1015 Tweddle Rd

TIA Step 3 Report – Strategy

Draft

May 2025

TIA Plan Reports

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

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

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

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed[1] or registered[2] professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering ☑ or transportation planning ☐.

[1,2] **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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1015 Tweddle Rd

TIA Step 3 Report

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TIA STEP 3 – STRATEGY REPORT

Parsons has been retained by 9378-0633 Quebec Inc to prepare a TIA in support of a Site Plan Control Application (SPA) for a proposed mixed-use residential development with ground floor retail located at the municipal address of 1015 Tweddle Rd. This document follows the TIA process as outlined in the City of Ottawa Transportation Impact Assessment (TIA) Guidelines (2017). The following report represents Step 3 – Strategy Report.

1.0 SCREENING FORM

The screening form confirmed the need for a TIA Report based on the Trip Generation trigger, given that the proposed development consists of four 24 to 32-storey buildings with approximately 1,260 residential units and commercial uses; The Location trigger given that the development is located within a Crosstown Bikeway corridor and within a Transit Oriented Development Zone (TOD), located within 600m of the future Trim LRT Station; and Safety trigger given that a vertical curvature exists on Tweddle Rd where one of the site accesses is proposed. The Screening Form and Site Plan have been provided in **Appendix A**.

2.0 SCOPING REPORT

2.1. Existing and Planned Conditions

2.1.1. Proposed Development

The proposed development is located at the municipal address of 1015 Tweddle Rd at the north-east corner of the Tweddle Rd and Jeanne d'Arc Blvd intersection, with the eastern quadrant of the site fronting the realigned Trim/Jeanne d'Arc intersection (August 2021). The site consists of a 3.3-acre vacant lot, where the land elevation was raised above the floodplain with necessary approvals from Rideau Valley Conservation Authority and is now above the floodplain. The site has full servicing capabilities from Jeanne d'Arc Blvd and has road access from Jeanne d'Arc Blvd, Tweddle Rd and Trim Rd. The site is currently zoned as Residential Fifth Density Zone, R5A[2834]-h, which allows four high-rise buildings with a maximum height of 35-storeys, which is consistent with the proposed site design. The site is located within 600m walk to future Trim LRT Station once the pedestrian bridge is built and train becomes operational, expected by year 2025. The site context is illustrated in **Figure 1**.

The development will consist of four apartment buildings ranging from 24 to 32-storeys each connected by a pedestrian courtyard and a shared underground parking garage. The first floor within all buildings except B4 propose commercial retail and restaurant/cafe uses as summarized in **Table 1**. For the purposes of this study, full buildout of the site has been assumed by 2030. Note, this estimate is highly dependent on market forces, but is considered the earliest possible date.

Table 1: Summary of Proposed Land Uses, Size and Location

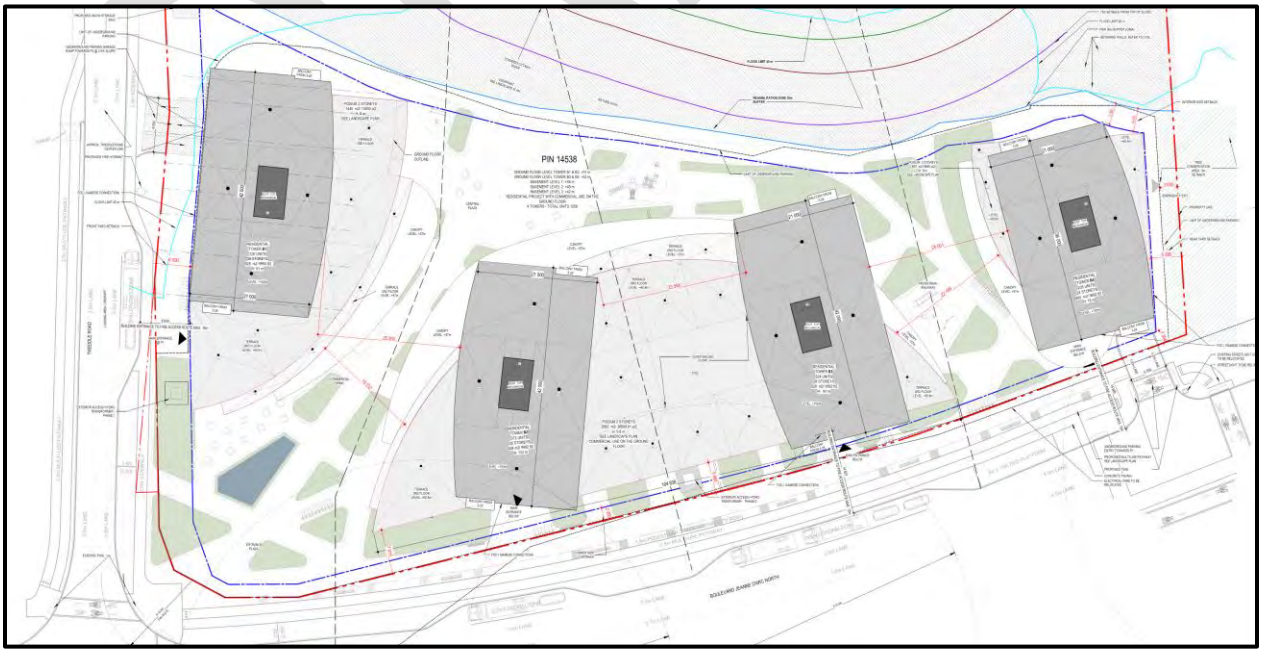
Building	# of Floors	Residential Units	Commercial Retail Size	Restaurant/Café Size
B1	28	326	0	9,741 ft² / 905 m²
B2	32	372	12,497 ft² / 1,161 m²	0
B3	28	324	4,575 ft² / 425 m²	0
B4	24	236	0	0
Combined	-	**1,258**	**17,072 ft² / 1,586 m²**	**9,741 ft² / 905 m²**

The proposed plan provides two two-way accesses, one off Jeanne d'Arc Blvd at Trim Rd, which would form a fourth leg onto the all-way-stop-controlled intersection, leading to the underground parking garage. The second

access is proposed off Tweddle Rd, approximately 55m north of the Tweddle/Jeanne d'Arc intersection. The developer proposes to add on-street visitor parking on Jeanne d'Arc Blvd, but the remainder of parking is all proposed within the three-level underground parking garage. The quantity of residential, visitor and bike parking spaces will be confirmed in Step 3 submission. Garbage pick-up is proposed within the Tweddle Rd access, which proposes a double height ceiling for trucks to enter the site and collect garbage within the site property. The site is proposed to be built in four consecutive phases, but for the purpose of this development, it will be assumed that the site is built out in a single phase by 2030. The site plan has been illustrated in **Figure 2** with a high-quality image in **Appendix A.**

Figure 1: Local Context

Figure 2: Proposed Site Plan



2.1.2. Existing Conditions

Area Road Network

A description for each road within the study area included in the TIA has been provided below.

Ottawa Regional Road 174 (H174) is an east-west City-owned freeway, which extends from H417 in the west to Trim Rd and continues east. Within the study area, H174 has a four-lane cross section and auxiliary turn lanes are provided at its intersection with the recently realigned Trim Rd. The posted speed limit within the study area is 90km/h.

Trim Road is classified as an arterial roadway which extends from Jeanne d'Arc Blvd (formerly known as North Service Rd) to beyond the town of Navan. Trim Rd was recently realigned, being shifted approximately 250m east of its former location, displaced by the new location of future Trim LRT Station. Within the study area, Trim Rd has a two-lane cross section north of H174 and a three-lane cross section south of H174 (two northbound, one southbound). The posted speed limit is 50km/h.

Jeanne d'Arc Boulevard is a major collector roadway west of the realigned Trim Rd. East of Trim Rd, Jeanne d'Arc Blvd continues as Inlet Priv as a local road. Within the study area, Jeanne d'Arc Blvd has a two-lane cross section. The posted speed limit is 60km/h.

Inlet Private is the continuation of Jeanne d'Arc Blvdd east of Trim Rd and extends for about 200m to the east to Brigil Petrie's Landing I Towers. Inlet Private is a local roadway with an unposted speed limit assumed to be 50km/h.

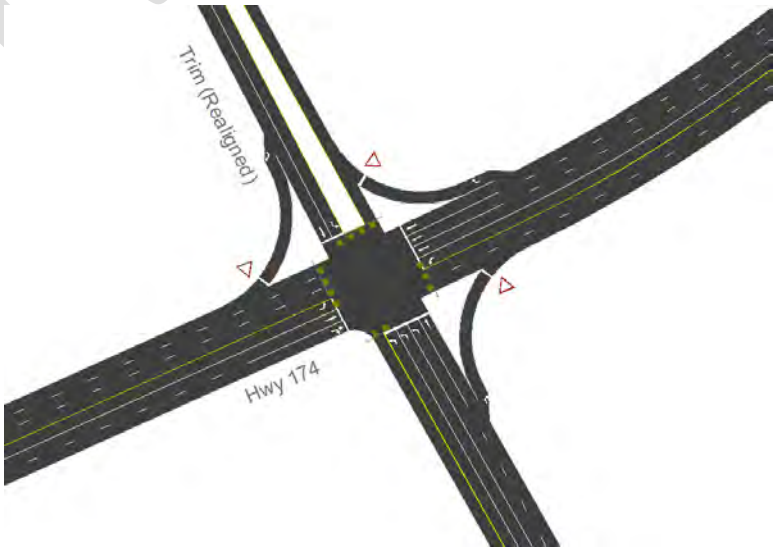
Tweddle Road is the northern continuation of former Trim Rd, extending from just south of H174 to Petrie Island Beach. South of Jeanne d'Arc Blvd, Tweddle Rd operates as a cul-de-sac. Tweddle Rd is a local road with a posted speed limit of 40km/h.

Existing Study Area Intersections

As of August 2021, the Trim/H174 was relocated approximately 250 meters east of the former location. The design shown and described below shows the ultimate buildout design, however it is acknowledged that the existing intersection is mostly the same with the exception that it has a double northbound left instead of triple left and the westbound approach has a double through lane and two receiving lanes as opposed to three.

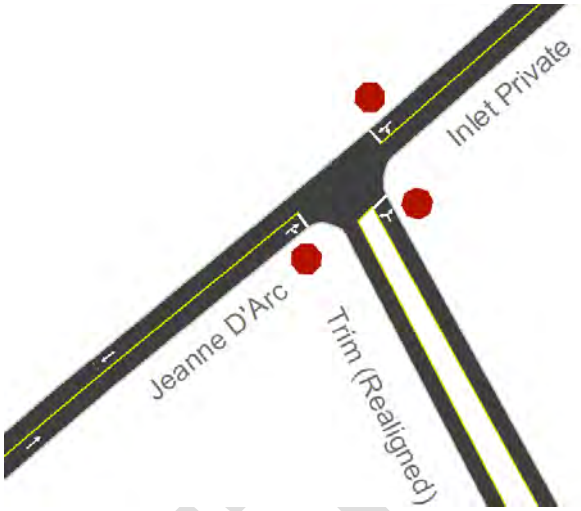
Trim/H174 (realigned – ultimate design)

The Trim/H174 intersection is a signalized four-legged intersection. The eastbound approach consists of a single left-turn lane and two through lanes. The westbound approach consists of a single left-turn lane, a triple through lane and a channelized right-turn lane. The northbound approach consists of a triple left-turn lane, a single through lane and a channelized right-turn lane. The southbound approach consists of a single left-turn lane, a single through lane and a channelized right-turn lane. A bi-directional cross-ride is proposed on the east leg of the intersection.



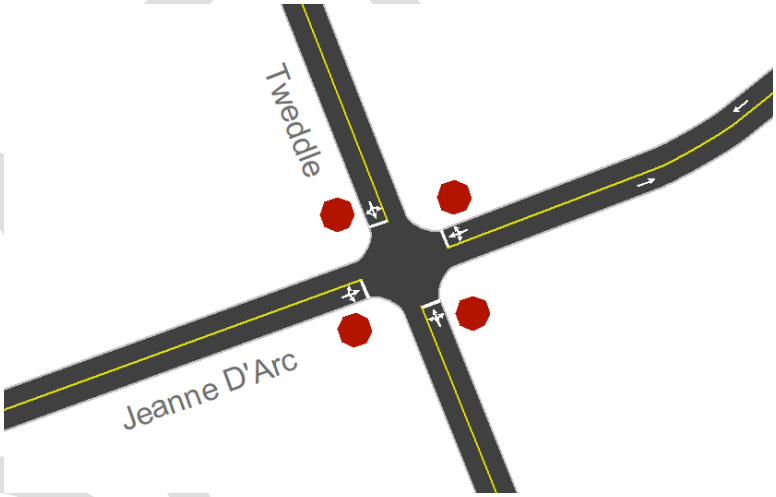
Trim/Jeanne d'Arc (realigned in 2021)

The Trim/Jeanne d'Arc intersection is a three-legged intersection with all-way STOP control. All approaches consist of a single full-movement lane. The south approach currently has a MUP crossing which connects the MUP on the east side of Trim Rd to the MUP on the south side of Jeanne d'Arc Blvd. In the future, a bi-directional cross-ride with green thermoplastic treatment is proposed on the south leg crossing.



Tweddle/Jeanne d'Arc

The Tweddle/Jeanne d'Arc intersection is a four-legged intersection with all-way STOP control. All approaches consist of a single full-movement lane. In the future, a bi-directional cross-ride with green thermoplastic treatment is proposed on the east and north leg crossings to connect the MUP on the south side of Jeanne d'Arc Blvd east of Tweddle Rd to the MUP on the north side of Jeanne d'Arc Blvd west of Tweddle Rd.



Existing Driveways to Adjacent Developments

Driveway accesses near to the development as shown in lime green boxes in **Figure 3** include:

- On Jeanne d'Arc Blvd:
  - La Cite Collegial – located on the south side, approximately 400m west of the site.
  - Brigil sales center – located on the south side, approximately 50m west of the site. Assumed to be temporary.
  - Brigil Petrie's Landing I Towers construction parking – situated on the future location for Towers 5 and 6. Currently being used as a construction worker parking lot.
  - Brigil Petrie's Landing I Towers (2 accesses) – located on the north side (Inlet Pvt), approximately 160m east of the most eastern site point.
- On Tweddle Rd:
  - City of Ottawa Maintenance Facility – located on the east side of Tweddle Rd, approximately 110m south of the site.
  - Petrie Island Marina – located on the east side of Tweddle Rd, approximately 380m north of Tweddle/Jeanne d'Arc intersection.

Figure 3: Existing Driveways Adjacent to Development

Existing Area Traffic Management Measures

Below are the existing area traffic management measures within the study area:

- Two "Prepare to Stop when Flashing" signals on H174, each approximately 600m to the west of Tweddle Rd and 600m to the east of Trim Rd; and,
- One "High Deer Collision Corridor" signal on H174 westbound approximately 300m to the west of Tweddle Rd.
- "Yield to Pedestrians and Cyclists" sign approaching the northbound and westbound channelized right-turns.

Existing Pedestrian/Cycling Network

Sidewalk facilities are provided on the south side of Jeanne d'Arc Blvd and Inlet Private. The north side of Jeanne d'Arc Blvd has a paved, separated multi-use pathway (MUP) which extends from Tweddle Road westward and continues on the south side of Jeanne d'Arc Blvd east of Tweddle Road to Trim Rd. From Trim Rd, the MUP continues to the Trim Station Park n' Ride facilities approximately 180m south of H174/Trim intersection, where they continue south on both side of Trim Rd from that point onwards. Tweddle Rd has a sidewalk facility on the west side of the road and the remains of a former MUP on the east side of the road which appear to be fragmented and in poor condition since the last site observation, between Jeanne d'Arc Blvd and the dead-end near H174. **Figure 4** illustrates the existing active transportation facilities.

Figure 4: Existing Active Transportation Facilities

The Crosstown Bikeway Network (March 1, 2023)[1] from the new Transportation Master Plan classifies Jeanne d'Arc Blvd from Trim Rd to Tweddle Rd and Trim Rd as part of the Crosstown Bikeway Network as shown in **Figure 5**. The MUP on the north side of Jeanne d'Arc Blvd west of Tweddle Rd is classified as part of the NCC Pathways Network. The south side of Jeanne d'Arc Blvd from Trim Rd to Tweddle Rd and the east side of Trim Rd have a MUP facility. South of H174, Trim Rd has MUP facilities on both sides of the road. Within the previous City of Ottawa's 2013 Cycling Plan, Jeanne d'Arc Blvd and Trim Rd are identified as spine routes with major pathway designations.

[1] Crosstown Bikeway Network, March 1, 2023

Figure 5: 2023 TMP Crosstown Bikeway Network

Transit Network

The transit network for the study area is illustrated in **Figure 6** with **Figure 7** illustrating the bus stop locations near to the site.

Figure 6: Area Transit Network

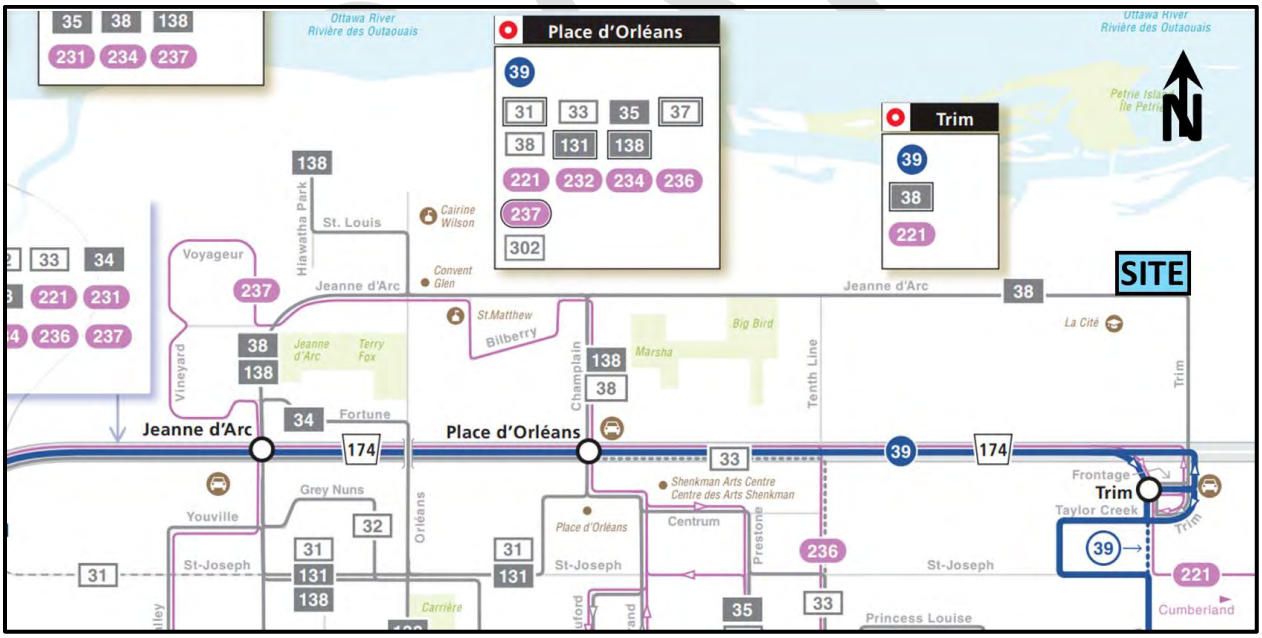
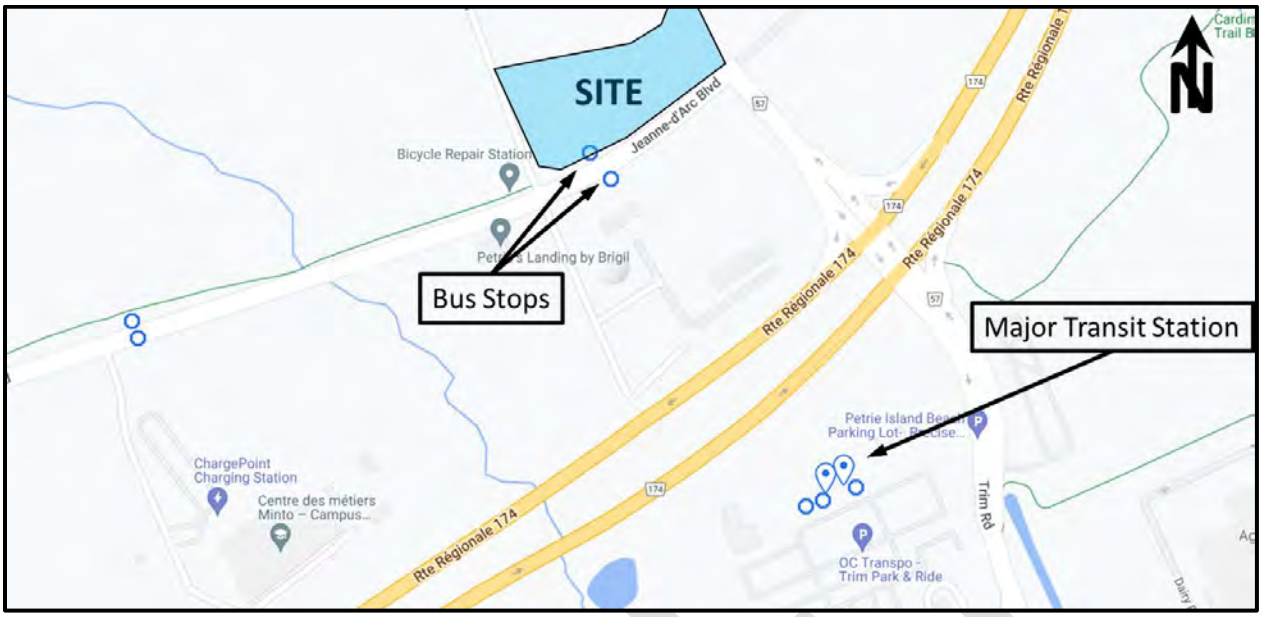


Figure 7: Bus Stop Locations



The following description of OC Transpo routes within the study area reflect the current transit operations:

- **Route #38 (Blair <-> Jeanne d'Arc/Trim)**: identified by OC Transpo as a "Local Route", this route operates on customized routing and schedules, to serve local destinations with connection to the Confederation LRT Line. Route #38 operates at an average rate of every 30 minutes during weekdays. Bus stops for this route are available on both sides of Jeanne d'Arc Blvd, adjacent to the site (stops #6353 and #6354).
- **Route #39 (Blair <-> Millenium)**: identified by OC Transpo as a "Rapid Route", this route operates at a high frequency with connection to the Confederation LRT Line. Route #39 operates 7 days a week, at an average rate of every 15 minutes or less during weekday peak hours. Bus stops for this route are available at Trim Station, located approximately 600m walk from the proposed site.

Peak Hour Travel Demands

Traffic count data was obtained from the City of Ottawa and from counts performed by Parsons. The traffic volumes at study area intersections are illustrated in **Figure 8**, with raw traffic count data provided in **Appendix B**. Note that it was observed that the 2017 count at H174/Trim used in the previous Zoning By-Law Amendment (ZBLA) was significantly higher for the northbound left-turn movement. Parsons requested other year count data and confirmed that the latest 2024 count is consistent to an available 2023 count. In general, pre-Covid-19 traffic volumes tend to be higher than contemporary counts given the many downtown office workers have not returned to work in person and shifts to remote work from home accommodations, likely causing the exhibited reduction in traffic volumes for all counts post Covid-19. Additionally, it is possible that the 2017 count was a high-count year. Existing active transportations volumes have been provided in **Figure 9**, however note that the count at H174/Trim was conducted in winter when active users, especially cyclists are expected to be lower than summer months. The traffic volumes were balanced were appropriate.

Figure 8: Existing Peak Hour Vehicle Traffic Volumes

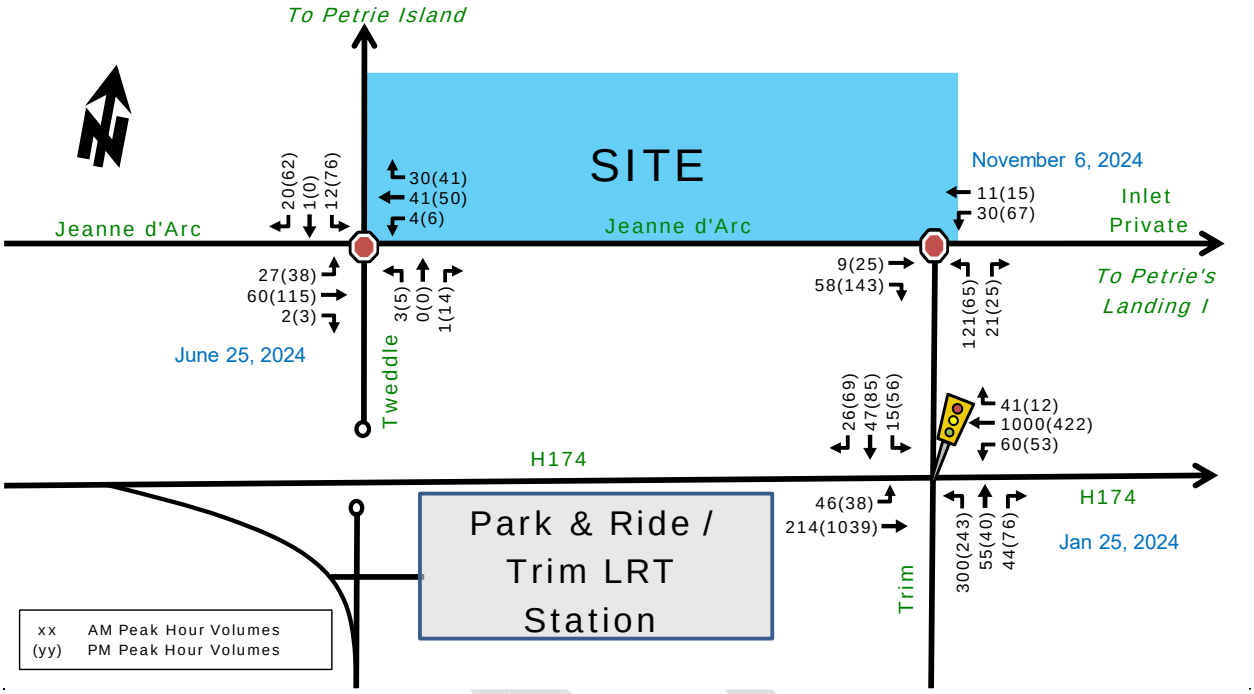
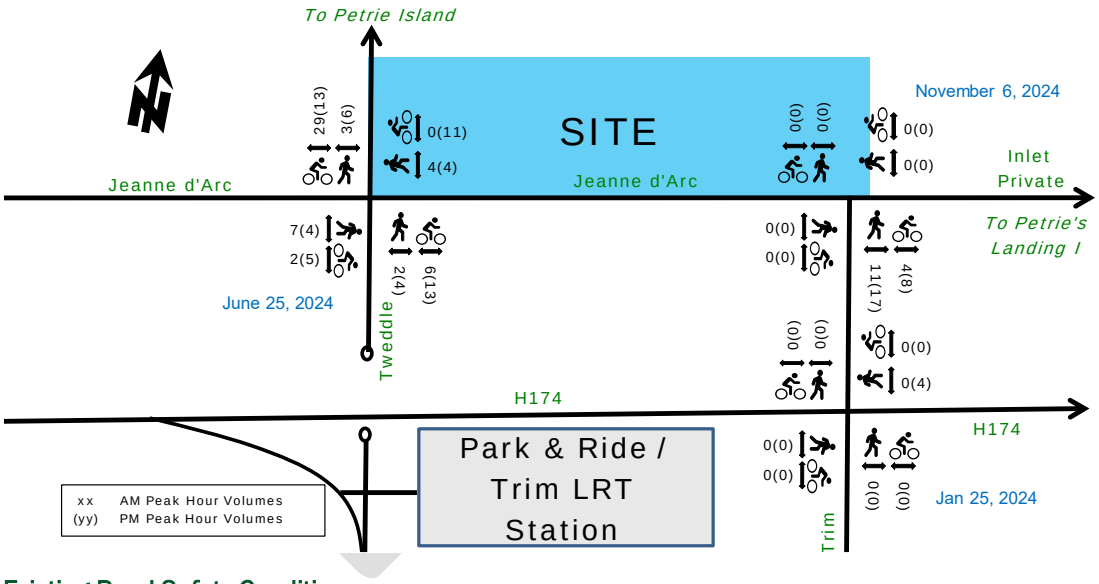


Figure 9: Existing Pedestrian and Cyclists Peak Hour Volumes

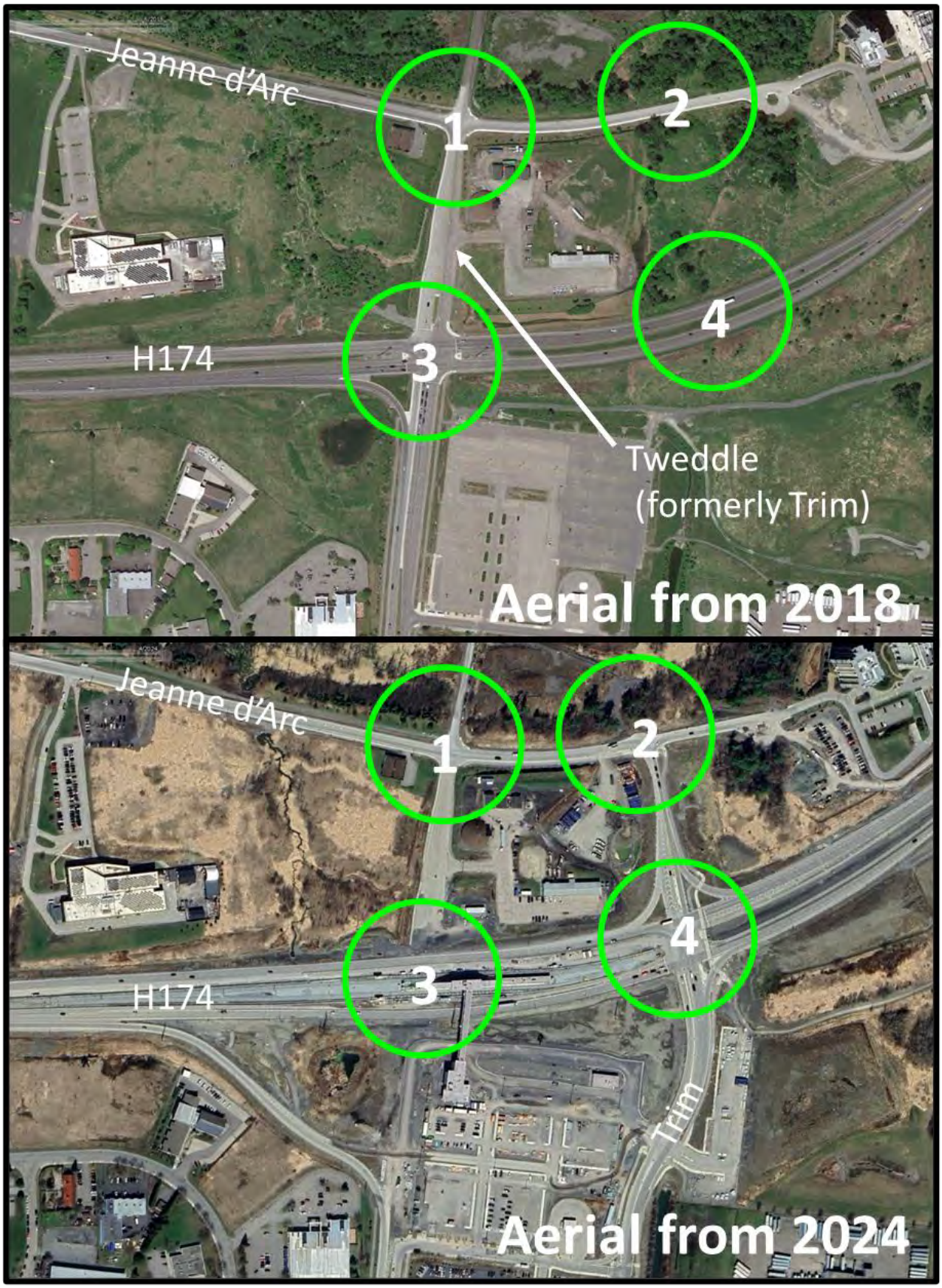


Existing Road Safety Conditions

A five-year collision history data (2018-2022, inclusive) was obtained from the City of Ottawa Open Data for the study area intersections, as well as road segments within the study area. Detailed collision analysis has been provided in **Appendix C.**

As previously stated, major road realignment changes occurred on August 2021, where the intersection of H174/Trim was relocated approximately 250m east to make room for the new Trim LRT Station as shown in **Figure 10**.

