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Proposed Residential Development
2765 Palladium Drive, Ottawa

Transportation Impact Assessment

Engineering excellence. Planning progress. Liveable landscapes.

Proposed Residential Development
2765 Palladium Drive

Transportation Impact Assessment

Prepared By:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario
K2M 1P6

October 2024

Novatech File: 123194
Ref: R-2024-052

NOVATECH
Engineers, Planners & Landscape Architects

October 7, 2024

City of Ottawa
Planning, Development, and Building Services Department
110 Laurier Ave. W., 4th Floor
Ottawa, Ontario K1P 1J1

Attention: **Ms. Rochelle Fortier-Lesage**
Transportation Project Manager, Infrastructure Approvals

Dear Ms. Fortier-Lesage:

Reference: **2765 Palladium Drive**
Transportation Impact Assessment
Novatech File No. 123194

We are pleased to submit the following Transportation Impact Assessment (TIA), in support of a Site Plan Control application at 2765 Palladium Drive, for your review and signoff. The structure and format of this report is in accordance with the City of Ottawa's *Revised Transportation Impact Assessment Guidelines* (June 2023).

If you have any questions or comments regarding this report, please feel free to contact Brad Byvelds, or the undersigned.

Yours truly,

NOVATECH

Joshua Audia, P.Eng.
Project Engineer | Transportation

Suite 200, 240 Michael Cowpland Drive, Ottawa ON K2M 1P6 Tel: 613.254.9643 Fax: 613.254.5867 www.novatech-eng.com

Certification Form for Transportation Impact Assessment (TIA) Study Program Manager

TIA Plan Reports

On April 14, 2022, the Province's Bill 109 received Royal Assent providing legislative direction to implement the More Homes for Everyone Act, 2022 aiming to increase the supply of a range of housing options to make housing more affordable. Revisions have been made to the TIA guidelines to comply with Bill 109 and streamline the process for applicants and staff.

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 associated documents) and signing this document, the individual acknowledges that they meet the four criteria listed below.

Certification

- ☑ 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 (Update Effective July 2023);
- ☑ 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;
- ☑ 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

City of Ottawa
Transportation Engineering Services
Planning, Real Estate and Economic Development
110 Laurier Avenue West, 4th fl.
Ottawa, ON K1P 1J1
Tel. : 613-580-2424
Fax: 613-560-6006

☑ I am either a licensed or registered[1] professional in good standing, whose field of expertise [check ✓ appropriate field(s)]:

- ☑ is either transportation engineering
- ☐ or transportation planning.

Dated at Ottawa (City) this 7th day of October, 20 24.

Name: Brad Byvelds, P.Eng.

Professional Title: Project Manager

B. Byvelds

Signature of Individual certifier that they meet the above four criteria

Office Contact Information (Please Print)	
Address:	240 Michael Cowpland Drive, Suite 200
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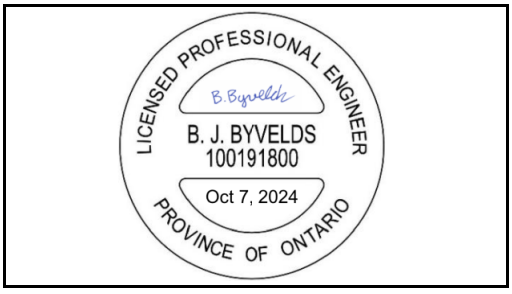
Stamp



[1] License of 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.

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EXECUTIVE SUMMARY

This Transportation Impact Assessment (TIA) has been prepared in support of a Site Plan Control application for the western portion of the property located at 2765 Palladium Drive (referred to as the 'subject site'). The total property is 2.57 hectares in area, and the subject site is approximately 0.97 hectares in area. The eastern portion of the property is not subject to this application, and no development of that portion is anticipated within the timeframe of this study.

The subject site is currently vacant, and is surrounded by the following:

- Vacant lands, followed by Highway 417 to the north,
- Derreen Avenue, followed by residential uses to the south,
- Vacant lands, followed by Palladium Drive to the east, and
- Culdaff Road, followed by residential uses to the west.

The proposed development consists of a single six-storey residential building with 177 dwellings. A total of 212 parking spaces are proposed, through a combination of surface parking and underground parking. Access to the site will be provided through a single two-way private approach to Derreen Avenue. The development will be constructed in a single phase, with a buildout year of 2027.

The subject site is designated as 'Mixed Industrial' on Schedule B5 of the City of Ottawa's Official Plan. The implemented zoning for the property is 'General Mixed Use' (GM), and the site is within the Kanata West Community Design Plan (CDP) area.

No intersection analysis is required as part of this TIA, as discussed in Sections 2.5 and 2.6. Therefore, the study area for this TIA has been reduced to the roundabout at Palladium Drive/ Robert Grant Avenue/Derreen Avenue. The study area includes the boundary roadways Derreen Avenue and Culdaff Road. The selected time periods for this TIA are the weekday AM and PM peak hours, as they represent the 'worst case' combination of site generated traffic and adjacent street traffic. The buildout year 2027 and horizon year 2032 have been considered.

The conclusions and recommendations of this TIA can be summarized as follows:

Site-Generated Traffic

- The proposed development is estimated to generate 71 person trips (including 38 vehicle trips) during each of the weekday peak hours.

Access Design

- The proposed development includes one two-way access to Derreen Avenue, approximately 77m east of Culdaff Road. Curbs will be depressed and continuous across the proposed access. The design of the proposed access meet all relevant provisions of the City's *Private Approach By-Law* (PABL) and *Zoning By-Law* (ZBL), and the Transportation Association of Canada (TAC)'s *Geometric Design Guide for Canadian Roads*.

Development Design and Parking

- Adjacent sidewalk and cycle tracks will be implemented by others on the east side of Culdaff Road. Walkways will be provided at each entrance between the proposed building and the existing sidewalk along Derreen Avenue or proposed sidewalk along Culdaff Road.

- On-site walkways will also be provided on the inner curve of the proposed building, and will provide connectivity to the garbage collection area, community garden, dog run, and pergola.

- OC Transpo's service design guideline for peak period service is to provide service within a five-minute (400m) walk of home, work, or school for 95% of urban residents. The proposed development is within 400m walking distance of the existing bus stops at Palladium Drive/Robert Grant Avenue/Derreen Avenue (#0445 and #0446), and the future transit stops at the Derreen Avenue/Culdaff Road intersection.

- A review of the *Transportation Demand Management (TDM)-Supportive Development Design and Infrastructure Checklist* has been conducted. All required TDM-supportive design and infrastructure measures in the TDM checklist for residential developments will be met.

- Garbage collection will take place at a designated area along the eastern limit of the site, and south of the proposed parking garage ramp. There is no proposed on-site fire route, and the fire route for the development will be located along Culdaff Road.

- The proposed number of vehicle parking spaces does not the requirement as outlined in the City's ZBL, and a variance is required. Three spaces will be allocated as accessible parking spaces, meeting the City's *Accessibility Design Standards*.

- Section 111(12) of the ZBL identifies that, where the number of bicycle parking spaces required for a single residential building exceeds 50 spaces, a minimum of 25% of the required total must be located within a building or structure, a secure area, or bicycle lockers. This requirement is met, as 68 of the 108 spaces are proposed within the parking garage.

Boundary Streets

- The results of the segment MMLOS review can be summarized as follows:
    - The west side of Culdaff Road and both sides of Derreen Avenue meet the target pedestrian level of service (PLOS), and the east side of Culdaff Road does not;
    - Derreen Avenue and Culdaff Road meet the target bicycle level of service (BLOS);
    - Derreen Avenue achieves a transit level of service (TLOS) D;
    - Derreen Avenue achieves a truck level of service (TkLOS) B.

- Installation of sidewalks and cycle tracks along the site's frontage to Culdaff Road will be completed by others. This is anticipated to improve the segment to a PLOS A, consistent with the other side of Culdaff Road and both sides of Derreen Avenue.

Transportation Demand Management

- The list of TDM measures to be considered by the proponent are summarized as follows:
    - Display local area maps with walking/cycling access routes and key destinations at major entrances;
    - Display relevant transit schedules and route maps at entrances;
    - Unbundle parking cost from monthly rent;
    - Provide a multimodal travel option information package to new residents.

- The proposed development is recommended from a transportation perspective.

1.0 SCREENING

1.1 Introduction

This Transportation Impact Assessment (TIA) has been prepared in support of a Site Plan Control application for the western portion of the property located at 2765 Palladium Drive (referred to as the 'subject site'). The total property is 2.57 hectares in area, and the subject site is approximately 0.97 hectares in area. The eastern portion of the property is not subject to this application, and no development of that portion is anticipated within the timeframe of this study.

The subject site is currently vacant, and is surrounded by the following:

- Vacant lands, followed by Highway 417 to the north,
- Derreen Avenue, followed by residential uses to the south,
- Vacant lands, followed by Palladium Drive to the east, and
- Culdaff Road, followed by residential uses to the west.

An aerial of the vicinity around the subject site is provided in **Figure 1**.

1.2 Proposed Development

The proposed development consists of a single six-storey residential building with 177 dwellings. A total of 212 parking spaces are proposed, through a combination of surface parking and underground parking. Access to the site will be provided through a single two-way private approach to Derreen Avenue. The development will be constructed in a single phase, with a buildout year of 2027.

The subject site is designated as 'Mixed Industrial' on Schedule B5 of the City of Ottawa's Official Plan. The implemented zoning for the property is 'General Mixed Use' (GM), and the site is within the Kanata West Community Design Plan (CDP) area.

A copy of the preliminary site plan is included in **Appendix A**.

1.3 Screening Form

The City's *Revised TIA Guidelines* identify three triggers for completing a TIA report, including trip generation, location, and safety. The criteria for each trigger are outlined in the City's TIA Screening Form, which is included in **Appendix B**. The trigger results are as follows:

- Trip Generation Trigger – The development is anticipated to generate over 60 peak hour person trips; further assessment is **required** based on this trigger.

- Location Triggers – The development does not propose a new connection to a designated Rapid Transit or Transit Priority (RTTP) corridor or a Crosstown Bikeway, and is not located within a Hub, Protected Major Transit Station Area (PMTSA), or Design Priority Area (DPA); further assessment is **not required** based on this trigger.

- Safety Triggers – The proposed development is within 150m of Palladium Drive/Robert Grant Avenue/Derreen Avenue; further assessment is **required** based on this trigger.

Figure 1: View of the Subject Site

2.0 SCOPING

2.1 Existing Conditions

2.1.1 Roadways

All roadways within the study area fall under the jurisdiction of the City of Ottawa. The study area roadways have generally been recently constructed, and follow the Geometric Roadway Design Drawings (GRDD) for the 195 Huntmar Drive subdivision. An excerpt of the GRDD is included in **Appendix C**.

Palladium Drive is an arterial roadway that runs on a generally north-south alignment from 100m north of Upper Canada Street to the Palladium Drive/Robert Grant Avenue/Derreen Avenue roundabout, and on a generally east-west alignment from the roundabout to Terry Fox Drive (continuing east as Katimavik Road). In vicinity of the subject site, Palladium Drive has a four-lane undivided urban cross-section and a posted speed limit of 70 km/h. Both the north-south and east-west sections of Palladium Drive are classified as a truck route, allowing full loads. Street parking is generally not permitted.

Robert Grant Avenue is a future arterial roadway, and is planned to run on a generally north-south alignment from Palladium Drive to Fernbank Road. At the time of writing, Robert Grant Avenue immediately south of the roundabout has been constructed to its ultimate four-lane divided urban cross-section. At the time of writing, Robert Grant Avenue has a regulatory unposted speed limit of 50 km/h. Robert Grant Avenue is not classified as a truck route, and street parking is not permitted.

Derreen Avenue is a collector roadway that runs on a curvilinear alignment from Palladium Drive to the planned extension of Stittsville Main Street. In vicinity of the subject site, Derreen Avenue has a two-lane undivided urban cross-section with sidewalks and cycle tracks on both sides, and a regulatory unposted speed limit of 50 km/h. Derreen Avenue is not classified as a truck route, and street parking is generally permitted. Schedule C16 of the City's *Official Plan* does not identify a right-of-way (ROW) protection for Derreen Avenue. The existing right-of-way (ROW) of Derreen Avenue is variable across the subject site's frontage, increasing progressively from approximately 27.0m adjacent to Culdaff Road to approximately 31.0m adjacent to the Palladium Drive/Robert Grant Avenue/Derreen Avenue roundabout.

Culdaff Road is a local roadway south of Derreen Avenue and collector roadway north of Derreen Avenue (i.e. adjacent to the subject site) that runs on a generally north-south alignment from 170m north of Bermondsey Way to the planned extension of Stittsville Main Street. In vicinity of the subject site, Culdaff Road has a two-lane undivided urban cross-section and a regulatory unposted speed limit of 50 km/h. Culdaff Road is not classified as a truck route, and street parking is generally permitted. Schedule C16 of the City's *Official Plan* does not identify a right-of-way (ROW) protection for Culdaff Road. The existing right-of-way (ROW) of Culdaff Road is approximately 26.0m across the subject site's frontage.

2.1.2 Driveways

A review of the existing adjacent driveways along the boundary roads are provided as follows:

Derreen Avenue, north side

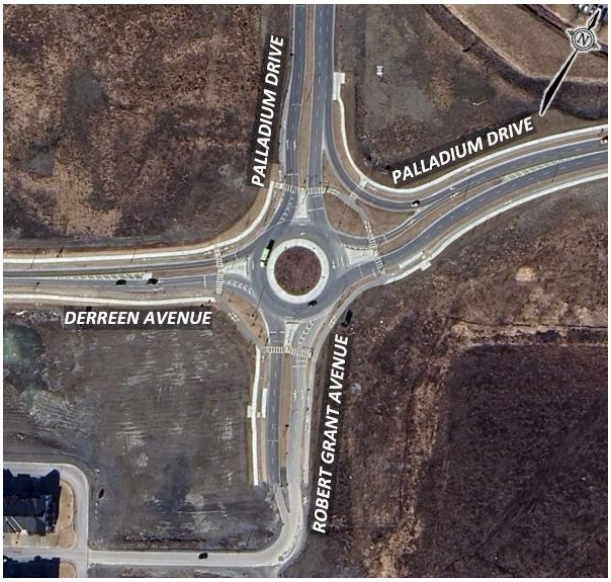
- Six driveways to residences at 700-718 Derreen Avenue

Derreen Avenue, south side

- Eight driveways to residences at 701-731 Derreen Avenue

2.1.3 Intersections

Palladium Drive/Robert Grant Avenue/ Derreen Avenue



- Four-legged roundabout
- North Approach (Palladium Drive): inside lane for left turns and through traffic outside lane for through traffic and right turns
- South Approach (Robert Grant Avenue): inside lane for left turns and through traffic outside lane for through traffic and right turns
- East Approach (Palladium Drive): inside lane for left turns and through traffic outside lane is a right turn by-pass
- West Approach (Derreen Avenue): inside lane for left turns and through traffic outside lane for through traffic and right turns
- Pedestrian crossovers on all approaches
- Sidewalks and cycle tracks or multi-use pathways provided on all approaches

Derreen Avenue/Culdaff Road

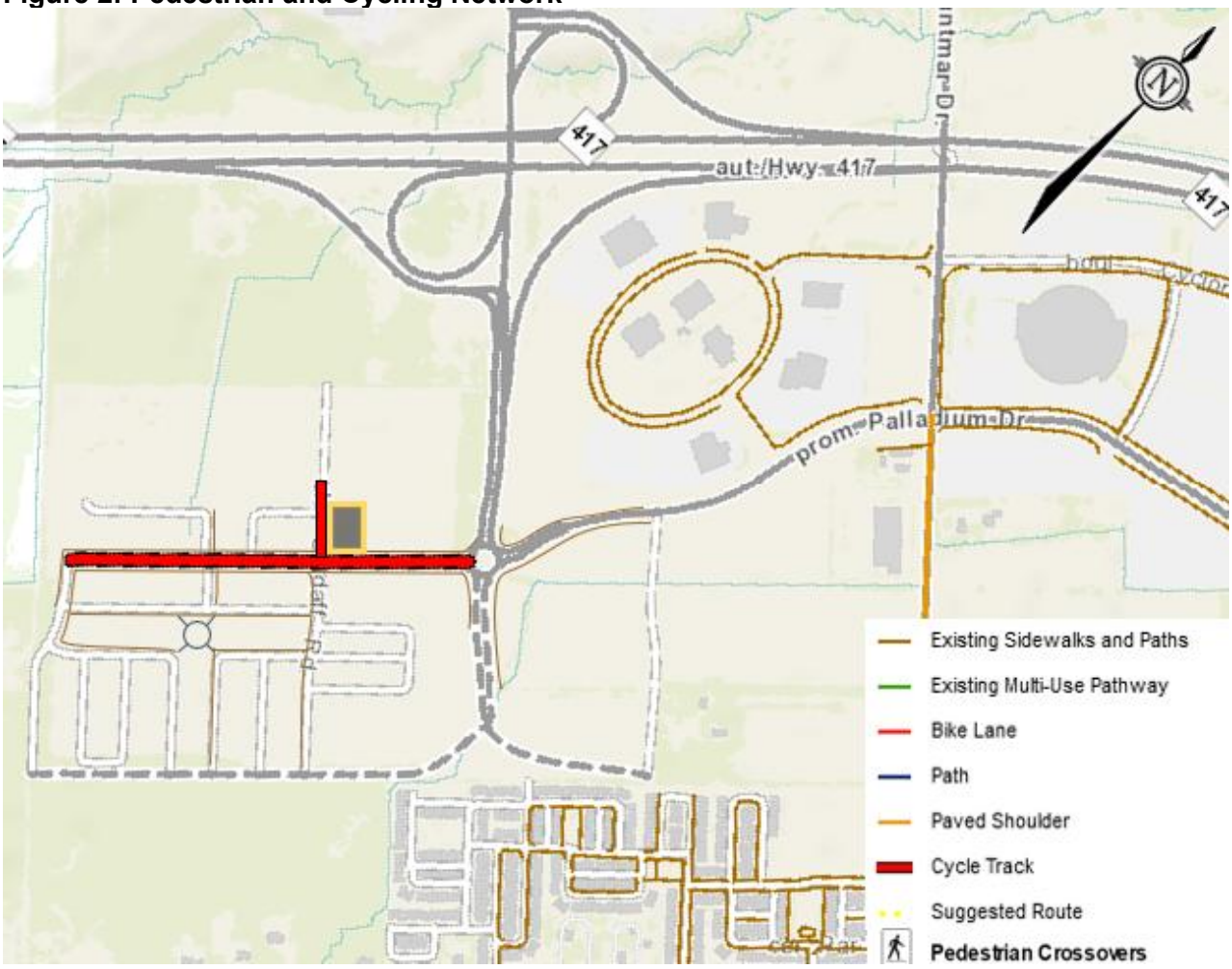
- Four-legged unsignalized intersection
- All-way stop-control
- North/South Approaches (Culdaff Road): one shared left turn/through/right turn lane
- East/West Approaches (Derreen Avenue): one shared left turn/through/right turn lane
- Standard crosswalks and crossrides to be provided on all approaches
- Sidewalks to be provided on all approaches
- Cycle tracks to be provided on north, east, and west approaches

2.1.4 Pedestrian and Cycling Facilities

On both sides of Derreen Avenue and the section of Palladium Drive immediately east of Robert Grant Avenue, concrete sidewalks and asphalt cycle tracks are provided. It is anticipated that similar facilities on both sides of Robert Grant Avenue and Culdaff Road (north of Derreen Avenue) will be constructed as the surrounding neighbourhoods develop. A sidewalk is provided on the west side of Culdaff Road, south of Derreen Avenue. No roadways within the study area are designated cycling routes in the City's cycling network.

The pedestrian and cycling network of the greater area surrounding the subject site is illustrated in **Figure 2**.

Figure 2: Pedestrian and Cycling Network



2.1.5 Area Traffic Management

Within the study area, there are no Area Traffic Management (ATM) studies that are in progress. Intersection narrowings have generally been constructed within the subdivision, in accordance with the City's 30 km/h design speed policy, to the west and south of the subject site.

2.1.6 Transit

The locations of OC Transpo bus stops in the vicinity of the subject site are described in **Table 1**, and are shown in **Figure 3**. A summary of the various routes which serve the study area is included in **Table 2**. Detailed route information and an excerpt from the OC Transpo System Map are included in **Appendix D**.

