0.35		0.42				0.33	0.34			0.48	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 55.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Bayshore Drive & Woodridge Crescent (S)





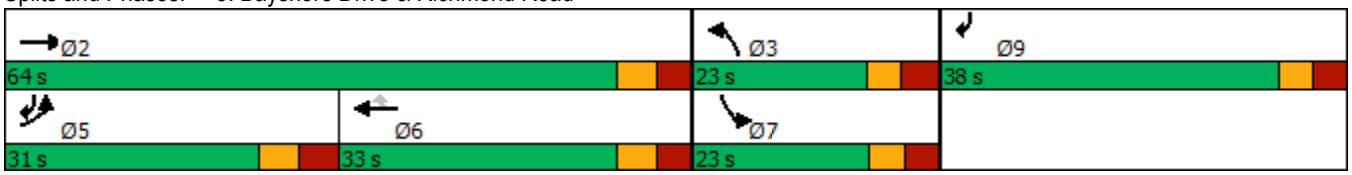
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	434	539	0	0	685	127	178	0	44	145	0	936
Future Volume (vph)	434	539	0	0	685	127	178	0	44	145	0	936
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	205.0		0.0	0.0		60.0	0.0		35.0	50.0		0.0
Storage Lanes	2		0	0		1	2		1	1		3
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.97	1.00	0.76
Ped Bike Factor	1.00					0.99			0.99	1.00		
Frt						0.850			0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3354	3424	0	0	4871	1547	3321	0	1473	3077	0	3492
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3350	3424	0	0	4871	1524	3321	0	1455	3066	0	3492
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)						155			217			
Link Speed (k/h)		70			70			50			50	
Link Distance (m)		676.3			322.3			173.9			198.6	
Travel Time (s)		34.8			16.6			12.5			14.3	
Confl. Peds. (#/hr)	2					2			1	1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	1%	0%	5%	9%	0%	1%
Adj. Flow (vph)	434	539	0	0	685	127	178	0	44	145	0	936
Shared Lane Traffic (%)												
Lane Group Flow (vph)	434	539	0	0	685	127	178	0	44	145	0	936
Turn Type	Prot	NA			NA	Perm	Prot		Free	Prot		pt+ov
Protected Phases	5	2			6		3			7		5 9
Permitted Phases						6			Free			
Detector Phase	5	2			6	6	3			7		5 9
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0			5.0		
Minimum Split (s)	12.3	32.1			32.1	32.1	11.9			11.6		
Total Split (s)	31.0	64.0			33.0	33.0	23.0			23.0		
Total Split (%)	24.8%	51.2%			26.4%	26.4%	18.4%			18.4%		
Maximum Green (s)	23.7	56.9			25.9	25.9	16.1			16.4		
Yellow Time (s)	3.7	3.7			3.7	3.7	3.3			3.3		
All-Red Time (s)	3.6	3.4			3.4	3.4	3.6			3.3		
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0			0.0		
Total Lost Time (s)	7.3	7.1			7.1	7.1	6.9			6.6		
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0			3.0		
Recall Mode	None	Max			Max	Max	None			None		
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		18.0			18.0	18.0						
Pedestrian Calls (#/hr)		0			0	0						
Act Effct Green (s)	21.0	57.0			28.7	28.7	11.6		117.0	11.9		55.4
Actuated g/C Ratio	0.18	0.49			0.25	0.25	0.10		1.00	0.10		0.47
v/c Ratio	0.72	0.32			0.57	0.26	0.54		0.03	0.47		0.57

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	24.6
Total Split (s)	38.0
Total Split (%)	30%
Maximum Green (s)	31.4
Yellow Time (s)	3.3
All-Red Time (s)	3.3
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	53.0	19.7			42.5	4.7	57.1		0.0	55.1		23.5
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0	0.0		0.0
Total Delay	53.0	19.7			42.5	4.7	57.1		0.0	55.1		23.5
LOS	D	B			D	A	E		A	E		C
Approach Delay		34.6			36.6			45.8			27.7	
Approach LOS		C			D			D			C	
Queue Length 50th (m)	48.0	38.7			52.0	0.0	20.4		0.0	16.4		63.6
Queue Length 95th (m)	68.7	56.9			70.9	9.9	32.3		0.0	27.3		82.5
Internal Link Dist (m)		652.3			298.3			149.9			174.6	
Turn Bay Length (m)	205.0					60.0			35.0	50.0		
Base Capacity (vph)	681	1668			1194	490	457		1455	432		1696
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	0.64	0.32			0.57	0.26	0.39		0.03	0.34		0.55

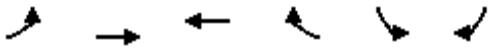
Intersection Summary			
Area Type:	Other		
Cycle Length: 125			
Actuated Cycle Length: 117			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 33.5		Intersection LOS: C	
Intersection Capacity Utilization 64.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Bayshore Drive & Richmond Road