Figure 10: Realigned Study Area Intersections



The realignment of H174/Trim intersection (as shown as number 3 moved to location 4 in figure above) had impact on all other study area intersections, shifting all the highway on/off traffic away from the Tweddle/Jeanne d'Arc south leg (location 1) to the Trim/Jeanne d'Arc south leg (location 2). As a result, data from pre-realignment (August 2021) has been separated and included, but omitted from further analysis as it does not reflect existing conditions.

Upon analyzing the collision data, the total number of collisions observed within the study area was determined to be 144 collisions within the past five-years, and 37 of them occurring between August 2021 to December 2022 (approximately 16 months, meaning that the rate of collisions pre and post realignment remained relatively consistent at approximately 2.4 collisions per month).

Table 2: Summary of Type, Quantity and Injury Producing Collisions

Classification of Accident	Rear End	Turn Movement	Sideswipe	Angle	Approaching	SMV Other	SMV Unattended Vehicle	Other	Total
Total 2018-2022 Data Inclusive									
P.D. only	50	5	27	1	5	30	1	4	**123 (85%)**
Non-fatal injury	8	1	0	1	4	5	0	2	**21 (15%)**
Total	**58 (40%)**	**6 (4%)**	**27 (19%)**	**2 (1%)**	**9 (6%)**	**35 (24%)**	**1 (1%)**	**6 (4%)**	**144 (100%)**
Post Realignment Data (August 2021 – December 2022)									
P.D. only	13	2	10	0	0	6	0	1	**32 (86%)**
Non-fatal injury	3	0	0	0	1	1	0	0	**5 (14%)**
Total	**16 (43%)**	**2 (5%)**	**10 (27%)**	**0 (0%)**	**1 (3%)**	**7 (19%)**	**0 (0%)**	**1 (3%)**	**37 (100%)**

Table 3: Summary of Collision Location and Injury Causing Collisions

Location	# Collisions 2018-2022	% Causing Injury	# Collisions Post Realignment	% Causing Injury	Most Frequent Type
Trim/H174 Intersection	60	15%	18	17%	Rear End
H174 WB Departing Trim	12	0%	4	0%	Sideswipe
H174 WB Approaching Trim	38	24%	4	25%	SMV Other
H174 EB Departing Trim	14	7%	5	0%	Sideswipe
H174 EB Approaching Trim	17	12%	6	17%	Sideswipe
Former Trim, Jeanne d'Arc to H174	2	0%	0	-	Rear End
Former Trim, N Terminus to Jeanne d'Arc	1	0%	0	-	Approach

Within the study area, there were no collisions with pedestrians or cyclists recorded.

The intersection of Trim/H174 was the only intersection with recorded collisions within the entire 5-year data for study area intersections. Of the collisions, between 65% to 72%, all data vs post-alignment data respectively was found to result in a rear-end collision type. Despite the operating speeds for H174, the percent of collisions causing injury was relatively low, suggesting that the "prepare to stop" flashing beacons likely give sufficient warning to drivers to slow down upon approach.

The H174 westbound approach towards the H174/Trim intersection showed a high proportion of single motor vehicle type accident, particularly prior to the realignment of the H174/Trim intersection. Further analysis did not point to an obvious culprit such as climate or lighting, since most of the collisions showed varying conditions. It is possible that the increased number of SMV type collision pre-realignment may have occurred due to frequent lane arrangement changes and construction work.

2.1.3. Planned Conditions

Future Transportation Network Changes

2013 Transportation Master Plan – (Partially Superseded by Ongoing TMP Update)

A new TMP is still being developed and expected to be released by end of year 2025. Phase 1 was released in 2024 which placed a large focus on amplifying density near rapid transit stations and creating a focus on 15-minute neighbourhoods. Phase 1 also provided details for the active transportation network, including the Crosstown Bikeway Network (2023) which was shown in **Figure 5**, and is the current cycling plan. Although superseded by the (new) Official Plan and ongoing TMP update, the Ottawa 2013 Ultimate Cycling Plan still provides some insight on possible planned future facilities. The 'priority transit network' and the 'priority road network', both released on March 31st, 2025 do not propose any new facilities within the study area. The 'cycling priority network' highlights the active transportation bridge proposed just west of Tweddle Rd over H174 as being within the priority projects (forecasted within the next 10 years).

Within the Ottawa 2013 Ultimate Cycling Plan, Tweddle Rd is classified as a 'local route'. A major pathway is proposed on the south side of Jeanne d'Arc Blvd east of Trim Rd (connecting to existing MUP west of Trim Rd), extending between Brigil Petrie's Landing I development and H174 towards the Cardinal Creek pathways. The MUP facilities on Trim Rd have been finalized and are operational. **Figure 11** depicts the existing and future network. Note that the figure from GeoOttawa does not reflect the realignment of Trim Rd.

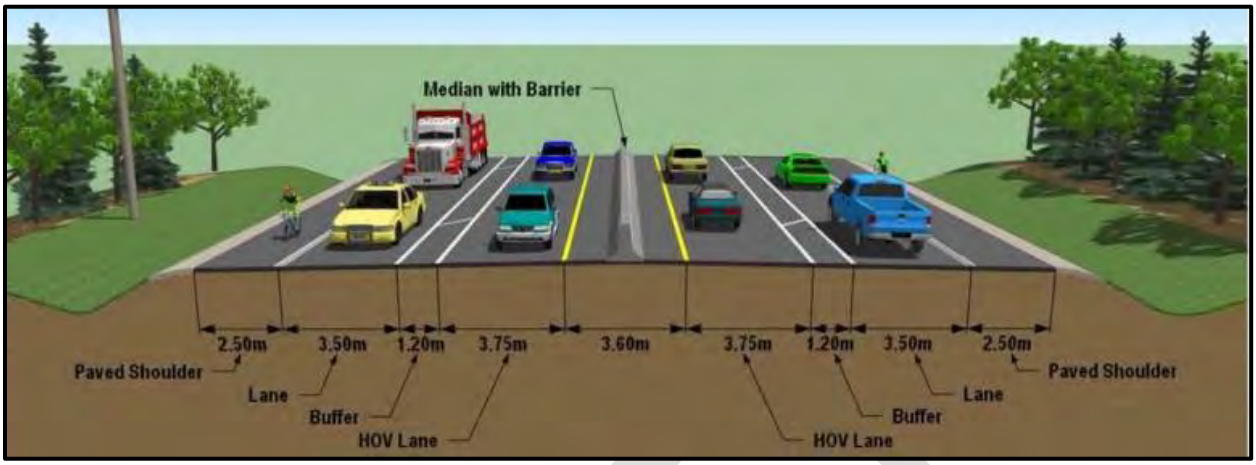
Figure 11: Existing and Future 'Ultimate Cycling Network"

Source: Geoottawa.ca; note: cycling facilities from former Trim Rd to Tweddle via H174 no longer exist due to Stage 2 LRT.

H174 Widening (pre-2014)

An Environmental Assessment for the potential widening of H174 was conducted by the Townships of Prescott-Russell/City of Ottawa. The widening of H174 to six-lanes from H417 to Trim Rd and to four-lanes from Trim Rd to the City boundary is identified as a road project in the 2013 City of Ottawa Transportation Master Plan. However, the widening of H174 is not identified as part of the Affordable Network Plan within the TMP. Therefore, the road widening of H174 east of Trim Rd is unlikely within the foreseeable future. A potential cross-section is illustrated in **Figure 12**.

Figure 12: H174 Widening Potential Cross-Section East of the Site

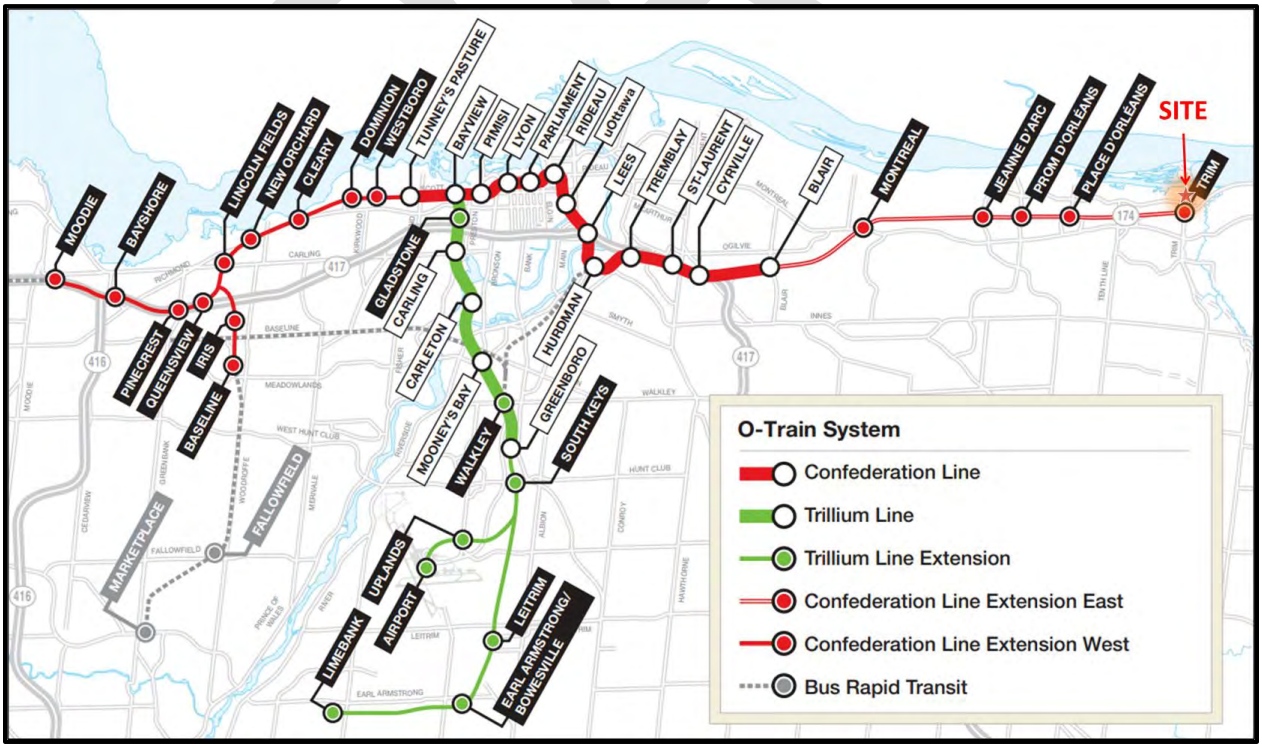


Source: http://ottwatch.ca/meetings/file/366361

Stage 2 LRT (Construction Began 2019)

Stage 2 of the City of Ottawa LRT system is currently under construction. Stage 2, as shown in **Figure 13,** is a package of three extensions – south, east and west – totaling 44 km of new rail and 24 new LRT stations. The subject site will be located within 600m walking distance to rapid transit Trim LRT Station once the pedestrian bridge over H174 is built. The current construction schedule forecasts the Confederation Line East extension will be completed by early 2025[2].

Figure 13: Stage 2 LRT System Map



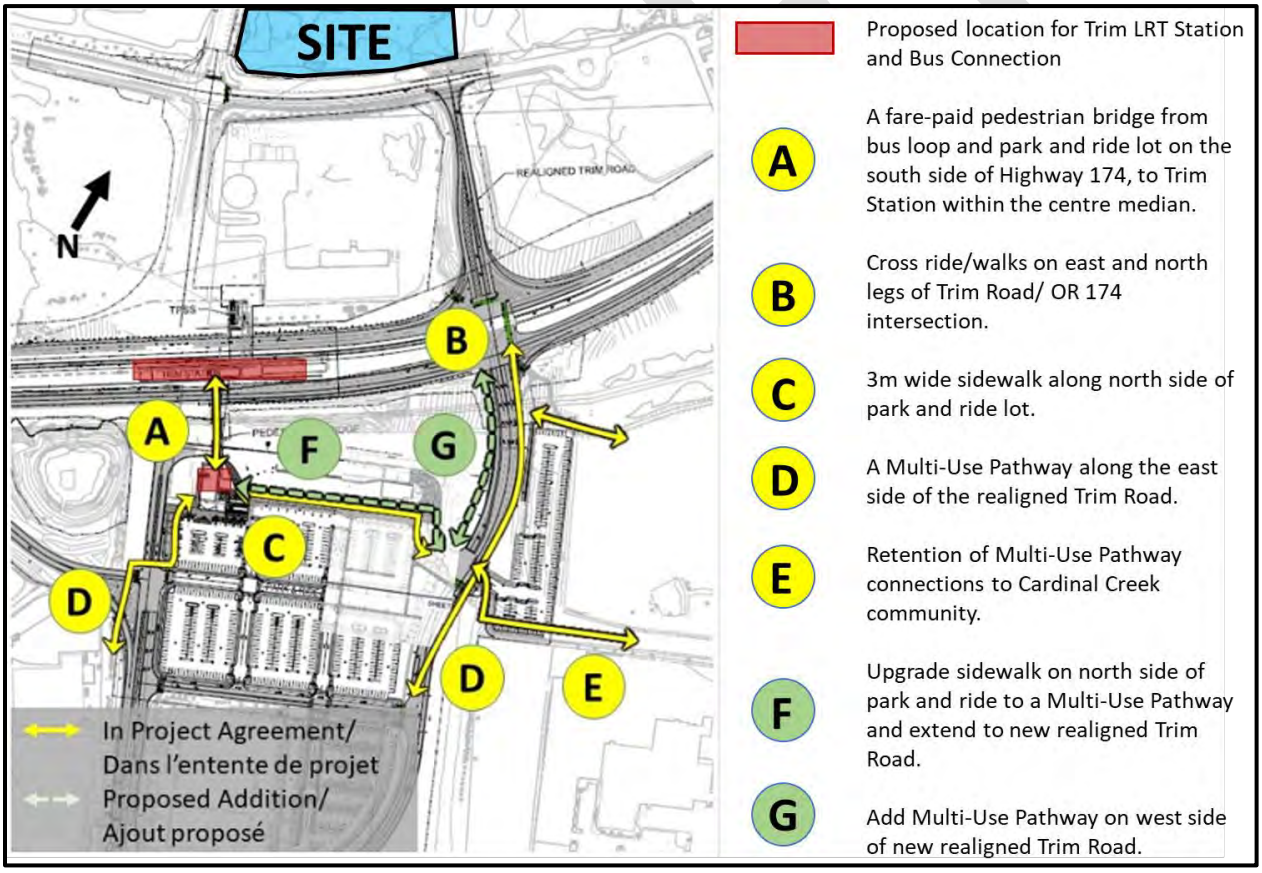
[2] https://ottawa.ctvnews.ca/stage-2-of-ottawa-lrt-faces-further-delay-1.6333917#:~:text=The%20Confederation%20Line%20west%20extension,to%20open%20in%20late%202026.

Construction of the new Trim LRT Station is well underway. As part of the construction, the former H174/Trim at-grade intersection was relocated approximately 250m east to allow for the new LRT station to be located at the former location of the intersection. **Section 4.1** will provide further detail on active transportation facilities proposed at the new intersection once fully built-out. At the moment, the new relocated H174/Trim intersection has been built to interim conditions while the construction of the future Trim LRT Station is ongoing.

The Trim Rd Park and Ride Facility will be modified to include a new bus loop, bus lay-bys, and bus station platforms. It is noteworthy that the subject site is located within 600m walk from the future Trim LRT Station and is therefore considered to be within the Trim Station TOD area. **Section 4.1** will discuss the proposed walking route to get to the future LRT station.

Figure 14 illustrates the planned LRT station location and recently constructed interchange at H174/Trim. This new intersection location accommodates the LRT rail tracks. Trim Rd was truncated both north and south of H174 to accommodate the new station. Trim Rd to the south of H174 has been realigned to the Trim Rd roundabout connection with Taylor Creek Dr. **Figure 14** is only a preliminary design and subject to change as the detailed design of the realignment is still ongoing. The precise location and types of facilities proposed by the new realigned H174/Trim and new Trim/Jeanne d'Arc have yet to be finalized within the final detailed design plan. **Section 4.1** will provide additional details.

Figure 14: Stage 2 LRT Station Connectivity Enhancement Study



Source: https://ottawa.ca/en/city-hall/public-engagement/projects/stage-2-lrt-station-connectivity-enhancement-study

Official Plan (2021)

According to the Official Plan (OP), the site is located within the Trim Protected Major Transit Station Area (PMTSA) within Schedule C1, which has specific policies targeted at higher density developments supported by active transportation trips to rapid transit stations.

Orléans Corridor Secondary Plan (June 8th, 2022)

The City of Ottawa has undertaken a secondary plan for Orléans which has the intention of providing more specific direction and guidance beyond the approved Official Plan for Ottawa. The secondary plan has a high level of focus on LRT transit connectivity and specific corridors.

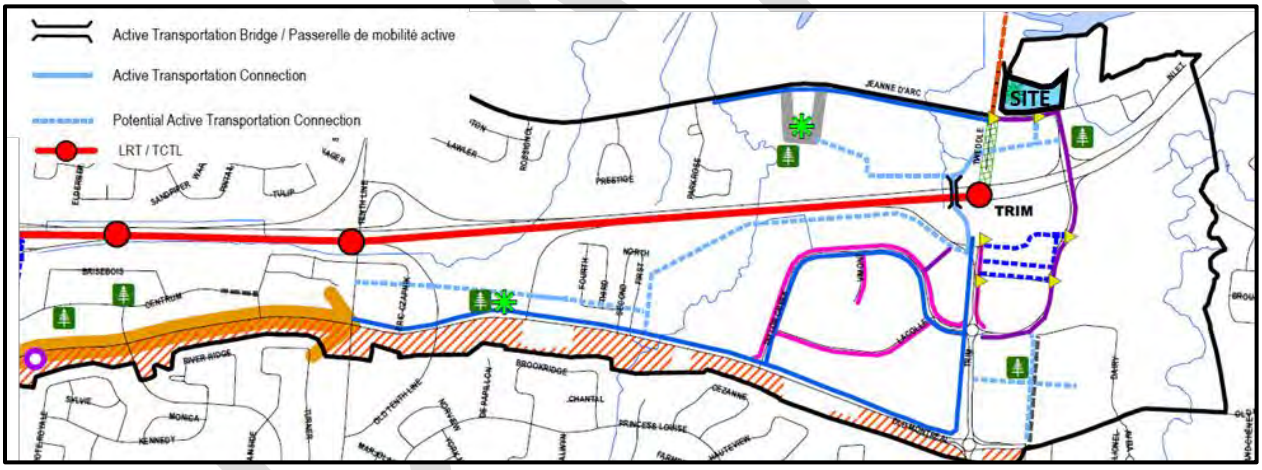
The City of Ottawa in conjunction to the Orléans Corridor Secondary Plan has undertaken an Environmental Assessment (EA) Study to determine the feasibility of adding a pedestrian bridge from the Trim LRT Station to the north side of H174, reducing the walking distance to the future development from existing 880m via the Trim/H174 intersection to less than 600m walk from all locations within site.

It is understood that this bridge connection is moving ahead and will provide a direct connection from the bridge to the LRT Station. The latest TMP cycling update illustrates this crossing as part of the priority network. Further discussion provided in **Section 4.1.**

The City of Ottawa's New Transportation Master Plan (New TMP) also illustrates this future bridge connection over H174 near to the Trim LRT Station within the "Active Transportation Major Structures" early figures released. **Figure 15** illustrates the proposed location for this active transportation bridge. The full figure has been provided in **Appendix D**, along with other key maps from the secondary plan, Official Plan and New TMP.

Based on communication with the City of Ottawa, it is understood that a new multi-use pathway (MUP) will be provided on the west side of Tweddle Rd from the active transportation bridge over H174 to Jeanne d'Arc Blvd. The City suggested that in the future, a MUP may be considered extending from the terminus of this MUP on Jeanne d'Arc Blvd to Petrie Island, but subject to future studies and funding.

Figure 15: Orléans Corridor Secondary Plan – Schedule C Mobility Improvements



Other Area Developments

The following section outlines adjacent developments in the general area that were considered in the TIA. The criteria for inclusion of other area developments are either approved developments or developments that have an active planning application that are generally within a 1-km radius of the subject site. **Figure 16** illustrates the location and relative size of relevant other area developments.

1-Petrie's Landing I

This development proposed by Brigil has evolved since it was approved in 2021, with the current site proposing the construction of a residential development consisting of approximately 1,320 residential units total within 6 towers. The updated traffic counts reflect trip volumes from already built towers 1 to 3. The proposed Petrie's Landing I is located off of Inlet Private and is located approximately 850m east of the subject site. The projected two-way vehicle trips to be layered on for this residential development are based on the TIA Addendum prepared by Parsons (June 2021) for Tower 4 and ongoing Addendum for Towers 5a and 5b.

2-Petrie's Landing II

Brigil is proposing the construction of a residential development consisting of approximately 460 residential units total within 8 block buildings. At the time this report was written, blocks 1 through 7 are occupied and Block 8 is under construction. A TIA prepared by Parsons (February 2021) projects approximately 155 to 130 veh/h during the AM and PM peak hours for the entire site. The most recent count reflects trip volumes from blocks 1 through 7 and will have the remainder Block 8 volumes layered on separately.

3-Petrie's Landing II

Brigil is proposing the construction of a mixed-use development consisting of approximately 110,000 ft^2 of office, 165,000 ft^2 of retail and 3,177 residential units. Construction for this development has not begun. The projected two-way vehicle trips for this proposed mixed-use development are approximately 545 and 555 veh/h during the morning and afternoon peak hours respectively, which was derived within the Petrie's Landing I TIA Report completed in September 2023, by Parsons. It is assumed that approximately 50% of the development will be completed by 2030 horizon and 100% by 2035 horizon.

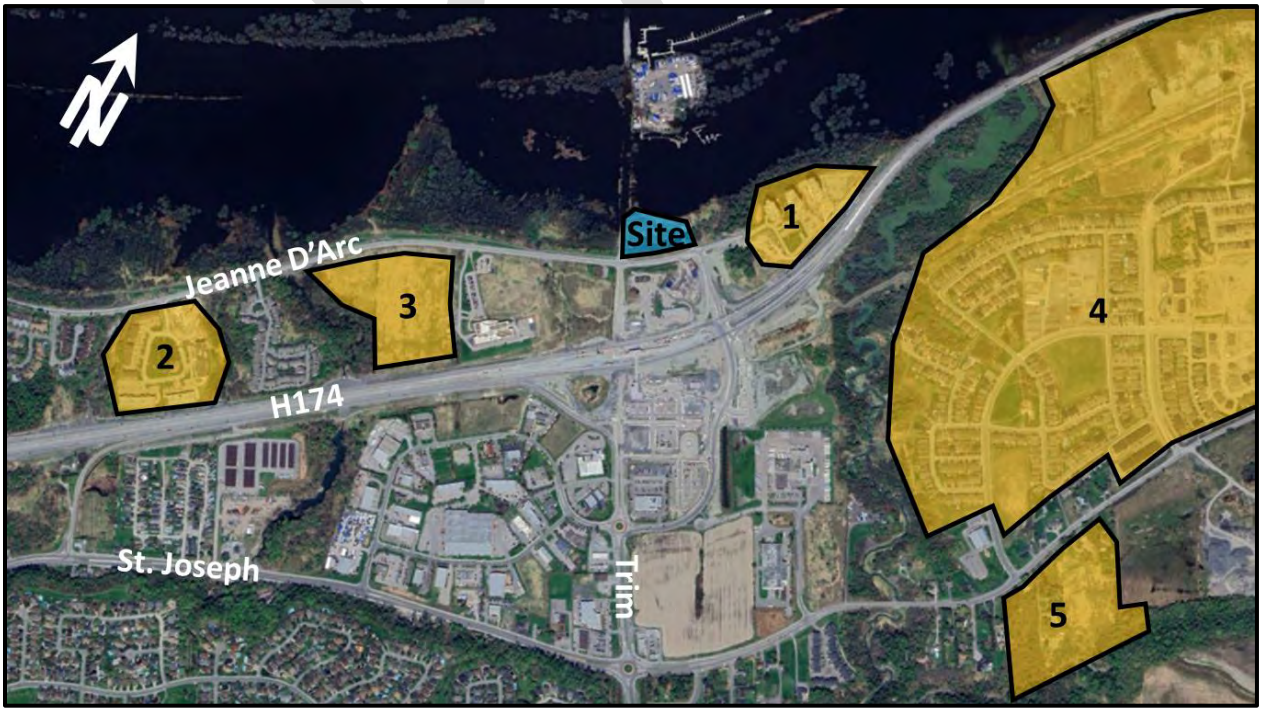
4-Cardinal Creek

Tamarack Homes is currently constructing a 1,446-unit subdivision and a 430,000 ft^2 shopping centre, south of H174 and east of Cardinal Creek. The TIA (prepared by IBI Group, October 2013) projected approximately 1,460 veh/h and 2,619 veh/h by horizon year 2031 (full build-out) during the morning and afternoon peak hours, respectively. These volumes will be layered on to background conditions. It is assumed that approximately 90% of the development will be completed by 2030 horizon and 100% by 2035 horizon.

5-Phoenix Homes

Phoenix Homes is currently constructing a subdivision consisting of 432 terrace flats, 35 townhomes and 16 semi-detached homes along Old Montreal Rd, within Cardinal Creek Village. The TIA (prepared by WSP Group, March 2018) projected approximately 251 veh/h and 295 veh/h by horizon year 2022 (full build-out) during the morning and afternoon peak hours, respectively. These volumes will be layered on to background conditions.

Figure 16: Other Area Developments



2.2. Study Area and Time Periods

For the purposes of this report, the proposed development is assumed to be fully constructed by 2030. The full buildout scenario and five-years after development buildout will be analyzed, 2030 and 2035. The future horizon years analyzed will use the weekday morning and afternoon peak hour traffic volumes. Considering construction trends of the past years, the following phasing has been assumed for other area developments (the earliest possible assumed buildout):

Year 2030:

- Estimated Full Buildout
- Stage 2 LRT - Trim Station open
- Petrie's Landing I & II – 100% built;
- Petrie's Landing III – 50% built;
- Cardinal Creek – 90% built; and,
- Phoenix Homes – 100% built.