Table 1: OC Transpo Transit Stops

Stop	Location	Routes Serviced
#0445	East side of Palladium Drive, north of roundabout at Palladium Drive/Robert Grant Avenue/Derreen Avenue	62, 162, 261, 263
#0446	South side of Palladium Drive, east of roundabout at Palladium Drive/Robert Grant Avenue/Derreen Avenue	62, 162, 261, 263

Figure 3: OC Transpo Bus Stop Locations

Table 2: OC Transpo Route Information

Route	From ↔ To	Frequency
62	Tunney's Pasture ↔ Stittsville & Terry Fox	All day service, seven days a week; 30-minute headways
162	Terry Fox ↔ Stittsville	Select time periods, Monday to Saturday; 60-minute headways during midday and evening
261	Tunney's Pasture ↔ Stittsville Main	Peak period service in peak direction on weekdays; 30- to 60-minute headways
263	Tunney's Pasture ↔ Stanley Corners	Peak period service in peak direction on weekdays; 50- to 60-minute headways

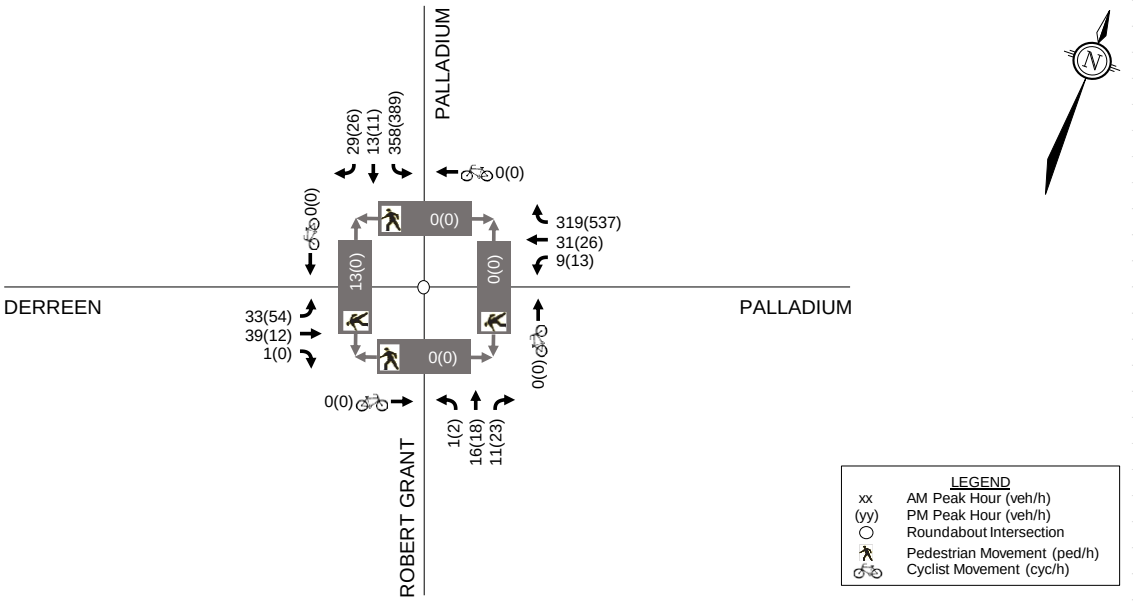
Concrete bus stop pads have been constructed on both sides of Derreen Avenue, immediately east of Culdaff Road. The bus pad on the north side of Derreen Avenue is therefore located along the subject site's frontage. These stops will serve future transit routes as the surrounding neighbourhoods develop.

2.1.7 Existing Traffic Volumes

Weekday traffic counts completed by the City of Ottawa were used to determine the existing pedestrian, cyclist, and vehicular traffic volumes at the Palladium Drive/Robert Grant Avenue/ Derreen Avenue roundabout. This count was completed on Thursday, September 22, 2022. Based on this count, the average annual daily traffic (AADT) volumes on Derreen Avenue is approximately 1,840 vehicles per day.

The traffic count data at this intersection is included in **Appendix E**. Traffic volumes are shown in **Figure 4**.

Figure 4: Existing Traffic Volumes



2.1.8 Collision Records

Historical collision data was obtained from the City's Public Works Department for the study area intersections and midblock segments. Copies of the collision summary reports are included in **Appendix F**.

The boundary streets Derreen Avenue and Culdaff Road, as well as the roundabout at Palladium Drive/Robert Grant Avenue/Derreen Avenue, were all recently constructed (i.e. 2021-2022). Therefore, no collisions on Derreen Avenue or Culdaff Road have been recorded. Collisions at Palladium Drive/Robert Grant Avenue/Derreen Avenue from January 1, 2022 to December 31, 2022 were provided by City staff, and these collisions are summarized in **Table 3**.

Table 3: Reported Collisions

Intersection	Impact Types						Total
	Approach	Angle	Rear End	Sideswipe	Turning Movement	SMV[1]/ Other	
Palladium Drive/Robert Grant Avenue/Derreen Avenue	-	-	-	4	-	1	**5**

1. SMV = Single Motor Vehicle

Palladium Drive/Robert Grant Avenue/Derreen Avenue
A total of five collisions were reported at this intersection in 2022, of which there were four sideswipe impacts and one single vehicle/other impact. No collisions resulted in injuries or fatalities. One of the five collisions (20%) occurred in poor driving conditions. No collisions involved cyclists or pedestrians.

2.2 Planned Conditions

2.2.1 Planned Transportation Projects

In the City's *2013 Transportation Master Plan (TMP)*, the 2031 Affordable Rapid Transit and Transit Priority (RTTP) Network and 2031 RTTP Network Concept includes the following planned projects in vicinity of the subject site:

- Western extension of the Confederation Line Light Rail Transit (LRT) to Moodie Station (Phase 2), with Bus Rapid Transit (BRT) between Moodie Station and Fernbank Road. The section between Moodie Station and Hazeldean Road is planned to be converted later to LRT as part of Phase 3 (as outlined in the City's Ultimate Network). The planned LRT station location that is closest to the subject site will be at the Canadian Tire Centre;
- Transit priority corridors on Hazeldean Road and the New Stittsville North-South Arterial (now referred to as Robert Grant Avenue);

The *2013 TMP* identifies multiple roadway projects in its 2031 Affordable Roadway Network and 2031 Roadway Network Concept. The realignment of Palladium Drive is a project that has now been completed. The following projects are planned in vicinity of the subject site, but have not been completed:

- Widening of Huntmar Drive from two lanes to four lanes, for the sections from Campeau Drive to Cyclone Taylor Boulevard and Palladium Drive to Maple Grove Road;
- Widening of Maple Grove Road from two lanes to four lanes, for the section from Huntmar Drive to Terry Fox Drive;
- Extension of Stittsville Main Street from Palladium Drive to Maple Grove Road;
- New Stittsville North-South Arterial (Robert Grant Avenue) from Palladium Drive to Fernbank Road.

An Environmental Assessment (EA) Study – Environmental Study Report (ESR) was prepared in October 2023 by Parsons, for the widening of Huntmar Drive and extension of Stittsville Main Street.

Approved by City Council in April 2023, the *Transportation Master Plan – Part 1* includes a list of upcoming active transportation projects, and supersedes the City's *2013 Ottawa Cycling Plan* and *2013 Ottawa Pedestrian Plan*. East of the subject site, the *TMP – Part 1* identifies a feasibility study of 'a Highway 417 underpass to extend the Carp River pathway system from Frank Nighbor Place to Roger Neilson Way.'

2.2.2 Other Area Developments

In proximity of the proposed development, there are multiple other developments that have recently been completed, are under construction, approved, or are in the approval process. The following developments are assumed to generate volumes that will be observed by the horizon year 2032, and were not captured during the 2022 traffic count at Palladium Drive/Robert Grant Avenue/ Derreen Avenue.

It is noted that other development applications in the area have been filed, but were either completed prior to the 2022 traffic count (including the Kinaxis offices at 8700 Campeau Drive) or are not anticipated to be constructed by the horizon year 2032 (including a residential development at 173 Huntmar Drive). Applications of this nature are not listed below.

130 Huntmar Drive
A TIA was prepared by Dillon in May 2021, in support of a development with 79 single-detached homes, 162 townhomes, 512 stacked townhomes, 30,000 ft^2 of retail space, and a school. A buildout year of 2024 was identified in the TIA.

195 Huntmar Drive
A TIA was prepared by CGH Transportation in September 2019, in support of a development with 155 single-detached homes, 418 townhomes, 13,747 ft^2 of retail space, 41,948 ft^2 of office space, and 8,000 ft^2 of automobile dealership spaces. A buildout year of 2024 was identified in the TIA. The subject site is located within the area considered in the 195 Huntmar Drive TIA, and therefore this proposed development is assumed to supersede the automobile dealership parcels.

319 Huntmar Drive
A TIA was prepared by IBI in May 2021, in support of a development with 424 apartment dwellings. A buildout year of 2025 was identified in the TIA.

405 Huntmar Drive
A TIA was prepared by Novatech in December 2022 and revised in March 2023, in support of a development with 479,721 ft^2 of warehousing space. A buildout year of 2024 was identified in the TIA.

1300 Upper Canada Street
A TIA was prepared by Parsons in September 2021, in support of a development with 120,500 ft^2 of warehousing space. A buildout year of 2023 was identified in the TIA.

1400 Upper Canada Street
A TIA was prepared by Parsons in September 2020, in support of a multi-phased warehousing development. Phase 1 will consist of 8,400 ft^2 of office space and 57,000 ft^2 of warehousing space, and a buildout year of 2021 was identified in the TIA for this phase. Phase 2 will consist of adding a warehouse expansion of 11,000 ft^2 and a 2,600 ft^2 maintenance building, and a buildout year of 2026 was identified in the TIA for this phase.

1919 Maple Grove Road
A TIA was prepared by IBI in April 2019, in support of a development with 72 townhomes and 460 apartment dwellings. A buildout year of 2026 was identified in the TIA.

1981 Maple Grove Road
A TIA was prepared by IBI Group in February 2018, in support of a subdivision with 57 single-family dwellings and 139 townhouse/semi-detached dwellings. A buildout year of 2021 was identified in the TIA.

8605 Campeau Drive
A TIA was prepared by NexTrans Consulting in December 2020, in support of a gas station with ten fueling stations, a 770 ft^2 building for oil changes, and a 1,238 ft^2 convenience store and eating establishment with drive-through. A buildout year of 2025 was identified in the TIA.

8800 Campeau Drive
A TIA was prepared by Parsons in April 2021, in support of a multi-phased warehousing development. Phase 1 will consist of 6,000 ft^2 of office space and 60,000 ft^2 of warehousing space, and a buildout year of 2021 was identified in the TIA for this phase. Phase 2 will consist of adding a warehouse expansion of 11,800 ft^2, and a buildout year of 2026 was identified in the TIA for this phase.

A figure outlining the location of all the developments above is included in **Figure 5**.

2.3 Study Area and Time Periods

No intersection analysis is required as part of this TIA, as discussed in Sections 2.5 and 2.6. Therefore, the study area for this TIA has been reduced to the roundabout at Palladium Drive/ Robert Grant Avenue/Derreen Avenue. The study area includes the boundary roadways Derreen Avenue and Culdaff Road.

The selected time periods for this TIA are the weekday AM and PM peak hours, as they represent the 'worst case' combination of site generated traffic and adjacent street traffic. The buildout year 2027 and horizon year 2032 will be considered.

2.4 Access Design

The proposed development includes one two-way access to Derreen Avenue, approximately 77m east of Culdaff Road. Curbs will be depressed and continuous across the proposed access. The design of the proposed access has been evaluated using the relevant provisions of the City's *Private Approach By-Law* (PABL) and *Zoning By-Law* (ZBL), and the Transportation Association of Canada (TAC)'s *Geometric Design Guide for Canadian Roads*.

Section 25(a) of the PABL identifies that, for sites with 46m to 150m of frontage, a maximum of two private approaches are permitted. The proposed private approach meets this requirement.

Section 25(c) of the PABL identifies a maximum width requirement of 9.0m for any two-way private approach, as measured at the street line. Since the private approach is approximately 6.7m in width, this requirement is met.

Section 25(p) of the PABL identifies a minimum separation requirement of 3m between a private approach and the nearest property line, as measured at the street line. Since the private approach is approximately 8m of the eastern property line, this requirement is met.

Figure 5: Other Area Developments

Section 25(u) of the PABL identifies a requirement that any private approach serving a parking area with more than 50 parking spaces shall not have a grade exceeding 2% for the first 9m inside the street line. This requirement is met, as a maximum grade of 2% is proposed for the first 9m within the street line.

Sections 107(1)(a) and 107(1)(aa) of the ZBL identifies that for any driveway providing access to a residential parking garage, a minimum driveway width of 6.0m and maximum driveway width of 6.7m is allowed for a double traffic lane leading to 20 or more spaces. The proposed private approach and garage ramp within the site are both 6.7m in width, and therefore this requirement is met.

Section 107(1)(c) of the ZBL identifies that any drive aisles serving parking spaces within a parking garage must have a minimum width of 6.0m. As the width of all drive aisles within the parking garage have a width greater than 6.0m, this requirement is met.

For apartment developments with 100 to 200 dwellings, a clear throat length of 15m is recommended for any accesses to a collector roadway. The proposed development meets this criteria, as the proposed access includes approximately 16m of clear throat length before the first point of conflict.

2.5 Development-Generated Travel Demand

2.5.1 Trip Generation

The number of peak hour person trips generated by the proposed development has been estimated using the *TRANS Trip Generation Manual*, which present peak period trip generation rates and mode shares for different types of housing for the AM and PM peak periods. The data is divided into trip generation rates and mode shares for Single-Family Detached Housing, Low-Rise Multifamily Housing (one or two storeys), and High-Rise Multifamily Housing (three or more storeys). For the High-Rise Multifamily Housing land use, the process of converting the trip generation estimates from peak period to peak hour is shown below.

The *TRANS Trip Generation Manual* identifies the subject site as being located within the Kanata/ Stittsville district, which has the following observed mode shares for high-rise multifamily housing during the peak periods:

- Auto Driver: 43% in AM peak, 55% in PM peak;
- Auto Passenger: 26% in AM peak, 19% in PM peak;
- Transit: 28% in AM peak, 21% in PM peak;
- Cyclist: 0% in AM peak, 0% in PM peak;
- Pedestrian: 4% in AM peak, 5% in PM peak.

A single set of mode shares have been assumed for this proposed development, by the mode shares above and reducing the transit share to reflect limited transit service in the area. It is noted that as the area develops, additional transit service could be implemented. Therefore, the assumed mode shares can be summarized as 55% auto driver, 20% auto passenger, 20% transit, 0% cyclist, and 5% pedestrian.

The process of converting the trip generation estimates from peak period to peak hour is shown in the following tables. The estimated number of person trips generated by the proposed development during the AM and PM peak periods are shown in **Table 4**. A breakdown of these trips by mode share is shown in **Table 5**.

Table 4: Proposed Residential – Peak Period Trip Generation

Land Use	TRANS Rate	Units	AM Peak Period (ppp[1])			PM Peak Period (ppp)		
			IN	OUT	TOT	IN	OUT	TOT
High-Rise Multifamily Housing	AM: 0.80 PM: 0.90	177	44	98	*142*	92	67	*159*

1. ppp: Person Trips per Peak Period

Table 5: Proposed Residential – Peak Period Trips by Mode Share

Travel Mode	Mode Share	AM Peak Period			PM Peak Period		
		IN	OUT	TOT	IN	OUT	TOT
Residential Person Trips		**44**	**98**	***142***	**92**	**67**	***159***
Auto Driver	55%	24	55	*79*	51	36	*87*
Auto Passenger	20%	9	19	*28*	18	14	*32*
Transit	20%	9	19	*28*	18	14	*32*
Cyclist	0%	-	-	*0*	-	-	*0*
Pedestrian	5%	2	5	*7*	5	3	*8*

Table 4 of the *TRANS Trip Generation Manual* includes adjustment factors to convert the estimated number of trips generated for each mode from peak period to peak hour. A breakdown of the peak hour trips by mode is shown in **Table 6**.

Table 6: Proposed Residential – Peak Hour Trips by Mode Share

Travel Mode	Adj. Factor		AM Peak Hour			PM Peak Hour		
	AM	PM	IN	OUT	TOT	IN	OUT	TOT
Auto Driver	0.48	0.44	12	26	*38*	22	16	*38*
Auto Passenger	0.48	0.44	4	9	*13*	8	6	*14*
Transit	0.55	0.47	5	11	*16*	9	6	*15*
Cyclist	0.58	0.48	-	-	*0*	-	-	*0*
Pedestrian	0.58	0.52	1	3	*4*	2	2	*4*
Peak Hour Person Trips			**22**	**49**	***71***	**41**	**30**	***71***

From the previous table, the proposed development is estimated to generate 71 person trips (including 38 vehicle trips) during each of the weekday peak hours.

2.5.2 Trip Distribution and Assignment

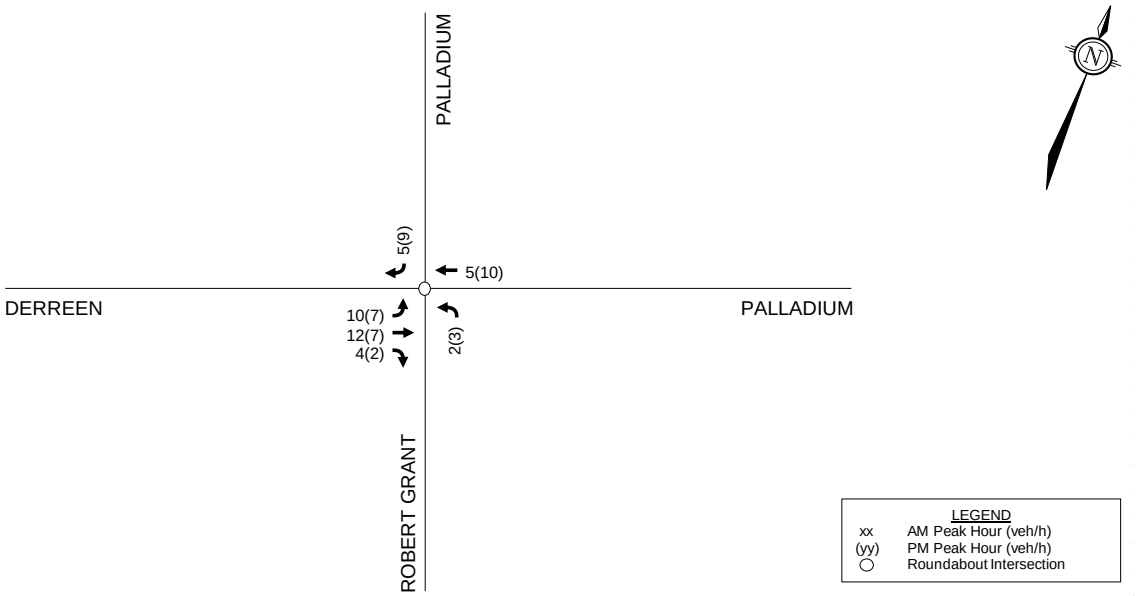
As the proposed development is projected to generate less than 75 vehicle trips during the peak hours, intersection analysis is exempt from analysis. Regardless, City staff have requested that the site-generated trips be distributed to the study area. All trips are assigned to the proposed access to Derreen Avenue, and are assumed to all arrive from and depart to the Palladium Drive/Robert Grant Avenue/Derreen Avenue roundabout.

The distribution of site-generated trips is based on the observed traffic volumes at the roundabout, with an increase to trips to/from the south to reflect the future Robert Grant Avenue connection. The volumes considered are outbound volumes in the AM peak hour and inbound volumes in the PM peak hour, which is consistent with the typical commuter patterns that will leave their residence in the morning and return in the evening. Therefore, the assumed distribution of trips can be summarized as follows.

- 40% of trips to/from the north via Palladium Drive (toward Highway 417);
- 15% of trips to/from the south via Robert Grant Avenue;
- 45% of trips to/from the east via Palladium Drive (toward Huntmar Drive).

The distribution of site-generated trips are shown in **Figure 6**.

Figure 6: Site-Generated Traffic Volumes



2.6 Exemptions Review

This module reviews possible exemptions from the final TIA, as outlined in the *Revised TIA Guidelines*. The applicable exemptions for this site are shown in **Table 7**.

Table 7: TIA Exemptions

Module	Element	Exemption Criteria	Status
4.1 Development Design	*4.1.2* Circulation and Access	• Required for site plan control and zoning by-law amendment applications	Not Exempt
	4.1.3 New Street Networks	• Required for draft plan of subdivision applications	Exempt
4.2 Parking	*All elements*	• Required for site plan control and zoning by-law amendment applications	Not Exempt
4.6 Neighbourhood Traffic Calming	*All elements*	• If all of the following criteria are met: 1. Access is provided to a collector or local roadway 2. Application is for zoning by-law amendment or draft plan of subdivision 3. Proposed development generated more than 75 vehicle trips 4. Site trip infiltration is expected, and site-generated traffic will increase peak hour volumes by 50% or more along the route between the site and an arterial roadway 5. The subject street segment is adjacent to two or more of the following significant sensitive land uses: ○ School (within 250m walking distance) ○ Park ○ Retirement/older adult facility ○ Licensed child care centre ○ Community centre ○ 50+% of adjacent properties along the route(s) are occupied by residential lands and at least ten dwellings are occupied	Exempt
4.7 Transit	*4.7.1* Transit Route Capacity	• Required when proposed development generates more than 75 transit trips	Exempt
	4.7.2 Transit Priority Requirements	• Required when proposed development generates more than 75 vehicle trips	Exempt
4.8 Network Concept	*All elements*	• Required when proposed development generates more than 200 person trips during the peak hour in excess of the equivalent volume permitted by the established zoning	Exempt
4.9 Intersection Design	*All elements*	• Required when proposed development generates more than 75 vehicle trips	Exempt

Based on the foregoing, the following modules will be included in the TIA report:

- Module 4.1: Development Design
- Module 4.2: Parking
- Module 4.3: Boundary Streets
- Module 4.5: Transportation Demand Management

3.0 BACKGROUND NETWORK TRAVEL DEMAND

3.1 General Background Growth Rate

A review of the City's *Strategic Long-Range Model* has been conducted, comparing snapshots of 2011 and 2031 AM peak hour traffic volumes. No background growth assumptions have been made based on the strategic long-range model, as the previous alignment of Palladium Drive was considered in both the 2011 and 2031 projections (i.e. no roundabout connection to Robert Grant Avenue and Derreen Avenue was modelled).