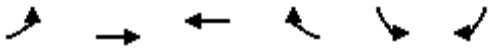


Lane Group	Ø9
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



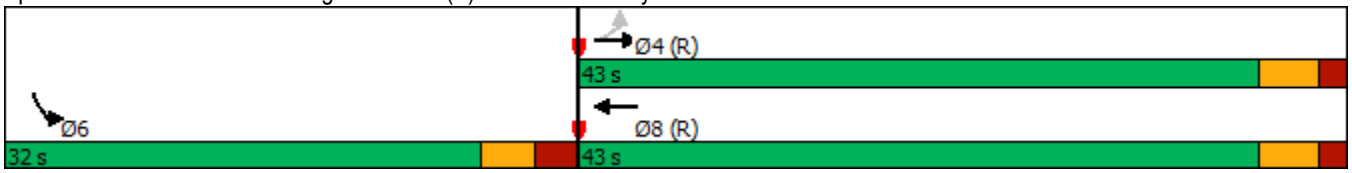
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	17	505	252	7	13	19
Future Volume (vph)	17	505	252	7	13	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.92		1.00		0.96	
Frt			0.996		0.920	
Flt Protected	0.950				0.980	
Satd. Flow (prot)	1631	3293	3261	0	1532	0
Flt Permitted	0.592				0.980	
Satd. Flow (perm)	934	3293	3261	0	1532	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			5		19	
Link Speed (k/h)		40	40		50	
Link Distance (m)		172.9	23.2		196.3	
Travel Time (s)		15.6	2.1		14.1	
Confl. Peds. (#/hr)	37			37		58
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	5%	5%	14%	0%	5%
Adj. Flow (vph)	17	505	252	7	13	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	505	259	0	32	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Detector Phase	4	4	8		6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	10.0	10.0	17.0		29.4	
Total Split (s)	43.0	43.0	43.0		32.0	
Total Split (%)	57.3%	57.3%	57.3%		42.7%	
Maximum Green (s)	38.0	38.0	38.0		26.6	
Yellow Time (s)	3.3	3.3	3.3		3.0	
All-Red Time (s)	1.7	1.7	1.7		2.4	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.4	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	C-Max	C-Max	C-Max		None	
Walk Time (s)			7.0		7.0	
Flash Dont Walk (s)			5.0		17.0	
Pedestrian Calls (#/hr)			0		0	
Act Effct Green (s)	67.7	67.7	67.7		6.5	
Actuated g/C Ratio	0.90	0.90	0.90		0.09	
v/c Ratio	0.02	0.17	0.09		0.21	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Control Delay	2.0	1.5	1.4		22.4	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	2.0	1.5	1.4		22.4	
LOS	A	A	A		C	
Approach Delay		1.6	1.4		22.4	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.0	0.0	0.0		1.8	
Queue Length 95th (m)	1.7	12.4	6.4		9.0	
Internal Link Dist (m)		148.9	0.1		172.3	
Turn Bay Length (m)	40.0					
Base Capacity (vph)	843	2973	2945		555	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.02	0.17	0.09		0.06	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.21			
Intersection Signal Delay: 2.3		Intersection LOS: A	
Intersection Capacity Utilization 41.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Woodridge Crescent (S) & 220m W of Bayshore



Intersection	
Int Delay, s/veh	4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	165	38	73	124	25	172
Future Vol, veh/h	165	38	73	124	25	172
Conflicting Peds, #/hr	0	27	27	0	25	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	11	21	11	6	44	12
Mvmt Flow	165	38	73	124	25	172

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	230	0	506	214
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	295	-
Critical Hdwy	-	-	4.21	-	6.84	6.32
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.299	-	3.896	3.408
Pot Cap-1 Maneuver	-	-	1287	-	459	801
Stage 1	-	-	-	-	734	-
Stage 2	-	-	-	-	669	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1255	-	412	779
Mov Cap-2 Maneuver	-	-	-	-	412	-
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	615	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	412	779	-	-	1255	-
HCM Lane V/C Ratio	0.061	0.221	-	-	0.058	-
HCM Control Delay (s)	14.3	10.9	-	-	8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.8	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	139	15	20	75	2	20
Future Vol, veh/h	139	15	20	75	2	20
Conflicting Peds, #/hr	0	5	5	0	28	30
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	139	15	20	75	2	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	159	0	295	182
Stage 1	-	-	-	-	152	-
Stage 2	-	-	-	-	143	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1433	-	700	866
Stage 1	-	-	-	-	881	-
Stage 2	-	-	-	-	889	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1426	-	669	838
Mov Cap-2 Maneuver	-	-	-	-	669	-
Stage 1	-	-	-	-	877	-
Stage 2	-	-	-	-	853	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	819	-	-	1426	-
HCM Lane V/C Ratio	0.027	-	-	0.014	-
HCM Control Delay (s)	9.5	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