Year 2035:

- Estimated Full Buildout +5 years
- Stage 2 LRT - Trim Station open
- Petrie's Landing I & II– 100% built;
- Petrie's Landing III – 100% built;
- Cardinal Creek – 100% built; and,
- Phoenix Homes – 100% built.

Proposed study area intersections are listed below and illustrated in **Figure 17**.

- Tweddle/Jeanne d'Arc
- Trim/Jeanne d'Arc
- Trim/H174
- Along Jeanne d'Arc frontage
- Along Tweddle frontage
- Site Accesses

Figure 17: Study Area and Intersections to be Analyzed

2.3. Exemption Review

The following modules/elements of the TIA process provided in **Table 4** are recommended to be exempt in the subsequent steps of the TIA process, based on the City's TIA guidelines and the subject site:

Table 4: Exemptions Review Summary

Module	Element	Exemption Consideration
4.1 Development Design	4.1.3 New Street Network	Only required for plans of subdivision
4.6 Neighbourhood Traffic Calming	All	Criteria not met
4.8 Network Concept	All	Only required for ZBLA applications

3.0 FORECASTING

3.1. Development Generated Travel Demand

3.1.1. Trip Generation Sources

Appropriate trip generation rates for the proposed residential aspect of the development consisting of approximately 1,260 high-rise condominium units within four towers were obtained from the City's revised 2020 TRANS Trip Generation Manual. The commercial and dinning uses were obtained from ITE's Trip Generation Manual 11th edition. Note that the café land use proposed will likely function more as a fancy sit down café, unlike a fast-food coffee shop like Tim Hortons. The site context also justifies a lower turnover than a coffee shop as it is not located within a major commuter corridor and is likely going to attract mostly local trips and at a far lesser scale than a large brand name coffee shop adjacent to a highway or major commuter route. For this reason, a reduction in the trip generation rate for a coffee shop without drive-through of 80% is considered appropriate. Minor rounding up for land-use and units was done to account for possible minor adjustments between this submission and Step 3 submission. These rates have been summarized in **Table 5**.

Table 5: 2020 TRANS Residential Trip Generation Rates & ITE Commercial Rates

Land Use	Data Source	Units or Size	Trip Rates	
			AM Peak	PM Peak
High Rise Condos	TRANS 2020	1,260 units	T = 0.80(du)	T = 0.90(du)
Retail Strip <40K GFA	ITE 822	17,072 ft²	Ln(T) = 0.66Ln(x) + 1.84	Ln(T) = 0.71Ln(x) + 2.72
Quality Restaurant	ITE 931	6,727 ft²	T = 0.73(x)	T = 7.80(x)
Café (Coffee w/o drive)	ITE 936	3,015 ft²	T = 18.62(x) [1]	T = 2.16(x)

Note: T = Average Vehicle Trip Ends; du = dwelling units; x = GFA in 1,000 ft²

1. *Trip rates for the Café are based on ITE land use 936 with an 80% reduction in base trip rate in the morning peak.*

3.1.2. Residential Trip Generation and Mode Shares

Using the TRANS Trip Generation rates, the total amount of person trips generated by the proposed 1,260 residential units was calculated. The results are summarized in **Table 6**.

Table 6: Projected Residential Peak Period Person Trip Generation – TRANS Model

Land Use	Dwelling Units	AM Peak Period Person Trips	PM Peak Period Person Trips
Four Residential Towers	1,260	1,008	1,134

The projected site peak period person trips were then divided based on the mode shares for Orléans according to TRANS 2020 table 5, as summarized in **Table 7**.

Table 7: Residential Peak Period Trips using TRANS 2020 Mode Shares

Travel Mode	AM Peak Period		PM Peak Period	
	Mode Share	Person Trip	Mode Share	Person Trips
Auto Driver	54%	546	61%	686
Auto Passenger	7%	72	12%	143
Transit	29%	289	21%	238
Cycling	0%	0	0%	0
Walking	10%	101	6%	67
Total Person Trips	100%	1008	100%	1134

Standard traffic analysis is usually conducted using the morning and afternoon peak hour trips as they represent a worst-case scenario. The 2020 TRANS Manual uses peak periods which can exceed the peak hours. Table 4 within the 2020 TRANS Manual includes factors for converting peak periods into peak hour traffic volumes as seen in **Table 8**. Note that conversion factors for passenger trips are assumed to be the same as auto driver.

Table 8: Peak Period to Peak Hour Conversion Factor (2020 TRANS Manual)

Travel Mode	Peak Period to Peak Hour Conversion Factors	
	AM	PM
Auto Driver	0.48	0.44
Passenger	0.48	0.44
Transit	0.55	0.47
Bike	0.58	0.48
Walk	0.58	0.52

Using the peak period to peak hour conversion rates from **Table 8**, the derived peak period trips by mode shares from **Table 7**, and the inbound and outbound splits from table 9 within the TRANS 2020 Manual, then the residential peak hour trips generated by the site for TRANS 2020 Orléans mode share can be calculated, as seen summarized in **Table 9**.

Table 9: Residential Peak Hour Trips Generated using TRANS 2020 Mode Shares

Travel Mode	Mode Share	AM Peak Hour (Trips/h)			Mode Share	PM Peak Hour (Trips/h)		
		In	Out	Total		In	Out	Total
Auto Driver	54%	81	181	262	61%	175	127	302
Auto Passenger	7%	11	24	34	12%	37	26	63
Transit	29%	49	110	159	21%	65	47	112
Cycling	0%	0	0	0	0%	0	0	0
Walking	10%	18	41	59	6%	20	15	35
Total Person Trips	**100%**	**159**	**355**	**514**	**100%**	**297**	**215**	**511**

It is important to note that the TRANS Mode share for Orléans includes a large portion of homes located far from rapid transit and thus, the mode shares for residential uses reflected in **Table 9** show a large percentage of drivers and low percentage of transit/active users, making an adjusted mode share valid.

Given the location of the site, within close proximity to the Trim BRT Transit Station (future LRT station expected to be operational by spring 2025), a higher transit modal share for residential uses is appropriate. **Table 10** illustrates the TRANS 2020 suggested residential modal shares, the City's Transit Oriented Development (TOD) mode shares and future projected residential modal shares. The projected modal shares were based on a hybrid of the ideal TOD mode shares and the TRANS 2020 mode shares. Although the site is located in the outskirts of the city, Orléans has been increasing the quantity of jobs and destinations, plus the adjacent high quality MUP may attract some cycling and pedestrian trips. Transit trips will be modelled as pedestrian trips to and from the future Trim LRT station, although it is acknowledged that a fair percentage of transit users may use bus route #38 which is closer to the site. For the purpose of this analysis, it will be assumed that most trips will head to the LRT station (more conservative as it requires more pedestrian crossings).

Table 10: Future Mode Share Proposed for Residential Trips

Travel Mode	TRANS Residential Mode Shares		City's TOD Mode Shares	Future Target Mode Share (AM & PM)	Residential Modal Share Proposed Rationale
	AM	PM			
Auto Driver	54%	61%	15%	25%	A reduction in driver mode share from TRANS is justifiable given the close proximity to future LRT station. The increase from TOD reflects a capture of non-motorized trips forecasted.
Auto Passenger	7%	12%	5%	10%	
Transit	29%	21%	65%	55%	Development is located within 600m of a future LRT station and is within 600m of existing BRT Transitway Corridor, making transit oriented trips attractive.
Cycling	0%	0%	5%	5%	Given the site's location on the outskirts of Orléans, not many active residential travel trips are anticipated.
Walking	10%	6%	10%	5%	

Using the proposed residential mode shares from above, then the forecasted residential trips by mode share can be derived, as summarized in **Table 11**.

Table 11: Residential Peak Hour Trip Generation using Proposed Mode Shares

Travel Mode	Mode Shares AM & PM	AM Peak Hour (Trips/h)			PM Peak Hour (Trips/h)		
		In	Out	Total	In	Out	Total
Auto Driver	25%	40	89	129	74	54	128
Auto Passenger	10%	16	35	51	30	21	51
Transit	55%	88	195	283	163	118	281
Cycling	5%	8	18	26	15	11	26
Walking	5%	8	18	26	15	11	26
Total Person Trips	**100%**	**159**	**355**	**514**	**297**	**215**	**511**

3.1.3. Commercial Trip Generation and Mode Shares

The commercial aspect of this development is mainly catered to local trips, be it from residents in this development or nearby high-density developments such as Petrie's Landing I and III, La Cité Collegial, Cardinal Creek, to name a few. Additionally, another market that this development plans to cater to are cyclists using the nearby MUP or pedestrians walking to/from the Trim LRT Station to Petrie Island, a high attraction nature reserve and beach, as a pass-by trip or new trip using the facilities adjacent to the site. For those reasons, a reduction in auto dependency for commercial uses as recommended within TRANS 2020 for Orléans is proposed, as shown in **Table 12**. The proposed mode shares for commercial uses will be used for the following commercial trip generation.

Table 12: Future Mode Share Targets for the Development

Travel Mode	TRANS Commercial Mode Shares		Commercial Proposed Mode Share	Target Rationale
	AM	PM	AM & PM	
Auto Driver	77%	71%	30%	A reduction in driver mode share from TRANS is justifiable given the close proximity to future LRT station, high density located nearby (promoting walking), and nearby MUP and nature destination to attract active users.
Auto Passenger	14%	20%	10%	
Transit	3%	2%	35%	Development is located within 600m of a future LRT station, with an attractive desire line at Petrie Island passing adjacent to the site, making it an attractive candidate for pass-by trips or primary trips for pedestrians.
Cycling	0%	1%	10%	Nearby high density and MUP expected to attract a fair portion of clients by walking/biking trips.
Walking	6%	5%	15%	

Given the mixture of land uses, an internal reduction rate is applicable based on mixed-use parameters described in Section 6.5 of the ITE Trip Generation Manual 3rd Edition, to account for multi-purpose trips such as a local resident shopping or dining out prior to travelling to work. These trips may be reduced to reflect double counted trips, which have been incorporated in the trip generation tables that follow. The base calculation for determining the quantity of internal reductions has been provided in **Appendix E.**

Pass-by trips were also considered for commercial uses. Pass-by trips are intermediate trips along the original route between the primary origin and destination, such as a trip to the café or retail between home and another destination such as recreation at Petrie Island. These are not considered 'new' trips, but existing trips already on the network. Appendix E of the ITE Trip Generation Manual 3rd edition was used to determine pass-by rates. A rate slightly lower than ITE was used since Jeanne d'Arc Blvd is not a major throughway for commuter traffic and the pool of possible pass-by trips is not very large. Pass-by trips were calculated after the internal reduction factor was applied.

The trip generation rates for commercial uses from **Table 5** were used along with the proposed sizes for each commercial land use and respective mode share as described in **Table 12** to estimate new commercial trips as shown in **Tables 13** to **16.**

Table 13: Retail Strip <40K GFA Peak Hour Trips Generated by Mode

Travel Mode	Mode Share	AM Peak Hour (Trips/hr)			PM Peak Hour (Trips/hr)		
		In	Out	Total	In	Out	Total
Auto Driver	30%	8	5	13	16	12	28
Pre-Internal Reduction		*10*	*7*	*17*	*22*	*22*	*44*
Vehicles Reduced		*-2*	*-2*	*-4*	*-6*	*-10*	*-16*
Auto Passenger	10%	4	2	6	8	8	16
Transit	35%	10	7	17	25	25	50
Cycling	10%	3	2	5	7	7	14
Walking	15%	4	3	7	11	11	22
Total Person Trips	100%	29	19	48	67	63	130
Less Pass-by 0% AM (30% PM)		0	0	0	-5	-5	-10
Total 'New' Retail Auto Trips		**8**	**5**	**13**	**11**	**7**	**18**

Table 14: Quality Restaurant Peak Hour Trips Generated by Mode

Travel Mode	Mode Share	AM Peak Hour (Trips/hr)			PM Peak Hour (Trips/hr)		
		In	Out	Total	In	Out	Total
Auto Driver	30%	1	1	2	8	2	10
Pre-Internal Reduction		*1*	*1*	*2*	*14*	*7*	*21*
Vehicles Reduced		*0*	*0*	*0*	*-6*	*-5*	*-11*
Auto Passenger	10%	1	1	2	4	3	7
Transit	35%	1	1	2	15	8	23
Cycling	10%	0	0	0	4	2	6
Walking	15%	0	0	0	7	3	10
Total Person Trips	100%	3	3	6	38	18	56
Less Pass-by 0% AM (40% PM)		0	0	0	-2	-2	-4
Total 'New' Restaurant Auto Trips		**1**	**1**	**2**	**6**	**0**	**6**

Table 15: Café Peak Hour Trips Generated by Mode

Travel Mode	Mode Share	AM Peak Hour (Trips/hr)			PM Peak Hour (Trips/hr)		
		In	Out	Total	In	Out	Total
Auto Driver	30%	8	10	18	1	1	2
Pre-Internal Reduction		*11*	*11*	*22*	*1*	*2*	*3*
Vehicles Reduced		*-3*	*-1*	*-4*	*0*	*-1*	*-1*
Auto Passenger	10%	4	4	8	1	1	2
Transit	35%	12	12	24	0	2	2
Cycling	10%	4	4	7	0	0	0
Walking	15%	5	5	11	0	1	1
Total Person Trips	100%	33	35	68	2	5	7
Less Pass-by 40% AM (0% PM)		-4	-4	-8	0	0	0
Total 'New' Café Auto Trips		**4**	**6**	**10**	**1**	**1**	**2**

Table 16: Combined Commercial Peak Hour Trips Generated by Mode

Travel Mode	AM Peak Hour (Trips/hr)			PM Peak Hour (Trips/hr)		
	In	Out	Total	In	Out	Total
Auto Driver	17	16	33	25	15	40
Pre-Internal Reduction	*22*	*19*	*41*	*37*	*31*	*68*
Vehicles Reduced	*-5*	*-3*	*-8*	*-12*	*-16*	*-28*
Auto Passenger	9	7	16	13	12	25
Transit	23	20	43	40	35	75
Cycling	7	6	12	11	9	20
Walking	9	8	18	18	15	33
Total Person Trips	65	57	122	107	86	193
Less Pass-by	-4	-4	-8	-7	-7	-14
Total 'New' Commercial Auto Trips	**13**	**12**	**25**	**18**	**8**	**26**

3.1.4. Combined Trip Generation

Additionally, an internal reduction to residential trips is applicable, as shown in **Table 17**.

Table 17: Residential Peak Hour Trips – Proposed Mode Shares with Internal Reduction

Travel Mode	AM Peak Hour (Trips/hr)			PM Peak Hour (Trips/hr)		
	In	Out	Total	In	Out	Total
Auto Driver	**39**	**86**	**125**	**66**	**50**	**116**
Pre-Internal Reduction	*40*	*89*	*129*	*74*	*54*	*128*
Vehicles Reduced	*-1*	*-3*	*-4*	*-8*	*-4*	*-11*
No changes to other mode shares from **Table 11**.						

By summing the residential peak hour trips from **Table 17** with the combined commercial trip generation from **Table 15**Table 15, then the future combined total site trip generation can be produced, as summarized in **Table 18**.

Table 18: Future Combined Projected Site Generated Traffic – Proposed Mode Shares

Travel Mode	AM Peak Hour (Trips/hr)			PM Peak Hour (Trips/hr)		
	In	Out	Total	In	Out	Total
Auto Driver	56	102	158	91	65	156
Pre-Internal Reduction	*62*	*108*	*170*	*111*	*85*	*196*
Vehicles Reduced	*-6*	*-6*	*-12*	*-20*	*-20*	*-40*
Auto Passenger	25	42	67	43	33	76
Transit	111	215	326	203	153	356
Cycling	15	24	38	26	20	46
Walking	17	26	44	33	26	59
Total Person Trips	223	409	632	396	297	692
Less Pass-by	-4	-4	-8	-7	-7	-14
Total 'New' Full Buildout Auto Trips	**52**	**98**	**150**	**84**	**58**	**142**

Based on **Table 18**, for proposed 1,260 unit build within four towers, retail, restaurant and café land uses, it is anticipated that the proposed development will generate approximately 150 to 140 'new' vehicles trips, 325 to 355 'new' transit trips and 80 to 105 'new' bike/walk trips (excluding recreational trips and trips to transit station), two-way per peak hour. Note that transit trips are anticipated to contribute to active modes to/from Trim Station, which will be accounted for in the future analysis.

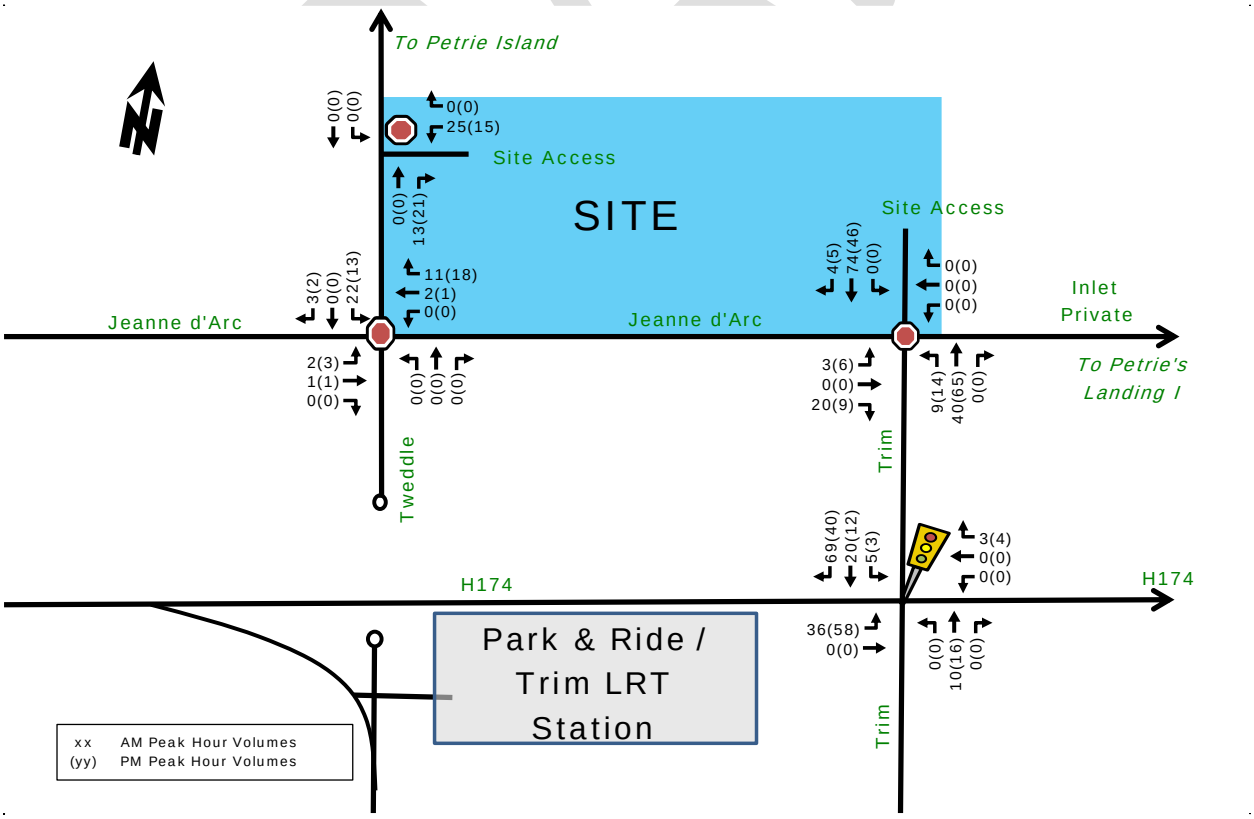
3.1.5. Trip Distribution and Assignment

Based on the OD Mode Share Survey, existing traffic volume counts and the location of adjacent arterial roadways and neighborhoods, the distribution of site-generated traffic volumes has been illustrated in **Figure 18**. Based on the location of the towers and accesses, plus the likely routes to/from the site, it is estimated that approximately 25% of trips will use the Tweddle Rd access, while the remainder 75% will use the Jeanne d'Arc/Trim intersection.

Figure 18: Site Generated Vehicle Traffic Percent Distribution

The anticipated 'new' auto trips for the proposed development from **Table 18** were then assigned to the road network with the distribution shown above, as shown in **Figure 19**, for the total site-generated traffic for custom mode share.

Figure 19: Site-Generated Traffic Using Custom Mode Shares



3.2. Background Network Traffic

3.2.1. Transportation Network Plans

Refer to **Section 2.1.3: Planned Conditions**.

3.2.2. Background Growth and Other Area Developments

The emphasis in the New Official Plan and 2013 Transportation Master Plan (and is expected to remain a key objective in the ongoing TMP update) is to prioritize transit, encourage intensification around transit stations, encourage mixed-use developments and provide "complete streets" that better accommodate the active transportation needs of its residents and reduce dependency on private auto.

Once Stage 2 LRT extension is completed, approximately 77% of Ottawa residents will be within 5km of light rail[3]. More specifically, this development and nearby developments will be located even closer to LRT, with this development located within 600m walk from future Trim LRT Station. This large improvement in transit facilities will likely result in more transit related trips and fewer vehicle related trips within the study area.

The following background traffic growth (summarized in **Table 19**) was calculated based on historical traffic count data (years 2010, 2012, 2017, 2023 and 2024) provided by the City of Ottawa at the H174/Trim intersection near the site. Note that the year 2023 and 2024 east approach turning southbound was averaged with other years as the eastbound right-turn volumes are no longer present at this intersection (off-ramp is still located at the former Trim/H174 intersection location). Detailed background traffic growth analysis is included as **Appendix F**.

Table 19: Trim/H174 Historical Background Growth (2010-2024)

Time Period	Percent Annual Change				
	North Leg	South Leg	East Leg	West Leg	Overall
8 hrs	1.62%	-3.66%	-1.70%	-3.76%	**-2.71%**
AM Peak	4.45%	-3.56%	-1.06%	-3.13%	**-2.13%**
PM Peak	4.21%	-3.48%	-1.92%	-4.63%	**-2.92%**

As shown in **Table 19**, the H174/Trim intersection has experienced negative growth over the years. The data overall suggests an increase in volumes at the north leg which can be explained by the new Brigil Towers from Petrie's Landing I, and a decrease in all other movements. It is acknowledged that Jeanne d'Arc Blvd will continue to experience growth due to substantial new developments, but these will be layered on individually.

Given the current trends observed in **Table 19**, future forecasted reduction in vehicle usage due to City wide transit and cycling initiatives, improvements to high quality LRT near the site and the lasting Covid-19 work from home/flexible work schedule, then a 0% annual growth rate (plus layering of other known developments) is adequate and may even represent a conservative assumption. Known other area developments will be manually added to study area intersections.

3.2.3. Future Background Volumes

As described in **Section 2.1.3**, there are various new developments proposed which will be layered on individually to background traffic volumes. The total number of new other area development vehicle trips projected to use study area intersections have been illustrated in **Figure 20** and **Figure 21** for the 2030 and 2035 horizon years respectively.

[3] https://ottawa.ca/en/planning-development-and-construction/major-projects/stage-2-light-rail-transit-project/overview#section-74f946f7-8138-491b-a748-f8e569072c88

Figure 20: Other Area Development Trip Generation – 2030 Horizon

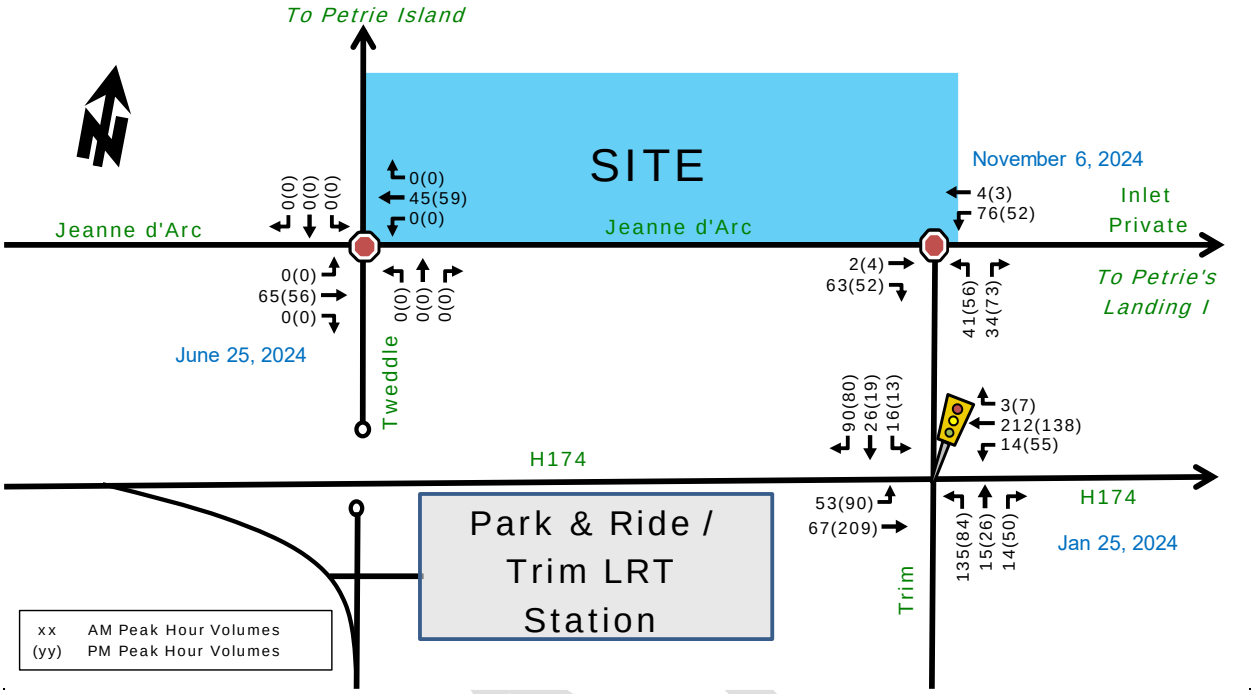
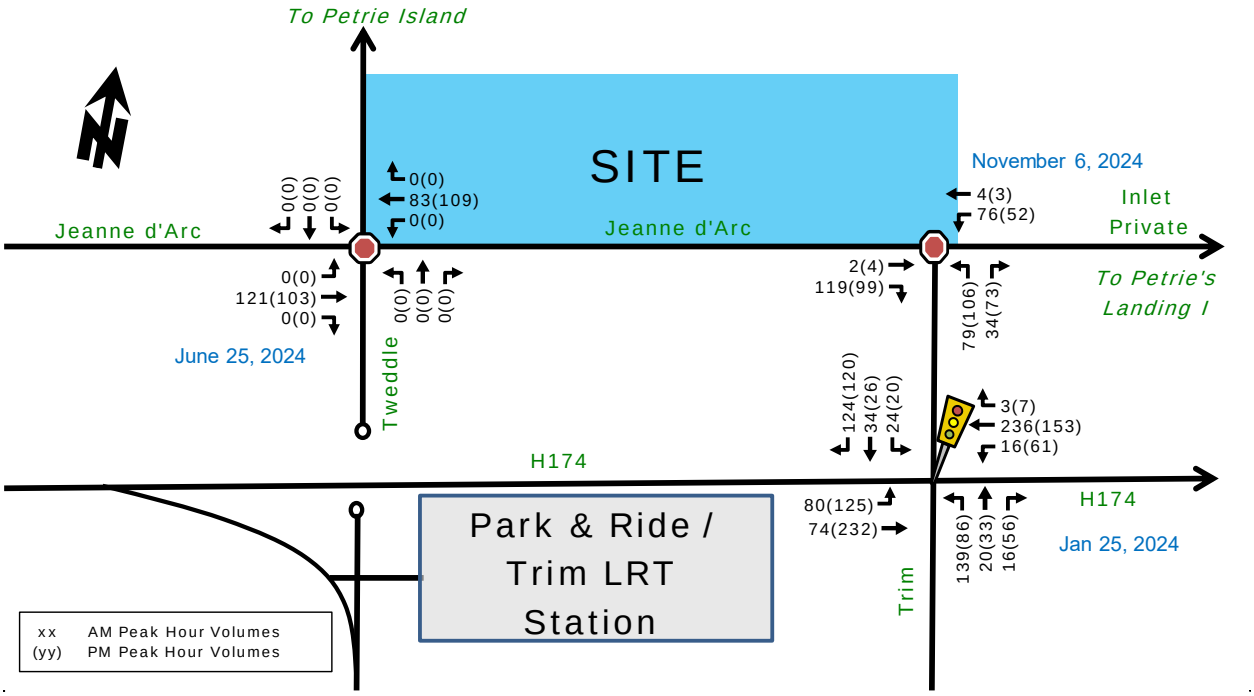


Figure 21: Other Area Development Trip Generation – 2035 Horizon



These other area development volumes were then layered on to existing volumes since no yearly background growth is anticipated. The resultant background volumes have been provided in **Figure 22** and **Figure 23** for the 2030 and 2035 horizon years respectively**.** Note that as per city comments, at the intersection of Trim/H174, a 5% of westbound through traffic was diverted westbound left to account for new trips using the

park and ride facility plus LRT. These trips were also added to northbound right-turns in the afternoon as they return home from the park and ride facility to destinations to the east. Similarly, 5% of northbound left-turn traffic was reduced to account for traffic from the south using the park and ride facilities.