Background growth within the study area has therefore assumed to be captured by the projected traffic generated by the other area developments listed in Section 2.2.2. The projected trip generations of these other area developments are listed in the following section, and excerpts of each traffic study is included in **Appendix G**.

3.2 Other Area Developments

130 Huntmar Drive
The proposed development was projected to generate 682 vehicle trips during the AM peak hour and 600 vehicle trips during the PM peak hour. A buildout year of 2024 was identified in the TIA, and therefore, traffic generated by this development has been added to the 2027 and 2032 background conditions.

195 Huntmar Drive
The proposed development was projected to generate 882 vehicle trips during the AM peak hour and 905 vehicle trips during the PM peak hour. As the subject site is assumed to replace the automobile dealership use previously assumed, the 67 AM peak hour vehicle trips and 83 PM peak hour vehicle trips that were projected as dealership trips have been subtracted. A buildout year of 2024 was identified in the TIA, and therefore, traffic generated by this development (except for dealership traffic) has been added to the 2027 and 2032 background conditions.

319 Huntmar Drive
The proposed development was projected to generate 153 vehicle trips during the AM peak hour and 195 vehicle trips during the PM peak hour. A buildout year of 2025 was identified in the TIA, and therefore, traffic generated by this development has been added to the 2027 and 2032 background conditions.

405 Huntmar Drive
The proposed development was projected to generate 153 vehicle trips during the AM peak hour and 195 vehicle trips during the PM peak hour. A buildout year of 2024 was identified in the TIA, and therefore, traffic generated by this development has been added to the 2027 and 2032 background conditions.

1300 Upper Canada Street
The proposed development was projected to generate 34 vehicle trips during the AM peak hour and 36 vehicle trips during the PM peak hour. A buildout year of 2023 was identified in the TIA, and therefore, traffic generated by this development has been added to the 2027 and 2032 background conditions.

1400 Upper Canada Street
The proposed development was projected to generate 213 vehicle trips during the AM peak hour and 150 vehicle trips during the PM peak hour. An ultimate buildout year of 2026 was identified in the TIA, and therefore, traffic generated by this development has been added to the 2027 and 2032 background conditions.

1919 Maple Grove Road
The proposed development was projected to generate 223 vehicle trips during the AM peak hour and 284 vehicle trips during the PM peak hour. A buildout year of 2026 was identified in the TIA, and therefore, traffic generated by this development has been added to the 2027 and 2032 background conditions. At the time the 1919 Maple Grove Road TIA was written, no traffic was assigned to travel through the 195 Huntmar Drive subdivision, and all traffic to/from the north was distributed to the Huntmar Drive/Maple Grove Road intersection. For the purposes of this TIA, 50% of the traffic distributed to/from the north has been conservatively redistributed to the Palladium Drive/Robert Grant Avenue/Derreen Avenue intersection.

1981 Maple Grove Road
The TIA prepared in support of this development did not project any site-generated traffic volumes to the study area.

8605 Campeau Drive
The proposed development was projected to generate 110 vehicle trips during the AM peak hour and 119 vehicle trips during the PM peak hour. A buildout year of 2025 was identified in the TIA, and therefore, traffic generated by this development has been added to the 2027 and 2032 background conditions.

8800 Campeau Drive
The proposed development was projected to generate 70 vehicle trips during the AM peak hour and 71 vehicle trips during the PM peak hour. An ultimate buildout year of 2026 was identified in the TIA, and therefore, traffic generated by this development has been added to the 2027 and 2032 background conditions.

Traffic generated by these other area developments are shown in **Figure 6**. The 2027/2032 background traffic volumes are shown in **Figure 7**.

Figure 7: Other Area Development-Generated Traffic Volumes

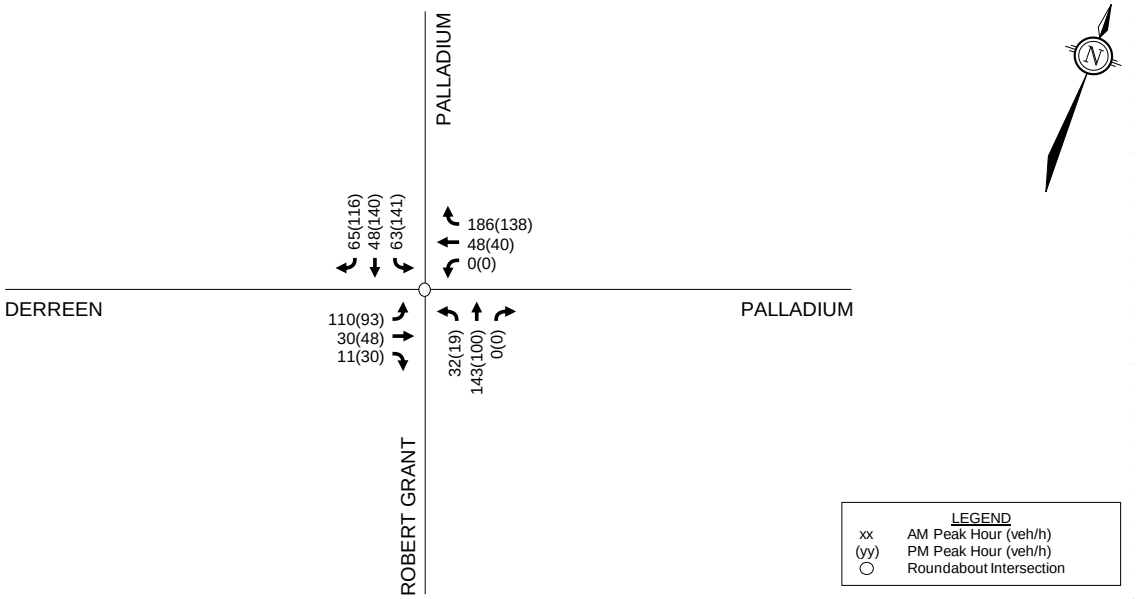
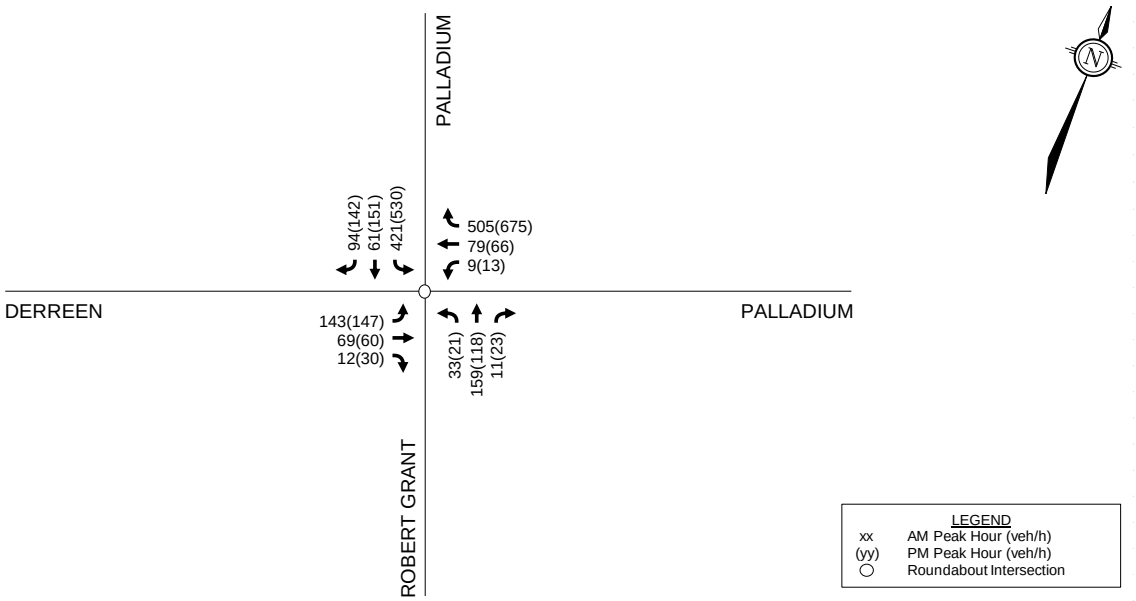


Figure 8: 2027/2032 Background Traffic Volumes



3.3 Demand Rationalization

The Demand Rationalization module includes identifying any locations and approaches where total auto demand is projected to exceed capacity, and what reduction in peak hour volumes are required for demand to meet capacity. However, determining whether any approach has volumes that exceed capacity requires intersection capacity analysis, which is outside the scope of this TIA (as shown in **Table 7**).

4.0 ANALYSIS

4.1 Development Design

4.1.1 Design for Sustainable Modes

Adjacent sidewalk and cycle tracks will be implemented by others on the east side of Culdaff Road. Walkways will be provided at each entrance between the proposed building and the existing sidewalk along Derreen Avenue or proposed sidewalk along Culdaff Road. On-site walkways will also be provided on the inner curve of the proposed building, and will provide connectivity to the garbage collection area, community garden, dog run, and pergola.

A total of 108 bicycle parking spaces are proposed on-site, with 40 spaces provided at-grade and 68 spaces provided within the proposed building. The parking supply and parking requirements are reviewed further in Section 4.2.

OC Transpo's service design guideline for peak period service is to provide service within a five-minute (400m) walk of home, work, or school for 95% of urban residents. The proposed development is within 400m walking distance of the existing bus stops at Palladium Drive/Robert Grant Avenue/Derreen Avenue (#0445 and #0446), and the future transit stops at the Derreen Avenue/Culdaff Road intersection.

A review of the *Transportation Demand Management (TDM)-Supportive Development Design and Infrastructure Checklist* has been conducted, and is included in **Appendix H**. All required TDM-supportive design and infrastructure measures in the TDM checklist for residential developments will be met. In addition to the required measures, it is anticipated that the following 'basic' or 'better' measures will be met:

- Locate building close to the street, and do not locate parking areas between the street and building entrances;
- Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations;
- Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort;
- Provide safe, direct, and attractive walking routes from building entrances to nearby transit stops.

4.1.2 Circulation and Access

Garbage collection will take place at a designated area along the eastern limit of the site, and south of the proposed parking garage ramp.

There is no proposed on-site fire route, and the fire route for the development will be located along Culdaff Road.

Turning movements for garbage trucks and fire trucks are included in **Appendix A**.

4.2 Parking

The subject site is located within Area C on Schedules 1 and 1A of the City's ZBL. The required and proposed parking supplies for Phase 1 of the proposed development are summarized in **Table 8**.

Table 8: Required and Proposed Parking

Land Use	Rate	Units	Required	Provided
Minimum Vehicle Parking (Section 101/102 of ZBL)				
Dwelling, Mid-/High-Rise	1.2 spaces per dwelling (residents)	177 units	212	177
	0.2 spaces per dwelling (visitors)		35	35
		Total	**247**	**212**
Minimum Bicycle Parking (Section 111 of ZBL)				
Apartment Dwelling	0.5 spaces per dwelling	177 units	89	108

Based on the previous table, the proposed number of vehicle parking spaces does not meet the requirement as outlined in the City's ZBL, and a variance is required. Of the 35 proposed public parking spaces, three will be allocated as accessible parking spaces. The City's *Accessibility Design Standards* identifies that a minimum of two accessible parking spaces should be provided for this supply, and therefore the requirement is met.

Section 111(12) of the ZBL identifies that, where the number of bicycle parking spaces required for a single residential building exceeds 50 spaces, a minimum of 25% of the required total must be located within a building or structure, a secure area, or bicycle lockers. This requirement is met, as 68 of the 108 spaces are proposed within the proposed building.

4.3 Boundary Streets

This section provides a review of the boundary streets Derreen Avenue and Culdaff Road in their existing conditions, using complete streets principles. The *MMLOS Guidelines*, produced by IBI Group in October 2015, were used to evaluate the levels of service for each alternative mode of transportation, based on existing conditions. Using Exhibit 22 of the *MMLOS Guidelines*, Derreen Avenue and Culdaff Road have been evaluated based on the targets for the General Urban Area rather than the targets for the Employment Area, as the development is residential in nature.

A detailed segment MMLOS review of the boundary streets is included in **Appendix I**. A summary of the segment MMLOS analysis is provided below in **Table 9**.

Table 9: Segment MMLOS Summary

Segment	PLOS		BLOS		TLOS		TkLOS	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Derreen Avenue	A	C	A	D	D	-	B	-
Culdaff Road	**F**		A		-		-	

The results of the segment MMLOS review can be summarized as follows:

- The west side of Culdaff Road and both sides of Derreen Avenue meet the target pedestrian level of service (PLOS), and the east side of Culdaff Road does not;
- Derreen Avenue and Culdaff Road meet the target bicycle level of service (BLOS);
- Derreen Avenue achieves a transit level of service (TLOS) D;
- Derreen Avenue achieves a truck level of service (TkLOS) B.

Installation of sidewalks and cycle tracks along the site's frontage to Culdaff Road will be constructed by others, in accordance with the approved GRDD for the 195 Huntmar Drive subdivision. This is anticipated to improve the segment to the target PLOS, as the sidewalk will be 1.8m in width, and will be separated from the roadway by more than 2.0m (i.e. consistent with the other side of Culdaff Road and both sides of Derreen Avenue, which achieve a PLOS A).

4.4 Transportation Demand Management

4.4.1 Context for TDM

The proposed residential building is six storeys, and will include 177 dwellings. These dwellings are broken down by unit type as follows:

- 24 studio units;
- 24 one-bedroom units;
- 93 two-bedroom units;
- 36 three-bedroom units.

4.4.2 Need and Opportunity

The subject site is designated as 'Mixed Industrial' on Schedule B5 of the City of Ottawa's Official Plan. The implemented zoning for the property is 'General Mixed Use' (GM), and the site is within the Kanata West Community Design Plan (CDP) area.

As first discussed in Section 2.5.1, the assumed mode shares for the subject application are generally consistent with the surveyed residential mode shares of the Kanata/Stittsville district (as outlined in the *TRANS Trip Generation Manual*), and includes a 55% driver share. Failure to meet the assumed driver share by 10% would equate to an additional four vehicle trips in each peak hour.

4.4.3 TDM Program

A review of the City's *TDM Checklist* has been conducted by the proponent. A copy of the completed residential checklist is included in **Appendix H**. The list of measures to be considered are summarized as follows:

- 2.1.1 – Display local area maps with walking/cycling access routes and key destinations at major entrances;
- 3.1.1 – Display relevant transit schedules and route maps at entrances;
- 5.1.2 – Unbundle parking cost from monthly rent;
- 6.1.1 – Provide a multimodal travel option information package to new residents.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the foregoing, the conclusions and recommendations of this TIA can be summarized as follows:

Site-Generated Traffic

- The proposed development is estimated to generate 71 person trips (including 38 vehicle trips) during each of the weekday peak hours.

Access Design

- The proposed development includes one two-way access to Derreen Avenue, approximately 77m east of Culdaff Road. Curbs will be depressed and continuous across the proposed access. The design of the proposed access meet all relevant provisions of the City's *Private Approach By-Law* (PABL) and *Zoning By-Law* (ZBL), and the Transportation Association of Canada (TAC)'s *Geometric Design Guide for Canadian Roads*.

Development Design and Parking

- Adjacent sidewalk and cycle tracks will be implemented by others on the east side of Culdaff Road. Walkways will be provided at each entrance between the proposed building and the existing sidewalk along Derreen Avenue or proposed sidewalk along Culdaff Road.

- On-site walkways will also be provided on the inner curve of the proposed building, and will provide connectivity to the garbage collection area, community garden, dog run, and pergola.

- OC Transpo's service design guideline for peak period service is to provide service within a five-minute (400m) walk of home, work, or school for 95% of urban residents. The proposed development is within 400m walking distance of the existing bus stops at Palladium Drive/Robert Grant Avenue/Derreen Avenue (#0445 and #0446), and the future transit stops at the Derreen Avenue/Culdaff Road intersection.

- A review of the *Transportation Demand Management (TDM)-Supportive Development Design and Infrastructure Checklist* has been conducted. All required TDM-supportive design and infrastructure measures in the TDM checklist for residential developments will be met.

- Garbage collection will take place at a designated area along the eastern limit of the site, and south of the proposed parking garage ramp. There is no proposed on-site fire route, and the fire route for the development will be located along Culdaff Road.

- The proposed number of vehicle parking spaces does not the requirement as outlined in the City's ZBL, and a variance is required. Three spaces will be allocated as accessible parking spaces, meeting the City's *Accessibility Design Standards*.

- Section 111(12) of the ZBL identifies that, where the number of bicycle parking spaces required for a single residential building exceeds 50 spaces, a minimum of 25% of the required total must be located within a building or structure, a secure area, or bicycle lockers. This requirement is met, as 68 of the 108 spaces are proposed within the parking garage.

Boundary Streets

- The results of the segment MMLOS review can be summarized as follows:
  - The west side of Culdaff Road and both sides of Derreen Avenue meet the target pedestrian level of service (PLOS), and the east side of Culdaff Road does not;
  - Derreen Avenue and Culdaff Road meet the target bicycle level of service (BLOS);
  - Derreen Avenue achieves a transit level of service (TLOS) D;
  - Derreen Avenue achieves a truck level of service (TkLOS) B.

- Installation of sidewalks and cycle tracks along the site's frontage to Culdaff Road will be completed by others. This is anticipated to improve the segment to a PLOS A, consistent with the other side of Culdaff Road and both sides of Derreen Avenue.

Transportation Demand Management

- The list of TDM measures to be considered by the proponent are summarized as follows:
  - Display local area maps with walking/cycling access routes and key destinations at major entrances;
  - Display relevant transit schedules and route maps at entrances;
  - Unbundle parking cost from monthly rent;
  - Provide a multimodal travel option information package to new residents.

Based on the foregoing, the proposed development is recommended from a transportation perspective.

NOVATECH

Prepared by:

Joshua Audia, P.Eng.
Project Engineer | Transportation

Reviewed by:

Brad Byvelds, P.Eng.
Project Manager | Transportation

APPENDIX A

Preliminary Site Plan

SITE INFORMATION

PROJECT DESCRIPTION	1 - MULTIFAMILY RESIDENTIAL APARTMENT (6 STOREY)		
TOTAL UNITS	177 UNITS		
CIVIC ADDRESS	425 CULDAFF RD.		
MUNICIPALITY	CITY OF OTTAWA		
ZONING	GM		
LEGAL DESCRIPTION	-		
LOT AREA	9,728.16 m^2	2.40 ACRES	0.973 HECTARES
BUILDING AREA	16,335.42	m^2	
DENSITY	74.2 DU/ACRE		
FLOOR SPACE INDEX (FSI)	1.68		

ZONING SUMMARY

	REQUIRED		PROPOSED	
MAX. BUILDING HEIGHT	18 m		18 m	
MIN. FRONT YARD S.B.	3.0	m	7.0	m
MIN. REAR YARD S.B.	7.5	m	7.5	m
MIN. INTERIOR SIDE YARD S.B.	3.0	m	3.0	m
MIN. CORNER SIDE YARD S.B.	3.0	m	3.0	m
MIN. LOT AREA	No minimum	m^2	-	m^2
MIN. LOT WIDTH	No minimum	m	-	m

VEHICULAR PARKING

	REQUIRED	UNITS/AREA	REQUIRED	PROPOSED
APARTMENT - REGULAR	1.2 / UNIT	177	212	177
VISITORS	0.2 / UNIT	177	35	35
TOTAL PARKING STALLS			**247**	**212 ***
OTHER PARKING PROVISIONS				
SMALL CAR	MAX 50%		MAX 107	75
ACCESSIBLE TYPE A			3	3

*** SUBJECT TO VARIANCE**

BUILDING INFORMATION

BUILDING	STOREYS	UNIT COUNT	FOOTPRINT	GROSS BUILDING AREA
A	**6**	**177**	2722.57 m^2	16,335.42 m^2

UNIT BREAKDOWN

	BUILDING A	
TOTAL PER BUILDING	177	
TOTAL		
		%
STUDIO	24	**13%**
1 BED / 1BATH	24	**13%**
2 BED / 1 BATH	6	**3%**
2 BED / 2 BATH	87	**51%**
3 BED / 2 BATH	36	**20%**
TOTAL	**177 UNITS**	