100 Bayshore Drive TIA (IBI, 2020)
Auxiliary Lane Analyses Excerpts

5.10.2.2 Signalized Auxiliary Left-Turn Requirements

A review of auxiliary left-turn lane storage requirements was completed at all signalized intersections within the study area under Future (2031) Total Traffic conditions. The review compared the projected 95th percentile queue lengths from Synchro operational results, and the standard queue length calculation based on the following equation:

$$Storage\ Length = \frac{NL}{C} \times 1.5$$

Where:
N = number of vehicles per hour
L = Length occupied by a vehicle in the queue = 7 m
C = number of traffic signal cycles per hour

The results of the auxiliary left-turn lane analysis are summarized below in **Table 22**.

Table 22 - Auxiliary Left-Turn Storage Analysis at Signalized Intersections

INTERSECTION	APPROACH	95TH %ILE QUEUE LENGTH / CALCULATED QUEUE (M)		EXISTING STORAGE LENGTH (M)	STORAGE DEFICIENCY (M)
		AM PEAK HR	PM PEAK HR		
Bayshore Drive & Richmond Road	NB	37.2 / 48.3	31.4 / 34.4	- [1]	-
	SB	14.8 / 16.3	26.0 / 27.4	50 (D)	-
	EB	#51.7 / 63.9	65.0 / 82.5	205 (D)	-
Bayshore Drive & Woodridge Crescent (N)	EB	29.3 / 33.3	20.3 / 21.4	60	-
Woodridge Crescent (S) & 220m W of Bayshore	EB	2.0 / 4.2	1.7 / 3.7	40	-

Notes: 'D' stands for double left-turn lane.
1. Highway 417 off-ramp transitions to double left-turn lanes without defined storage restrictions.

Based on the results of the left-turn lane analysis presented in **Table 22** above and confirmed through intersection capacity analysis, no storage deficiencies are anticipated under Future (2031) Total traffic conditions.

5.10.2.3 Unsignalized Auxiliary Right-Turn Lane Requirements

The Transportation Association of Canada (TAC) suggests that auxiliary right-turn lanes be considered "when the volume of decelerating or accelerating vehicles compared with through vehicles causes undue hazard." Consideration for auxiliary right-turn lanes is typically given when the right-turning traffic exceeds 10% of the through volume and is at least 60 vehicles per hour.

None of the right-turning movements associated with unsignalized study area intersections are projected to exceed these thresholds under Future (2031) Total Traffic conditions, therefore

additional right-turn lanes were not considered at any of the unsignalized intersections within the study area.

5.10.2.4 Signalized Auxiliary Right-Turn Lane Requirements

Similarly for signalized intersections, Section 9.14 of TAC suggests that auxiliary right-turn lanes shall be considered when more than 10% of vehicles on an approach are turning right and when the peak hour demand exceeds 60 vehicles. The purpose of this guideline is to mitigate operational impacts to through-traffic, particularly on high-speed arterial roadways, and may not be applicable in all circumstances.

The results of the auxiliary right-turn lane analysis are summarized below in **Table 23** below:

Table 23 – Auxiliary Right-Turn Lane Storage Analysis at Signalized Intersections

INTERSECTION	APPROACH	NUMBER OF RIGHT-TURNS / % RIGHT-TURNS		95TH %ILE QUEUE (M) AM/ PM	EXISTING STORAGE LENGTH (M)	STORAGE DEFICIENCY (M)
		AM PEAK HOUR	PM PEAK HOUR			
Bayshore Drive & Richmond Road	WB	98 / 22%	118 / 15%	<10 / <10	60	-
	NB	13 / 5%	42 / 20%	<10 / <10	35	-
Bayshore Drive & Woodridge Crescent (S)	SB	87 / 29%	179 / 42%	-	-	- [1]
Bayshore Drive & Woodridge Crescent (N)	NB	9 / 2%	14 / 4%	-	-	-
	SB	95 / 36%	156 / 29%	-	-	- [1]
	EB	98 / 39%	71 / 42%	-	-	- [2]
	WB	12 / 36%	5 / 45%	-	-	-
Woodridge Crescent (S) & 220m W of Bayshore	WB	2 / 1%	7 / 1%	-	-	-
Woodridge Crescent & Transitway Access	EB	15 / 20%	38 / 37%	-	-	-

Notes:

1. Technically meets right-turn criteria, however, this criteria is not applicable for low posted-speed (40 km/h) arterial roads such as Bayshore Drive.
2. Technically meets right-turn criteria, however, minimal through traffic is expected on the EB approach, skewing the proportion of right-turning vehicles in comparison to the overall approach volumes.

Based on the results of the right-turn lane analysis presented in **Table 23** above and confirmed through intersection capacity analysis, no storage deficiencies are anticipated at any of the study area intersections under 2031 total traffic projections.