Figure 22: Future Background Traffic Volumes – 2030 Horizon

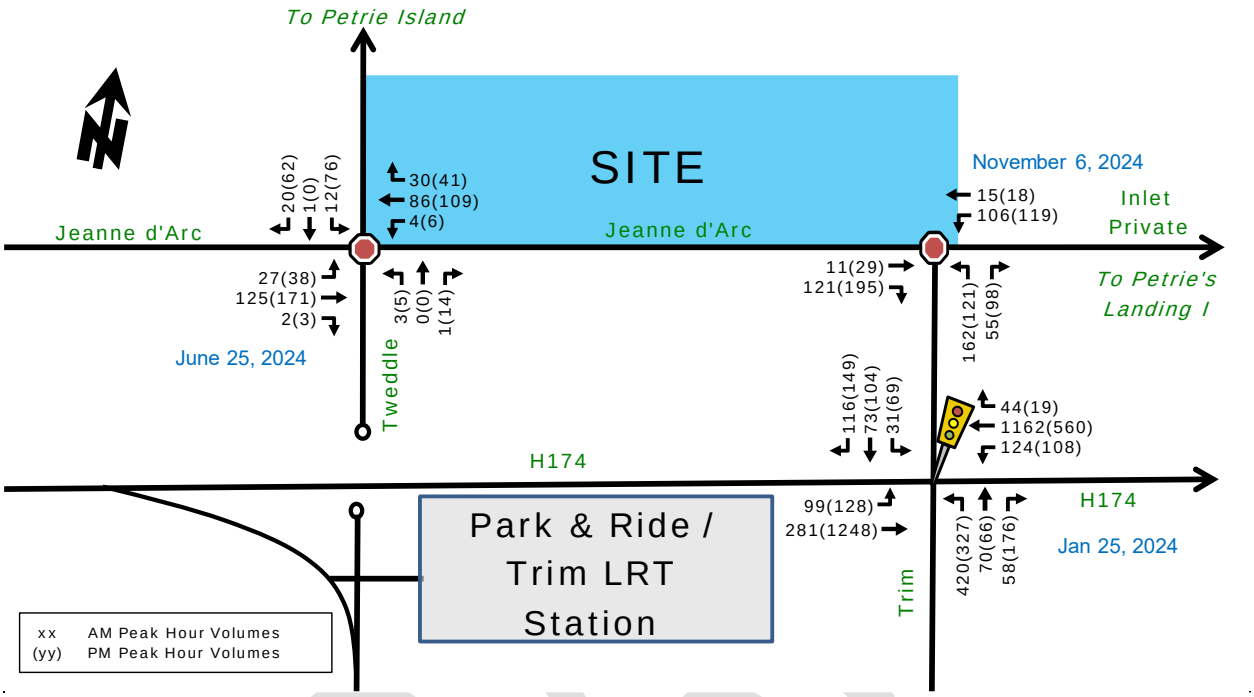
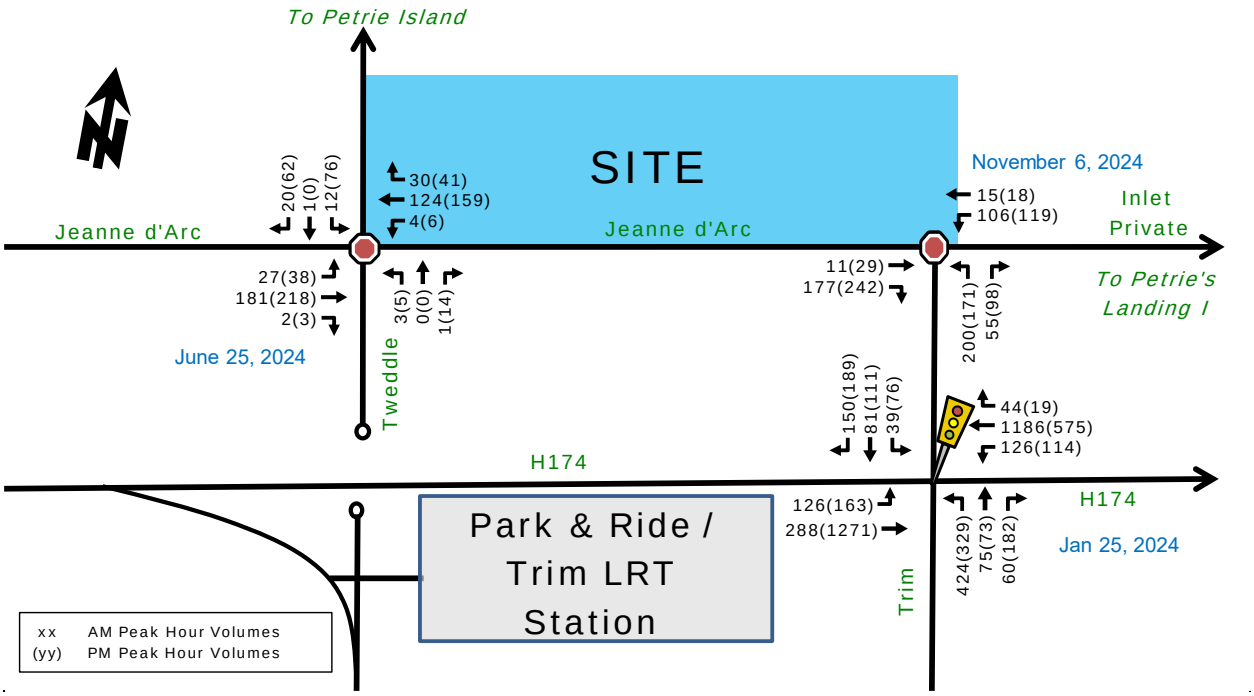


Figure 23: Future Background Traffic Volumes – 2035 Horizon



3.3. Demand Rationalization

Within the past few years, major changes have occurred within the City of Ottawa, affecting travel patterns and transportation demand.

The Covid-19 pandemic has had long-lasting effects on work culture, reducing many former traditional AM peak and PM peak hour work commute trips. Some trips have been eliminated altogether by people who have decided to continue to work from home. Others have adopted a more flexible work schedule, reducing pressures on the peak hour demands. Although some have begun to return to offices and places of work, it has become evident that a full return to in-person work is not likely.

In 2017, the City of Ottawa completed Stage 1 LRT which provided a large improvement to rapid transit; however, it did not provide a seamless connectivity to Orléans, requiring transit users to transfer at Blair Station and continue their commute on a bus. By early 2025, Stage 2 LRT expansion is anticipated, which would eliminate the need to transfer from LRT to a bus and highly improve the commute experience. Once Stage 2 LRT is complete, a much larger shift in vehicle users to transit users is forecasted for the Orléans district.

More specifically, this development is located within 600m radius of one of the Stage 2 LRT stations, Trim Station. The station is proposed within the median of the eastbound and westbound highway travel lanes. The original design of the station only includes a connection to the southern side of the highway, resulting in a walking distance from the site to the LRT Station of more than 800m walk. Given the large population growth proposed north of the highway with this development, Petrie's Landing I and III and the college, a plan to provide a new connection from the north side of the highway to the LRT Station is proposed and considered essential to support these developments. This new bridge connection would then reduce the walking distance from this development to the LRT Station to within 600m with a direct connection from the bridge to the LRT station. These improvements in connectivity from nearby high-density developments to the LRT Station will leverage rapid transit and reduce overall reliance on personal motor vehicles.

The background growth projections as discussed in **Section 3.2.2.** support the changes to work environment and city-wide transit initiatives. Once Stage 2 LRT is complete, an even further reduction in background volumes is anticipated, which could result in further reductions in background volumes. For this reason, a 0% background volume growth is not only justified, but it may even be considered conservative. Known other future development volumes will be layered on individually to account for their influence. Sufficient capacity is anticipated throughout the study area.

4.0 ANALYSIS

4.1. Development Design

4.1.1. Design for Sustainable Modes

Pedestrian/Cycling Routes and Facilities

The latest site concept proposes internal walkways that permeate the site, providing connectivity from all buildings to pedestrian courtyards and connecting to new proposed external site active transportation facilities as shown in **Figure 24**. This includes the addition of a new 3.5m wide multi-use pathway (MUP) along the site's frontage on the north side of Jeanne d'Arc Blvd, effectively extending the existing MUP on the north side of Jeanne d'Arc Blvd to Trim Rd and creating a more direct route for people passing through the site. The proposed MUP would cross the site's northern approach at the Trim/Jeanne d'Arc intersection (site access) and would then cross the east approach of that intersection to connect to the existing MUP on the east side of Trim Rd. This new MUP extension would provide a more direct cycling route for those travelling from the Ottawa River Pathway to Trim Rd facilities compared to the existing MUP on the south side of Jeanne d'Arc Blvd.

The MUP on Jeanne d'Arc Blvd has been designed to allow for a potential future 2.0m sidewalk fully within the City's right-of-way (although a partial realignment of the MUP would be required at the city's expense). Although initially constrained by the narrowing of property on the southwest corner of the site and the existing location of route #38 westbound bus stop, the City along with OC Transpo have agreed to relocate this bus stop and reserve space for a bus platform closer to the Trim/Jeanne d'Arc intersection which would better serve transit users, including an improved catchment base for adjacent development Petrie's Landing I and this development. The current design of the Jeanne d'Arc MUP maintains a relatively straight path with sufficient boulevard room reserved for landscaping which would also provide a buffer from vehicle travel lanes and possible dooring zone. Additionally, the client is proposing a wide sidewalk facility between the MUP and the building facia, ranging in width up to 4.0m wide and providing plenty of landscaping, street furniture and benches for people to enjoy. This facility is proposed partially within the city right-of-way and occasionally within the private property.

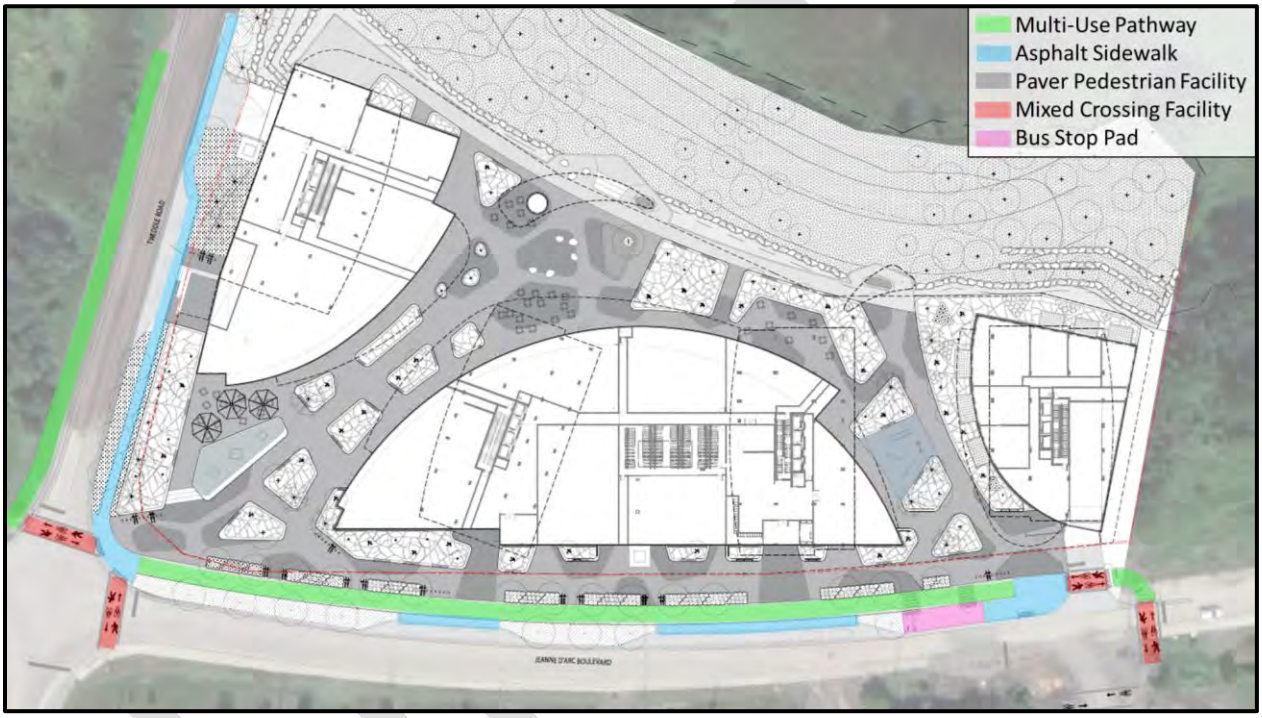
The east side of Tweddle Rd proposes a new 2.0m wide concrete sidewalk with a large boulevard buffer from vehicle traffic for added safety and improved landscaping opportunities. The proponent, as part of one of the city's requests, is proposing a 3.5m MUP on the west side of Tweddle Rd extending from the existing MUP on the north side of Jeanne d'Arc Blvd to equivalent to the site's most northern extent (on the opposite side of the road as the development). It is understood that this MUP may be continued by the city, eventually connecting to Petrie Island Beach, however no funding or construction date has been confirmed for the city portion. It is noteworthy that the city as part of a separate project is creating an active transportation bridge over H174, approximately 35m west of Tweddle Rd. As part of this project, the City of Ottawa will add a new MUP on the west side of Tweddle Rd from H174 to the existing MUP on the north side of Jeanne d'Arc, which would connect to the proposed MUP on Tweddle Rd by the development and would eventually extend towards Petrie Island. Locating the MUP on the west side of Tweddle Rd keeps active transportation users away from the proposed site access off Tweddle Rd and would keep a continuous MUP on one side of the road from the active transportation bridge over H174 to Petrie Island. The developer proposes softening the grades on Tweddle Rd from existing 7-9% grades to 5%, thus meeting AODA standards and providing large improvements to the public realm.

The client is proposing to build the active transportation facilities in phases as towers are erected and completed. The first tower proposed to be built is the westernmost tower. When this tower is completed, the client intends to develop the Tweddle Rd active transportation facilities, including the sidewalk on the east side and the MUP on the west side of the road. Following this, the towers are anticipated to be built from west to east, with active transportation facilities on Jeanne d'Arc Blvd to follow. It should be acknowledged that building the active transportation facilities on Jeanne d'Arc Blvd prematurely will likely cause throwaway costs

and frustration as they would need to be frequently closed and likely damaged during tower construction. Existing pedestrian and cycling facilities exist on the south side of Jeanne d'Arc Blvd which can support active transportation in the interim.

Based on communication with the City of Ottawa, mixed crossing treatments were deemed appropriate for this location (similar to existing conditions), however would need to be separated in the future if traffic signals were to be required (very unlikely). Thermoplastic high-visibility treatments are recommended to warn drivers of pedestrian/cyclist route crossings. An additional pedestrian only crosswalk has been added on the west side of Trim/Jeanne d'Arc intersection following discussions with OC Transpo to support their eastbound bus stop relocation closer to the intersection to better support Petrie's Landing I development. **Figure 24** illustrates the existing and proposed active transportation routes, while **Appendix G** provides higher details to the proposed facilities.

Figure 24: Active Transportation Routes Existing and Proposed



Location of Transit Facilities

The subject site has existing bus stops located on both sides of Jeanne d'Arc Blvd, near the Tweddle Rd intersection. Based on discussion with the City of Ottawa and OC Transpo, these stops are both proposed to be relocated to the eastern edge of the site near the Trim/Jeanne d'Arc intersection to better support adjacent development at Petrie's Landing I and also to mitigate property constraints at the Tweddle/Jeanne d'Arc intersection for the protection of a bus platform and future sidewalk facilities. To better support the relocated eastbound bus platform (bus platform relocation not a client responsibility), the client intends to add a new crosswalk on the west side of Trim/Jeanne d'Arc intersection as requested by OC Transpo.

The site is within 300m radius of the future Trim LRT Station which is forecasted to be operational by mid-2025. However, H174 provides a large physical barrier from the site to the LRT Station using existing infrastructure, resulting in walking distances of approximately 800m walk and crossing the highway at-grade, which would impact the attractiveness of transit ridership for this development.

To reduce the required walking/biking distance to and from the site and LRT Station, a bridge and a MUP along the north side of H174 has been proposed and considered fundamental to support this development and adjacent major developments. At the time this report was written, bridge piers for this active transportation link

have been built, located just west of the LRT Station and approximately 35m west of Tweddle Rd. While conversation with the Active Transportation Planning Group could not confirm if the bridge would provide a direct connection to the LRT Station, this report assumes that this direct connection **will be provided** to meet city policy within the Official Plan, the Orleans Corridor Secondary Plan, the New Transportation Master Plan and other guiding policies. A direct connectivity from the bridge down to the LRT Station would result in walking distances from anywhere within the site to the LRT Station of less than 600m which is consistent with a transit-oriented development (TOD). **Figure 25** illustrates the location of the proposed active transportation bridge and possible routes from the site to the LRT Station, measured from the closest to furthest locations within the site.

To provide the best benefits to both the local community (such as those biking to Petrie Island or the Ottawa River Pathway), the college, this development and other large nearby developments (approximately 6,000 units proposed north of the highway and within TOD potential), then **it is highly recommended that the future active transportation bridge provide:**

1. **A complete north-south crossing of H174 that is open to the public (is not part of a transit fare paid zone).**
2. **A direct connection to the LRT Station through a fare gate that does not disrupt through flow for active users. An elevator should be considered for accessible users down to the LRT Station.**
3. **A ramp on both sides of the highway which has accessible grades that can be used by all users including cyclists and wheelchair users.**

Figure 25: Walking Scenarios to Trim LRT Station

Bicycle Parking

The site is dedicating a large 210 m^2 area for bike parking at ground floor level accessed via a hallway that connects to the MUP facilities on Jeanne d'Arc Blvd. This indoor secured ground floor facility will provide 138 horizontal spaces and 68 vertical spaces, for a combined 206 interior bike parking spaces. Additional bike parking spaces are proposed on the 3rd underground parking level (211), 2nd underground parking level (160) and 1st underground parking level (113) for a combined total site bike parking of 690 spaces, thus meeting and exceeding the minimum bike parking requirements. Additionally, there are various outdoor bike parking racks proposed for visitors. All the underground bike parking spaces will be located near to elevator shafts with easy access to the lobby and MUP facilities on Jeanne d'Arc Blvd or Tweddle Rd.

4.1.2. Circulation and Access

The client has stressed a high desire for a pedestrian only courtyard, thus eliminating any vehicular circulation at a surface level. To accommodate passenger pick-up and drop-offs, or delivery services such as Uber Eats, the client has proposed three laybys on Jeanne d'Arc Blvd and one on Tweddle Rd. These laybys could also be used by the occasional move-in vehicle. The client has also proposed a double height ceiling under Tower B1 near to the Tweddle Rd access, allowing move in trucks to utilize the space and for garbage pick-up operations. Most units are proposed to be 1- or 2-bedroom apartments which would normally have smaller moving vehicles such as LSU, which the internal loading bay has been designed to.

While Jeanne d'Arc Blvd is a major collector road, providing laybys at this location would still be appropriate given the low traffic volumes and the wider proposed 8m road (consistent with the road segments east and west of the site). The MUP proposed on Jeanne d'Arc Blvd will also provide sufficient buffer from the laybys to eliminate the potential of vehicle dooring on active users. On Tweddle Rd, the proposed MUP was strategically proposed on the west side of the road to eliminate conflict with the layby and garage access on the east side of Tweddle Rd.

The site will have a single parking lot accessible via two accesses, one off Jeanne d'Arc Blvd at the Trim Rd intersection and the other approximately 90m north of Jeanne d'Arc Blvd off Tweddle Rd. **Section 4.4** will provide further details regarding the driveway accesses and connectivity to the adjacent road network. The internal driveway widths within the parking garage are proposed at 6.0m wide which meets the minimum 6.0m wide required aisle width (Zoning By-Law Section 107 1c ii) considered adequate for two-way travel and 90-degree parking stalls. The parking garage ramps are proposed at a maximum 16% incline, with proposed transition grades, all located indoors. Melting devices are only required for outdoor ramps with grades between 6% to 12% which is not applicable at this location. The width of the ramps varies between 6.0 to 6.1m which is considered adequate.

Truck turning templates have been provided in **Appendix H**.

4.1.3. New Streets Network

While this section is exempt as the site is not part of a new plan of subdivision and is not proposing any new streets, it is noteworthy that the development does propose changes to both Jeanne d'Arc Blvd and Tweddle Rd along the site's boundary.

Jeanne d'Arc Blvd has an urban cross-section on the south side of the road and a rural cross-section on the north side of the road. Tweddle Rd has a rural cross-section on both sides of the road, is not paved and has a steep grade along the site frontage.

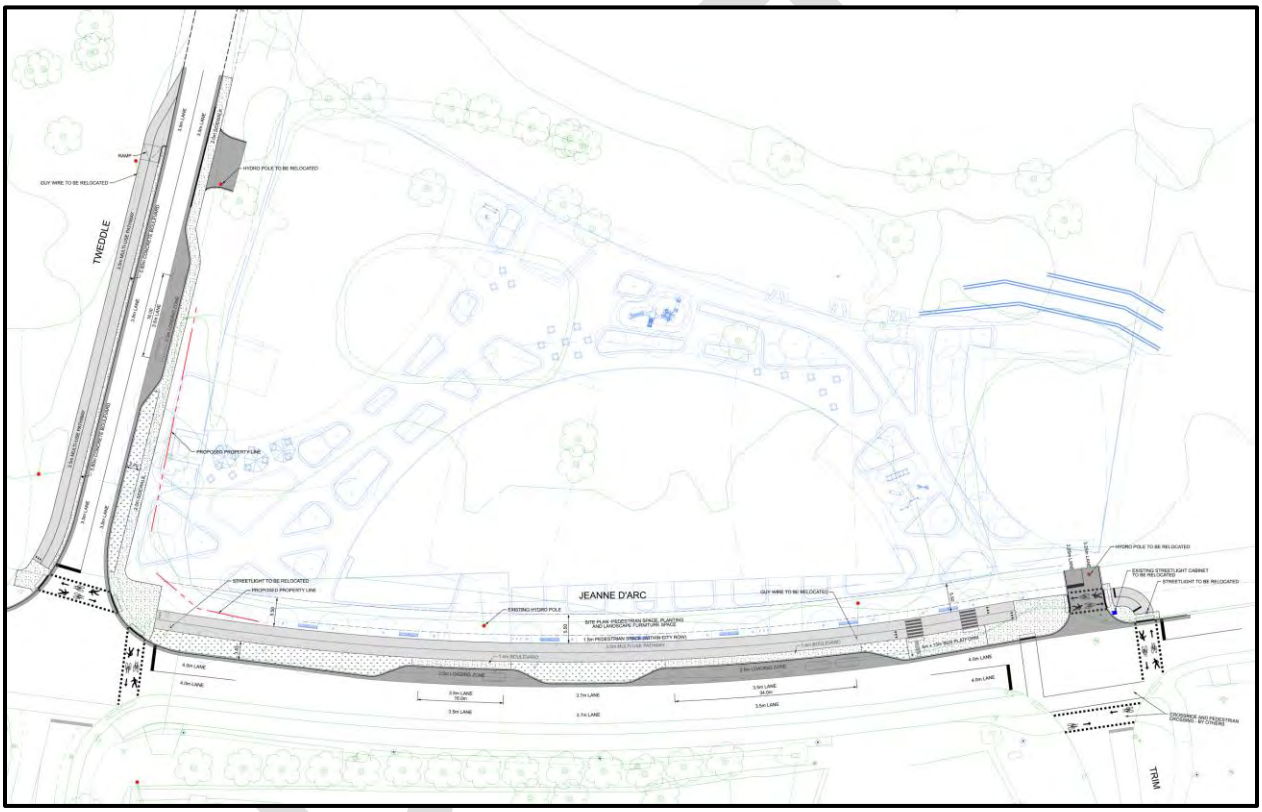
The proponent intends to urbanize the north side of Jeanne d'Arc Blvd and both sides of Tweddle Rd along its boundary. The Jeanne d'Arc Blvd frontage will provide a varying width between 7m and 8m wide pavement width as per city guidance. The occasional 8m width (near to the intersection approaches) allows for larger vehicles to operate more smoothly, including local bus route #38 which operates 4 buses per hour and trucking operations from the City of Ottawa yard, access to the marina and possible long periods of construction for Petrie's Landing III which would benefit from wider pavement width. The developer is proposing two laybys on Jeanne d'Arc Blvd intended for loading activities, including passenger pick-up and drop-off, for deliveries such as Uber or commercial purposes or occasional moving vehicles.

Tweddle Rd is proposed at a narrower 7m wide pavement treatment with curbs on both sides of the road. As part of this development, the grade of this road is proposed to be reduced by elongating the distance of descent, from an existing 7-9% grade to 5% grade thus meeting AODA standards, while also paving the segment of road bounding the site. A layby is also proposed on Tweddle Rd adjacent to the development, while a new MUP is proposed on the opposite side of the road.

The laybys have been designed as 2.5m wide to accommodate larger moving trucks and is considered within standard layby width. Tweddle Rd is a low volume local street, and the use of the layby is anticipated to have minimal impacts on the road. By full buildout of this development and other known area developments such as Petrie Island I and III, the anticipated curbside traffic on Jeanne d'Arc Blvd is expected to be in the range of 4,500 – 4,800 vehicles per day which is still considered relatively low, likely to result in minimal friction in the network. Bounding the site, Jeanne d'Arc Blvd is approximately 175m from stop sign to stop sign, likely to result in slower operating speeds. While the laybys could have been placed internal to the site, this would detract from the pedestrian and active transportation friendly design. The laybys will be signed as active loading only or as 15-minute parking. Should the city require this space in the future, the client is aware that a new solution for providing loading may be required.

A Roadway Modification Approval (RMA) has been prepared and attached as **Appendix G** and illustrated in **Figure 26**.

Figure 26: Roadway Modification Linework



4.2. Parking

Based on the City of Ottawa Zoning By-Law Part 4, Parking, Queueing and Loading Provisions Sections 100-114, Schedule 1A, the development is in Area C but Area X is applicable since the development is located within 800m walk from a rapid transit station. During the zoning application for this development, an Urban Exception (2834) was approved which allowed the development to be within **Area Z** which aligns with the Official Plan's Schedule C1 designation for this site within the Trim Protected Major Transit Station Area (PMTSA) and Bill 185 Section 34(a). As such, Area Z rates from the by-law will be used, as summarized in **Table 20**.

Table 20: Required Vehicle and Bicycle Parking Spaces – Area Z

Land Use	Size (unit or m²)	Minimum Vehicle Parking Rates				Bicycles		
		Base Rate	Visitor Rate	Min Required Spaces	Proposed Spaces2	Base Rate	Min Required Spaces	Proposed Spaces
Mid-High-Rise Apartments (R12)	1,258 units	0	See Note1	82	922	0.5/unit	629	639
Commercial	2,491 m²	0	0	0		1/250m²	10	
			Total	82		Total	639	

1 – Area Z has a minimum visitor parking rate of 0.1 spaces per unit excluding the first 12 units per building to a maximum of 30 visitor parking spaces per building. Note that Towers B2 and B3 share a podium and are considered a single building. B4 has 236 units = 22 visitor parking spaces.
2 – Maximum allowed of 1.5/unit or 1,887 parking spaces which has not been exceeded.

As shown above in **Table 20**, the site requires a minimum of 82 visitor parking spaces, no minimum residential parking nor commercial spaces, and a maximum allowed 1,887 parking spaces. The site proposes 82 visitor parking spaces and the remainder 840 parking spaces as unrestricted spaces open to anyone who may desire to park there (daily paid parking proposed). It is assumed that a large proportion of these unrestricted spaces will be utilized by residents who will park their vehicles within the parking garage. The unrestricted parking spaces equate to an approximate rate of 0.67 parking spaces per unit.

The paid parking layout offers flexibility for parking needs and also encourages tenants and visitors to choose alternate modes of transportation to driving given the daily parking costs. Such alternatives include the nearby LRT station expected to be operational by 2025, adjacent bus route #38, ride hailing service which can use the surface level drop off laybys, walking and biking supported by the new MUP infrastructure or other means of transportation. The client is also proposing unbundling parking from unit sales or rental, to dissuade the use of private automobile. Smart technology such as license plate readers or pay on departure is proposed to maintain smooth inbound operation and reduce possible spillback on to adjacent streets. The Tweddle Access proposes a dual entry lane to accommodate larger vehicles but also to provide additional inbound capacity.

The bike parking minimum rates have been met. Approximately 90 bike parking spaces are proposed on ground floor accessed by a hallway connecting to the MUP facilities on Jeanne d'Arc Blvd, plus an additional 51 exterior bike parking. The remainder 498 bike parking spaces are proposed underground near to elevator shafts to promote easy access. Some cyclists may decide to leave via the 2nd underground level which provides at grade access to Tweddle Rd and connection to the Tweddle Rd MUP where it joins into the road.

4.3. Boundary Street Design

For the purpose of this analysis, the New MMLOS Tool will be used, which hasn't been formally adopted yet but is deemed mostly complete. Major changes are not anticipated.

4.3.1. Existing & Future Conditions

The boundary streets to the proposed development are Jeanne d'Arc Blvd and Tweddle Rd.