LANDSCAPE

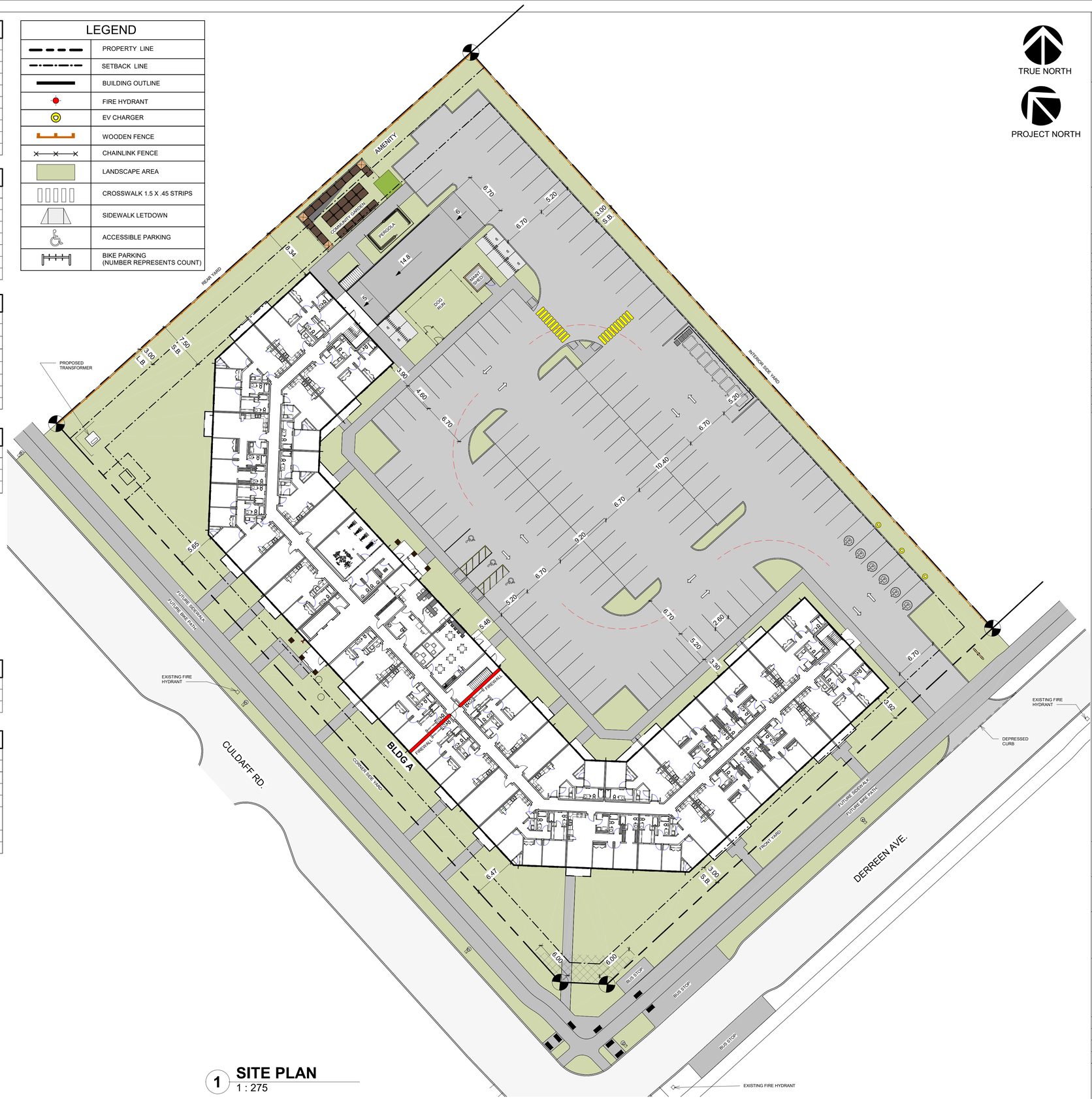
	REQUIRED	PROPOSED
PERCENTAGE OF LOT AREA		35%
m^2		3387 m^2

BICYCLE PARKING

	RATE	UNITS/AREA	REQUIRED	PROPOSED
APARTMENT BUILDING	0.5 / UNIT	177	89	108
TOTAL BICYCLE			**89**	**108**
OTHER BICYCLE PROVISIONS				
MAX BIKE STALLS IN LANDSCAPED AREA	50%	-	45	40
MIN HORIZONTAL BIKE STALL	50%	-	45	48
MIN SECURED BIKE STALLS	25%	-	22	68

LEGEND

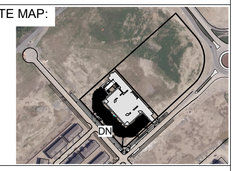
	PROPERTY LINE
	SETBACK LINE
	BUILDING OUTLINE
	FIRE HYDRANT
	EV CHARGER
	WOODEN FENCE
	CHAINLINK FENCE
	LANDSCAPE AREA
	CROSSWALK 1.5 X .45 STRIPS
	SIDEWALK LETDOWN
	ACCESSIBLE PARKING
	BIKE PARKING (NUMBER REPRESENTS COUNT)



1 SITE PLAN
1 : 275

BROADSTREET PROPERTIES' LTD.
100 St Anns, Campbell River, B.C.
(T)250.286.8045 (F)250.286.8046
www.broadstreet.ca

SITE MAP:



PROJECT STATUS:

DEVELOPMENT PERMIT

Revision Schedule

No.	Description	Revision Date
1	ISSUED FOR D.P.	OCT 8, 2024

SEAL: **ABELE**ARCHITECTURE
THOMAS C. ABELE, ARCHITECT OAA, T: 604.682-6818

PROJECT NAME:
PALLADIUM TERRACE

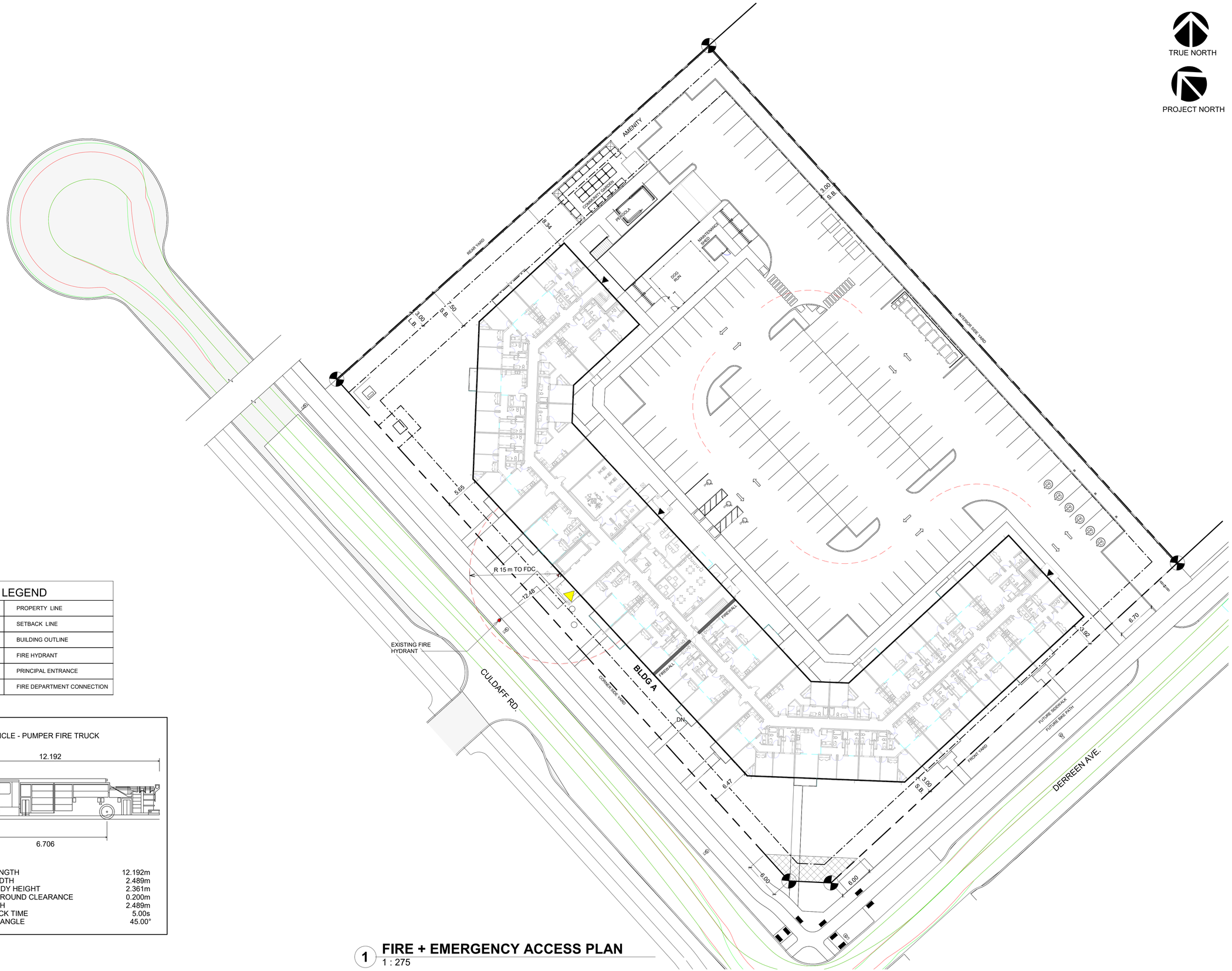
PROJECT NUMBER:
VP 2402

ADDRESS:
425 CULDAFF RD
OTTAWA, ON

DRAWING TITLE:
SITE PLAN

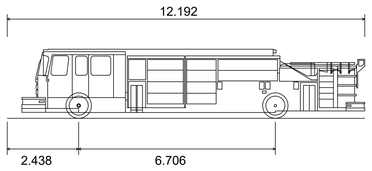
DRAWN BY:	EC
CHECKED BY:	CG
DATE:	OCT 8, 2024
SCALE:	As indicated
DRAWING #:	REV #:
A1.00	A

10/03/2024 9:57:18 AM



LEGEND	
	PROPERTY LINE
	SETBACK LINE
	BUILDING OUTLINE
	FIRE HYDRANT
	PRINCIPAL ENTRANCE
	FIRE DEPARTMENT CONNECTION

DESIGN VEHICLE - PUMPER FIRE TRUCK



OVERALL LENGTH	12.192m
OVERALL WIDTH	2.489m
OVERALL BODY HEIGHT	2.361m
MIN. BODY GROUND CLEARANCE	0.200m
TRACK WIDTH	2.489m
LOCK-TO-LOCK TIME	5.00s
MAX WHEEL ANGLE	45.00°

NTS

1 FIRE + EMERGENCY ACCESS PLAN
1 : 275

10/03/2024 9:58:51 AM

BROADSTREET PROPERTIES LTD.
100 St Anns, Campbell River, B.C.
(T)250.286.8045 (F)250.286.8046
www.broadstreet.ca

SITE MAP:

PROJECT STATUS:

DEVELOPMENT PERMIT

Revision Schedule

No.	Description	Revision Date
1	ISSUED FOR D.P.	OCT 8, 2024

SEAL: **ABELE**ARCHITECTURE
THOMAS C. ABELE, ARCHITECT OAA, T: 604.682-6818

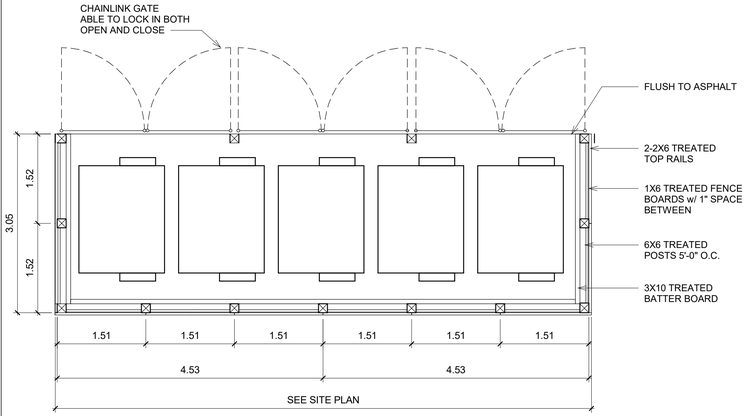
PROJECT NAME:
PALLADIUM TERRACE

PROJECT NUMBER:
VP 2402

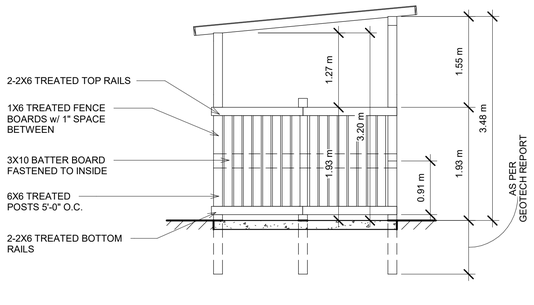
ADDRESS:
425 CULDAFF RD
OTTAWA, ON

DRAWING TITLE:
FIRE + EMERGENCY ACCESS PLAN

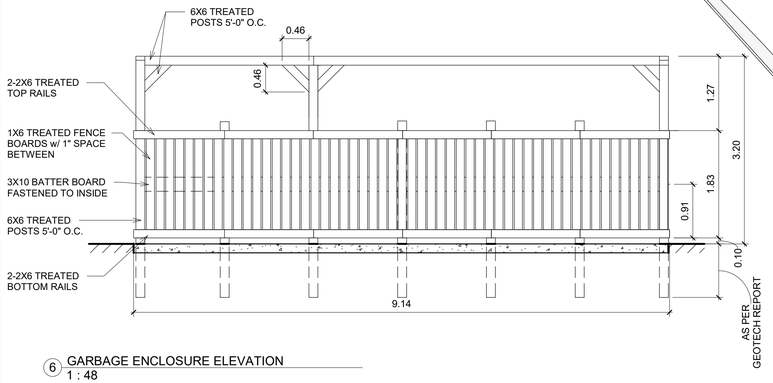
DRAWN BY:	EC
CHECKED BY:	CG
DATE:	OCT 8, 2024
SCALE:	As indicated
DRAWING #:	REV #:
A1.02	A



4 GARBAGE ENCLOSURE
1 : 48



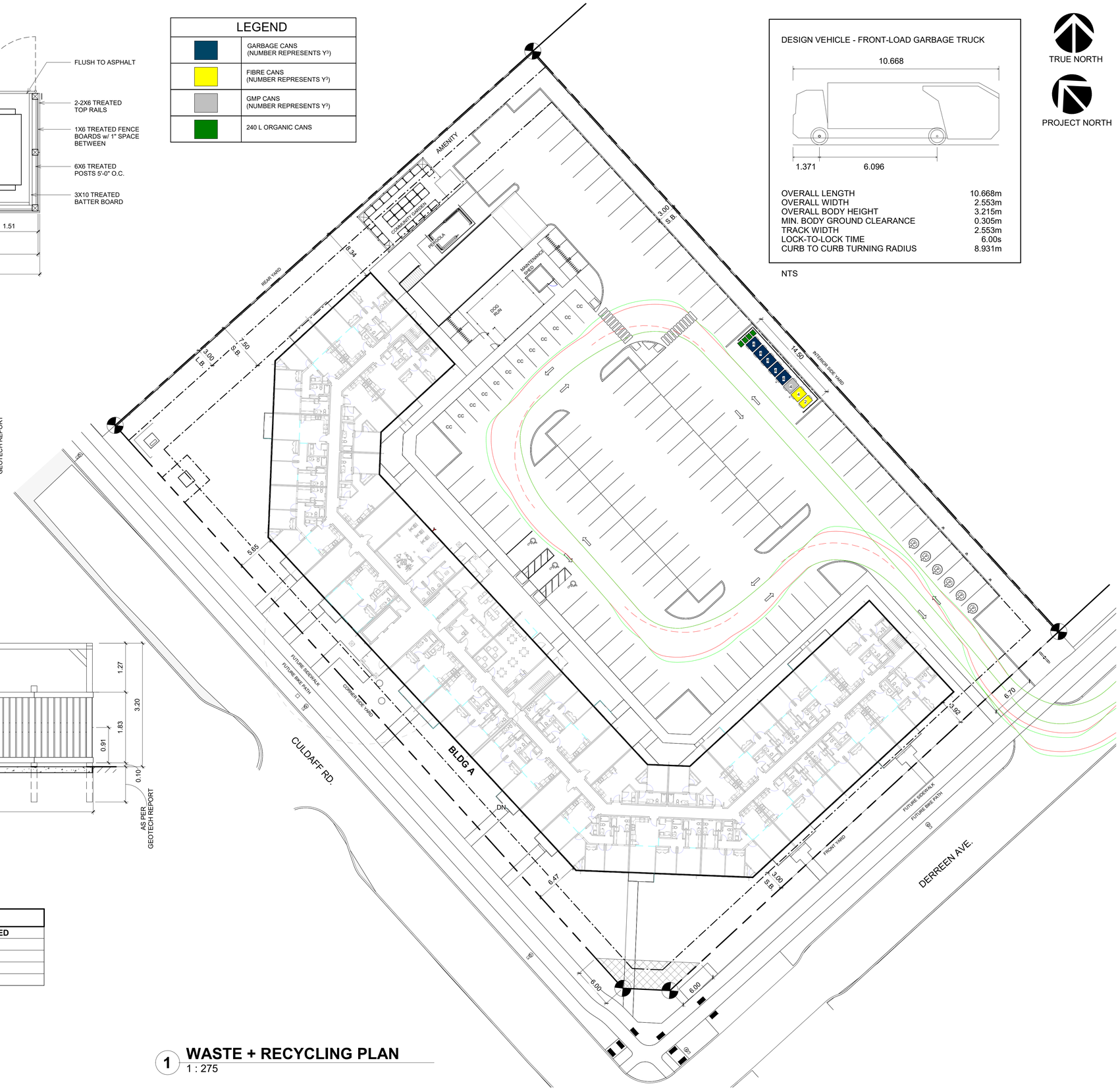
5 GARBAGE ENCLOSURE SIDE ELEVATION
1 : 48



6 GARBAGE ENCLOSURE ELEVATION
1 : 48

WASTE CALCULATIONS		
	REQUIRED	PROPOSED
GARBAGE	19.3 y³	20 y³
GMP	3 y³	4 y³
FIBRE	6.7 y³	6 y³
ORGANICS	870 L	960 L

LEGEND	
	GARBAGE CANS (NUMBER REPRESENTS Y³)
	FIBRE CANS (NUMBER REPRESENTS Y³)
	GMP CANS (NUMBER REPRESENTS Y³)
	240 L ORGANIC CANS



1 WASTE + RECYCLING PLAN
1 : 275

DESIGN VEHICLE - FRONT-LOAD GARBAGE TRUCK

OVERALL LENGTH	10.668m
OVERALL WIDTH	2.553m
OVERALL BODY HEIGHT	3.215m
MIN. BODY GROUND CLEARANCE	0.305m
TRACK WIDTH	2.553m
LOCK-TO-LOCK TIME	6.00s
CURB TO CURB TURNING RADIUS	8.931m

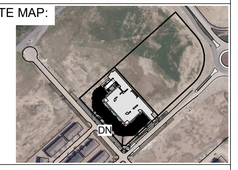
NTS

TRUE NORTH

PROJECT NORTH

BROADSTREET PROPERTIES LTD.
100 St Anns, Campbell River, B.C.
(T)250.286.8045 (F)250.286.8046
www.broadstreet.ca

SITE MAP:



PROJECT STATUS:

DEVELOPMENT PERMIT

Revision Schedule

No.	Description	Revision Date
1	ISSUED FOR D.P.	OCT 8, 2024

SEAL: **ABELE**ARCHITECTURE
THOMAS C. ABELE, ARCHITECT OAA, T: 604.682-6818

TRADE CONTRACTORS SHALL VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES OR INCONSISTENCIES TO SEYMOUR PACIFIC DEVELOPMENTS LTD., WITHOUT DELAY, FOR CLARIFICATION AND/OR CONFIRMATION. DO NOT SCALE DRAWINGS. DESIGNS REPRESENTED AND DRAWINGS USED AS INSTRUMENTS OF SERVICE SHALL REMAIN THE COPYRIGHT AND PROPERTY OF SEYMOUR PACIFIC DEVELOPMENTS LTD. ANY REPRODUCTION
OR USE FOR ANY PURPOSE OTHER THAN THAT AUTHORIZED BY SEYMOUR PACIFIC DEVELOPMENTS LTD. IS PROHIBITED.

CONTRACTORS SHALL REMAIN FAMILIAR WITH, SHALL REFER TO, AND SHALL PERFORM IN ACCORDANCE WITH LOCAL LAWS, REGULATIONS AND BUILDING CODES. CONTRACTORS SHALL MAINTAIN GOOD INDUSTRY BUILDING AND SAFETY PRACTICES CONSISTENT WITH THE CONTRACT INTENT AND THE REQUIREMENTS OF JURISDICTIONAL AUTHORITIES.

ADDITIONAL CLAIMS AND COSTS RELATED TO NON-MATERIAL CHANGES WILL NOT BE ACCEPTED BY SEYMOUR PACIFIC DEVELOPMENTS LTD. NON-MATERIAL CHANGES ARE DEEMED TO BE PLAN CHANGES OR SPECIFICATION ADJUSTMENTS THAT DO NOT SUBSTANTIALLY AFFECT THE VALUE, TIME,
COST AND QUALITY OF CONSTRUCTION.

CONTRACTORS SHALL MAKE EVERY REASONABLE EFFORT TO MAINTAIN SCHEDULE TARGETS AND PROVIDE GOOD EFFICIENCY, PROGRESS, WORKMANSHIP AND QUALITY TOWARD DEFICIENCY-FREE RESULTS.