- *Jeanne d'Arc Blvd:*
  - 1 vehicle travel lane in each direction
  - 3.5m MUP on south side of road with 2m boulevard separation (sidewalk)
  - 2m sidewalk on south side of road without boulevard separation
  - No active transportation facilities on north side of the road

  - Proposed 3.5m MUP on north side of the road, with minimum 1m separation from on-street parking plus a 4.0m sidewalk north of the MUP. Given the availability of sidewalks, for this assessment, the MUP will be treated as a cycle-track and the sidewalk as the pedestrian facility.
  - Less than 3,000 vehicles per day existing, assumed exceeds 3,000 in future
  - Posted speed 60km/h
  - Classified as major collector roadway, located within 600m of rapid transit
  - Part of the Crosstown Bikeway Network
- *Tweddle Rd:*
  - 1 vehicle travel lane in each direction
  - No active transportation facilities on either side of the road
  - Proposed 3.5m MUP on west side of the road, without boulevard separation
  - Proposed 2.0m sidewalk on east side of the road with 3.5m buffer from road
  - Less than 3,000 vehicles per day existing and future
  - Posted speed 40km/h
  - Classified as local roadway, located within 600m of rapid transit
  - Not part of the Crosstown Bikeway Network

Multi-modal Level of Service analysis for the subject road segments adjacent to the site is summarized in **Table 21** with detail analysis provided in **Appendix I**. Note that the truck level of service is no longer calculated, but rather confirmed as part of the geometrics checks and truck turning templates.

Table 21: MMLOS – Boundary Street Segments Existing and Future Conditions

Road Segment	Level of Service							
	Pedestrian		Bicycle		Transit		Public Realm	
	PLoS	Target	BLoS	Target	TLoS	Target	PR	Target
Existing Conditions								
Jeanne d'Arc (North Side)	F	A	E	A	C	E	E	N/A
Jeanne d'Arc (South Side)	A	A	A	A	C	E	A	N/A
Tweddle (West Side)	F	A	C	B	-	N/A	C	N/A
Tweddle (East Side)	F	A	C	B	-	N/A	C	N/A
Future Conditions								
Jeanne d'Arc (North Side)	B	A	A	A	C	E	A	N/A
Jeanne d'Arc (South Side)	B	A	A	A	C	E	A	N/A
Tweddle (West Side)	B	A	A	B	-	N/A	A	N/A
Tweddle (East Side)	A	A	C	B	-	N/A	A	N/A

Pedestrian

While the pedestrian level of service target was only met on the south side of Jeanne d'Arc Blvd during existing conditions (but not met in future conditions due to the increase of vehicular traffic adjacent to the facilities), and east side of Tweddle Rd in future conditions, there was a general big improvement to future conditions, particularly for the north side of Jeanne d'Arc Blvd and both sides of Tweddle Rd due to new facilities being provided. To achieve a PLoS 'A' in future conditions, a minimum of 1.5m buffer between active transportation facilities and vehicles would be required on Tweddle Rd. Despite the huge improvements to pedestrian facilities on Jeanne d'Arc Blvd, including 4.0m wide sidewalks plus a very healthy buffer from vehicle traffic of more than 3.0m, the target still could not be reached unless the posted speed would be reduced to 50km/h.

Bicycle

For existing conditions, the BLoS target was met on the south side of Jeanne d'Arc Blvd only, since other road segments lack cycling facilities. In the future, the north side of Jeanne d'Arc Blvd and the west side of Tweddle

Rd would meet the BLoS targets. Since the facilities on the west side of Tweddle Rd are bi-directional, the need to meet the target on the east side of the road is generally considered non-important or required.

Transit

The transit level of service was met on Jeanne d'Arc Blvd for all time periods. Tweddle Rd does not have an active transit route.

Public Realm

The public realm analysis showed big improvements to the overall health and attractiveness of the road segments due to improved facilities and wide outer boulevard which could allow trees being planted behind the active transportation facilities.

4.4. Access Intersection Location

Note, former sections 4.4.2 (Access Control) and 4.4.3 (Access Design) have been moved to Section 4.9.1 and 4.9.2 as per the revised TIA Guidelines, June 2023.

4.4.1. Location and Design of Access

Vehicle Access and Circulation

The site plan proposes two vehicle accesses; one located on the northwestern quadrant of the site off Tweddle Rd approximately 115m north of the Tweddle/Jeanne d'Arc intersection; the other would make the new fourth and north approach at the existing Trim/Jeanne d'Arc intersection, which is located at the southeast corner of the site boundary.

Throat Length

The Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads, Chapter 8 (Access) provides guidelines for clear throat length. Clear throat lengths are only recommended for arterial and collector roads. Per TAC Table 8.9.3, the suggested minimum clear throat length to an arterial road for apartments (>200 units) is 25m for a development abutting a collector road, which is not met on Jeanne d'Arc if the garage door is considered the first conflict point. However, the site has two inbound accesses distributing the demands and mitigation technology such as license plate scanners or other measures could be considered if queue spillback on to the Trim/Jeanne d'Arc intersection are observed, therefore considered acceptable.

Private Approach By-law

Additionally, the Private Approach By-Law requirements for the City of Ottawa were reviewed, with the following observations:

- The site has two frontages (approximately 125m and 190m long) which permits having up to two two-way private approach per frontage.
- The proposed access forming the fourth leg at the Trim/Jeanne d'Arc intersection is proposed at 6.5m wide which is consistent with the city's desired range between 6.0 to 9.0m wide. This access has been designed to look like part of the intersection rather than a private approach (as requested by City Staff) to form an equal priority for vehicles coming from this access versus other intersection approaches. TWSIs have been incorporated at this access along with active transportation stop bars and cyclist/pedestrian road markings/thermoplastic treatment. The sidewalk just north of the MUP will be terminated west of this access and landscaping measures will be provided to dissuade pedestrians from crossing anywhere but the designed mixed crossing area.
- The proposed access at Tweddle Rd has been proposed at 9.5m wide which is slightly wider than the private bylaws desired width. The wider ramp was included to accommodate larger vehicle turning movement into the double height garage ceiling meant for garbage trucks to enter the site. Garbage

trucks once in the garage will make a quick left-turn and pick up garbage internal to the site. Due to the control vehicle size, the slightly larger site access width is considered acceptable. The sidewalk which crosses this access is proposed following the city's SC7.1 specifications.

- Both accesses propose a grade that does not exceed 2% within the private property for a distance of 9.0m to the curbline, thus meeting the bylaw.
- Part m section ii is not required as Tweddle Rd is classified as a local road and the access on Jeanne d'Arc Blvd (major collector) forms part of an existing intersection.
- Both accesses are located more than 3m from the property line.

The access designs are in conformance with the City of Ottawa Private Approach By-law 2003-447 or have been justified based on their intended purpose. Truck turning templates have been provided in **Appendix H**.

4.5. Transportation Demand Management

4.5.1. Context for TDM

Residents are more likely to leave the site in the morning peak period to go to work and return from work in the afternoon peak period. Commercial users will likely come and go throughout the day, with a heavier influence in the afternoon peak period.

Sections 3.1.1 and **3.1.2** describe how many trips are anticipated per travel mode and anticipates the likely locations that they will travel to and from based on the OD-Survey 2011 for Orléans. The site is located within 600m from future Trim LRT Station, making it a great candidate for transit-oriented travel. Additionally, the shared parking provisions for residential/commercial uses could reduce the overall need for quantity of parking provided, given that commercial parking likely occurs at different times than residential visitor parking and office patrons.

4.5.2. Need and Opportunity

With investments in rapid transit within walkable distance, the site has a good opportunity to levy this upcoming service and help reduce its environmental footprint and congestion throughout the city. A strong focus on TDM measures to encourage sustainable active mode shares is highly recommended.

4.5.3. TDM Program

The TDM checklists have been provided in **Appendix J**.

Regarding the TDM Supportive Development Design and Infrastructure Checklist:

- All ten (10) Required measures related to walking and cycling (facilities and bicycle parking) and vehicle parking are anticipated to be satisfied.
- Twelve (12) of fourteen (14) Basic measures related to walking and cycling, transit, ridesharing and parking are anticipated to be satisfied or are not applicable.
- Four (4) of the of the seven (7) candidate Better measures are also proposed or are non-applicable, including:
    - Potential to providing bikeshare and rideshare facilities.
    - Bike repair station.
    - Separate long-term and short-term parking areas.

Regarding the TDM Measures Checklist, the developer has indicated there is a willingness to consider the following measures:

- Seven (7) out of seven (7) "basic" measures related to walking, cycling, transit, parking and TDM marketing will likely be satisfied or not applicable. Three (3) of those, which have been designated by

an asterisk (*), are considered by the TDM Measures to be some of the most dependably effective tools to encourage sustainable travel modes. This includes:

- Designate an internal coordinator or contract with external coordinator.
- Display walking and cycling information at major entrances.
- Display transit information at major entrances.
- *Offer preloaded PRESTO card to residents with one monthly transit pass.
- * Unbundle parking costs from monthly rent.
- * Provide multi-modal travel information package to new residents.

- Five (5) out of eleven (11) "better" measures related to walking, cycling, transit, parking and TDM marketing will likely be satisfied. This includes:
  - Contract with provider to install on-site bikeshare and carshare.
  - Provide real time arrival information display at entrance.

4.6. Neighborhood Traffic Management

4.6.1. Adjacent Neighborhoods

There are no adjacent neighbourhoods with local or collector roads which would provide commuter routes for this development. Tweddle Rd does not provide connectivity to any other city road or developments, mitigating any risk of traffic infiltration or shortcutting adjacent to the site. Jeanne d'Arc Blvd is a major collector road with no direct frontage homes which will provide direct access to H174. This section is therefore exempt.

4.7. Transit

4.7.1. Route Capacity

Section 3.1.2 projects approximately 325 to 355 two-way transit trips for the AM and PM peak hours respectively. While a MUP and bridge over H174 is proposed, it is crucial that a direct connection between the bridge and Trim LRT Station be provided. It is assumed that this direct connection will be provided, with all buildings to be within 400 to 550m walking distance to the LRT station which is considered a very reasonable walking distance for most abled people. Should the bridge only cross to the southern side of H174 and require transit users to then walk around the station fences and back north to the LRT Station, then this walking distance would be further increased to approximately 800 to 950m resulting in a less attractive transit option, as shown in Figure 25. A design without a direct connection to the LRT Station would not be in support of city's guiding policies surrounding a PMSTA area (Schedule C1 – Official Plan).

The OC Transpo website suggests that the Confederation Line will have a capacity of 600 passengers per train with a headway of 12 trains per hour, resulting in a capacity of 7,200 passengers per hour per direction. It is important to note that of the forecasted trips, some will be headed towards Trim Station while others will be departing this station. Based on the projected capacity of the Confederation Line, there should be sufficient capacity to accommodate all transit trips. Additional capacity is available on local bus route #38 and other buses operating out of Trim Station. Route #38 currently operates at 30-minute intervals, for a total of 4 buses per hour two-way. OC Transpo may increase the frequency of buses if demands require it.

Based on guidance from OC Transpo and the City of Ottawa, the site will be relocating the existing bus stop flag near to the Tweddle/Jeanne d'Arc intersection and build a new bus platform approximately 18.5m west of the Trim/Jeanne d'Arc intersection for westbound travel. It is understood that OC Transpo will be relocating their eastbound bus stop closer to the Trim/Jeanne d'Arc intersection also. This new location will provide better service for Petrie's Landing I development located east of the site while also providing adequate service to this development. The relocation of the bus stop also ensures better right-of-way protection for the city near to the Tweddle/Jeanne d'Arc property pinch point. The client is proposing to build a new crosswalk on the west approach of the all-way-stop-controlled Trim/Jeanne d'Arc intersection to facilitate transit users crossing

Jeanne d'Arc Blvd to access the eastbound bus stop. Transit users destined to Trim Rd can use the all-way-stop-control at Tweddle/Jeanne intersection.

4.7.2. Transit Priority

Jeanne d'Arc Blvd is not part of a transit priority corridor. The site is located between two all-way-stop-controls separated by approximately 175m. Bus times are not anticipated to significantly change with the addition of this development.

The Confederation LRT Line is grade separated from all intersections and will not be affected by vehicular traffic generated by the site.

4.8. Review of Network Concept

Exempt, refer to **Table 4**.

4.9. Intersection Design

4.9.1. Intersection Control

A traffic signal warrant for the Tweddle/Jeanne d'Arc and Trim/Jeanne d'Arc intersections was completed and the need for traffic signals was not warranted at either intersection by full buildout 2035 plus the addition of the site development. Less than 55% of the warrant trigger threshold was met at either intersection, meaning that there is still ample capacity before a traffic signal warrant is satisfied. Both intersections currently operate as an all-way-stop-control (AWSC) and are proposed to be maintained this way unless adverse intersection operations are identified (not forecasted). The warrant analysis has been provided in **Appendix K**. The site access at Tweddle Rd has even fewer vehicle trips and is not anticipated to meet either a traffic signal warrant nor an AWSC warrant.

4.9.2. Intersection Design

As discussed in **Section 4.1.3**, both Tweddle/Jeanne d'Arc and Trim/Jeanne d'Arc intersections are proposed to be retrofitted with new shared pedestrian and cyclist crossing markings as agreed upon by City of Ottawa staff. It is understood that if traffic signals are to be warranted at either intersection, that traffic signals group recommends these mode shares have separate crosswalk and crossride facilities.

Multi-Modal Level of Service

For the purpose of this analysis, the New MMLOS Tool will be used, which hasn't been formally adopted yet but is deemed mostly complete. Major changes are not anticipated. Only signalized intersections are considered for the intersection Level of Service measures in the MMLOS Guidelines. The MMLOS analysis is summarized in **Table 22**, with detailed analyses provided in **Appendix L**.

Table 22: MMLOS – Existing and Future Intersection Conditions

Intersection	Level of Service					
	Pedestrian		Bicycle		Transit	
	pLoS	Target	bLoS	Target	tLoS	Target
Trim/H174	E	A	B	A	D	D

Pedestrian

- Although pedestrian crossing is only allowed on the east leg, major changes to the highway intersection would be required to meet the PLoS target goal of 'A' near rapid transit. These changes would require reducing the number of lanes on the highway, which is unrealistic. The City has marked the new grade separated active transportation bridge crossing at Trim Rd within their priority network.

Bicycle

- The target 'A' as part of a Crosstown Bikeway Network was not met, with an achieved BLoS of 'B'. Should the eastbound right-turn be converted from a channelized right-turn into a conventional right-turn, then the target would be met. It is noteworthy that a raised cross-ride is being constructed, however the channel is still considered conventional and not a smart channel.

Transit

- Since the route connects to a transit station, the target goal is 'D' which was met.

4.9.3. Intersection Performance

Existing Conditions

The following **Table 23** provides a summary of the existing traffic operations at the study area intersection based on volumes from **Figure 8** and Synchro (V11) traffic analysis software. The subject intersections were assessed in terms of the volume-to-capacity (v/c) ratio and the corresponding Level of Service (LoS) for the critical movement(s). The Synchro model outputs of existing conditions are provided within **Appendix M**.

Table 23: Existing Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Trim/H174 (S)	B(B)	0.63(0.66)	NBL(EBT)	31.2(32.8)	A(B)	0.42(0.63)
Trim/Jeanne d'Arc (U)	A(A)	8(8)	NB(NB)	8(8)	A(A)	-
Tweddle/Jeanne d'Arc (U)	A(A)	8(9)	EB(EB)	8(8)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 0.90 and a saturation flow rate of 1800 veh/h/lane. (S) = Signalized intersection, (U) = unsignalized stop controlled intersection.						

As shown in **Table 23**, all the intersections within the subject area are currently operating 'as a whole' at good LoS 'B' or better during the AM and PM peak hours with 'critical movements' at study area intersections currently operating at a good LoS 'B' or better during both peak hours.

Background Conditions

As discussed in **Section 3.2**, a 0% annual growth factor plus layering of other area developments was used to develop the background traffic volumes. Since there are no forecasted network changes within the study area, and no background annual growth rate, then only the more critical 2035 background horizon year will be analyzed. Previous **Figure 23** shows the projected background volumes in the network considering approved and proposed developments within the area. The projected operational results are shown in **Table 24**. The detailed Synchro results can be found in **Appendix N**.

Table 24: Future 2035 Background Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Trim/H174 (S)	D(D)	0.84(0.90)	WBL(EBT)	42.1(45.5)	A(D)	0.53(0.86)
Trim/Jeanne d'Arc (U)	B(B)	10(10)	NB(NB)	9(10)	A(B)	-
Tweddle/Jeanne d'Arc (U)	A(B)	9(10)	EB(EB)	8(9)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 1.00 and a saturation flow rate of 1800 veh/h/lane. (S) = Signalized intersection, (U) = unsignalized stop controlled intersection.						

As seen in **Table 24**, most intersections will operate similarly to existing or slightly worse given the increase in background vehicle volumes. All intersections continue to operate overall at good LoS 'D' or better and with critical movements of 'D' or better.

Future Conditions at Full-Buildout

The future full-buildout volumes assuming proposed mode shares reflecting a direct link to the future Trim LRT Station are illustrated in **Figure 27**. The projected traffic performance are summarized in **Table 25**, with detailed Synchro results provided in **Appendix O**.

Figure 27: Full-Buildout 2035 Total Projected Peak Hour Traffic Volumes

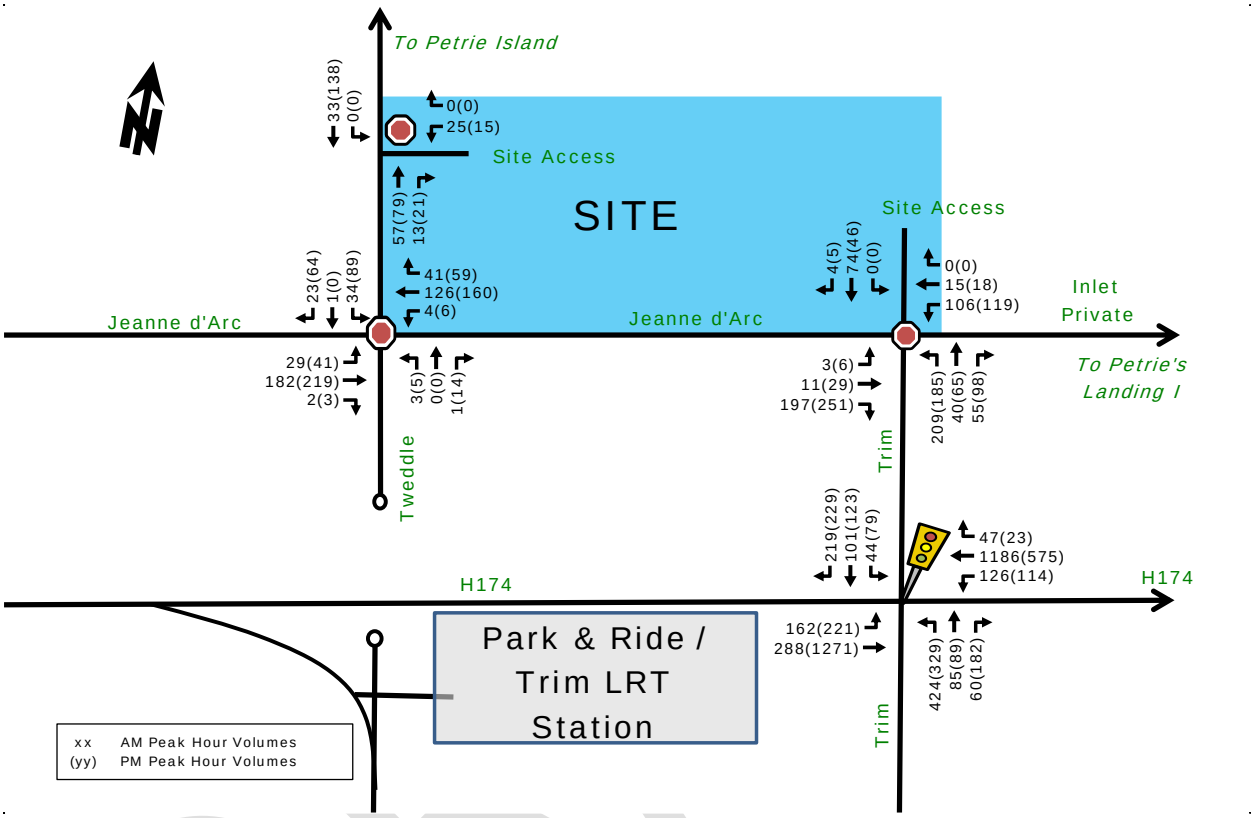


Table 25: Full-Buildout 2035 Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Trim/H174 (S)	D(D)	0.86(0.90)	WBL(EBT)	43.3(46.5)	A(D)	0.53(0.86)
Trim/Jeanne d'Arc (U)	B(B)	11(13)	NB(NB)	10(11)	B(B)	-
Tweddle/Jeanne d'Arc (U)	A(B)	9(10)	EB(WB)	8(10)	A(B)	-
Tweddle/Access (U)	A(B)	9(10)	WB(WB)	2(1)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 1.00 and a saturation flow rate of 1800 veh/h/lane. (S) = Signalized intersection, (U) = unsignalized stop controlled intersection.						

As shown in **Table 25**, all intersections will continue to operate at good LoS 'D' or better and with critical movements of good 'D' or better. Overall, in terms of intersection capacity, all intersections are anticipated to operate within city standards. The section below will analyze queueing implications, if any.

4.9.4. Queueing Analysis

The following **Table 26** summarizes queuing results based on Synchro and SimTraffic software for various intersection locations were deemed sensitive or at risk of queue spillback on to downstream intersection using the full buildout 2035 traffic volumes.

Table 26: Queueing Analysis at Sensitive Locations – 2035 Full Buildout

Movement & Location	Storage Length + Taper	Queue AM (PM) (in meters)			
		Synchro1		SimTraffic	
		50th Percentile	95th Percentile	50th Percentile	95th Percentile
EBL Trim/H174	160 + 45 m	40 (55)	61 (80)	35 (56)	59 (110)
EBT Trim/H174	650 m	25 (168)	35 (#216)	24 (135)	40 (192)
EB Trim/Jeanne d'Arc	160 m	-	-	15 (18)	25 (34)
NB Trim/Jeanne d'Arc	150 m	-	-	28 (35)	52 (61)
1. Synchro queues were only used for signalized intersections. # = 95th percentile volume exceeds capacity, queue may be longer.					

As seen in **Table 26**, all queues are within their storage capacity with a good margin of space remaining between its upstream intersection or its auxiliary lane storage. At rare times during the PM peak hours, the eastbound through movement at Trim/H174 may exceed the storage lane length for the eastbound left-turn and create a momentary blockage to that auxiliary lane; however, the extended taper may provide an avenue to that lane, or in worst case scenario, those turning eastbound left would have to wait for the eastbound through traffic to advance to be able to enter the auxiliary left-turn lane.

A further sensitivity scenario was completed to determine how much additional traffic could be added before queues begin to approach capacity. For this test, a 25% increase in total all movement volumes at Trim/Jeanne d'Arc were performed and a 25% increase in total eastbound left-turning volumes at Trim/H174 intersection. Only the PM peak hour was analyzed as it is more critical than the AM peak hour. The resultant queues have been summarized in **Table 27**. Detailed SimTraffic outputs have been provided in **Appendix P.**

Table 27: Queueing Analysis Sensitivity – 25% Increase in Volumes

Movement & Location	Storage Length + Taper	Queue PM Only (in meters)	
		Synchro1	SimTraffic
		95th Percentile	95th Percentile
EBL Trim/H174	160 + 45 m	#113	145
EB Trim/Jeanne d'Arc	160 m	-	53
NB Trim/Jeanne d'Arc	150 m	-	81
1. Synchro queues were only used for signalized intersections. # = 95th percentile volume exceeds capacity, queue may be longer.			

A 25% increase in all turning movements at Trim/Jeanne d'Arc and 25% for the eastbound left-turning movement at Trim/H174 intersections did not show any adverse effects, and queues are anticipated to remain within their mid-block sections or auxiliary turn lane without spilling on to adjacent intersections such as Tweddle/Jeanne d'Arc intersection, Trim/H174 intersection or on to eastbound through lanes on H174.

As previously discussed in **Section 3.3 Demand Rationalization**, it could be argued that the background volumes may be overly conservative, especially considering the investments by the City of Ottawa to the surrounding transit and active transportation networks, including the Stage 2 extension and the future Trim LRT Station. These trends will take time to mature as Stage 2 construction concludes. Flexible working schedules stemming from the Covid-19 pandemic have resulted in sustained decreases in vehicle background volumes based on recent counts. While significant development in surrounding community was forecasted in this TIA, the specific timing is ultimately uncertain and largely dependent on market forces, which may ebb and flow over time. For these reasons, re-evaluation of the Trim/H174 intersection should be completed as part of future Site Plan Control applications for individual phases to verify the results herein.

5.0 FINDINGS AND RECOMMENDATIONS

Based on the results summarized herein the following findings and recommendations are provided:

Existing Conditions

- The site is currently a vacant field.

- Local bus route #38 operates adjacent to the site. Trim Station which is located within 300m radius from the site is currently under construction as part of the Confederation LRT Line Expansion, anticipated to be operational by year 2025. Based on the latest information, it is understood that an active transportation bridge to be built just west of Tweddle Rd will provide a crossing over H174 and a direct connection to the LRT Station. The effective walk distance from the site to the LRT Station will be 400-550m for all buildings within the site should a direct connection from the bridge to the LRT Station be provided.
- Overall, there are no existing safety concerns along the proposed development frontage and study area intersections.
- All study area intersections currently operate at very good LoS 'B' or better, with critical movements operating at LoS 'B' or better.

Proposed Development

- Vuze is proposing a mixed-use development consisting of 4 high-rise buildings ranging in height from 24 to 32-storeys. A total of 1,258 residential units are currently being proposed with approximately 17,072 ft^2 of ground floor retail, 6,727 ft^2 of restaurant uses and 3,015 ft^2 of cafe space. The site is expected to be fully built by year 2030 horizon.
- The City of Ottawa's New Transportation Master Plan is still being developed, but some sections have already been released. Of note, a future bridge connection over H174 near to the Trim LRT Station within the "Active Transportation Major Structures" has been identified. This connection has also been identified in the latest Cycling Projects Priority map which have a target implementation horizon within the next 10 years.
- The trip generation for the site forecasts approximately 150 to 140 'new' two-way vehicle trips, 325 to 355 'new' two-way transit trips and 80 to 105 'new' two-way active trips.
- The development proposes two site accesses, one forming the northern approach to the existing Trim/Jeanne d'Arc intersection and the second located approximately 115m north of the Tweddle/Jeanne d'Arc intersection.
- An RMA has been submitted alongside this report to urbanize both the northern side of Jeanne d'Arc Blvd and both sides of Tweddle Rd fronting the development. The road modifications include:
    - Dedicated space for layby and loading activities
    - Relocation of the westbound bus stop on Jeanne d'Arc Blvd as per OC Transpo guidance
    - New MUP on the north side of Jeanne d'Arc Blvd and the west side of Tweddle Rd
    - Softening of the grades on Tweddle Rd from 7-9% to 5%, thus meeting accessibility standards
    - New crossing markings at Trim/Jeanne d'Arc and Tweddle/Jeanne d'Arc
- A strong TDM plan is proposed to leverage the nearby high-quality transit and active transportation facilities. Some of the measures include preloaded Presto cards for new tenants, TDM coordinator, unbundled car parking from monthly rent, shared commercial/residential visitor parking provisions, providing bike share and car share facilities, etc.

Future Conditions

- Peak hour traffic volumes from nearby adjacent developments were incorporated into the future traffic volume projections, including on-going updates for Petrie's Landing I development, Petrie's Landing III, Cardinal Creek and Phoenix Homes. No additional background volume growth was applied.

- The new MMLOS road segment tool was used, and the analysis showed that the future Tweddle Rd east side would meet the target goal of 'A'. The remainder future segments showed large improvements to LoS 'B' from existing conditions with the new facilities proposed but did not meet the high target due to increased traffic volumes in the future. The cycling targets were met where cycling facilities are proposed, and transit targets were met where applicable. The overall health of the street showed large improvements from existing conditions and received a score of 'A' under public realm in the future.
- The new MMLOS intersection tool was used (for signalized intersections only), and the analysis showed that for both existing and future conditions only the transit target would be met. Pedestrians are required to cross multiple lanes of traffic resulting in poor performance. If the channelized right-turns were converted to conventional right-turns or smart channels, then the bicycle level of service could be met. Once the active transportation bridge over H174 is built, then a full grade separated crossing would provide connectivity to the LRT Station and would mostly eliminate these pedestrian and cyclist crossing of the highway.
- Future conditions forecast good overall intersection performance of LoS 'D' or better and good critical movements of LoS 'D' or better. Overall, queues are anticipated to remain within their auxiliary turn lane capacity and are not anticipated to spill back on to upstream intersections based on forecasted future volumes. Even if a 25% increase in all turning movements at Trim/Jeanne d'Arc intersection and a 25% increase in eastbound left-turning traffic at Trim/H174 (inclusive of forecasted trips generated from all nearby developments), the queues are still anticipated to be within their available storage.
- The need for new auxiliary turn lanes were not warranted at study area intersections.
- Traffic signal warrants were completed at Trim/Jeanne d'Arc and Tweddle/Jeanne d'Arc and neither of the two locations met the warrant. The continued use of the existing AWSC signals is recommended.
- The development proposes major improvements to active transportation facilities, including a new MUP facility on the west side of Tweddle Rd which connects to the existing Ottawa River Pathway on the north side of Jeanne d'Arc Blvd and aligns with the proposed Stage 2 MUP on Tweddle Rd south of Jeanne d'Arc Blvd connecting to the future active transportation bridge over H174 and LRT Station. Additionally, the developer proposes a new MUP on the north side of Jeanne d'Arc Blvd, creating a continuous MUP network which extends from the Ottawa River Pathway west of Tweddle Rd to the facilities on the east side of Trim Rd south of Jeanne d'Arc Blvd. The existing grades on Tweddle Rd will be reduced to better accommodate accessible users.

Based on the preceding report, the proposed development located at 1015 Tweddle Rd is adequate from a transportation perspective.

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Senior Transportation Engineer

Appendix A:

TIA Screening Form and Site Plan

PARSONS

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City of Ottawa 2017 TIA Guidelines

TIA Screening Form

Date	27-Sep-24
Project	1015 Tweddle Rd
Project Number	910537 - 10030

Results of Screening	Yes/No
Development Satisfies the Trip Generation Trigger	Yes
Development Satisfies the Location Trigger	Yes
Development Satisfies the Safety Trigger	Yes

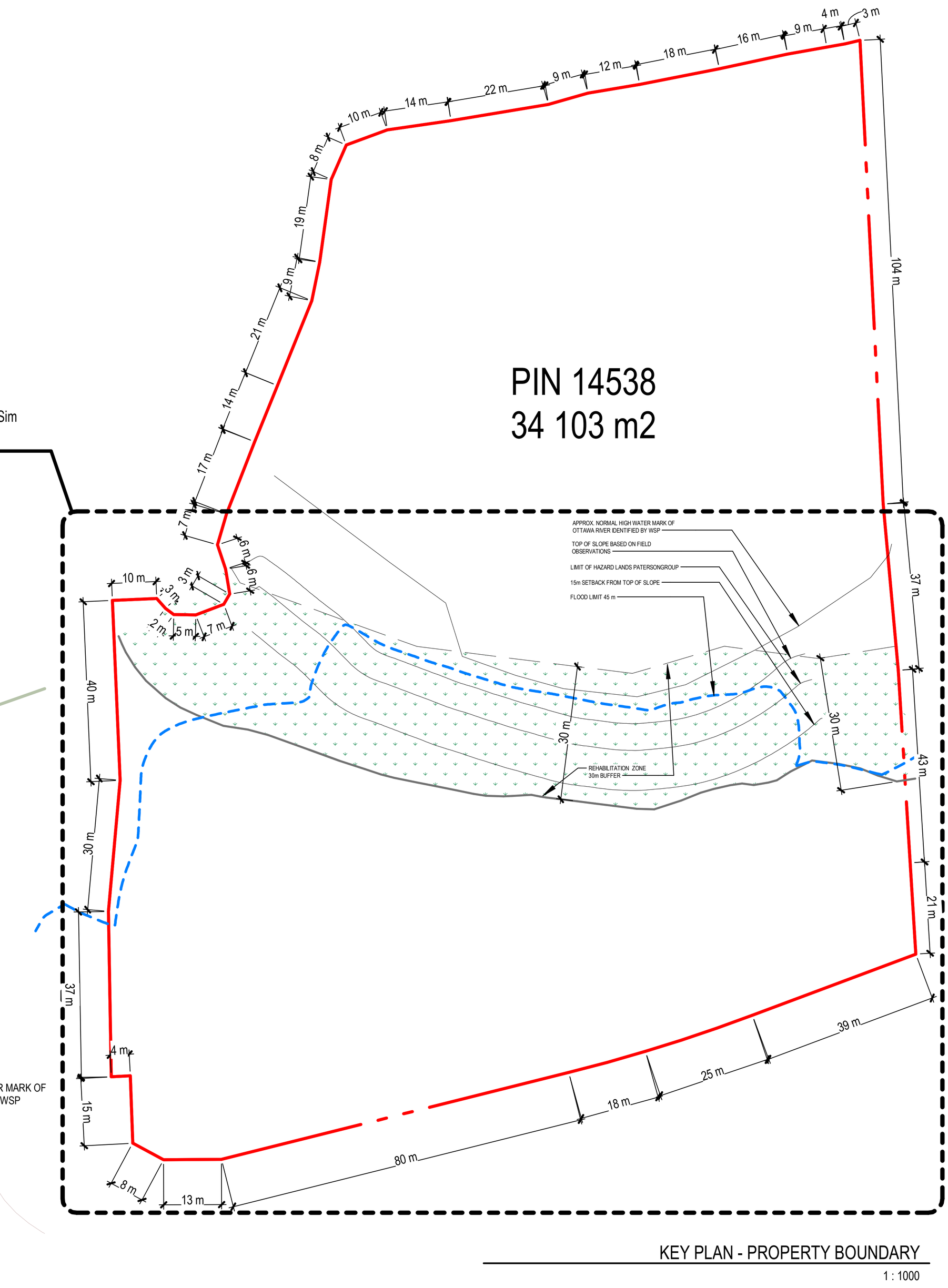
Module 1.1 - Description of Proposed Development	
Municipal Address	1015 Tweddle Rd
Description of location	Vacant lot bound by the Ottawa River, Tweddle Rd, and Jeanne d'Arc Blvd. Eastmost terminus around Trim/Jeanne d'Arc intersection
Land Use	Mixed-use ground floor commercial with residential towers.
Development Size	Approximately 1,260 units in 4 towers
Number of Accesses and Locations	2: one becoming the fourth leg at Trim/Jeanne d'Arc intersection, the other off Tweddle Rd
Development Phasing	Three phases proposed
Buildout Year	Assumed 2030
Sketch Plan / Site Plan	See attached

Module 1.2 - Trip Generation Trigger		
Land Use Type	Townhomes or Apartments	
Development Size	1260	Units
Trip Generation Trigger Met?	Yes	

Module 1.3 - Location Triggers		
Development Proposes a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit, or Spine Bicycle Networks (See Sheet 3)	Yes	Jeanne d'Arc east of Tweddle Rd (fronting the site) is part of the Crosstown Bikeway Network (TMP, March 1, 2023).
Development is in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone. (See Sheet 3)	Yes	Within 600m of major Trim LRT Station.
Location Trigger Met?	Yes	

Module 1.4 - Safety Triggers		
Posted Speed Limit on any boundary road	<80	km/h
Horizontal / Vertical Curvature on a boundary street limits sight lines at a proposed driveway	Yes	Tweddle Rd has a vertical curvature.
A proposed driveway is within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions) or within auxiliary lanes of an intersection;	No	
A proposed driveway makes use of an existing median break that serves an existing site	No	
There is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development	No	
The development includes a drive-thru facility	No	
Safety Trigger Met?	Yes	

PARTIAL SITE PLAN
1 : 250



KEY PLAN - PROPERTY BOUNDARY
1 : 1000

INFORMATION SUR LE PROJET - *PROJECT INFORMATION*

13383 — 1015 TWEDDLE ROAD — *Projet Global / Overall Project* — 9/16/2024

Province / *Province*	Ontario		
Zonage / *Zoning*	City of Ottawa zoning By-law No. 2008-250		
Superficie du Lot / *Property Area*	34,155 m² / *sq. m.*	367,644	pi² / *sq. ft*

STATISTIQUES SUR LE PROJET / *PROJECT STATISTICS*	TOWER B1	TOWER B2	TOWER B3
Hauteur du Bâtiment (m)/ *Building Height* (m)	104.8m (32 étages / storeys)	91.2 m (28 étages / storeys)	29.20m (9 étages / storeys)

STATISTIQUES DES UNITÉS / *UNIT STATISTICS*	TOWER B1	TOWER B2	TOWER B3	
Studio / *Bachelor*	26	115	16	157
1 Chambre / *1 Bedroom*	144	122	228	494
2 Chambres / *2 Bedrooms*	105	50	40	195
3 Chambres / *3 Bedrooms*	0	6	0	6
Total Number of Units	275	293	284	852

STATIONNEMENT RÉSIDENTIEL / *RESIDENTIAL PARKING*

PHASE / *PHASE*	EXIGÉ / *REQUIRED* #/Unité / *#/Unit*	EXIGÉ / *REQUIRED* Parking	FOURNIS / *PROVIDED* Ratio Moy. (m²) / *Avg. Ratio (m²)*	FOURNIS / *PROVIDED* Location	FOURNIS / *PROVIDED* Parking
Tour B1- Résidentiel / *Tower B1 - Résidential*	1,0/unit	275	0,5/unit		54 84 22
Tour B1 - Visitors / *Tower B1 - Visiteur*	0,2/unit	55	0,2/unit		46 16
Tour B1 - Accessible (inclus dans compte des visiteurs) / *Tower B1 - Accessible (included in visitors count)*	1-12=1 Type A 13-100=4% of total (50% Type A / 50% Type B) 101-200=1+3% of total (50% Type A / 50% Type B) 201-1000=2+2% of total (50% Type A / 50% Type B) 1001+=11+1% of total (50% Type A / 50% Type B)	8	1-12=1 Type A 13-100=4% of total (50% Type A / 50% Type B) 101-200=1+3% of total (50% Type A / 50% Type B) 201-1000=2+2% of total (50% Type A / 50% Type B) 1001+=11+1% of total (50% Type A / 50% Type B)		7
Tower B1 - Total Residential & Visitor Parking	1,2/unit	330	0,7/unit		222
Tour B2 - Résidentiel / *Tower B2 - Résidential*	1,0/unit	293	0,5/unit		11 132
Tour B2 - Visitors / *Tower B2 - Visiteur*	0,2/unit	59	[illegible]		44 15
Tour B2 - Accessible (inclus dans compte des visiteurs) / *Tower B2 - Accessible (included in visitors count)*	1-12=1 Type A 13-100=4% of total (50% Type A / 50% Type B) 101-200=1+3% of total (50% Type A / 50% Type B) 201-1000=2+2% of total (50% Type A / 50% Type B) 1001+=11+1% of total (50% Type A / 50% Type B)	[illegible]	1-12=1 Type A [illegible]		6
Tower B2 - Total Residential & Visitor Parking	1,2/unit	[illegible]	0,7/unit		202
Tour B3 - Résidentiel / *Tower B3 - Résidential*	1,0/unit	[illegible]	0,5/unit		142
Tour B3 - Visitors / *Tower B3 - Visiteur*	0,2/unit	[illegible]	0,2/unit		57
Tour B3 - Accessible (inclus dans compte des visiteurs) / *Tower B3 - Accessible (included in visitors count)*	[illegible]	8	1-12=1 Type A 13-100=4% of total (50% Type A / 50% Type B) 101-200=1+3% of total (50% Type A / 50% Type B) 201-1000=2+2% of total (50% Type A / 50% Type B) 1001+=11+1% of total (50% Type A / 50% Type B)		7
Tower B3 - Total Residential & Visitor Parking	[illegible]	341	0,7/unit		199
Total Residential & Visitor Parking	[illegible]	1022	0,7/unit		623

TO BE UPDATED

STATIONNEMENT COMMERCIALE / *COMMERCIAL* [illegible]

PHASE / *PHASE*	Aire (m²) / *Area (m²)*	EXIGÉ / *REQUIRED* Ratio Moy. (m²) / *Avg. Ratio (m²)*	EXIGÉ / *REQUIRED* Commercial Parking	FOURNIS / *PROVIDED* Ratio Moy. (m²) / *Avg. Ratio (m²)*	FOURNIS / *PROVIDED* Location	FOURNIS / *PROVIDED* Commercial Parking
Tour B1 - Commerciale / *Tower B1 - Commercial*	844	3.4/100	30	3.4/100		30
Tour B2 - Commerciale / *Tower B2 - Commercial*	312	3.4/100	18	3.4/100		18
Tour B3 - Commerciale / *Tower B3 Commercial*	1025	3.4/100	28	3.4/100		28
Total Commercial Parking	2181	3.4/100	#REF!	3.4/100		76

STATIONNEMENT POUR VÉLOS / *BICYCLE PARKING*

PHASE / *PHASE*	Unités / *Units*	Aire (m²) / *Area (m²)*	EXIGÉ / *REQUIRED* Ratio / *Ratio*	EXIGÉ / *REQUIRED* Bicycle Parking	FOURNIS / *PROVIDED* Ratio Moy. (m²) / *Avg. Ratio (m²)*	FOURNIS / *PROVIDED* Location	FOURNIS / *PROVIDED* Bicycle Parking
Tour B1 - Résidentiel / Tower B1 - Residential	275		0,5/unit	138	0.96		108 157
					Total B1 Residential Bicycle parking		265
Tour B2 - Résidentiel / Tower B2 - Residential	293		0,5/unit	147	0.85		180 70
					Total B2 Residential Bicycle parking		250
Tour B3 - Résidentiel / Tower B3 - Residential	284		0,5/unit	142	1.00		284
					Total B3 Residential Bicycle parking		284
Total Residential Bicycle Parking	852		0,5/unit	426	0.94		799
Tour B1 - Commerciale / Tower B1 - Commercial		844	1/250 m2	3	1/250 m2	Provided in T6	3
Tour B2 - Commerciale / Tower B2 - Commercial		312	1/250 m2	1	1/250 m2	Provided in T5	1
Tour B3 - Commerciale / Tower B3 - Commercial		1025	1/250 m2	4	1/250 m2	Provided in T34	4
Total Commercial Bicycle Parking		2181	1/250 m2	8	1/250 m2		8

1

NOTES GÉNÉRALES General Notes

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NEUF
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OUVRAGE Project
1015 TWEDDLE ROAD, ORLÉANS, ON, K4A 3P4

EMPLACEMENT Location: **OTTAWA, ON**
NO PROJET No.: **13383**

NO	RÉVISION	DATE (aa-mm-jj)

Préliminaire
NE PAS UTILISER POUR CONSTRUCTION

DESSINÉ PAR Drawn by: AT / MA
VÉRIFIÉ PAR Checked by: AC
DATE (aa.mm.jj): 24.09.18
ÉCHELLE Scale: As indicated
TITRE DU DESSIN Drawing Title: **SITE PLAN**
RÉVISION Revision
NO. DESSIN Dwg Number: **A100**

Appendix B:

Existing Peak Hour Volumes

Transportation Services - Traffic Services

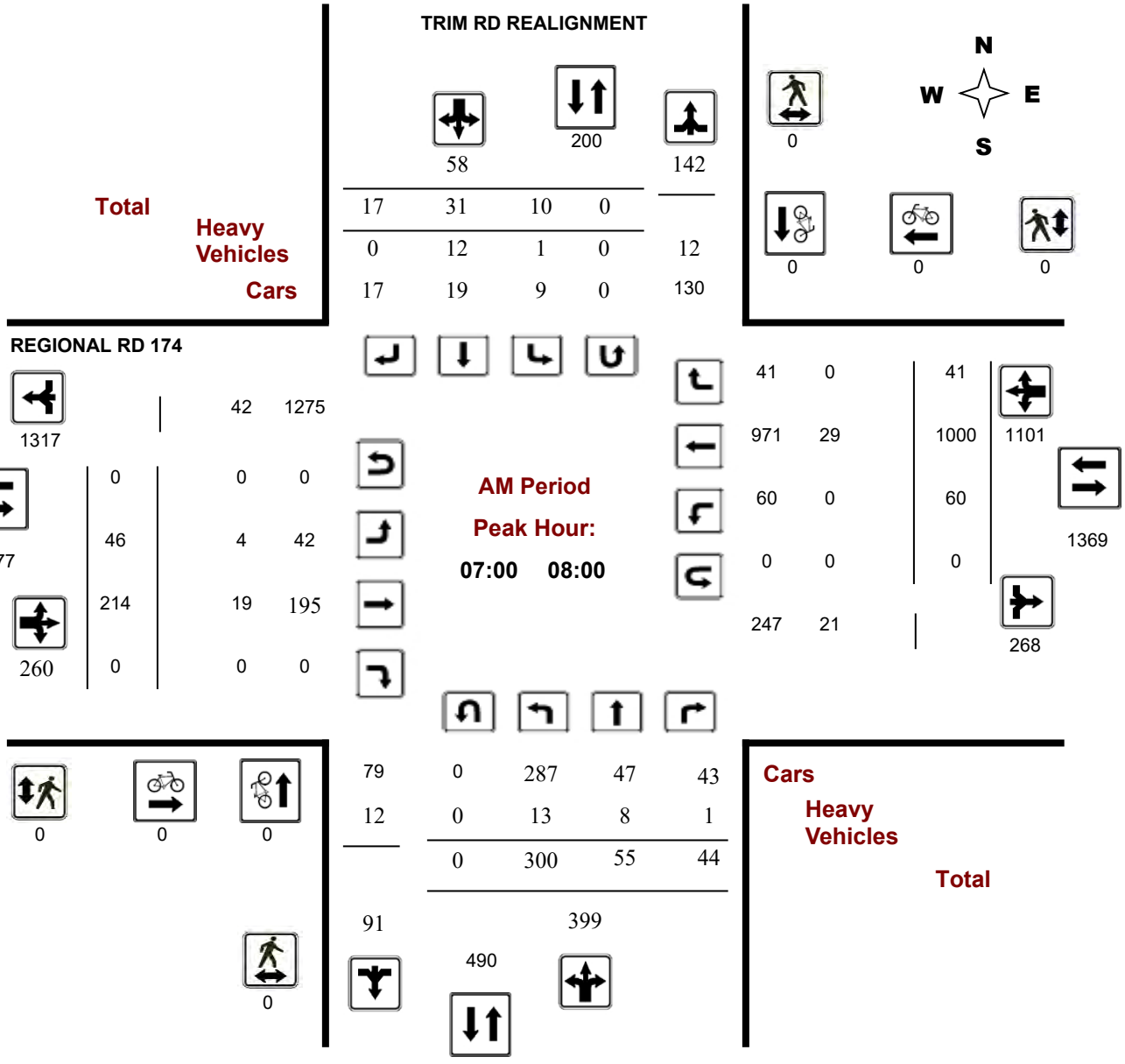
Turning Movement Count - Study Results

REGIONAL RD 174 @ TRIM RD REALIGNMENT

Survey Date: Thursday, January 25, 2024 **WO No:** 41642

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

AM Period Peak Hour Diagram



Transportation Services - Traffic Services

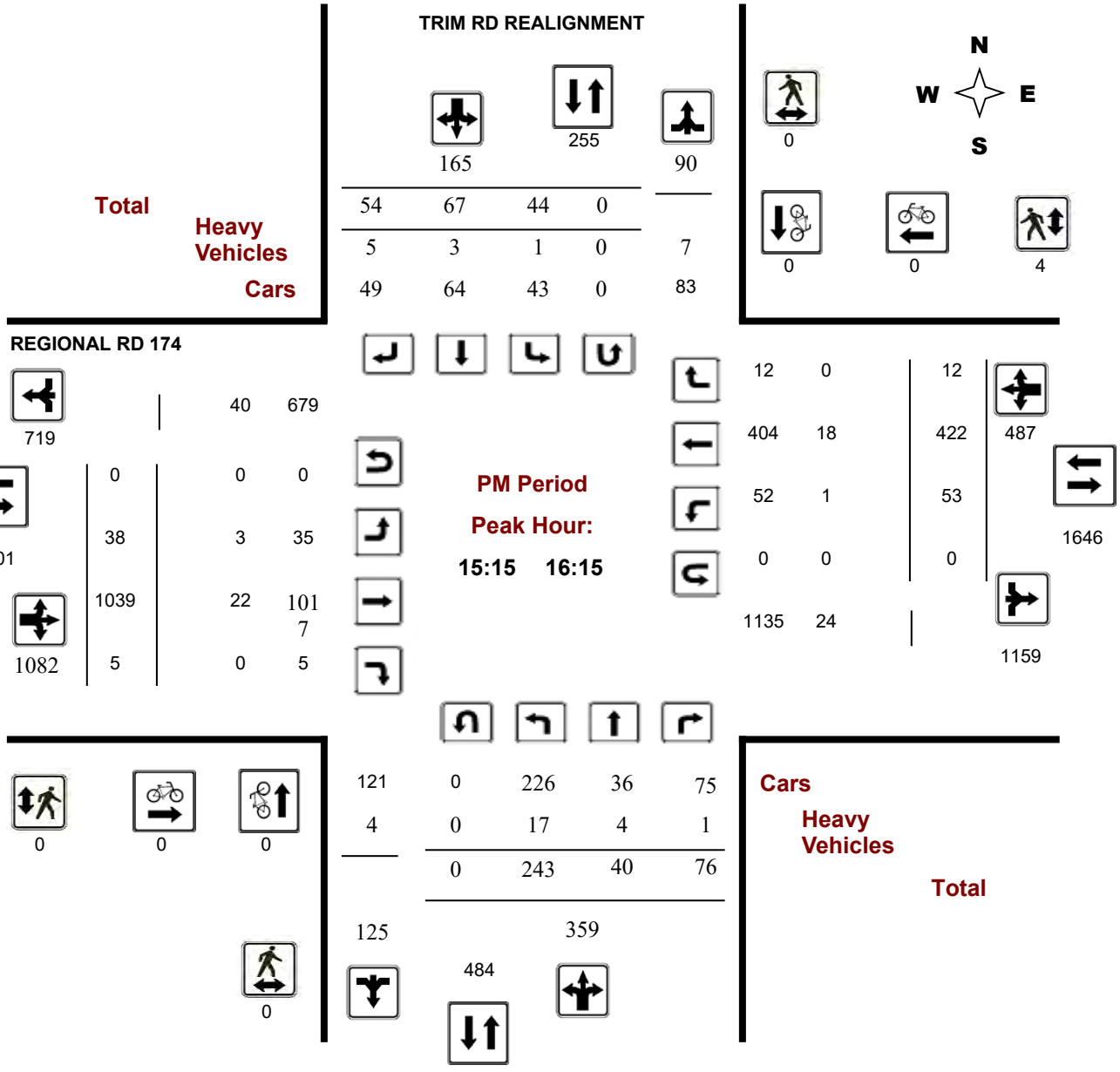
Turning Movement Count - Study Results

REGIONAL RD 174 @ TRIM RD REALIGNMENT

Survey Date: Thursday, January 25, 2024 **WO No:** 41642

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

PM Period Peak Hour Diagram



DIRECTIONAL TRAFFIC FLOW

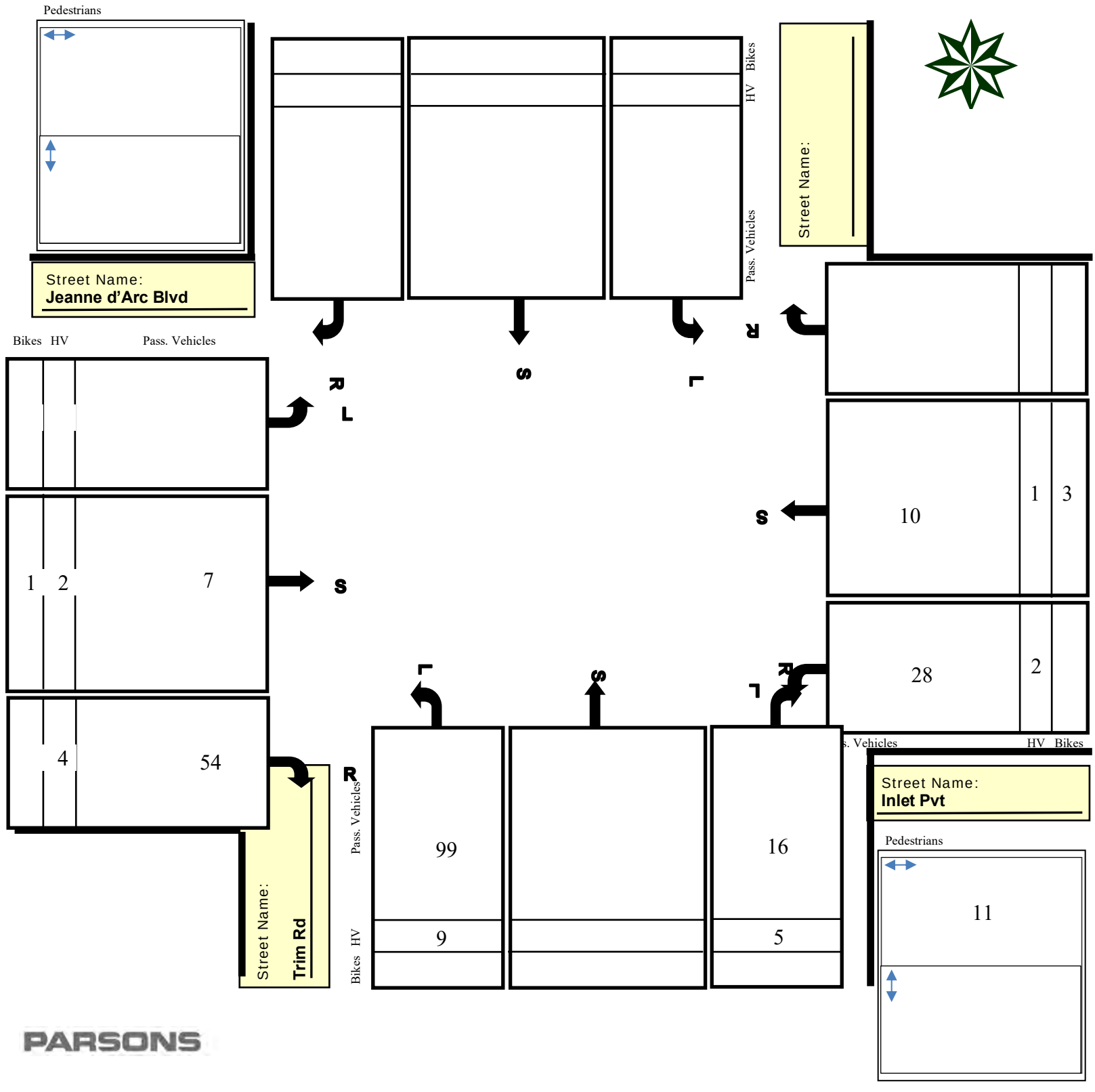
Intersection: **Jeanne d'Arc Blvd** at **Trim Rd**

DATE: Day: **6th** Month: **November** Year: **2024** Day of Week: **Wednesday**

Observer: **Juan Lavin** Weather: **Warm, wet and cloudy**

Chkd by: ..... Date: .....