PROJECT NAME:
PALLADIUM TERRACE

PROJECT NUMBER:
VP 2402

ADDRESS:
425 CULDAFF RD
OTTAWA, ON

DRAWING TITLE:
WASTE + RECYCLING PLAN

DRAWN BY:	EC
CHECKED BY:	CG
DATE:	OCT 8, 2024
SCALE:	As indicated
DRAWING #:	A1.03
REV #:	A

10/03/2024 9:59:05 AM

APPENDIX B

TIA Screening Form

City of Ottawa 2017 TIA Guidelines TIA Screening

1. Description of Proposed Development

Municipal Address	425 Culdaff Road
Description of Location	Northeast corner of Derreen/Culdaff, west of Palladium
Land Use Classification	Multifamily Residential (6 storeys)
Development Size (units)	177 dwellings
Development Size square metre (m^2)	-
Number of Accesses and Locations	1 (access to Derreen Ave)
Phase of Development	1
Buildout Year	2027

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

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.

Table notes:

1. Table 2, Table 3 & Table 4 TRANS Trip Generation Manual
2. Institute of Transportation Engineers (ITE) Trip Generation Manual 11.1 Ed.

Land Use Type	Minimum Development Size
Single-family homes	**60 units**
Multi-Use Family (Low-Rise)[1]	**90 units**
Multi-Use Family (High-Rise)[1]	**150 units**
Office[2]	**1,400 m^2**
Industrial[2]	**7,000 m^2**
Fast-food restaurant or coffee shop[2]	**110 m^2**
Destination retail[2]	**1,800 m^2**
Gas station or convenience market[2]	**90 m^2**

If the proposed development size is equal to or greater than the sizes identified 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 Transit Priority Network, Rapid Transit network or Cross-Town Bikeways?	☐	☑
Is the development in a Hub, a Protected Major Transit Station Area (PMTSA), or a Design Priority Area (DPA)?[2]	☐	☑

If any of the above questions were answered with 'Yes,' the Location Trigger is satisfied.

4. Safety Triggers

	Yes	No
Are posted speed limits on a boundary street are 80 kilometers per hour (km/h) or greater?	☐	☑
Are there any horizontal/vertical curvatures on a boundary street 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 metre [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?	☐	☑

[2] Hubs are identified in Schedules B1 to B8 of the City of Ottawa Official Plan. PMTSAs are identified in Schedule C1 of the Official Plan. DPAs are identified in Schedule C7A and C7B of the Official. See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA.

	Yes	No
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?	☐	☑

If any of the above questions were answered with 'Yes,' the Safety Trigger is satisfied.

5. Summary

Results of Screening	Yes	No
Does the development satisfy the Trip Generation Trigger?	☑	☐
Does the development satisfy the Location Trigger?	☐	☑
Does the development satisfy the Safety Trigger?	☑	☐

If none of the triggers are satisfied, the TIA Study is complete. If one or more of the triggers is satisfied, the TIA Study must continue into the next stage (Screening and Scoping).

APPENDIX C

Excerpt from 195 Huntmar Geometric Roadway Design Drawings

Notes:

All bulb-out radii 5.0 m unless otherwise noted

Bi-directional RB-51 sign locations indicate approximate locations, subject to adjacent pole locations or new post placement

Street Names:
Street 1 - Derreen Avenue
Street 2 - Stittsville Main Street
Street 3 - Culdaff Road
Street 4 - Bermondsey Way
Street 5 - Unity Place
Street 6 - Unity Place
Street 7 - Crossway Terrace
Street 8 - Curraglass Walk
Street 9 - Billrian Crescent
Street 10 - Allied Mews
Street 11 - Kindred Row
Street 12 - Culdaff Road
Street 13 - Leinster Circle
Street 14 - Ballinora Lane

Subject to RMA

REV.	DESCRIPTION:	BY:	DATE:
06	Revised GRDD Submission	BB	21/06/28
05	City Comments	JK	20/06/02
04	Civil Comments	JK	20/04/09
03	OC Transpo Comments	JK	20/04/01
02	City Comments	JK	20/03/27
01	Initial Submission	JK	20/02/07

STATUS:

CGH Transportation
13 Markham Avenue
Ottawa, ON
K2G 3Z1
(343)999-9117

CLIENT: Shenkman Corporation

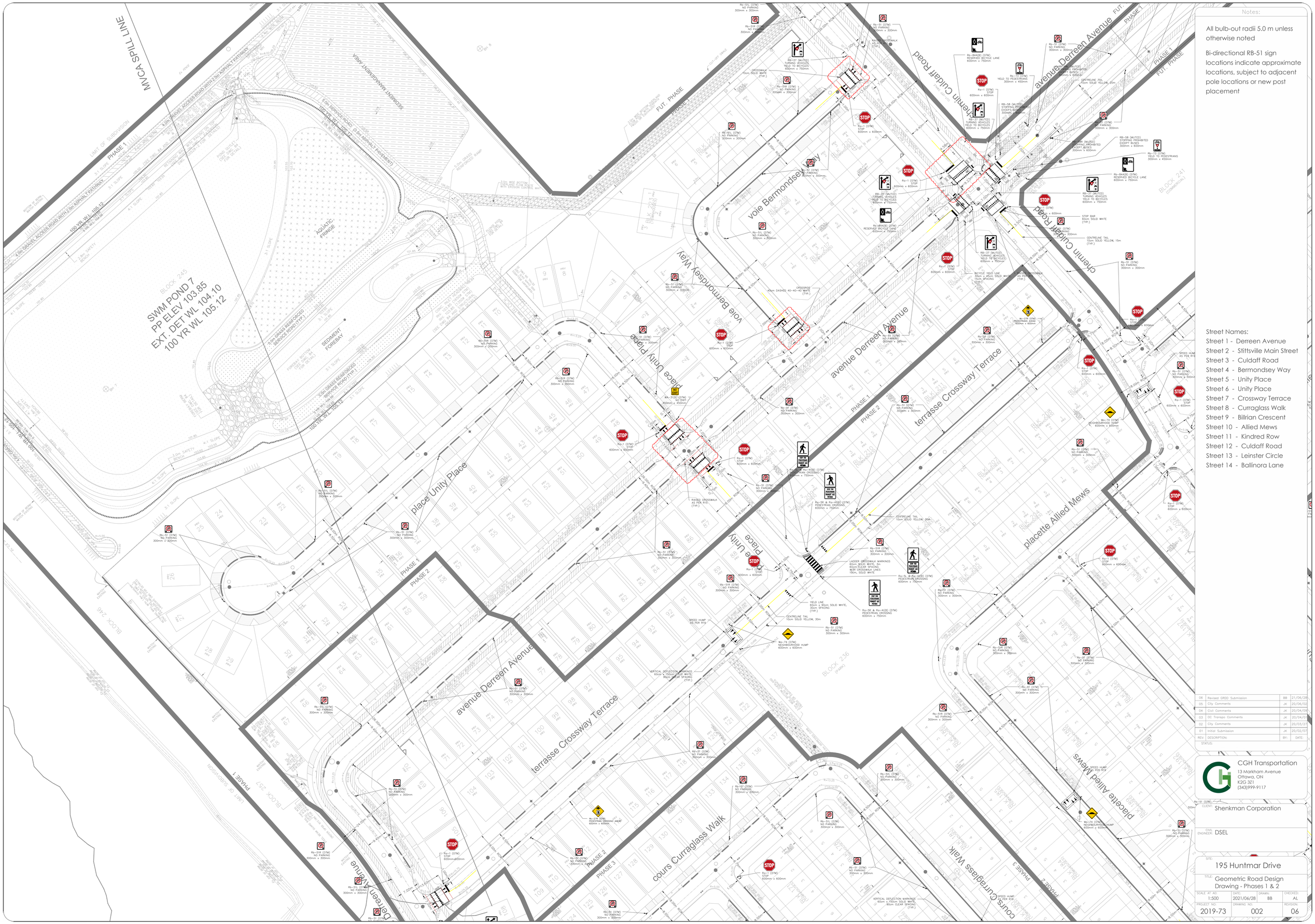
CIVIL ENGINEER: DSEL

SITE: 195 Huntmar Drive

TITLE: Geometric Road Design
Drawing - Phases 1 & 2

SCALE AT A0:	DATE:	DRAWN:	CHECKED:
1:500	2021/06/28	BB	AL

PROJECT NO:	DRAWING NO:	REVISION:
2019-73	001	06



Notes:

All bulb-out radii 5.0 m unless otherwise noted

Bi-directional RB-51 sign locations indicate approximate locations, subject to adjacent pole locations or new post placement

Street Names:
Street 1 - Derreen Avenue
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Street 3 - Culdaff Road
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Street 7 - Crossway Terrace
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Street 9 - Billrian Crescent
Street 10 - Allied Mews
Street 11 - Kindred Row
Street 12 - Culdaff Road
Street 13 - Leinster Circle
Street 14 - Ballinora Lane

REV:	DESCRIPTION:	BY:	DATE:
06	Revised GRDD Submission	BB	21/06/28
05	City Comments	JK	20/06/02
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03	OC Transpo Comments	JK	20/04/01
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STATUS:

CGH Transportation
13 Markham Avenue
Ottawa, ON
K2G 3Z1
(343)999-9117

CLIENT: Shenkman Corporation

CIVIL ENGINEER: DSEL

SITE: 195 Huntmar Drive

TITLE: Geometric Road Design Drawing - Phases 1 & 2

SCALE AT A0:	DATE:	DRAWN:	CHECKED:
1:500	2021/06/28	BB	AL

PROJECT NO:	DRAWING NO:	REVISION:
2019-73	002	06

APPENDIX D

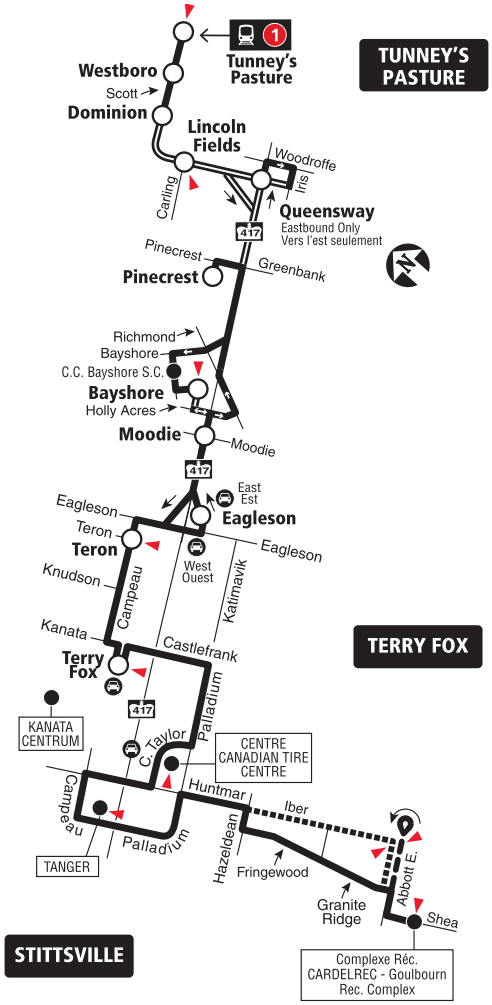
OC Transpo Route Maps

62 Rapide

TERRY FOX STITTSVILLE
TUNNEY'S PASTURE

7 days a week / 7 jours par semaine

All day service
Service toute la journée



Transitway & Station

Weekday southbound trips before noon and weekday northbound trips between noon and 8 p.m. travel via Iber and Abbott E.

Trajets en semaine vers le sud en avant midi et trajets en semaine vers le nord entre midi et 20 h via Iber et Abbott E.

Saturday and Sunday / Samedi et dimanche

Park & Ride / Parc-o-bus

Timepoint / Heures de passage

2022.12

2022.12

Schedule / Horaire 613-560-1000
Text / Texto* 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres
*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-560-5000**

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

Security / Sécurité **613-741-2478**

Effective December 25, 2022
En vigueur 25 décembre 2022

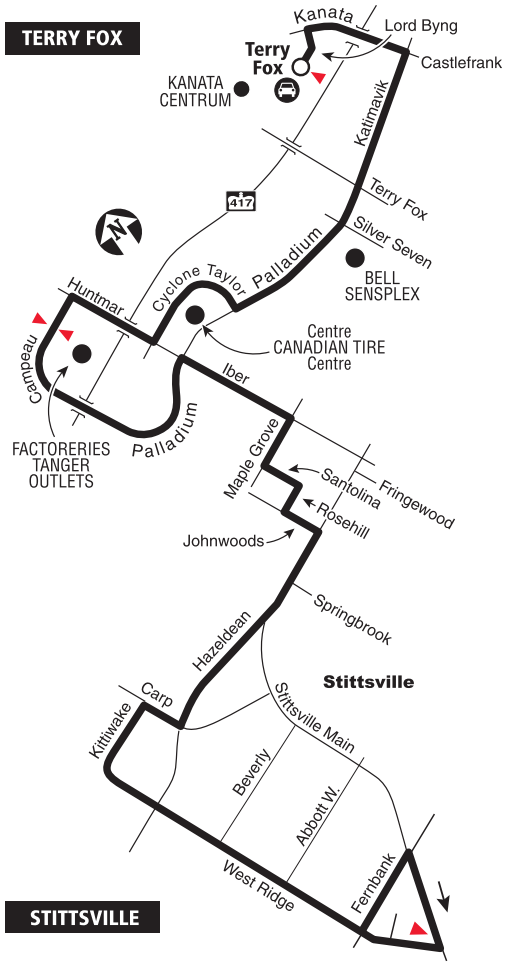
OC Transpo
INFO 613-560-5000
octranspo.com

162 TERRY FOX / STITTSVILLE

Local

Monday to Saturday / Lundi au samedi

Selected trips Mon. to Fri. All day on Saturday /
Service limité du lundi au vendredi.
Toute la journée le samedi



Transitway Station / Station du Transitway

Park & Ride / Parc-o-bus

Timepoint / Heures de passage

2021.06

Schedule / Horaire 613-560-1000
Text / Texto* 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres
*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-741-4390**

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

Security / Sécurité **613-741-2478**

Effective June 20, 2021
En vigueur 20 juin 2021

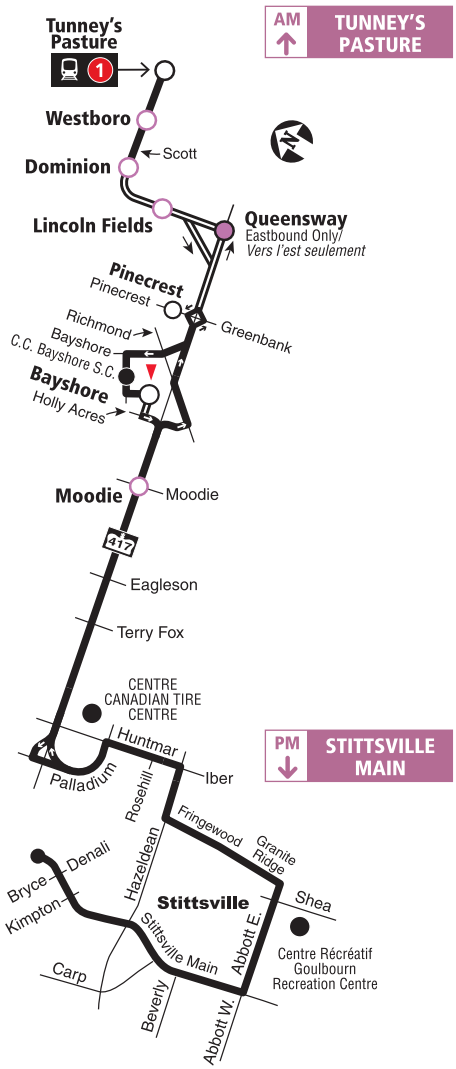
OC Transpo
INFO 613-741-4390
octranspo.com

261 Connexion

STITTSVILLE MAIN
TUNNEY'S PASTURE

Monday to Friday / Lundi au vendredi

Peak periods only
Périodes de pointe seulement



2023.12

Transitway & Station

Limited stops: Off only in AM / No stop in PM
Arrêts limités : débarquement en AM seul. / aucun arrêt en PM

AM: Off only - PM: Full Service
AM : débarquement seul. - PM : service complet

2023.12

Schedule / Horaire 613-560-1000
Text / Texto* 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres
*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-560-5000**
Lost and Found / Objets perdus..... **613-563-4011**
Security / Sécurité **613-741-2478**

Effective December 24, 2023
En vigueur 24 juin 2023

OC Transpo
INFO 613-560-5000
octranspo.com

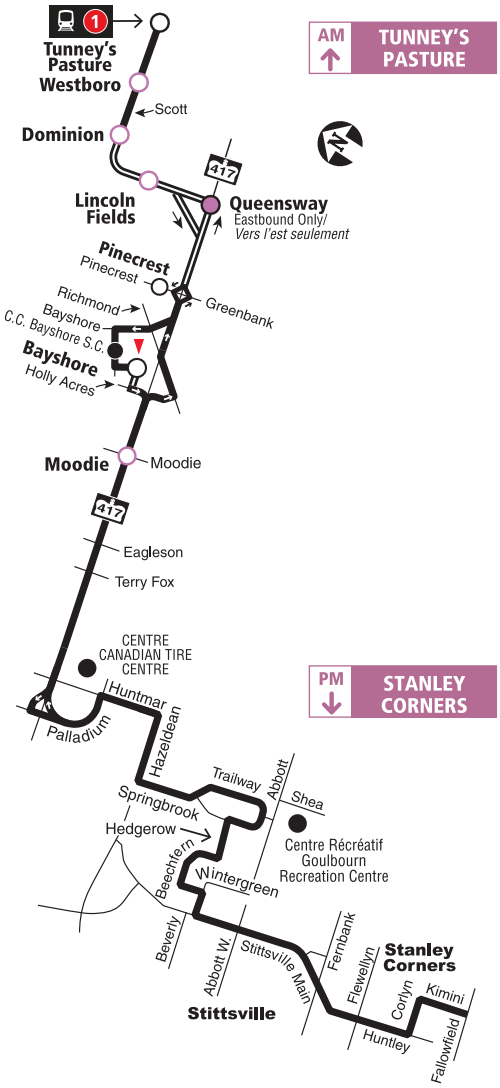
263 Connexion

STANLEY CORNERS / TUNNEY'S PASTURE

Monday to Friday / Lundi au vendredi

Peak periods only

Périodes de pointe seulement



2023.12

Transitway & Station

Limited stops: Off only in AM / No stop in PM
Arrêts limités : débarquement en AM seul. / aucun arrêt en PM

AM: Off only - PM: Full Service
AM : débarquement seul. - PM : service complet

2023.12

Schedule / Horaire 613-560-1000

Text / Texto* 560560

plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres

*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-560-5000**

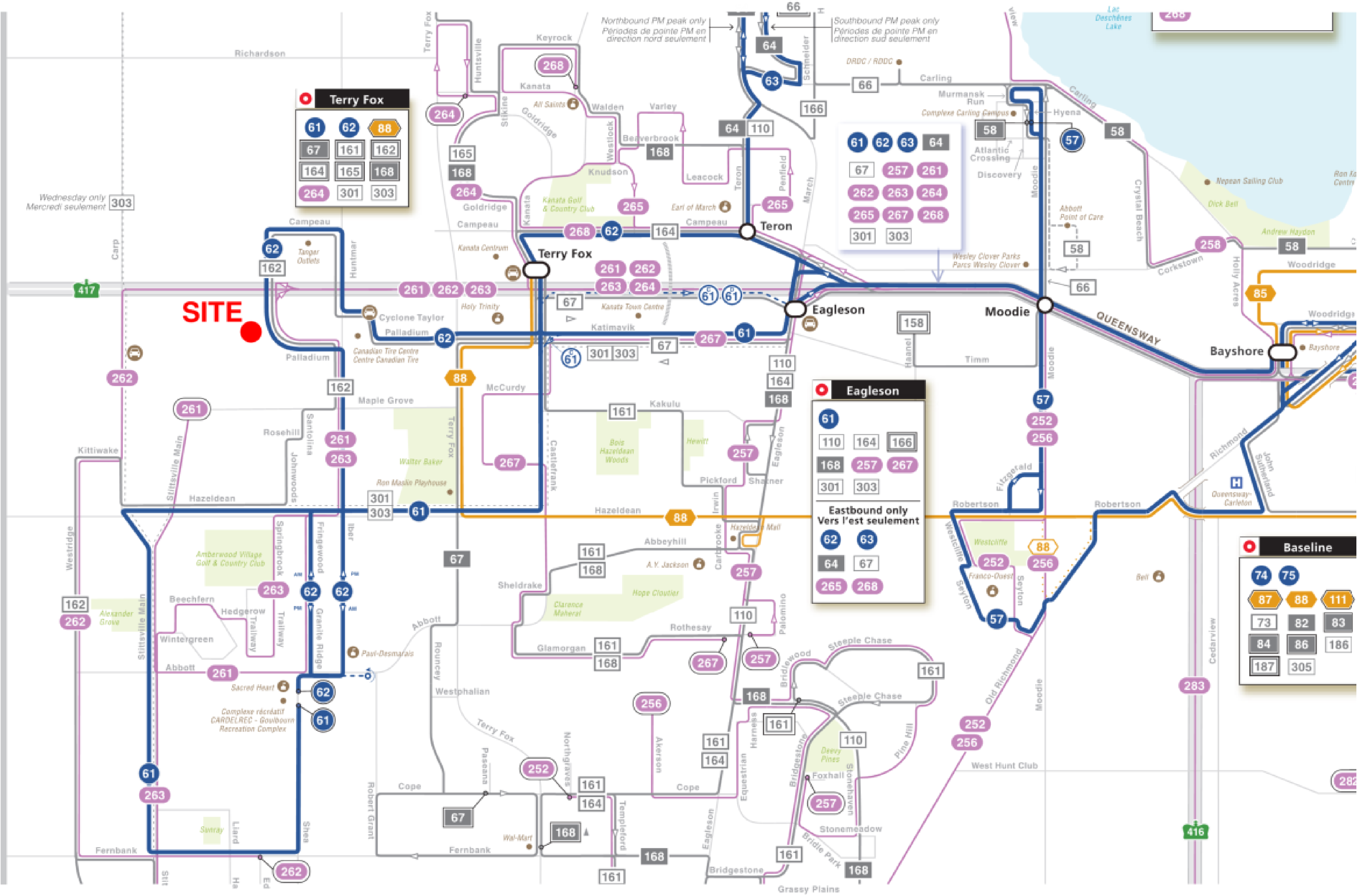
Lost and Found / Objets perdus..... **613-563-4011**