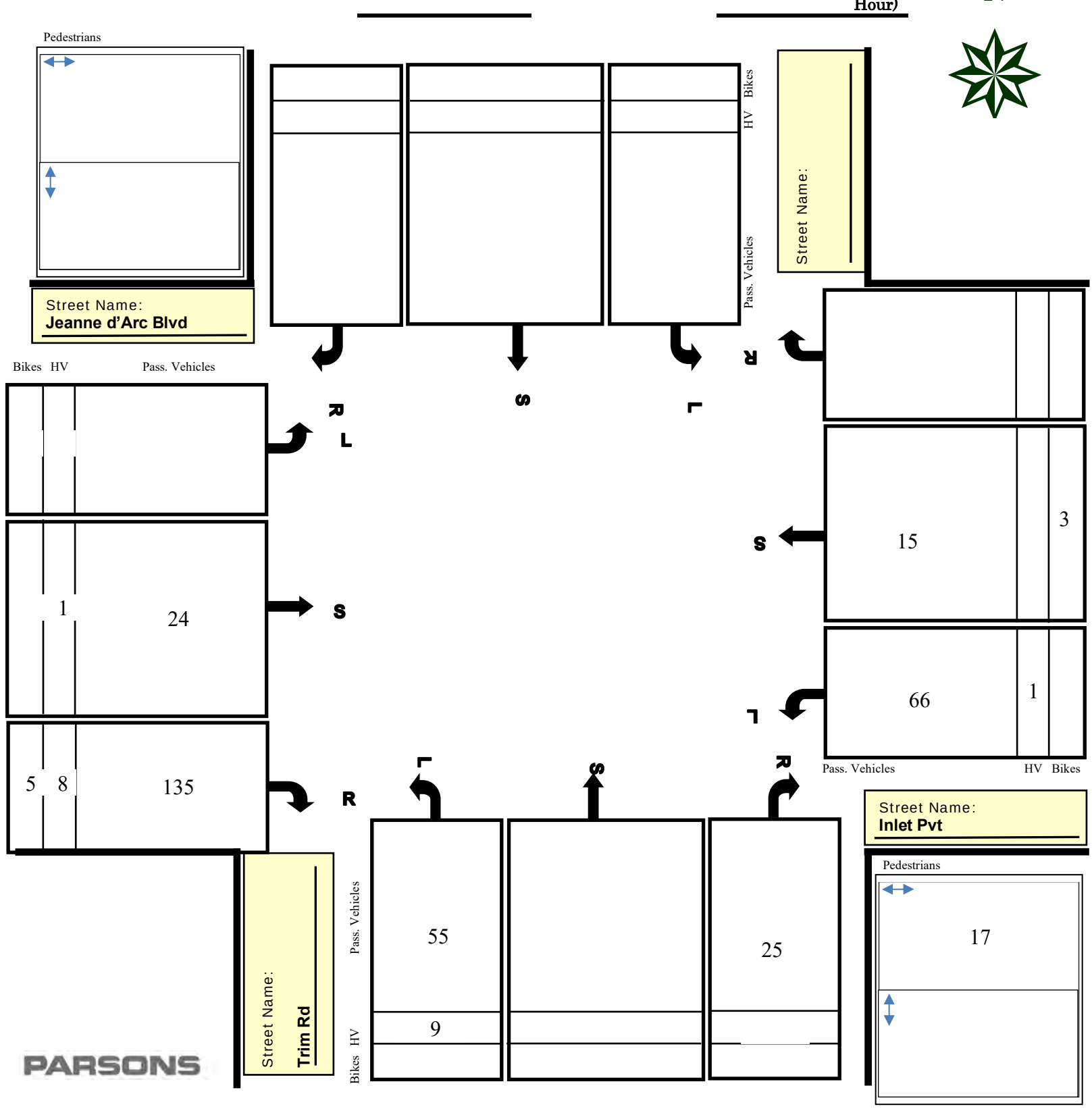
TIME PERIOD: From: **7:30 AM** To: **8:30 AM**



PARSONS

DIRECTIONAL TRAFFIC FLOW

TIME PERIOD: From: 3:15pm To: 4:15pm (Peak Hour)



Transportation Services - Traffic Services

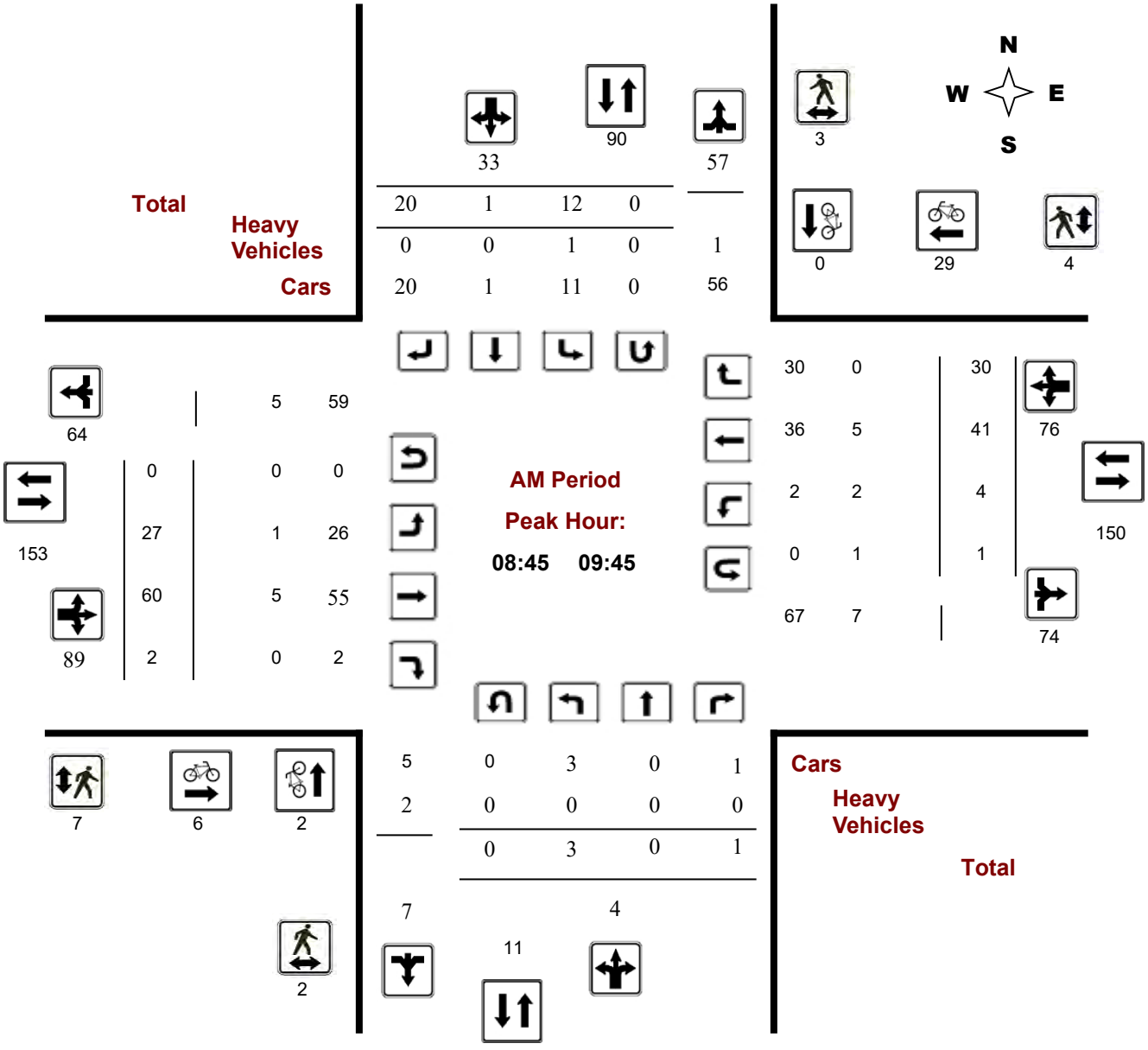
Turning Movement Count - Study Results

TWEDDLE RD & JEANNE-D'ARC BLVD

Survey Date: Tuesday, June 25, 2024 **WO No:** 41857

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

AM Period Peak Hour Diagram



Transportation Services - Traffic Services

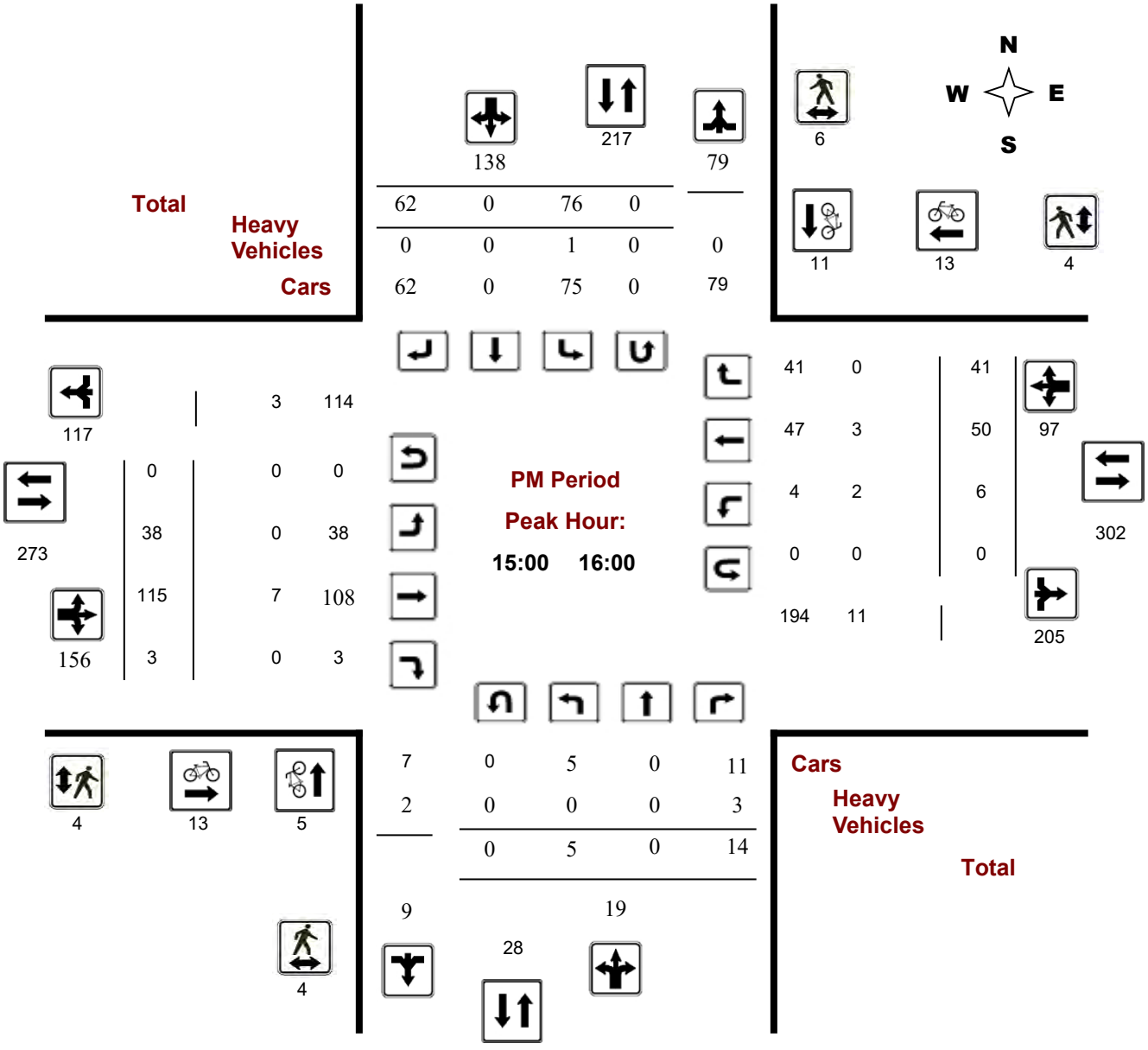
Turning Movement Count - Study Results

TWEDDLE RD & JEANNE-D'ARC BLVD

Survey Date: Tuesday, June 25, 2024 **WO No:** 41857

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

PM Period Peak Hour Diagram



Appendix C:

Historic Collision Data

Total Area

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	50	5	27	1	5	30	1	4	123	85%
Non-fatal injury	8	1	0	1	4	5	0	2	21	15%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**58**	**6**	**27**	**2**	**9**	**35**	**1**	**6**	**144**	100%
	#1 or 40%	#5 or 4%	#3 or 19%	#7 or 1%	#4 or 6%	#2 or 24%	#8 or 1%	#5 or 4%		

REGIONAL RD 174/TRIM RD

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2018-2022	60	n/a	365	**n/a**

Peds	Cyclists
0	**0**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	34	3	10	0	0	4	0	0	51	85%
Non-fatal injury	5	1	0	1	0	1	0	1	9	15%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**39**	**4**	**10**	**1**	**0**	**5**	**0**	**1**	**60**	100%
	65%	7%	17%	2%	0%	8%	0%	2%		

REGIONAL RD 174 WB Departing Trim Rd

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2018-2022	12	n/a	365	**n/a**

Peds	Cyclists
0	**0**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	1	1	5	0	0	2	0	3	12	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**1**	**5**	**0**	**0**	**2**	**0**	**3**	**12**	100%
	8%	8%	42%	0%	0%	17%	0%	25%		

REGIONAL RD 174 EB Approaching Trim Rd

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2018-2022	17	n/a	365	**n/a**

Peds	Cyclists
0	**0**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	5	0	6	0	0	4	0	0	15	88%
Non-fatal injury	2	0	0	0	0	0	0	0	2	12%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**7**	**0**	**6**	**0**	**0**	**4**	**0**	**0**	**17**	100%
	41%	0%	35%	0%	0%	24%	0%	0%		

REGIONAL RD 174 EB Departing Trim Rd

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2018-2022	14	n/a	365	**n/a**

Peds	Cyclists
0	**0**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	4	0	6	0	0	3	0	0	13	93%
Non-fatal injury	1	0	0	0	0	0	0	0	1	7%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**5**	**0**	**6**	**0**	**0**	**3**	**0**	**0**	**14**	100%
	36%	0%	43%	0%	0%	21%	0%	0%		

REGIONAL RD 174 WB Approaching Trim Rd

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2018-2022	38	n/a	365	**n/a**

Peds	Cyclists
0	**0**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	5	1	0	1	4	17	0	1	29	76%
Non-fatal injury	0	0	0	0	4	4	0	1	9	24%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**5**	**1**	**0**	**1**	**8**	**21**	**0**	**2**	**38**	100%
	13%	3%	0%	3%	21%	55%	0%	5%		

(OLD) TRIM RD, JEANNE D'ARC TO RR174

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2018-2022	2	n/a	365	**n/a**

Peds	Cyclists
0	**0**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	1	0	0	0	0	0	1	0	2	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	100%
	50%	0%	0%	0%	0%	0%	50%	0%		

(OLD) TRIM RD, PETRIE ISLAND TO JEANNE D'ARC

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2018-2022	1	n/a	365	**n/a**

Peds	Cyclists
0	**0**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	0	1	0	0	0	1	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	100%
	0%	0%	0%	0%	100%	0%	0%	0%		

Post Realignment

Total Area

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	13	2	10	0	0	6	0	1	32	86%
Non-fatal injury	3	0	0	0	1	1	0	0	5	14%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**16**	**2**	**10**	**0**	**1**	**7**	**0**	**1**	**37**	100%
	#1 or 43%	#4 or 5%	#2 or 27%	#7 or 0%	#5 or 3%	#3 or 19%	#7 or 0%	#5 or 3%		

REGIONAL RD 174/TRIM RD

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2018-2022	18	n/a	365	**n/a**

Peds	Cyclists
0	**0**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	11	2	1	0	0	1	0	0	15	83%
Non-fatal injury	2	0	0	0	0	1	0	0	3	17%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**13**	**2**	**1**	**0**	**0**	**2**	**0**	**0**	**18**	100%
	72%	11%	6%	0%	0%	11%	0%	0%		

REGIONAL RD 174 WB Departing Trim Rd

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2018-2022	4	n/a	365	**n/a**

Peds	Cyclists
0	**0**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	3	0	0	0	0	1	4	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**1**	**4**	100%
	0%	0%	75%	0%	0%	0%	0%	25%		

REGIONAL RD 174 EB Approaching Trim Rd

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2018-2022	6	n/a	365	**n/a**

Peds	Cyclists
0	**0**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	1	0	3	0	0	1	0	0	5	83%
Non-fatal injury	1	0	0	0	0	0	0	0	1	17%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**2**	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**6**	100%
	33%	0%	50%	0%	0%	17%	0%	0%		

REGIONAL RD 174 EB Departing Trim Rd

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2018-2022	5	n/a	365	**n/a**

Peds	Cyclists
0	**0**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	1	0	3	0	0	1	0	0	5	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**5**	100%
	20%	0%	60%	0%	0%	20%	0%	0%		

REGIONAL RD 174 WB Approaching Trim Rd

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2018-2022	4	n/a	365	**n/a**

Peds	Cyclists
0	**0**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	0	0	3	0	0	3	75%
Non-fatal injury	0	0	0	0	1	0	0	0	1	25%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**4**	100%
	0%	0%	0%	0%	25%	75%	0%	0%		

(OLD) TRIM RD, JEANNE D'ARC TO RR174

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2018-2022	0	n/a	365	**n/a**

Peds	Cyclists
0	**0**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	0	0	0	0	0	0	
Non-fatal injury	0	0	0	0	0	0	0	0	0	
Non-reportable	0	0	0	0	0	0	0	0	0	
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0%

(OLD) TRIM RD, PETRIE ISLAND TO JEANNE D'ARC

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2018-2022	0	n/a	365	**n/a**

Peds	Cyclists
0	**0**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	0	0	0	0	0	0	
Non-fatal injury	0	0	0	0	0	0	0	0	0	
Non-reportable	0	0	0	0	0	0	0	0	0	
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0%

Appendix D:

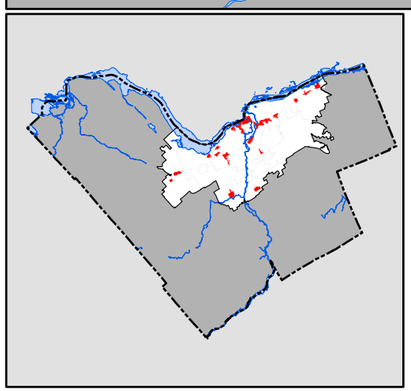
Key Figures from City Policy Documents

Expansion lands also form part of this Annex, and an adjustment to this map will be undertaken at a later time to add these lands. In the interim the expansion lands are shown on Schedule C17 - Urban Expansion Areas

Les terrains de la zone d'extension font aussi partie de cette appendice; on mettra au point cette carte à une date ultérieure, pour y ajouter ces terrains. D'ici là, les terrains de la zone d'extension sont représentés dans l'annexe C17 - Zones d'expansion urbaine.

Tunney's
Bayview
Downtown
Corso Italia
Lees
Dow's Lake
Lincoln Fields
Hurdman
Tremblay
St-Laurent
Cyrville
Blair
Jeanne d'Arc
Place d'Orléans
Trim
Kanata TC
Palladium
Bayshore
Pinecrest-Queensview
Tallwood
Algonquin
Mooney's Bay
Knoxdale
South Keys
Barrhaven TC
Riverside South TC

November 24, 2021



Protected Major Transit Station Areas (PMTSA) / Zones protégées de grande station de transport en commun

Urban Boundary / Périmètre d'urbanisation

TRANSIT

O-Train and Station / O-Train et station

Future O-Train / O-Train et station (futur)

Transitway – grade separated / Transitway en site propre

Transitway – at grade / Transitway – Voie à niveau

Conceptual Future Transit Corridor / Avenir conceptuel - Couloir de transport en commun

Transfer Station / Station de correspondance

Terminus Station / Station terminus

Gatineau RapiBus - grade-separated / Rapibus de Gatineau en site propre

Note: The transit network on this Schedule is provided for reference purposes only. For transit network policy, please refer to Schedule C2. / Remarque : Les renseignements relatifs au réseau de transport en commun qui sont présentés dans cette annexe sont fournis à titre de référence. Pour consulter les politiques du réseau de transport, veuillez vous référer à l'annexe C2.

Ottawa

Official Plan / Plan officiel

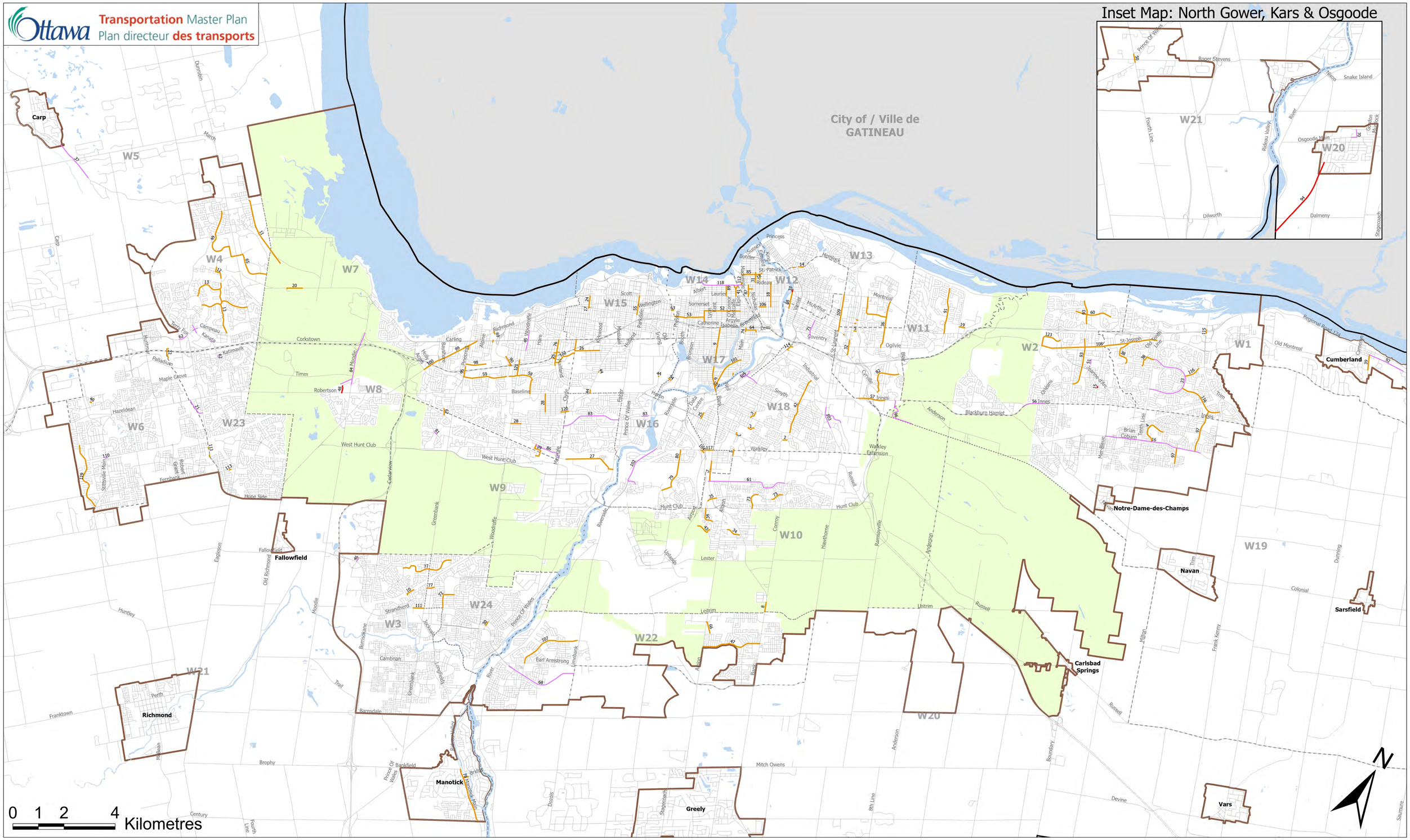
Schedule C1 - Protected Major Transit Station Areas (PMTSA)
Annexe C1 - Zones protégées de grande station de transport en commun

Consolidation and Amendments / Consolidation et amendements

0 0.5 1 2 3 4 5 km

Planning, Infrastructure and Economic Development Department, Geospatial Analytics, Technology and Solutions
Services de la planification, de l'infrastructure et du développement économique, Analyse géospatiale, technologie et solutions

Transportation Master Plan
Plan directeur des transports



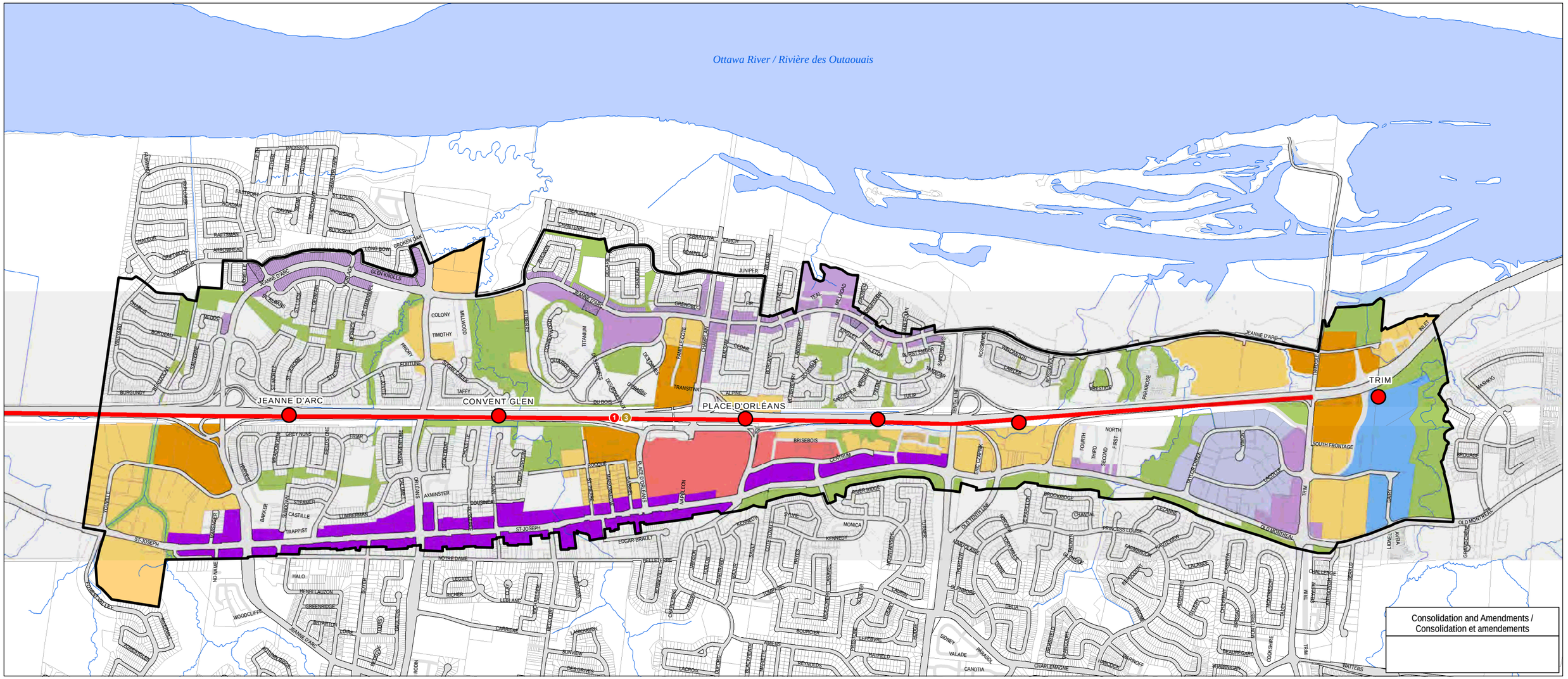
TMP Cycling Projects Proposed Priority

- First Phase
- First Phase - Completed
- Later Phase
- Greenbelt
- Urban Area
- Wards
- Village Boundaries
- City Boundary

#	Project Name
1	Albion Rd North
2	Alta Vista East-West Route
3	Alta Vista North-South Route
4	Aquaview Drive
5	Aviation Pathway Connections
6	Bank St Cycling
7	Bank St Over Rail
8	Bank St South
9	Bank St, Lansdowne North
10	Barrhaven VIA Pathway (Jockvale Rd – Antler-Dolan underpass)
11	Beachburg Subdivision Rail Corridor Pathway
12	Beaverbrook - Kanata North Pathway
13	Beaverbrook Rd, Knudson Dr, Weslock Way, Walden Dr, Teron Rd, Kanata Ave and Campeau Dr
14	Beechwood Ave
15	Belcourt Blvd to Frank Bender St
16	Brian Coburn Blvd
17	Byron Ave and Churchill Ave
18	Byward Market to Somerset St East
19	Canotek Rd
20	Carling Ave, Beachburg Rail Underpass
21	Carp River Pathway
22	Carp River Pathway under Hwy 417
23	Charlemagne Blvd
24	Churchill Ave Cycling
25	Clover St
26	Clyde Ave N and Laperriere Ave
27	Colonnade Rd N
28	Cordova St and Meadowlands Dr
29	Crestview-Tanglewood Rail Crossing
30	Crestway Dr
31	Cumberland St and Murray St East
32	Cummings Ave
33	Cummings Bridge Underpass
34	D'Aoust Ave and Bridle Path Dr
35	Dazé St
36	Den Haag Dr and Bathgate Dr
37	Donald B Munro Dr and Old Carp Rd
38	Duford Dr, Prestone Dr and Tompkins Ave
39	Dunning Rd
40	Echowoods Park
41	Elgin St Cycling
42	Elmvale-Canterbury Neighbourhood Bikeway
43	Emerald Woods O-Train Pathway Connection
44	Experimental Farm Path Connections
45	Fairlawn Ave and Woodroffe Ave
46	Fallowfield Rd – Forager St Pathway
47	Findlay Creek Dr
48	Fitzgerald Rd
49	Flamborough Way and Innovation Dr
50	Fourth Line Rd
51	Garneau Park to Carrière St
52	Gilmour St
53	Gladstone Ave and Percy St Cycling
54	Hartwell Locks Accessible Crossing
55	Holland Ave Cycling
56	Innes Rd Eastbound
57	Innes Rd over Highway 417
58	Iris St and Navaho Dr
59	Iris St West
60	Jeanne d'Arc Blvd North
61	Johnston Rd
62	Kanata Ave and Campeau Dr
63	Laurel St Bridge
64	Lees Ave to Hawthorne Ave
65	Legget Dr, Solandt Rd and Hines Rd
66	Leitrim Station Pathway
67	Leslie Park-Banner Rd Rail Crossing
68	Limebank Station Pathway
69	Lincoln Fields Crossings, Carling Ave and Richmond Rd
70	Logan Farm Dr and Osgoode Main St
71	Lola St
72	Longfields Dr and Berrigan Dr
73	Lorry Greenberg Dr
74	Main St Southbound Cycling Link
75	Maitland Ave Cycling
76	Maitland Ave Cycling Connections
77	Malvern Dr, Foxfield Dr, and Highbury Park Dr
78	Manotick Main St / Bridge St
79	McCarthy Rd and Paul Anka Dr
80	McCarthy Rd Cycling
81	McClellan Rd Pathway Connectivity
82	Meadowbrook Rd
83	Meadowlands Dr
84	Moodie Dr
85	Murray St West
86	Nepean Creek Pathway
87	Nicholas St and Daly Ave Cycling
88	North River Rd
89	O'Connor St
90	O-Train Crossing at Hwy 417
91	Ogilvie Rd
92	Old Montreal Rd
93	Orléans Blvd
94	Osgoode Link Pathway Extension
95	Pinecrest Rd and Greenbank Rd
96	Prescott-Russell Recreational Trail
97	Provence Ave and Portobello Blvd
98	Queensview Dr
99	Richmond Rd
100	Richmond Rd over Hwy 417
101	Riverdale Ave and Neighbourhood Connections
102	Riverside Dr
103	Russell Rd, St-Laurent Blvd and Lancaster Rd
104	Sawmill Creek Connection from Walkley Rd
105	Smyth Rd and Rideau River Eastern Pathway Connection
106	Somerset St East Cycling
107	Spratt Rd Cycling
108	St-Joseph Blvd Cycling
109	St-Laurent Blvd Cycling
110	Stittsville Trans Canada Trail Crossing
111	Strandherd Dr Eastbound
112	Sussex Dr
113	Terry Fox Dr Pathway
114	Tremblay Road to Terminal Avenue
115	Trim Road Bridge
116	Valin St and Watters Rd
117	Walkley Rd
118	Wellington St
119	West Ridge Dr
120	Withrow Ave and Capilano Dr
121	Woodroffe Ave Cycling
122	Woodward Dr
123	Youville Dr

For further details, please refer to the TMP active aransportation project list or GeoOttawa (https://maps.ottawa.ca/geoottawa/)