Security / Sécurité..... **613-741-2478**

Effective December 24, 2023
En vigueur 24 décembre 2023

Transpo

INFO 613-560-5000
octranspo.com


SITE
Terry Fox
Eagleson
Baseline
Teron
Moodie
Bayshore
QUEENSWAY
Eastbound only
Vers l'est seulement
Northbound PM peak only
Périodes de pointe PM en direction nord seulement
Southbound PM peak only
Périodes de pointe PM en direction sud seulement
Wednesday only
Mercredi seulement
Richardson
Campeau
Palladium
Cyclone Taylor
Katimavik
Hazeldean
Maple Grove
McCurdy
Kakulu
Abbeyhill
Sheldrake
Rothesay
Glamorgan
Westphalian
Abbott
Cope
Fernbank
Kittiwake
Robertson
Carling
Corkstown
Woodridge
Timm
Goldridge
Knudson
Beaverbrook
Leacock
Walden
Varley
Keyrock
Kanata
Steeple Chase
Bridgestone
Grassy Plains
West Hunt Club
Fitzgerald
Richmond
Kanata Centrum
Tanger Outlets
Canadian Tire Centre
Centre Canadien Tire
Kanata Town Centre
Holy Trinity
Earl of March
Complexe Carling Campus
DRDC / RDDC
Nepean Sailing Club
Andrew Haydon
Wesley Clover Parks
Parcs Wesley Clover
Queensway-Carleton
Sacred Heart
Paul-Desmarais
A.Y. Jackson
Bell
Wal-Mart
Complexe récréatif CARDELREC - Goulbourn Recreation Complex
Hazeldean Mall
Bois Hazeldean Woods
Walter Baker
Ron Maslin Playhouse
Amberwood Village Golf & Country Club
Kanata Golf & Country Club
Clarence Maheral
Hope Cloutier
Alexander Grove
Westcliffe
Franco-Ouest
Abbott Point of Care
Lac Deschênes Lake
417
416
61 62 88
67 161 162
164 165 168
264 301 303
61 62 63 64
67 257 261
262 263 264
265 267 268
301 303
61
110 164 166
168 257 267
301 303
62 63
64 67
265 268
74 75
87 88 111
73 82 83
84 86 186
187 305

APPENDIX E

Traffic Count Data

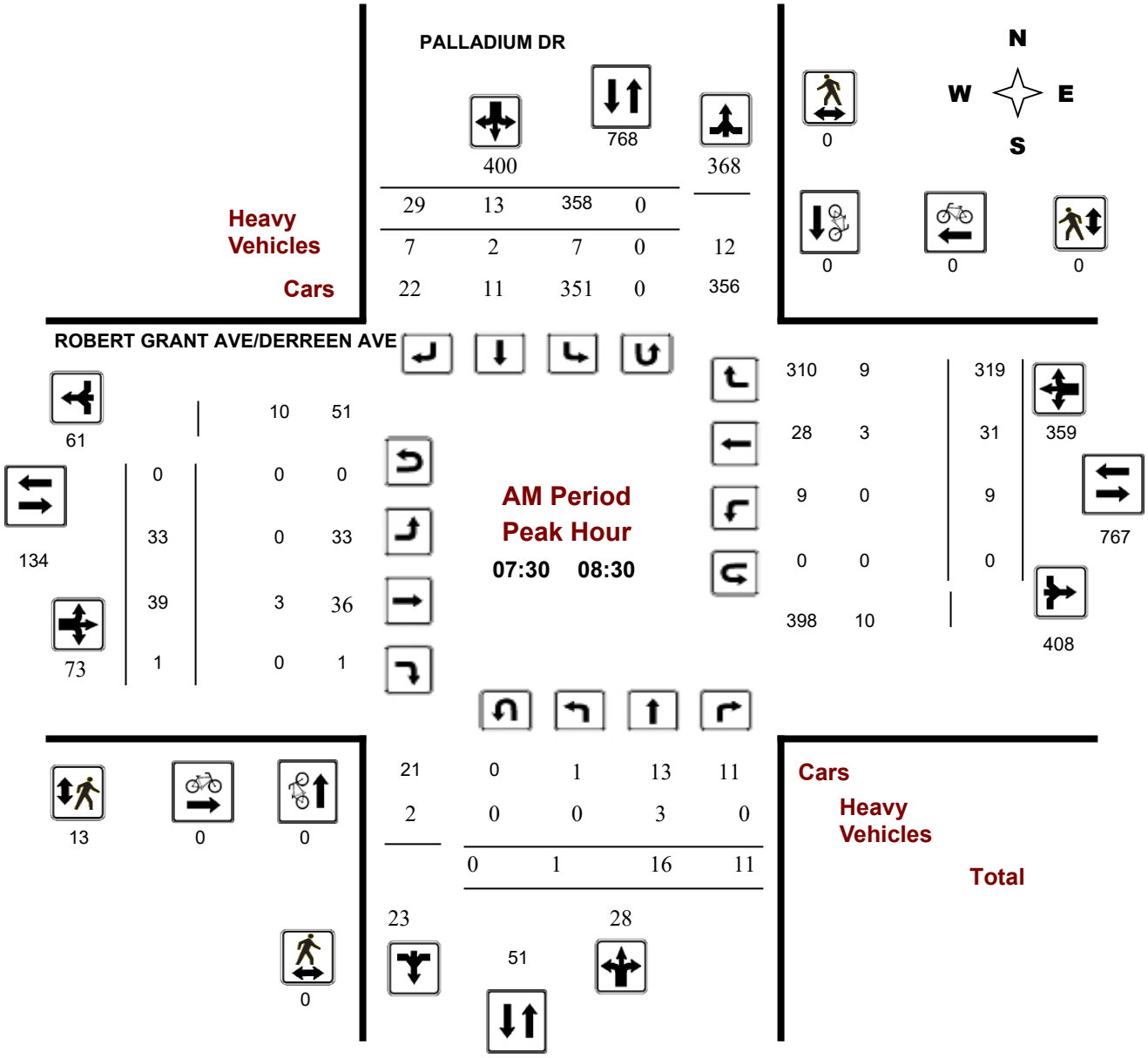
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

PALLADIUM DR @ ROBERT GRANT AVE/DERREEN AVE

Survey Date: Thursday, September 22, 2022 **WO No:** 40585

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



Comments

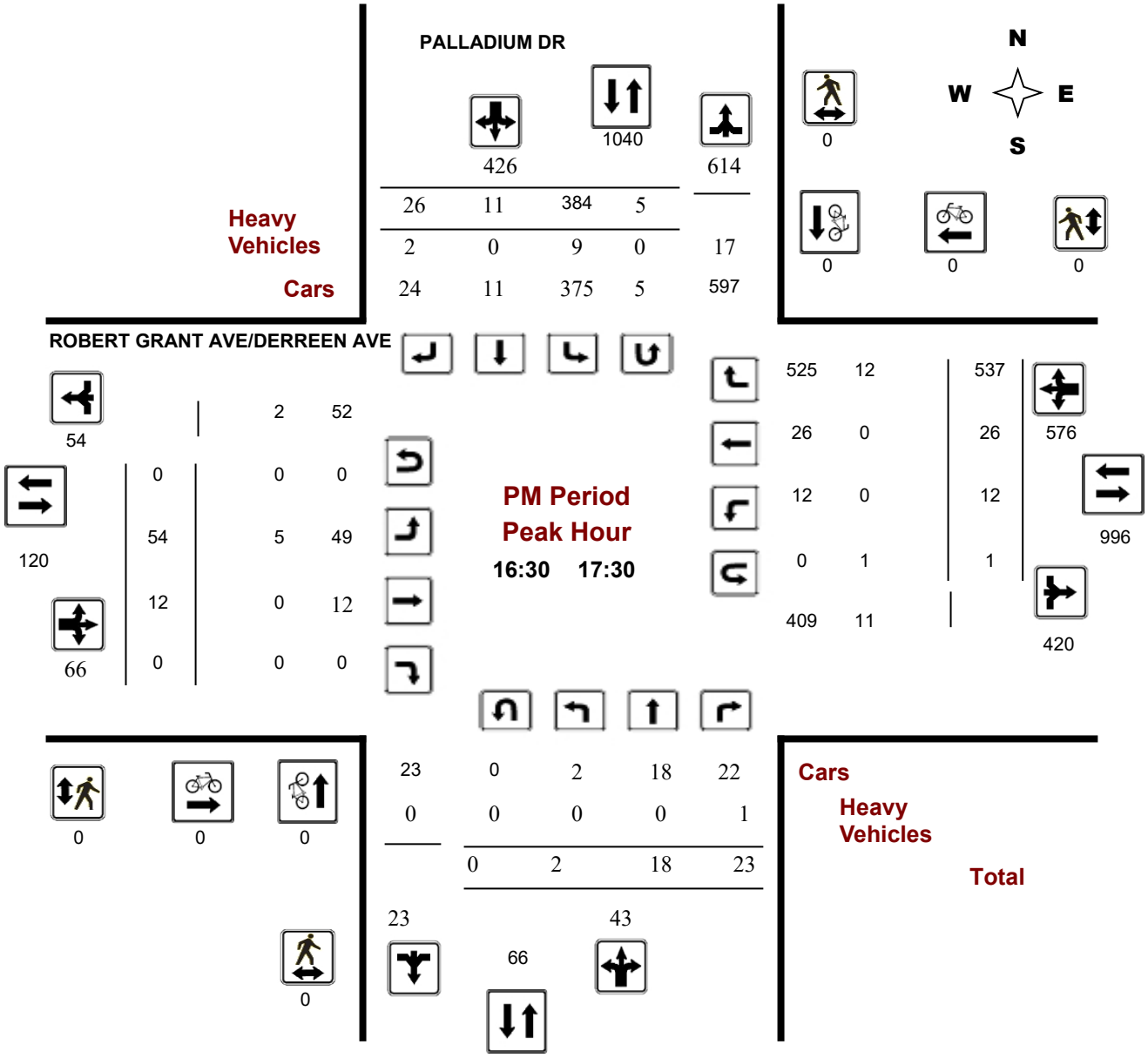
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

PALLADIUM DR @ ROBERT GRANT AVE/DERREEN AVE

Survey Date: Thursday, September 22, 2022 **WO No:** 40585

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

PALLADIUM DR @ ROBERT GRANT AVE/DERREEN AVE

Survey Date: Thursday, September 22, 2022 **WO No:** 40585

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

Full Study Summary (8 HR Standard)

Survey Date: Thursday, September 22, 2022

Total Observed U-Turns

Northbound: 0 Southbound: 17

Eastbound: 2 Westbound: 6

AADT Factor

1.00

	PALLADIUM DR								ROBERT GRANT AVE/DERREEN AVE									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	3	13	11	**27**	349	13	34	**396**	**423**	37	17	0	**54**	11	23	314	**348**	**402**	**825**
08:00 09:00	0	18	12	**30**	361	9	29	**399**	**429**	33	42	3	**78**	7	26	316	**349**	**427**	**856**
09:00 10:00	3	6	12	**21**	328	6	37	**371**	**392**	41	17	2	**60**	7	22	266	**295**	**355**	**747**
11:30 12:30	2	17	12	**31**	296	24	27	**347**	**378**	35	12	12	**59**	10	26	341	**377**	**436**	**814**
12:30 13:30	1	7	10	**18**	340	4	32	**376**	**394**	38	17	3	**58**	10	20	348	**378**	**436**	**830**
15:00 16:00	2	17	18	**37**	353	8	17	**378**	**415**	50	13	3	**66**	17	21	499	**537**	**603**	**1018**
16:00 17:00	2	22	20	**44**	375	16	32	**423**	**467**	40	19	1	**60**	13	22	523	**558**	**618**	**1085**
17:00 18:00	2	7	20	**29**	400	18	27	**445**	**474**	50	13	1	**64**	10	26	462	**498**	**562**	**1036**
Sub Total	15	107	115	**237**	2802	98	235	**3135**	**3372**	324	150	25	**499**	85	186	3069	**3340**	**3839**	**7211**
U Turns				**0**				**17**	**17**				**2**				**6**	**8**	**25**
Total	15	107	115	**237**	2802	98	235	**3152**	**3389**	324	150	25	**501**	85	186	3069	**3346**	**3847**	**7236**
EQ 12Hr	21	149	160	**329**	3895	136	327	**4381**	**4711**	450	208	35	**696**	118	259	4266	**4651**	**5347**	**10058**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	21	149	160	**329**	3895	178	428	**4381**	**4711**	450	208	35	**696**	118	259	4266	**4651**	**5347**	**10058**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	28	195	210	**431**	5102	233	561	**5739**	**6171**	590	272	46	**912**	155	339	5588	**6093**	**7005**	**13176**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

APPENDIX F

Collision Records

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2017 **To:** December 31, 2022

Location: DERREEN AVE/PALLADIUM DR EXT @ PALLADIUM DR/ROBERT GRANT AVE

Traffic Control: Roundabout **Total Collisions:** 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2022-Feb-04, Fri,02:30	Snow	SMV other	P.D. only	Slush	West	Merging	Pick-up truck	Skidding/sliding	0
2022-May-16, Mon,12:10	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2022-Jun-10, Fri,09:58	Clear	Sideswipe	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Pick-up truck	Other motor vehicle	
2022-Jul-31, Sun,19:50	Clear	Sideswipe	P.D. only	Dry	South	Other	Automobile, station wagon	Other motor vehicle	0
					South	Other	Automobile, station wagon	Other motor vehicle	
2022-Aug-05, Fri,14:32	Clear	Sideswipe	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

APPENDIX G

Other Area Developments

Figure 18: Trip Assignment

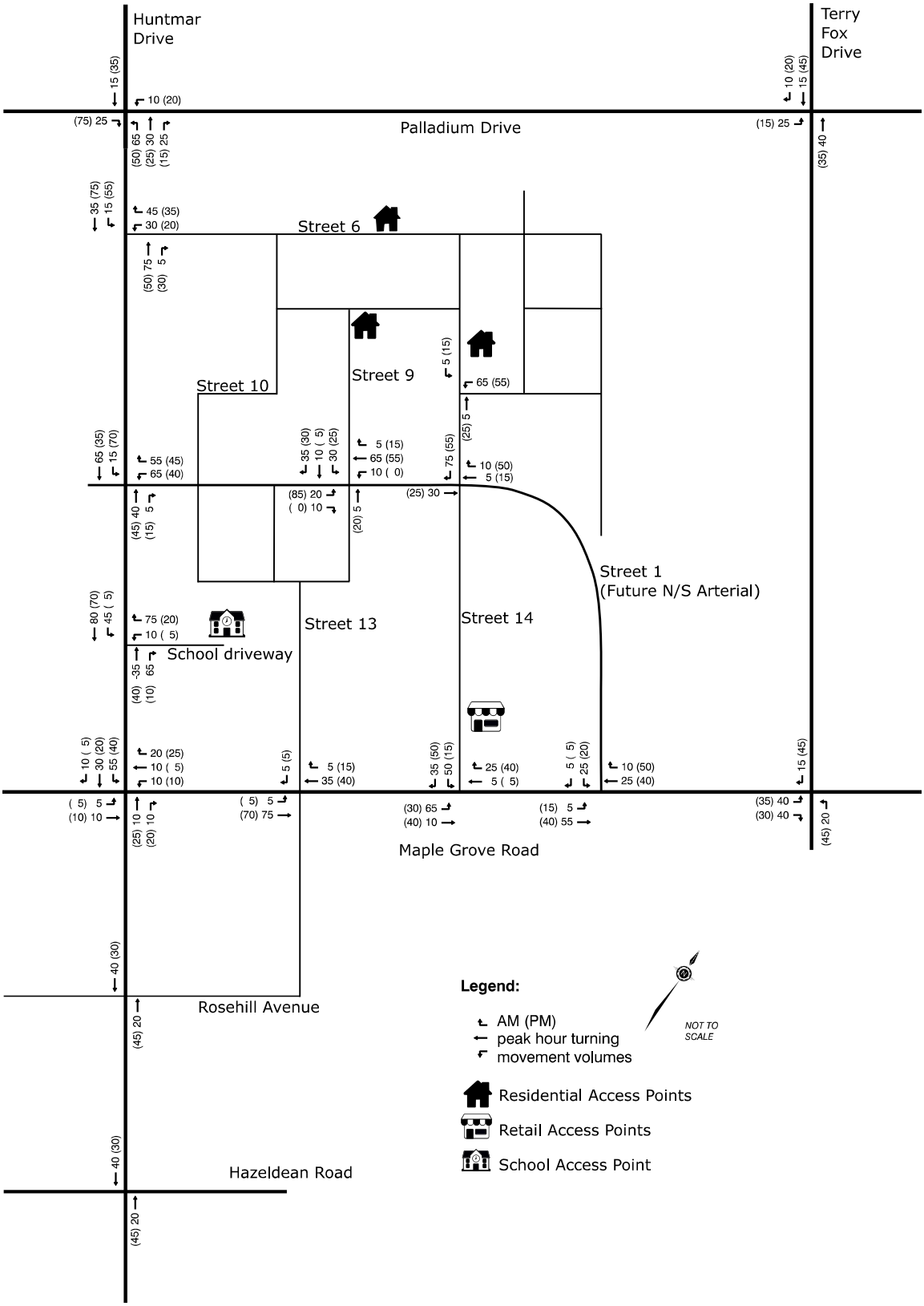
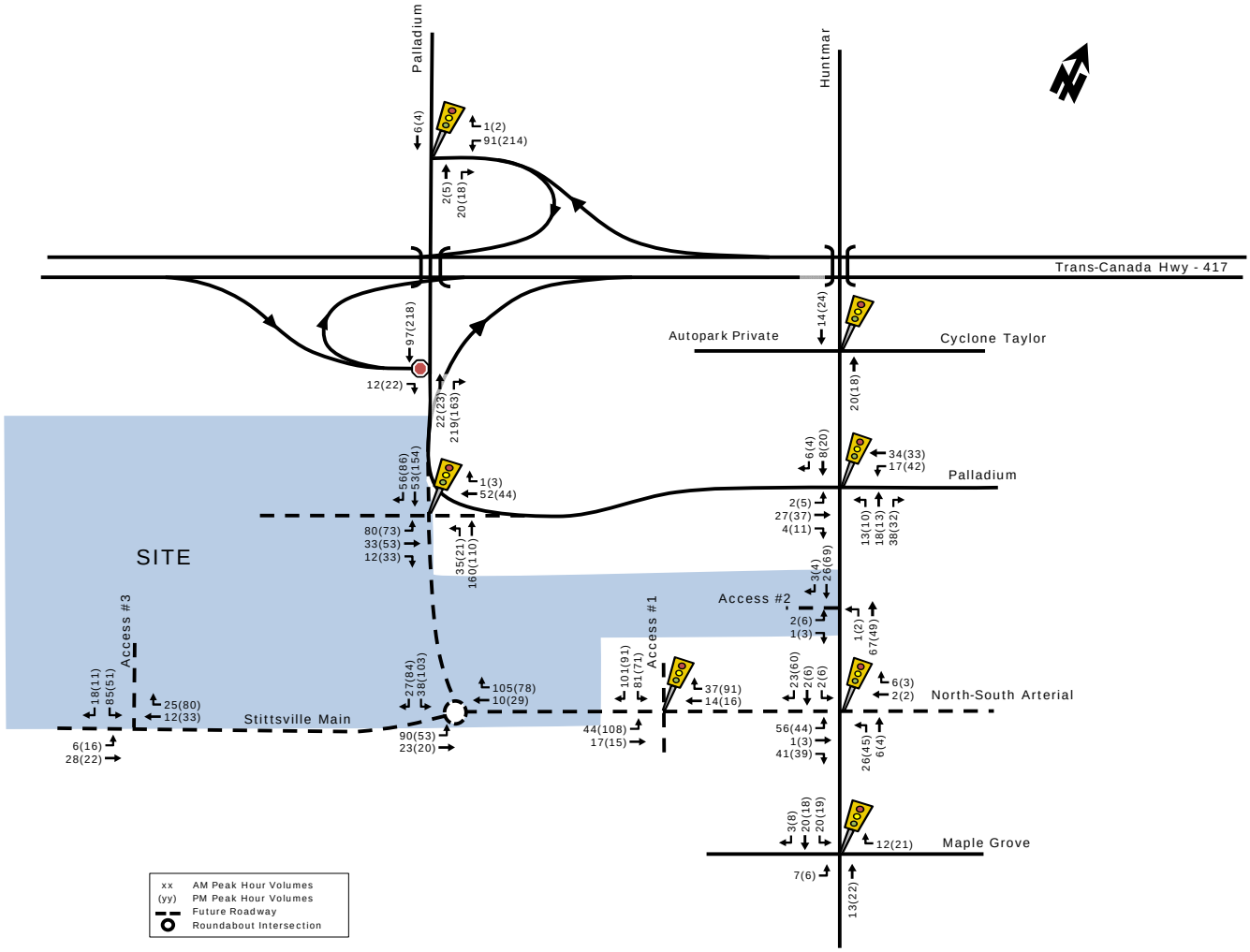


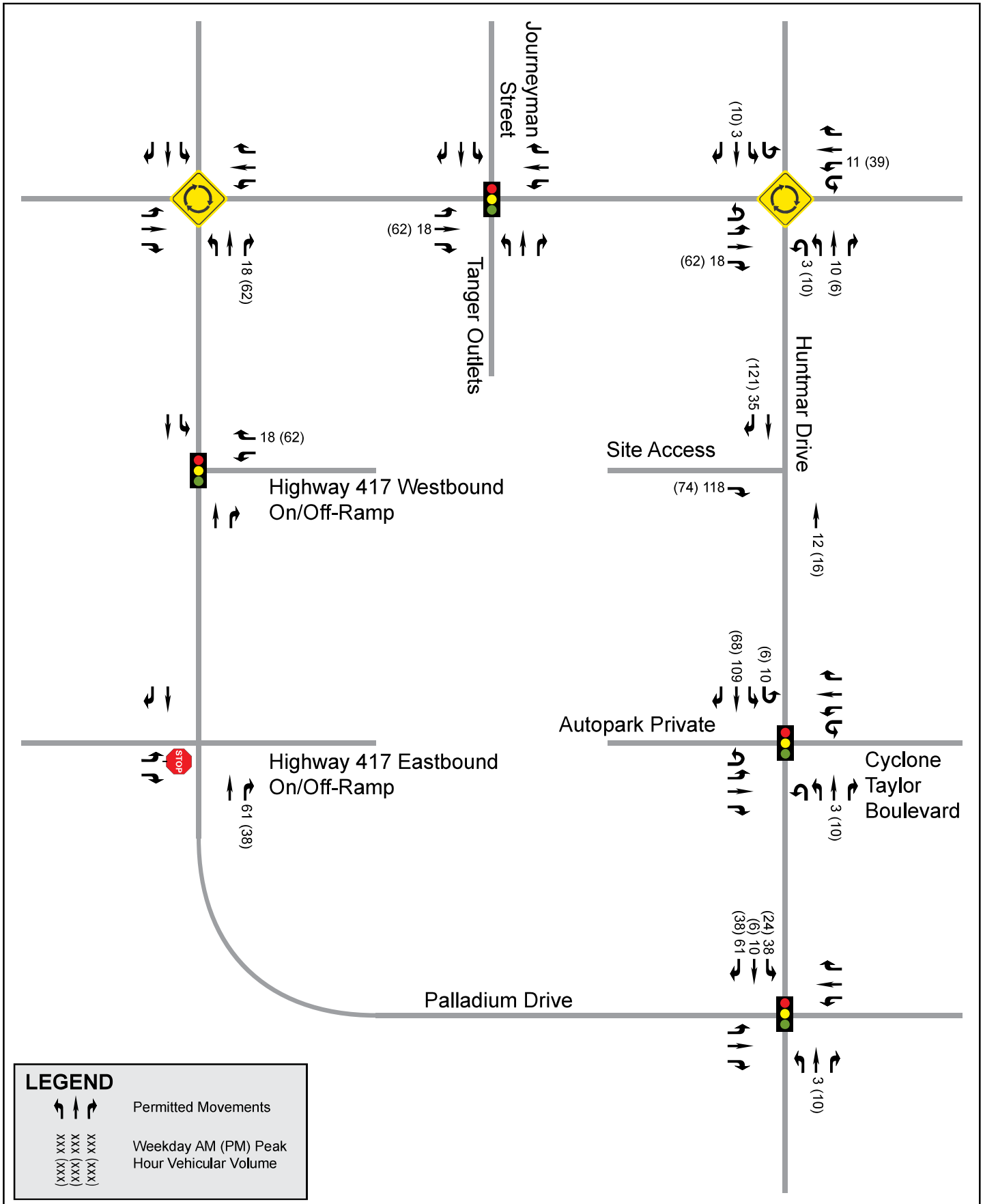
Figure 12: 'New' and 'Pass-by' Site Generated Traffic Volumes



FUTURE TRAFFIC OPERATIONS

As mentioned previously, an extensive amount of transportation work has been done within the vicinity of the site and the future road network has been developed based on this transportation planning work. As shown on the Concept Plan, the North-South Arterial and Stittsville Main Street Extension are the two future roadways that will provide access/egress to the site. Signalized or roundabout intersections will be constructed at the major intersections with these future roads, those being Huntmar/North-South Arterial, Palladium/North-South Arterial, Stittsville Main/North-South Arterial and a potential signalized site access to North-South Arterial between Huntmar Drive and Stittsville Main Street (all shown on Figure 12).

For the purposes of this analysis, the future traffic operations will be evaluated based the proposed future road network and the currently proposed land uses. Given the extensive transportation planning already completed for Kanata West, the following section will evaluate the difference in traffic impact between the proposed site's land uses and the land uses originally planned. In addition, as shown on the Concept Plan (Figure 2), a roundabout intersection is being considered at the Stittsville Main/North-South Arterial intersection. An analysis of future traffic operations at this intersection is provided herein to determine the suitability of a roundabout intersection, compared to a signalized intersection, at this location.



The Burroughs Kanata
Transportation Impact Assessment

Exhibit 6:
Site-Generated
Traffic Volumes

PROJECT No. 127255
DATE: May 2021
SCALE: N.T.S.

As the extension of Campeau Drive between Winterset Road and Terry Fox Drive was completed in 2021, traffic volumes shown in 2019 count data are anticipated to have changed. To account for changes in background traffic, traffic volumes at the Huntmar Drive/Campeau Drive intersection were balanced and redistributed based on recent counts at the Huntmar Drive/Paine Avenue and Campeau Drive/Country Glen Way intersections.

3.3 Future Traffic Conditions

The figures listed below present the following future traffic conditions:

- Proposed site-generated traffic volumes in 2024 are shown in **Figure 5**;
- Background traffic volumes in 2024 are shown in **Figure 6**;
- Background traffic volumes in 2029 are shown in **Figure 7**;
- Total traffic volumes in 2024 are shown in **Figure 8**;
- Total traffic volumes in 2029 are shown in **Figure 9**.

Figure 5: Site-Generated Volumes

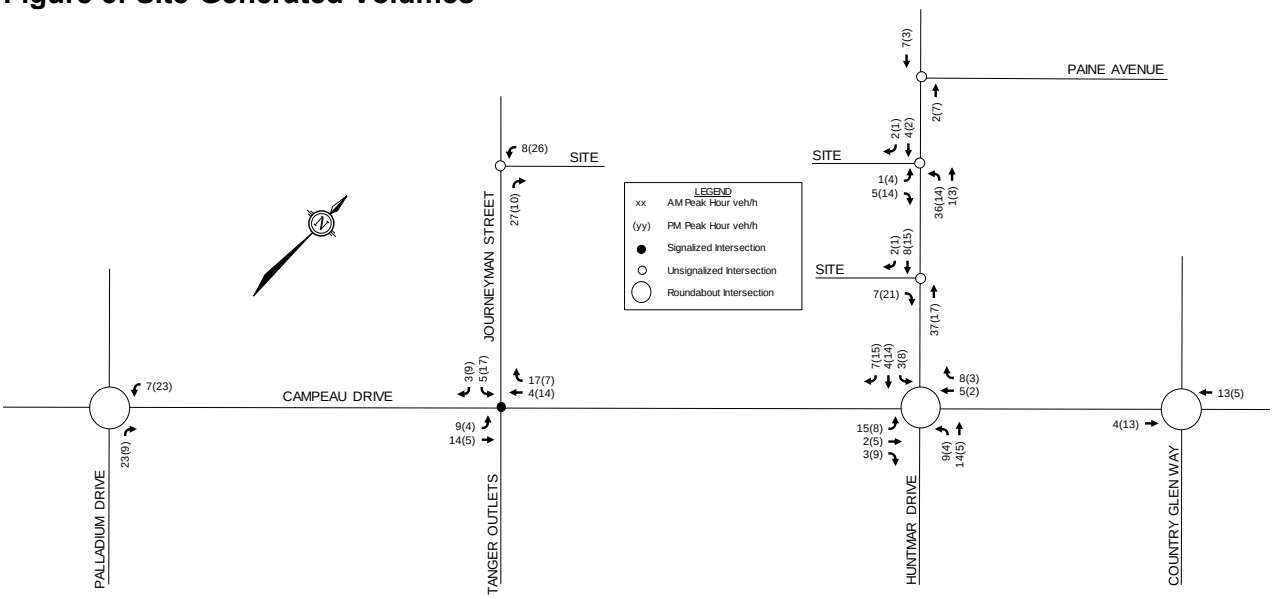


Table 6: Site-Generated Trips by Travel Mode, Horizon Year 2023

Travel Mode	Mode Share	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
		In	Out	Total	In	Out	Total
Auto Driver	65%	26	8	34	10	26	36
Auto Passenger	15%	6	2	8	2	6	8
Transit	15%	6	2	8	2	6	8
Walk	2%	0	0	0	0	1	1
Bike	3%	1	0	1	0	1	1
Total Person Trips	100%	39	12	51	14	40	54
	Total Auto Trips	**26**	**8**	**34**	**10**	**26**	**36**

As shown in Table 6, the anticipated number of total auto trips generated by proposed development is approximately 34 to 36 veh/h at horizon year 2023, during the morning and afternoon peak hours.

3.1.2. Trip Distribution and Assignment

Based on the 2011 OD Survey (Kanata – Stittsville district) and the location of adjacent arterial roadways and neighbourhoods, the distribution of site-generated traffic volumes was estimated as follows:

- 25% to/from the north;
- 5% to/from the south;
- 60% to/from the east; and,
- 10% to/from the west.

The anticipated site-generated auto trips for the proposed development from Table 6 were then assigned to the road network as shown in Figure 10.

Figure 10: Site-Generated Traffic

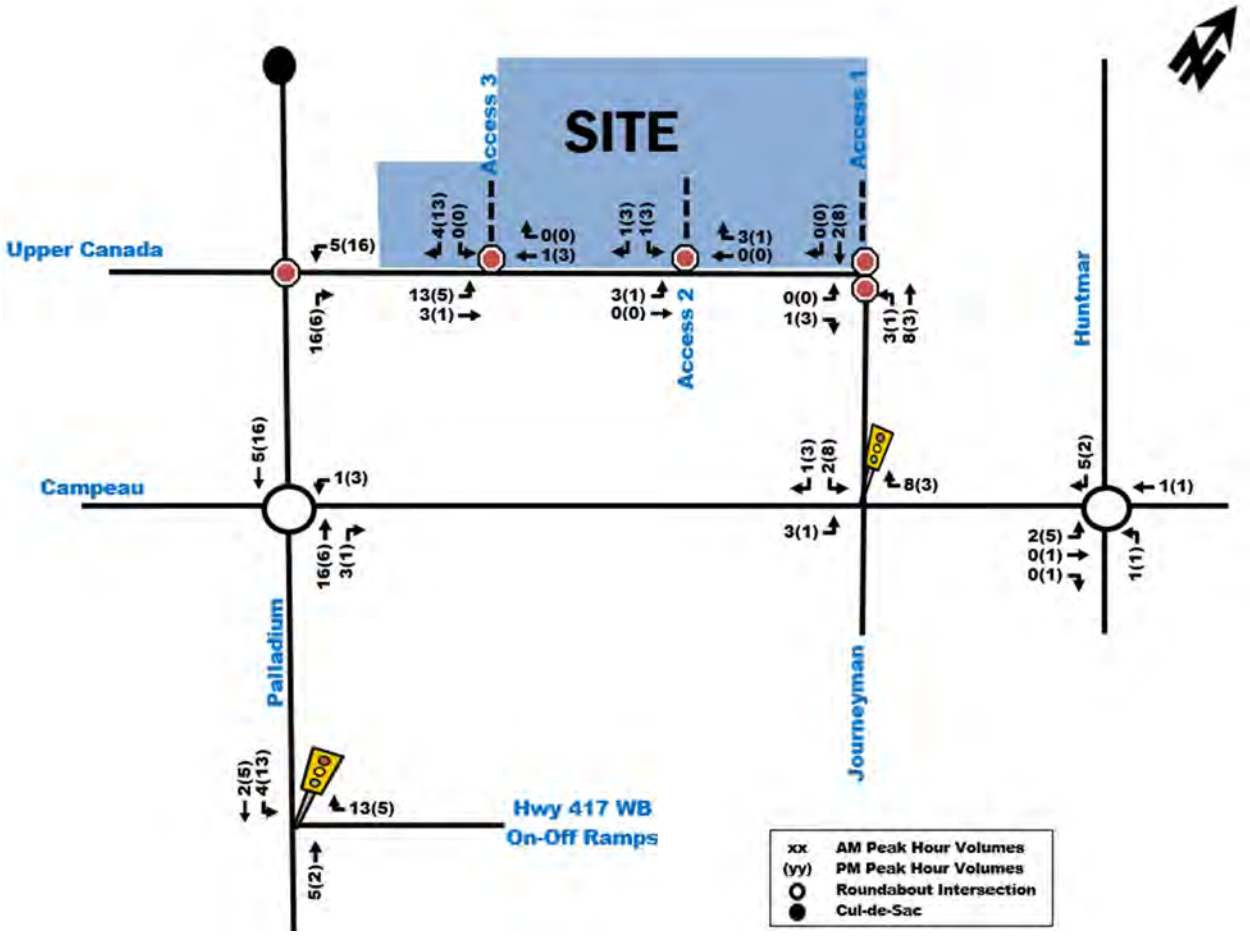
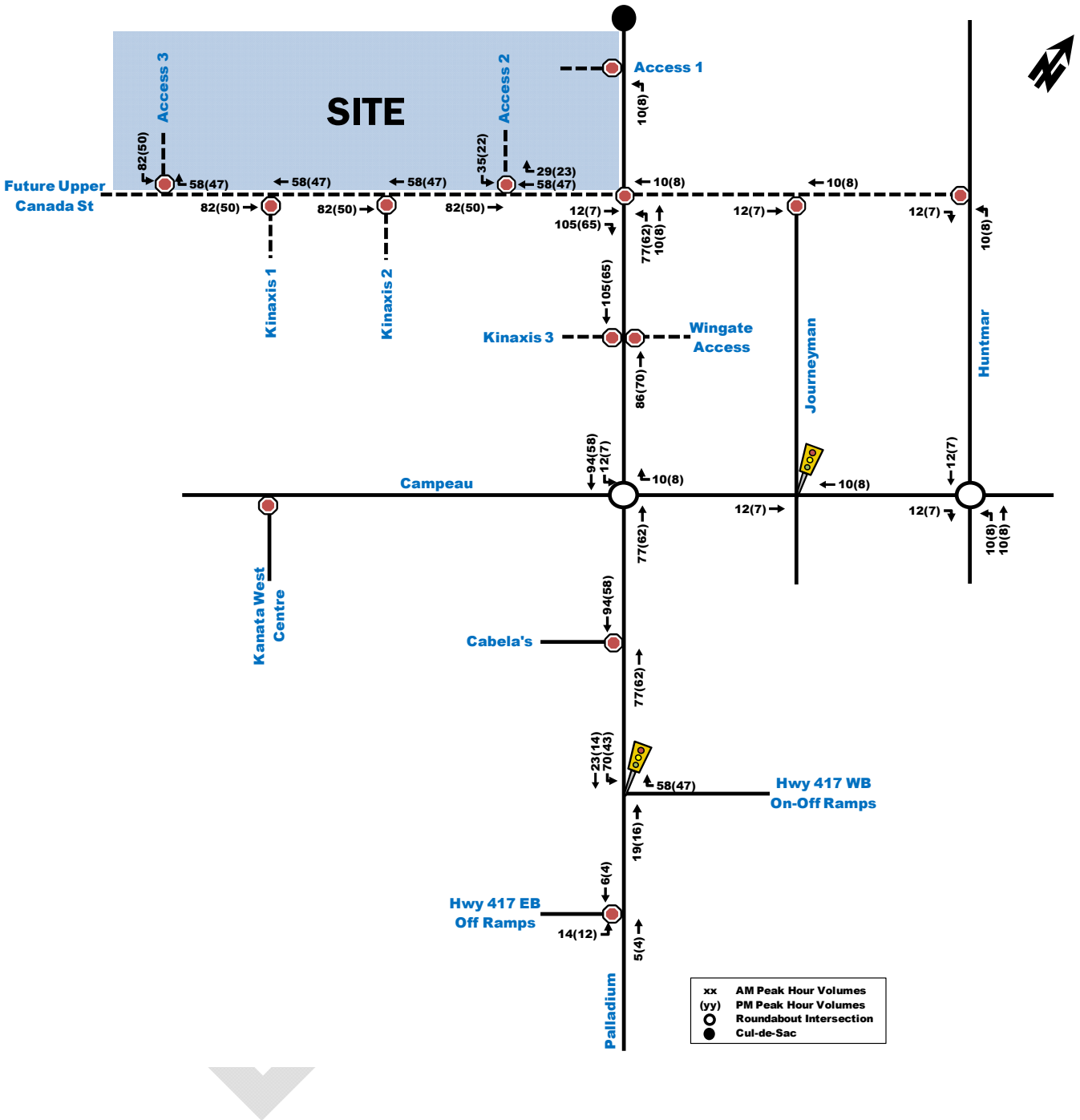
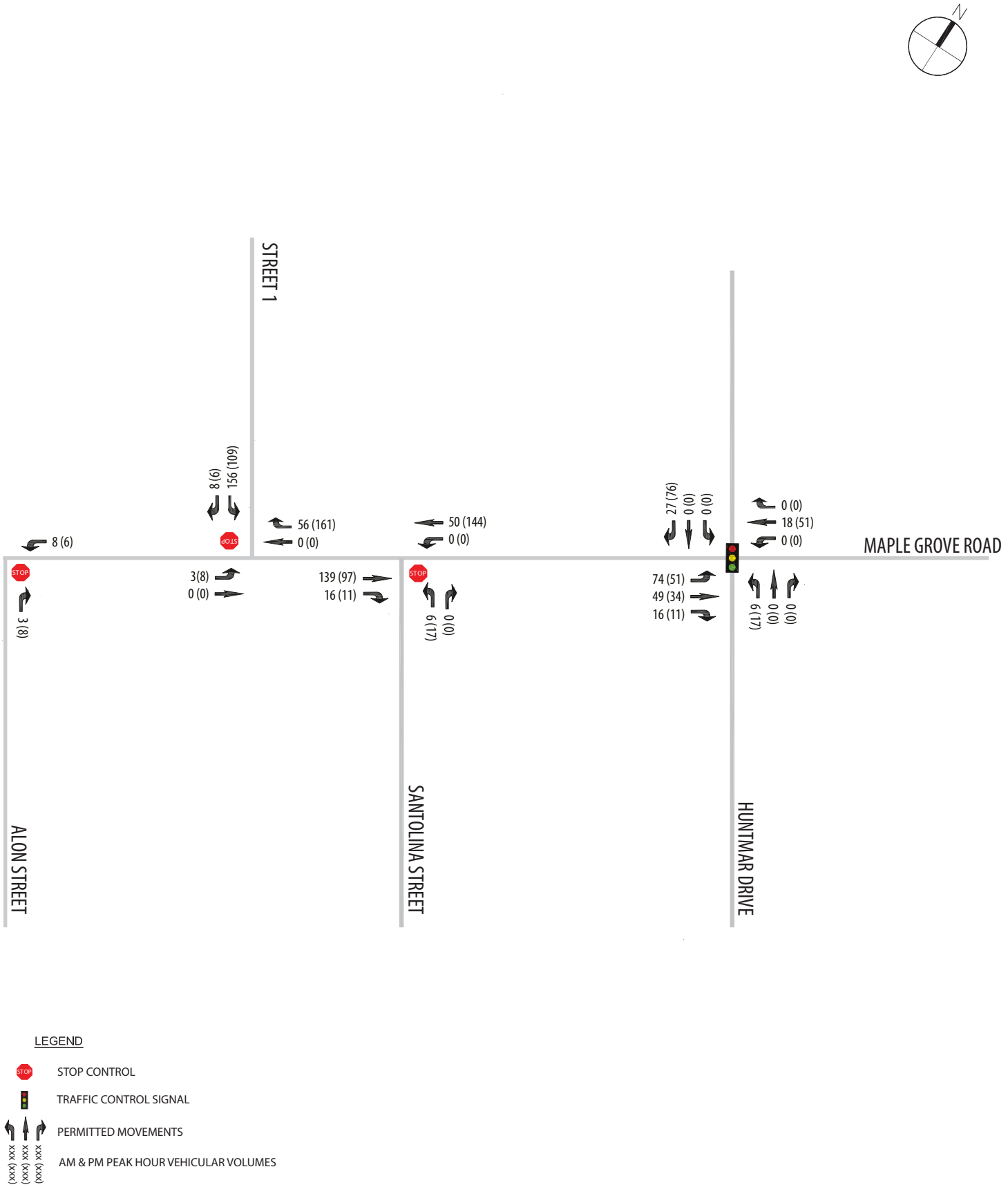


Figure 13: Purolator Facility Site-Generated Traffic (Phase 2)



It was assumed that 25% of site traffic would travel to/from Huntmar Rd, while 75% would use Hwy 417. The majority of employees and customers were anticipated to use Site Access 3, along the future Upper Canada Street, to enter and exit the development site. The remainder would use accesses 1 and 2, with access 1 being used mainly by inbound delivery and transport trucks.

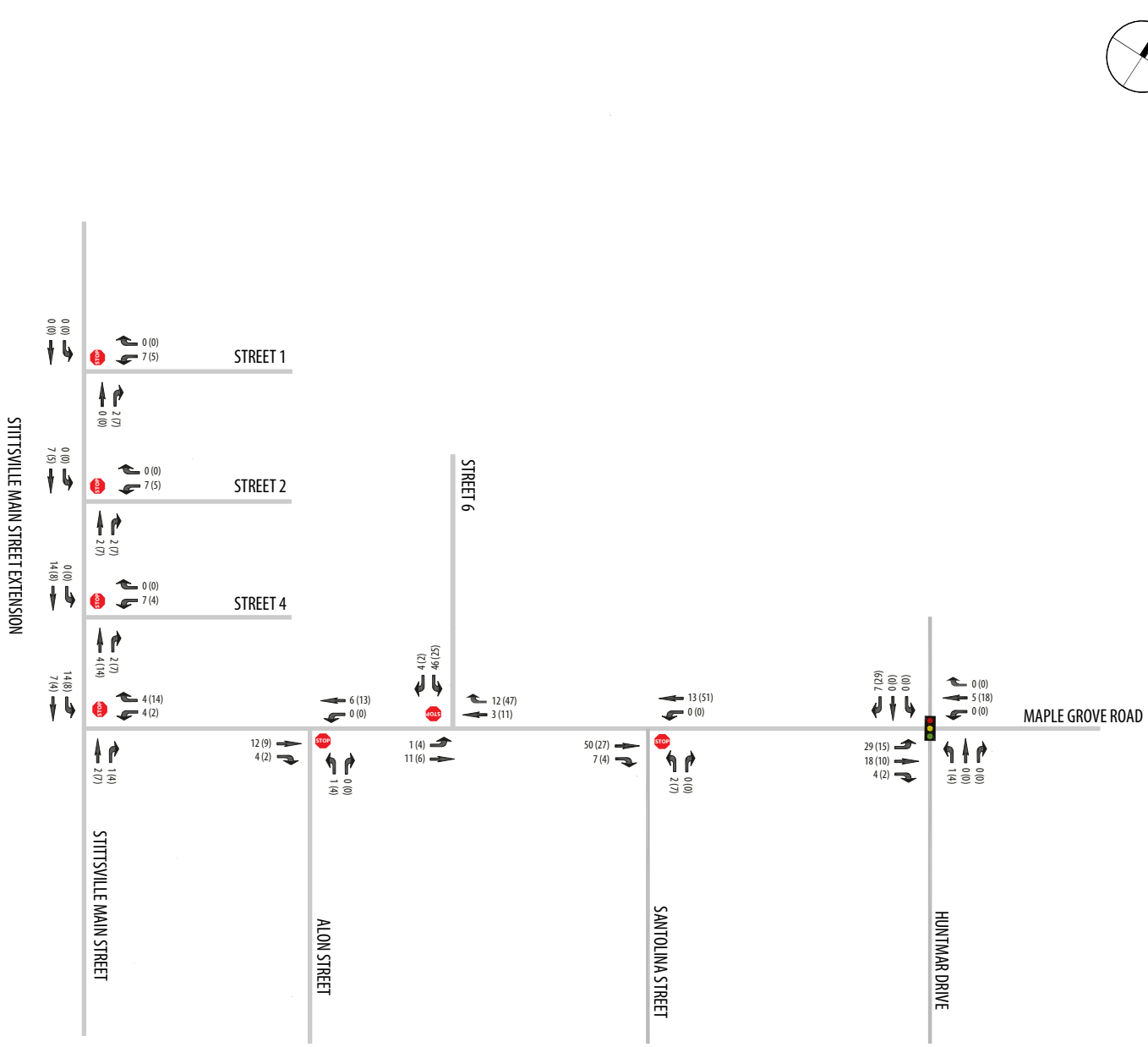


IBI

1919 Maple Grove Road
Transportation Impact Assessment

EXHIBIT 13
Future (2026) Site Generated AM & PM
Peak Hour Traffic Volumes

PROJECT No.: 39124
DATE: APRIL 2019
SCALE: NTS



LEGEND

- STOP CONTROL
- TRAFFIC CONTROL SIGNAL
- TRAVEL LANES AND PERMITTED MOVEMENTS
- AM & PM PEAK HOUR VEHICULAR VOLUMES

IBI

1981 Maple Grove Road
Transportation Impact Assessment

EXHIBIT 11
Site Generated AM & PM
Peak Hour Traffic Volumes

PROJECT No.: 113480
DATE: FEBRUARY 2018
SCALE: NTS

As shown in **Table 4.1**, the proposed development is anticipated to generate 110 two-way trips (61 inbound and 49 outbound) during the AM peak hours and 119 two-way trips (60 inbound and 59 outbound) during the PM peak hours.

The assumptions for the trip distribution rates are based on the existing traffic patterns at the Campeau Drive and Palladium Drive intersection, and routes that drivers would likely take to access the subject site and engineering judgement based on ease of site access. As a result, site trip distribution is summarized for the inbound and outbound site traffic movements during the morning and afternoon peak hours in **Table 4.2**.

Table 4.2 – Site Traffic Trip Distribution

Direction	Via	AM Peak Hour		PM Peak Hour	
		Inbound	Outbound	Inbound	Outbound
North	Palladium Drive	8%	8%	2%	2%
South	Palladium Drive	42%	42%	55%	55%
East	Campeau Drive	36%	36%	32%	32%
West	Campeau Drive	14%	14%	11%	11%
Total		**100%**	**100%**	**100%**	**100%**

Figure 4-1 - Site Generated Traffic Volumes

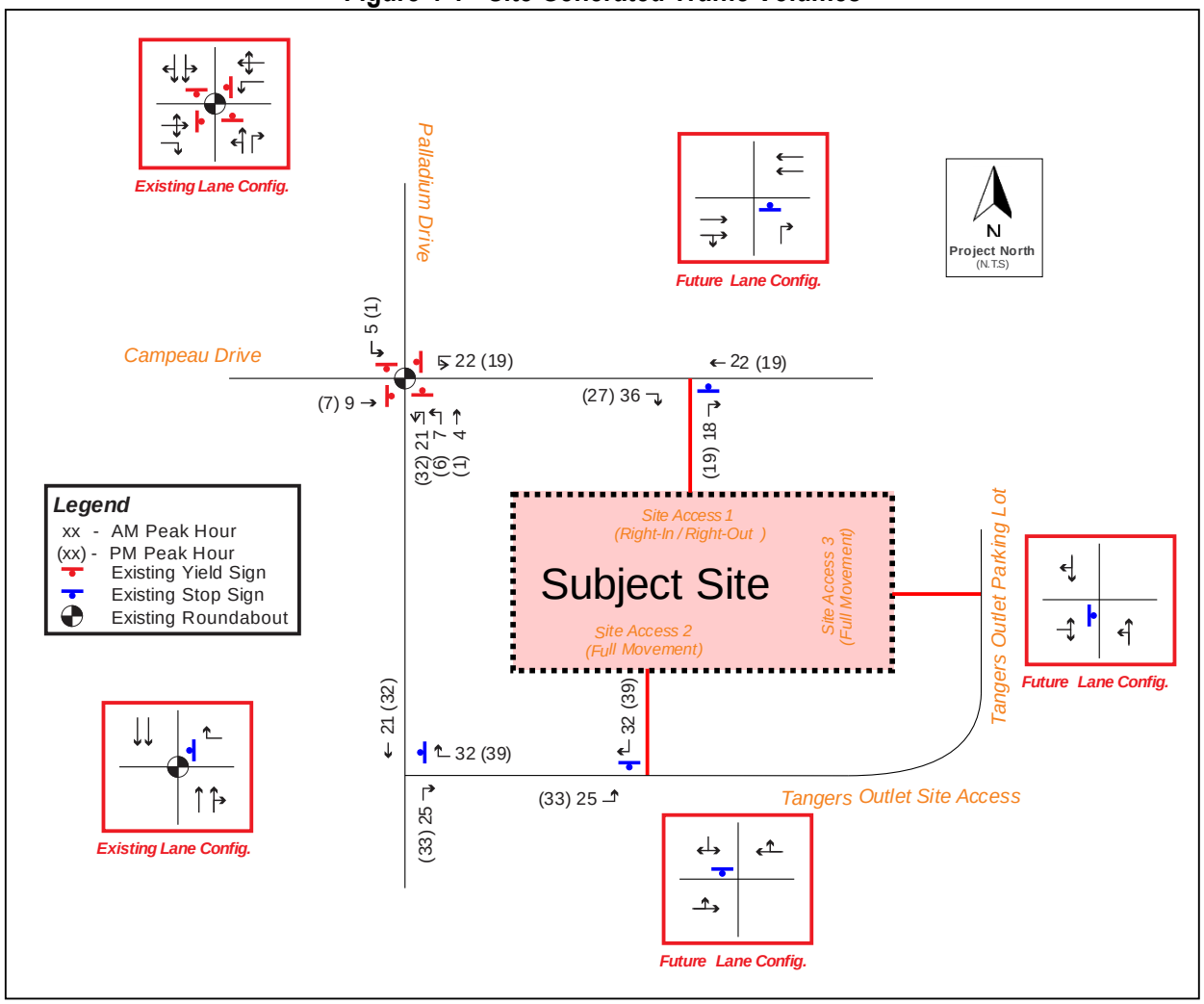


Figure 12: Maritime Ontario Facility Site-Generated Traffic (Phase 1)

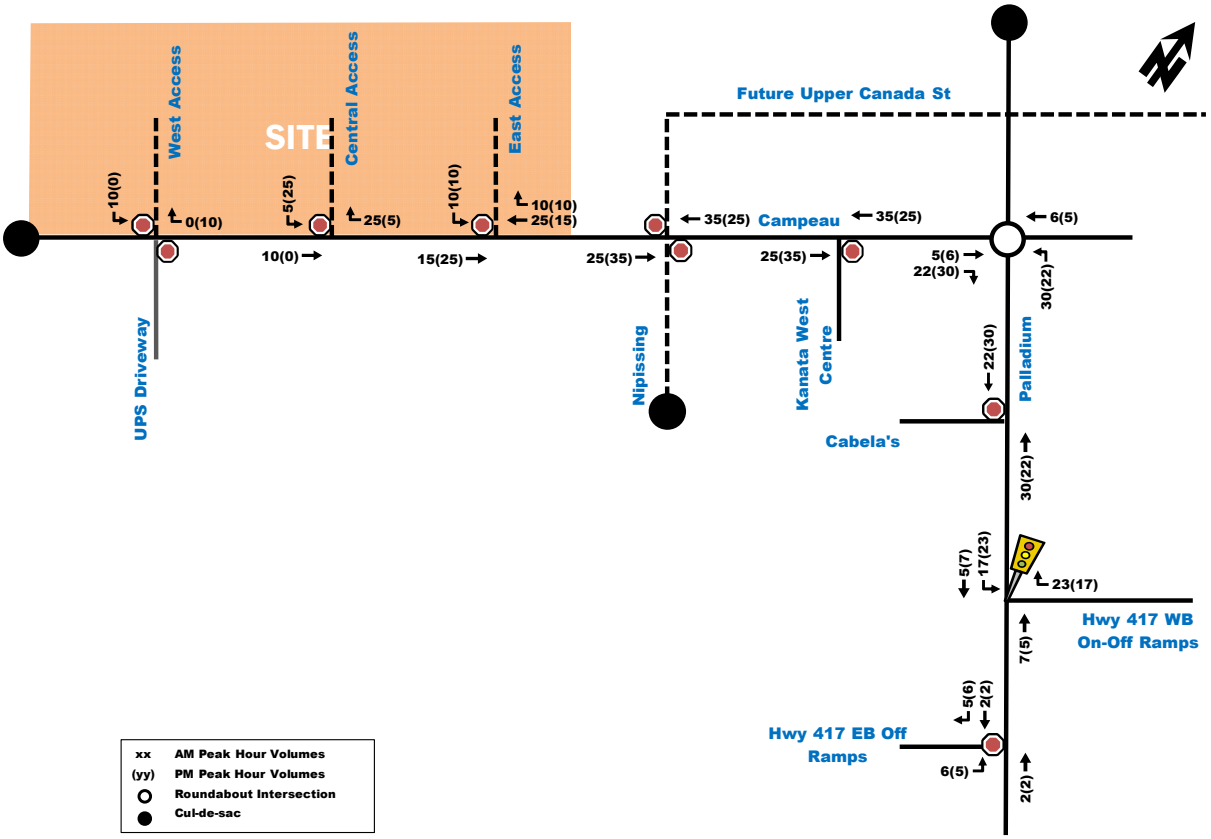
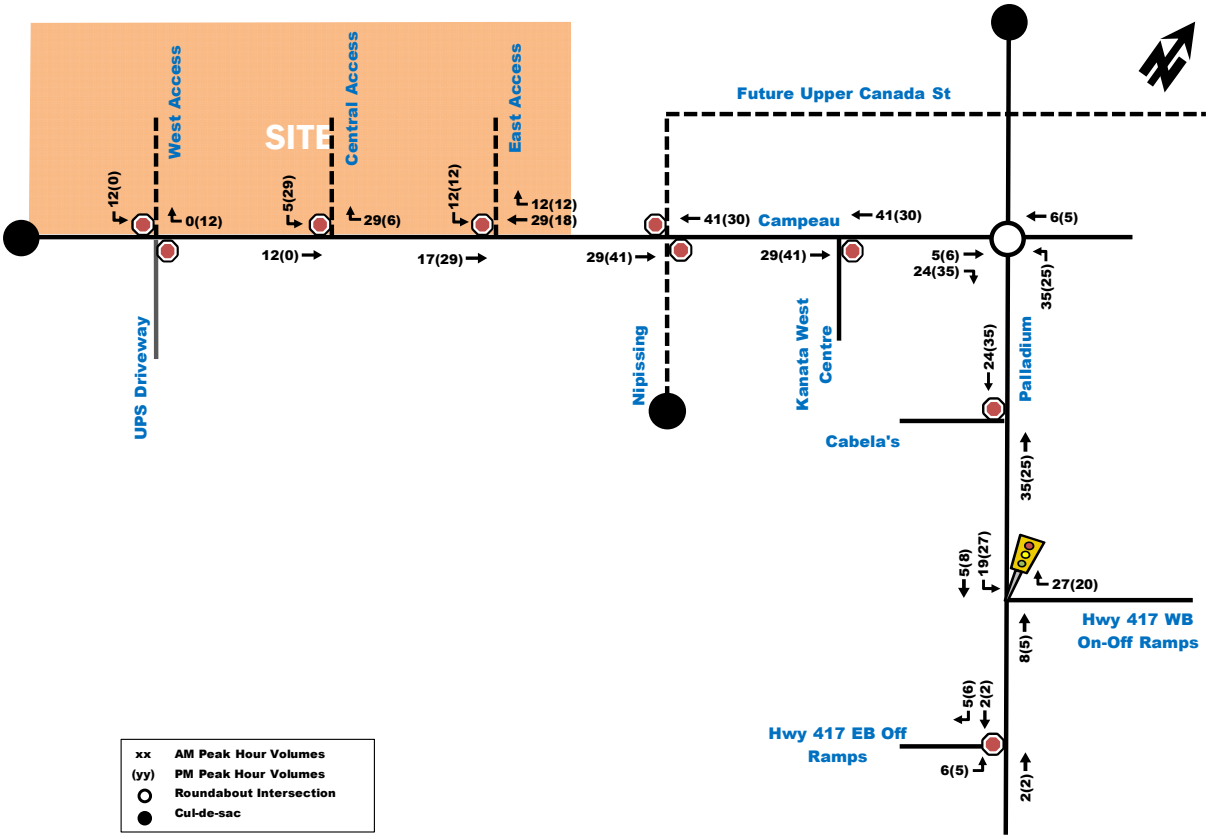


Figure 13: Maritime Ontario Facility Site-Generated Traffic (Phase 2)



APPENDIX H

Transportation Demand Management

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	☑ - future transit stops at Derreen/Culdaff
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)*	☐ - N/A
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	☐
		1.2	**Travel surveys**	
BETTER		1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
		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)*	☑
		2.2	**Bicycle skills training**	
BETTER		2.2.1	Offer on-site cycling courses for residents, or subsidize off-site courses	☐

			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)*	☑
BETTER		3.1.2	Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐
		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	☐
BETTER		3.2.2	Offer at least one year of free monthly transit passes on residence purchase/move-in	☐
		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)*	☐
		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)	☐
		4.	**CARSHARING & BIKESHARING**	
		4.1	**Bikeshare stations & memberships**	
BETTER		4.1.1	Contract with provider to install on-site bikeshare station (*multi-family)*	☐
BETTER		4.1.2	Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☐
		4.2	**Carshare vehicles & memberships**	
BETTER		4.2.1	Contract with provider to install on-site carshare vehicles and promote their use by residents	☐
BETTER		4.2.2	Provide residents with carshare memberships, either free or subsidized	☐
		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)*	☑

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	☑
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☐

APPENDIX I

MMLOS Analysis

Segment MMLOS Analysis

This section provides a review of the boundary streets, using complete streets principles. The *Multi-Modal Level of Service (MMLOS) Guidelines*, produced by IBI Group in October 2015, were used to evaluate the levels of service for each alternative mode of transportation on the boundary streets. Derreen Avenue and Culdaff Road have been evaluated based on the targets for the General Urban Area rather than the targets for the Employment Area, as the proposed development is residential in nature.

Exhibit 4 of the *MMLOS Guidelines* has been used to evaluate the segment pedestrian level of service (PLOS) of the boundary streets. Exhibit 22 of the *MMLOS Guidelines* identifies a target PLOS C for all roadways in the General Urban Area. The results of the segment PLOS analysis are summarized in **Table 1**.

Exhibit 11 of the *MMLOS Guidelines* has been used to evaluate the segment bicycle level of service (BLOS) of the boundary streets. Exhibit 22 of the *MMLOS Guidelines* identifies a target BLOS D for roadways in the General Urban Area with no cycling route designation. The results of the segment BLOS analysis are summarized in **Table 2**.

Exhibit 15 of the *MMLOS Guidelines* has been used to evaluate the segment transit level of service (TLOS) of the boundary streets. Within the General Urban Area, Exhibit 22 of the *MMLOS Guidelines* identifies no target TLOS for roadways without a RTTP designation. However, transit service on Derreen Avenue is anticipated in the future, and therefore the TLOS of Derreen Avenue has been evaluated. The results of the segment TkLOS analysis are summarized in **Table 3**.

Exhibit 20 of the *MMLOS Guidelines* has been used to evaluate the segment truck level of service (TkLOS) of the boundary streets. Within the General Urban Area, Exhibit 22 identifies no target TkLOS for local roadways. The TkLOS of Derreen Avenue has been evaluated to reflect future transit service. The results of the segment TkLOS analysis are summarized in **Table 4**.

Table 1: PLOS Segment Analysis

Sidewalk Width	Boulevard Width	Avg. Daily Curb Lane Traffic Volume	Presence of On-Street Parking	Operating Speed[1]	PLOS
Derreen Avenue (north side, Culdaff Road to Palladium Drive)					
1.8m	> 2.0m	≤ 3,000 vpd	N/A	60 km/h	A
Derreen Avenue (south side, Culdaff Road to Palladium Drive)					
1.8m	> 2.0m	≤ 3,000 vpd	N/A	60 km/h	A
Culdaff Road (east side, north of Derreen Avenue)					
No sidewalk		≤ 3,000 vpd	N/A	60 km/h	**F**
Culdaff Road (west side, north of Derreen Avenue)					
1.8m	> 2.0m	≤ 3,000 vpd	N/A	60 km/h	A

1. Operating speed taken as the speed limit plus 10 km/h.

Table 2: BLOS Segment Analysis

Road Class	Route Type	Bikeway Type	Travel Lanes	Operating Speed	BLOS
Derreen Avenue (Culdaff Road to Palladium Drive)					
Collector	No Class	Cycle Track	N/A	N/A	A
Culdaff Road (north of Derreen Avenue)					
Collector	No Class	Cycle Track	N/A	N/A	A

Table 3: TLOS Segment Analysis

Facility Type	Level of Congestion Delay, Friction and Incidents			TLOS
	Congestion	Friction	Incident Potential	
Derreen Avenue (Culdaff Road to Palladium Drive)				
Mixed Traffic – Limited Parking/Driveway Friction	Yes	Low	Medium	D

Table 4: TkLOS Segment Analysis

Curb Lane Width	Number of Travel Lanes Per Direction	TkLOS
Derreen Avenue (Culdaff Road to Palladium Drive)		
> 3.7m	1	B