March, 2025



Orleans Town Centre / Centre-ville d'Orléans

Station Area - Core / Zone centrale de la station

Station Area - Periphery / Zone périphérique de la station

St Joseph Mainstreet / Rue principale Saint-Joseph

O-Train Minor Corridor / Couloir – Rue principale mineure de l'O-Train

Industrial and Logistics / Industrie et logistique

Local Production and Entertainment / Production et loisirs de la localité

Greenspace / Espaces verts

Neighbourhood / Quartier

OVERLAY / AFFECTATION SUPPLÉMENTAIRE

Local Commercial Anchor / Ancrage commercial local

Secondary Plan Boundary / Limite du plan secondaire

Light Rail Transit (LRT) / Transport en commun par train léger (TCTL)

O-Train Lines / Lignes de l'O-Train

Orléans Corridor / Le couloir d'Orléans

SECONDARY PLAN - Volume 2
Schedule A - Designation Plan

PLAN SECONDAIRE - Volume 2
Annexe A -Plan de désignation

0 187.5 375 750 1,125 1,500 m

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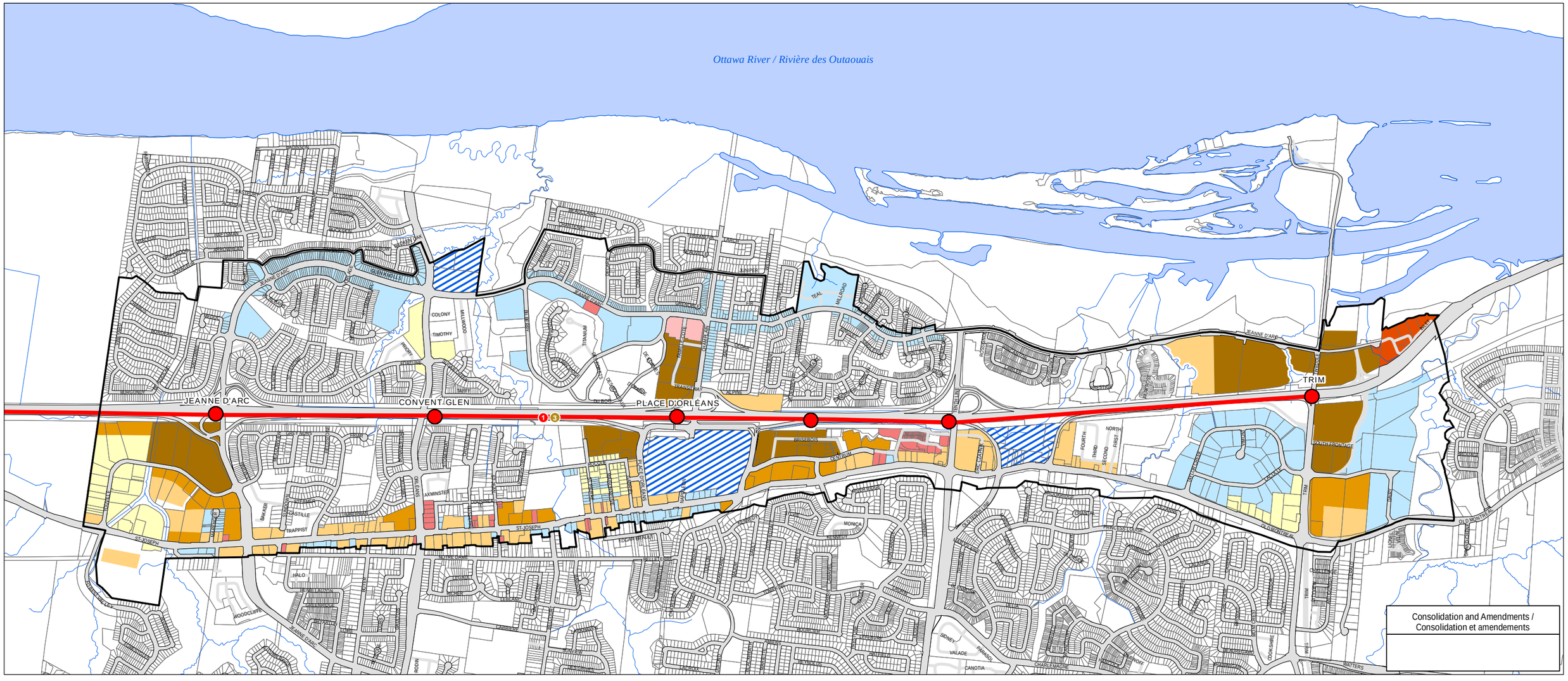

MAXIMUM BUILDING HEIGHTS / HAUTEURS MAXIMALES DES IMMEUBLES

- 4 storeys / étages
- 6 storeys / étages
- 9 storeys / étages
- 18 storeys / étages
- 25 storeys / étages
- 32 storeys / étages - to reflect development approvals / pour refléter les approbations de développement
- 40 storeys / étages
- Conditional Height / Des hauteurs soumises à des conditions
- Height through Demonstration Plan / Les hauteurs seront identifiées par un plan de démonstration

- Secondary Plan Boundary / Limite du plan secondaire
- Light Rail Transit (LRT) / Transport en commun par train léger (TCTL)
- O-Train Lines / Lignes de l'O-Train

Orléans Corridor / Le couloir d'Orléans

SECONDARY PLAN - Volume 2
Schedule B - Maximum Building Heights

PLAN SECONDAIRE - Volume 2
Annexe B - Hauteurs maximales des immeubles

0 187.5 375 750 1,125 1,500 m

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** Note:*
1/ All Parks shown on this plan are approximate and their size and configuration are subject to change.
2/ The locations of POPS and "Potential Future Streets" shown on this plan are preliminary and their location is subject to change.
3/ Escarpment area is approximate
4/ Please refer to Stage 2 LRT designs for more accurate Stage 2 active transportation improvements information.

Ottawa River / Rivière des Outaouais

JEANNE D'ARC
CONVENT GLEN
PLACE D'ORLÉANS
TRIM

24m ROW Protection (Youville)
Sidewalk Improvements (1250 - 1258 Marenger)
Sidewalk Improvements (St. Joseph to Henri Lauzon)
Future Traffic Calming (Notre Dame)
22m ROW Protection (Belcourt south to Toulouse)

- Park / Parc
- Potential Park /
- Voyageur Creek Greenway Corridor
- Potential Privately-owned Public Space (POPS)
- Linear Park/Woonerf
- Lands Subject to Land Owner Agreements
- Escarpment Area (development prohibited)
- Potential Public Realm Improvement

- New Street
- Potential New Street (Public or Private)
- Road Improvements
- Future Traffice Calming
- 22m ROW Protection
- Sidewalk Improvements
- Pedestrian Crosswalk

- Active Transportation Bridge / Passerelle de mobilité active
- Active Transportation Connection
- Potential Active Transportation Connection
- Physically-separated Cycling Facility /
- Multi-Use Pathway (MUP) / Sentier polyvalent
- LRT Stage 2 Active Transportation Improvements

- St Joseph Boulevard Concept Plan (Annex B)
- Secondary Plan Boundary / Limite du plan secondaire
- LRT / TCTL
- 1 3 O-Train Lines / Lignes de l'O-Train

Orléans Corridor / Le couloir d'Orléans

SECONDARY PLAN - Volume 2
Schedule C - Public Realm and Mobility Improvements

PLAN SECONDAIRE - Volume 2
Annex C - Domaine public

Ottawa

0 187.5 375 750 1,125 1,500 m

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Appendix E:

Internal Trip Generation Reduction Calculations

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	479234 - 01000	**Organization:**	Parsons
Project Location:	1015 Tweddle Road	**Performed By:**	
Scenario Description:	External - Internal Trips AM	**Date:**	3-Dec-24
Analysis Year:	Proposed Mode Share	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (***For Information Only***)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				19	11	8
Restaurant				22	11	11
Cinema/Entertainment				0		
Residential				129	40	89
Hotel				0		
All Other Land Uses[2]				0		
				170	62	108

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		1	0	1	0
Restaurant	0	1		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	2	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	170	62	108
Internal Capture Percentage	7%	10%	6%
External Vehicle-Trips[5]	158	56	102
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	18%	25%
Restaurant	27%	9%
Cinema/Entertainment	N/A	N/A
Residential	3%	3%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from ***Trip Generation Manual***, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE ***Trip Generation Manual***).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	479234 - 01000
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	11	11	1.00	8	8
Restaurant	1.00	11	11	1.00	11	11
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	40	40	1.00	89	89
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	2		1	0	1	0
Restaurant	3	2		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	18	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	3	0	0	0
Retail	0		6	0	1	0
Restaurant	0	1		0	2	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	2	2	0		0
Hotel	0	0	1	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	2	9	11	9	0	0
Restaurant	3	8	11	8	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	39	40	39	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	2	6	8	6	0	0
Restaurant	1	10	11	10	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	86	89	86	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	479234 - 01000	**Organization:**	Parsons
Project Location:	1015 Tweddle Road	**Performed By:**	
Scenario Description:	External - Internal Trips AM	**Date:**	3-Dec-24
Analysis Year:	Proposed Mode Share	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (***For Information Only***)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				52	26	26
Restaurant				23	14	9
Cinema/Entertainment				0		
Residential				128	74	54
Hotel				0		
All Other Land Uses[2]				0		
				203	114	89

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					50	
Restaurant					50	
Cinema/Entertainment						
Residential		50	50			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		4	0	7	0
Restaurant	0	4		0	2	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	3	2	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	203	114	89
Internal Capture Percentage	22%	19%	25%
External Vehicle-Trips[5]	159	92	67
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	27%	42%
Restaurant	43%	67%
Cinema/Entertainment	N/A	N/A
Residential	12%	9%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from ***Trip Generation Manual***, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE ***Trip Generation Manual***).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	479234 - 01000
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	26	26	1.00	26	26
Restaurant	1.00	14	14	1.00	9	9
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	74	74	1.00	54	54
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	1		8	1	7	1
Restaurant	0	4		1	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	2	23	11	0		2
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	0	0	3	0
Retail	0		4	0	34	0
Restaurant	0	13		0	12	0
Cinema/Entertainment	0	1	0		3	0
Residential	0	3	2	0		0
Hotel	0	1	1	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	7	19	26	19	0	0
Restaurant	6	8	14	8	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	9	65	74	65	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	11	15	26	15	0	0
Restaurant	6	3	9	3	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	5	49	54	49	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Appendix F:

Background Growth Calculations

Trim/OR 174
8 hrs

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2010	Friday 9 July	744	722	5389	800	6433	6484	9542	10363	40477
2012	Friday 8 June	329	441	4696	800	5833	5818	8875	9044	35836
2017	Wednesday 19 April	590	518	4739	853	5522	5570	10003	9024	36819
2023	Tues, Feb 07	691	630	3020	780	5174	4942	4635	7168	27040
2024	Thurs, Jan 25	730	776	2708	759	4983	4865	4597	6618	26036

Summed all inbound movements except for EBR

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2010	722	744	1466	40477				
2012	441	329	770	35836	-38.9%	-55.8%	-47.5%	-11.5%
2017	518	590	1108	36819	17.5%	79.3%	43.9%	2.7%
2023	630	691	1321	27040	21.6%	17.1%	19.2%	-26.6%
2024	776	730	1506	26036	23.2%	5.6%	14.0%	-3.7%

Regression Estimate	2010	557	536	1093	40100
Regression Estimate	2024	675	693	1368	26764
Average Annual Change		**1.38%**	**1.86%**	**1.62%**	**-2.85%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2010	9542	10363	19905	40477				
2012	8875	9044	17919	35836	-7.0%	-12.7%	-10.0%	-11.5%
2017	10003	9024	19027	36819	12.7%	-0.2%	6.2%	2.7%
2023	4635	7168	11803	27040	-53.7%	-20.6%	-38.0%	-26.6%
2024	4597	6618	11215	26036	-0.8%	-7.7%	-5.0%	-3.7%

Regression Estimate	2010	10192	10115	20307	
Regression Estimate	2024	5016	6865	11881	
Average Annual Change		**-4.94%**	**-2.73%**	**-3.76%**	

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2010	6484	6433	12917	40477				
2012	5818	5833	11651	35836	-10.3%	-9.3%	-9.8%	-11.5%
2017	5570	5522	11092	36819	-4.3%	-5.3%	-4.8%	2.7%
2023	4942	5174	10116	27040	-11.3%	-6.3%	-8.8%	-26.6%
2024	4865	4983	9848	26036	-1.6%	-3.7%	-2.6%	-3.7%

Regression Estimate	2010	6275	6217	12493	
Regression Estimate	2024	4838	4995	9833	
Average Annual Change		**-1.84%**	**-1.55%**	**-1.70%**	

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2010	5389	800	6189	40477				
2012	4696	800	5496	35836	-12.9%	0.0%	-11.2%	-11.5%
2017	4739	853	5592	36819	0.9%	6.6%	1.7%	2.7%
2023	3020	780	3800	27040	-36.3%	-8.6%	-32.0%	-26.6%
2024	2708	759	3467	26036	-10.3%	-2.7%	-8.8%	-3.7%

Regression Estimate	2010	5391	817	6207	
Regression Estimate	2024	2901	781	3682	
Average Annual Change		**-4.33%**	**-0.32%**	**-3.66%**	

Trim/OR 174
AM Peak

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2010	Friday 9 July	42	46	819	100	1309	387	720	2003	5426
2012	Friday 8 June	62	64	875	100	1292	313	578	2016	5300
2017	Wednesday 19 April	48	51	807	116	1324	428	727	1890	5391
2023	Tues, Feb 07	53	88	592	98	1200	335	321	1645	4332
2024	Thurs, Jan 25	58	142	399	91	1101	268	260	1317	3636

Summed all inbound movements except for EBR

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2010	46	42	88	5426				
2012	64	62	126	5300	39.1%	47.6%	43.2%	-2.3%
2017	51	48	99	5391	-20.3%	-22.6%	-21.4%	1.7%
2023	88	53	141	4332	72.5%	10.4%	42.4%	-19.6%
2024	142	58	200	3636	61.4%	9.4%	41.8%	-16.1%

Regression Estimate	2010	42	50	91	5627
Regression Estimate	2024	113	55	168	4052
Average Annual Change		**7.32%**	**0.81%**	**4.45%**	**-2.32%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2010	720	2003	2723	5426				
2012	578	2016	2594	5300	-19.7%	0.6%	-4.7%	-2.3%
2017	727	1890	2617	5391	25.8%	-6.3%	0.9%	1.7%
2023	321	1645	1966	4332	-55.8%	-13.0%	-24.9%	-19.6%
2024	260	1317	1577	3636	-19.0%	-19.9%	-19.8%	-16.1%

Regression Estimate	2010	735	2082	2816
Regression Estimate	2024	320	1484	1803
Average Annual Change		**-5.77%**	**-2.39%**	**-3.13%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2010	387	1309	1696	5426				
2012	313	1292	1605	5300	-19.1%	-1.3%	-5.4%	-2.3%
2017	428	1324	1752	5391	36.7%	2.5%	9.2%	1.7%
2023	335	1200	1535	4332	-21.7%	-9.4%	-12.4%	-19.6%
2024	268	1101	1369	3636	-20.0%	-8.3%	-10.8%	-16.1%

Regression Estimate	2010	379	1334	1714
Regression Estimate	2024	315	1161	1476
Average Annual Change		**-1.33%**	**-0.99%**	**-1.06%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2010	819	100	919	5426				
2012	875	100	975	5300	6.8%	0.0%	6.1%	-2.3%
2017	807	116	923	5391	-7.8%	16.0%	-5.3%	1.7%
2023	592	98	690	4332	-26.6%	-15.5%	-25.2%	-19.6%
2024	399	91	490	3636	-32.6%	-7.1%	-29.0%	-16.1%

Regression Estimate	2010	901	104	1005
Regression Estimate	2024	507	98	605
Average Annual Change		**-4.02%**	**-0.47%**	**-3.56%**

Trim/OR 174
PM Peak

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2010	Friday 9 July	107	40	603	130	664	1334	2131	1124	6133
2012	Friday 8 June	94	69	634	130	624	1353	2024	1049	5977
2017	Wednesday 19 April	56	61	587	132	657	1284	1839	993	5609
2023	Tues, Feb 07	159	74	333	116	437	998	931	672	3720
2024	Thurs, Jan 25	165	90	359	125	487	1159	1082	719	4186

Summed all inbound movements except for EBR

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2010	40	107	147	6133				
2012	69	94	163	5977	72.5%	-12.1%	10.9%	-2.5%
2017	61	56	117	5609	-11.6%	-40.4%	-28.2%	-6.2%
2023	74	159	233	3720	21.3%	183.9%	99.1%	-33.7%
2024	90	165	255	4186	21.6%	3.8%	9.4%	12.5%

Regression Estimate	2010	49	81	131	6318
Regression Estimate	2024	83	149	233	3998
Average Annual Change		**3.78%**	**4.46%**	**4.21%**	**-3.22%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2010	2131	1124	3255	6133				
2012	2024	1049	3073	5977	-5.0%	-6.7%	-5.6%	-2.5%
2017	1839	993	2832	5609	-9.1%	-5.3%	-7.8%	-6.2%
2023	931	672	1603	3720	-49.4%	-32.3%	-43.4%	-33.7%
2024	1082	719	1801	4186	16.2%	7.0%	12.4%	12.5%

Regression Estimate	2010	2213	1136	3349	
Regression Estimate	2024	1024	699	1723	
Average Annual Change		**-5.35%**	**-3.41%**	**-4.63%**	

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2010	1334	664	1998	6133				
2012	1353	624	1977	5977	1.4%	-6.0%	-1.1%	-2.5%
2017	1284	657	1941	5609	-5.1%	5.3%	-1.8%	-6.2%
2023	998	437	1435	3720	-22.3%	-33.5%	-26.1%	-33.7%
2024	1159	487	1646	4186	16.1%	11.4%	14.7%	12.5%

Regression Estimate	2010	1372	679	2051	
Regression Estimate	2024	1087	475	1562	
Average Annual Change		**-1.65%**	**-2.52%**	**-1.92%**	

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2010	603	130	733	6133				
2012	634	130	764	5977	5.1%	0.0%	4.2%	-2.5%
2017	587	132	719	5609	-7.4%	1.5%	-5.9%	-6.2%
2023	333	116	449	3720	-43.3%	-12.1%	-37.6%	-33.7%
2024	359	125	484	4186	7.8%	7.8%	7.8%	12.5%

Regression Estimate	2010	657	132	788	
Regression Estimate	2024	358	122	480	
Average Annual Change		**-4.23%**	**-0.57%**	**-3.48%**	

Appendix G:

Proposed Roadway Modifications

1015 TWEDDLE ROAD

NAD83CSRS
CGVD2013

PRELIMINARY
NOT FOR CONSTRUCTION
May 26, 2025

N

TWEDDLE

2.0m SHOULDER
3.5m LANE
3.5m LANE
2.0m SHOULDER
3.5m LANE
3.5m LANE
2.0m SIDEWALK
RAMP
GUY WIRE TO BE RELOCATED
HYDRO POLE TO BE RELOCATED
3.5m MULTI-USE PATHWAY
0.60m CONCRETE BOULEVARD
3.5m LANE
16.00
3.5m LANE
2.5m LOADING ZONE

PROPOSED PROPERTY LINE
1.70
2.0m SIDEWALK
3.5m MULTI-USE PATHWAY
0.60m CONCRETE BOULEVARD
3.5m LANE
3.5m LANE

JEANNE D'ARC

STREETLIGHT TO BE RELOCATED
PROPOSED PROPERTY LINE
5.50
EXISTING HYDRO POLE
JEANNE D'ARC
GUY WIRE TO BE RELOCATED
5.50
SITE PLAN - PEDESTRIAN SPACE, PLANTING AND LANDSCAPE FURNITURE SPACE
5.50
1.5m PEDESTRIAN SPACE (WITHIN CITY ROW)
3.5m MULTI-USE PATHWAY
1.4m BOULEVARD
1.4m BOULEVARD
4m x 15m BUS PLATFORM
3.65
4.0m LANE
4.0m LANE
2.5m LOADING ZONE
2.5m LOADING ZONE
4.0m LANE
4.0m LANE
3.5m LANE
16.0m
3.5m LANE
3.7m LANE
3.7m LANE
3.5m LANE
34.0m
3.5m LANE
3.25m LANE
3.25m LANE
HYDRO POLE TO BE RELOCATED
EXISTING STREETLIGHT CABINET TO BE RELOCATED
STREETLIGHT TO BE RELOCATED
CROSSRIDE AND PEDESTRIAN CROSSING - BY OTHERS

TWEDDLE

TRIM

TWEEDDALE ROAD

JEANNE D'ARC BOULEVARD

N

PROJET | PAYSAGE
24 Mont-Royal O. Bureau 801 Montréal Québec H2T 2S2
T: 514.849.7700 F: 514.849.2027 info@projetpaysage.com

Trim Road

Plan for coordination

FOR COORDINATION

2025-05-28

Échelle: 1:200

Appendix H:

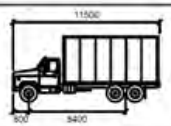
Truck Turning Templates

PARSONS

Note: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall provide the location of utilities and shall be responsible for adequate protection from damage.

N

Legend

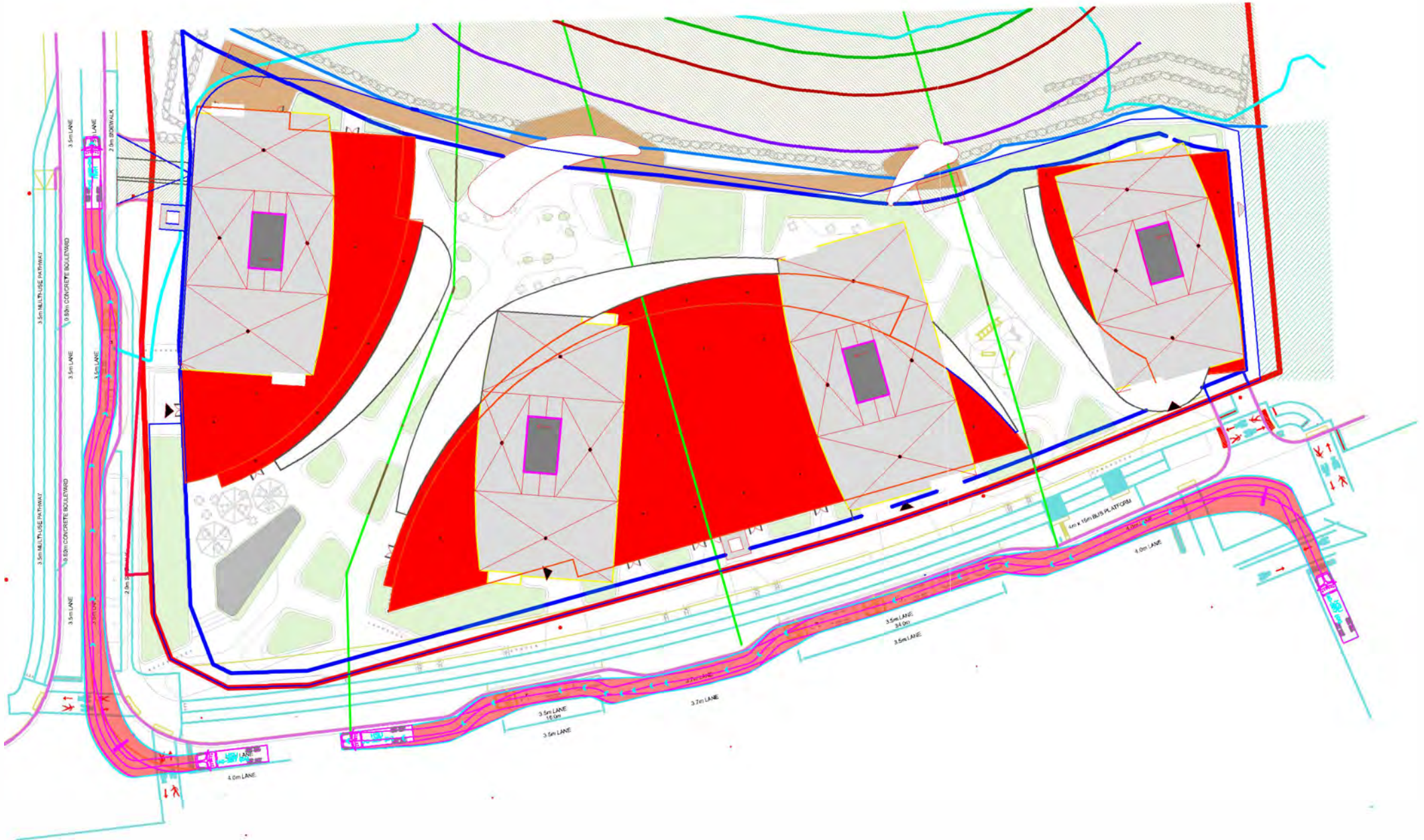


HSU

	mm
Width	2600
Track	2600
Lock to Lock Time	6.0
Steering Angle	40.0

Not to Scale

Drawing Description	Fire Truck Route		
Client	1015 Tweddle	Date	Figure Number
Project Number	479234	Project Description	

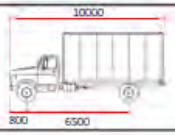


PARSONS

Note: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall provide the location of utilities and shall be responsible for adequate protection from damage.

N

Legend

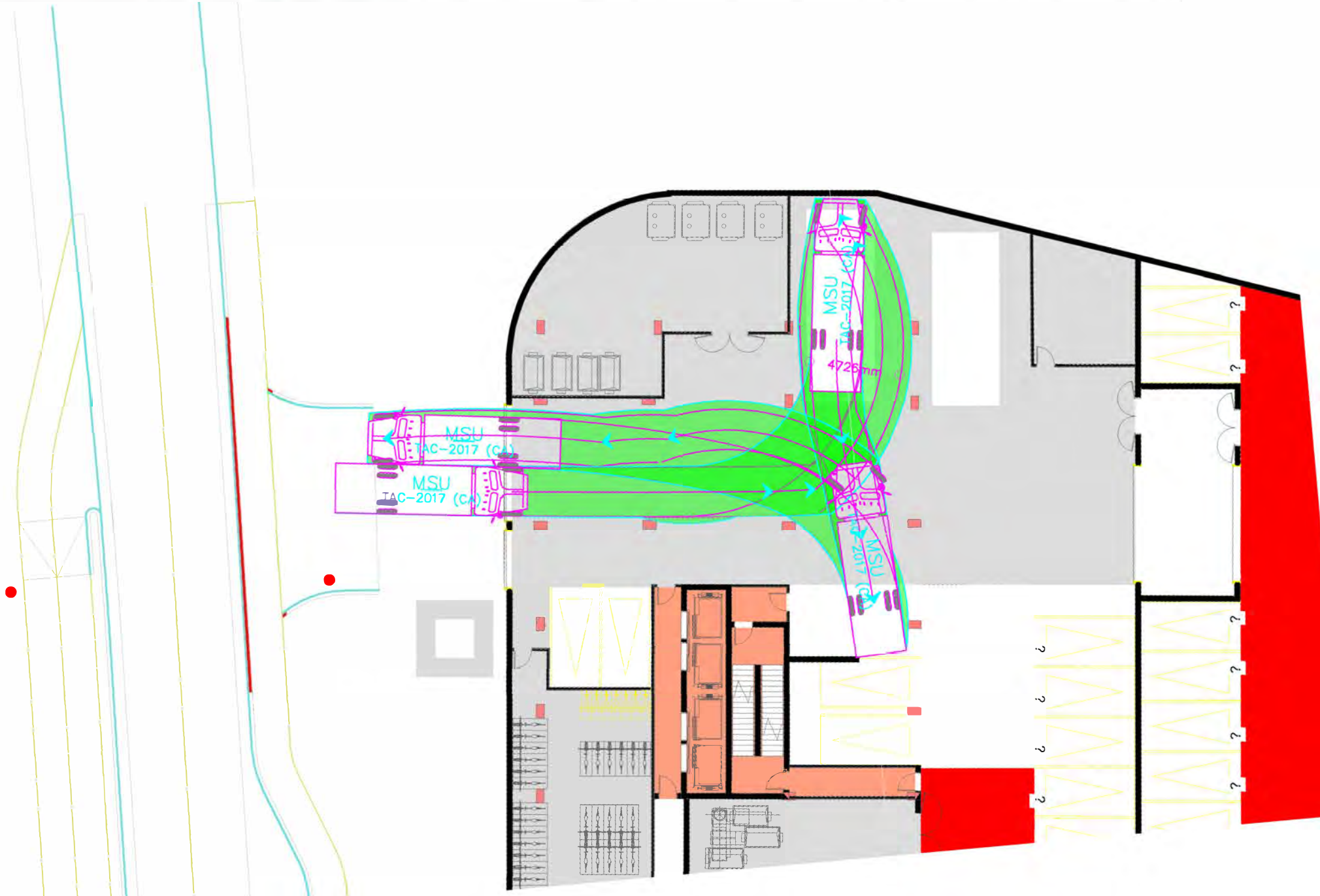


MSU

	mm
Width	2600
Track	2600
Lock to Lock Time	6.0
Steering Angle	40.2

Not to Scale

Drawing Description	Garbage Collection		
Client	1015 Tweddle	Date	Figure Number
Project Number	479234	Project Description	



PARSONS

Note: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall provide the location of utilities and shall be responsible for adequate protection from damage.

N

6400

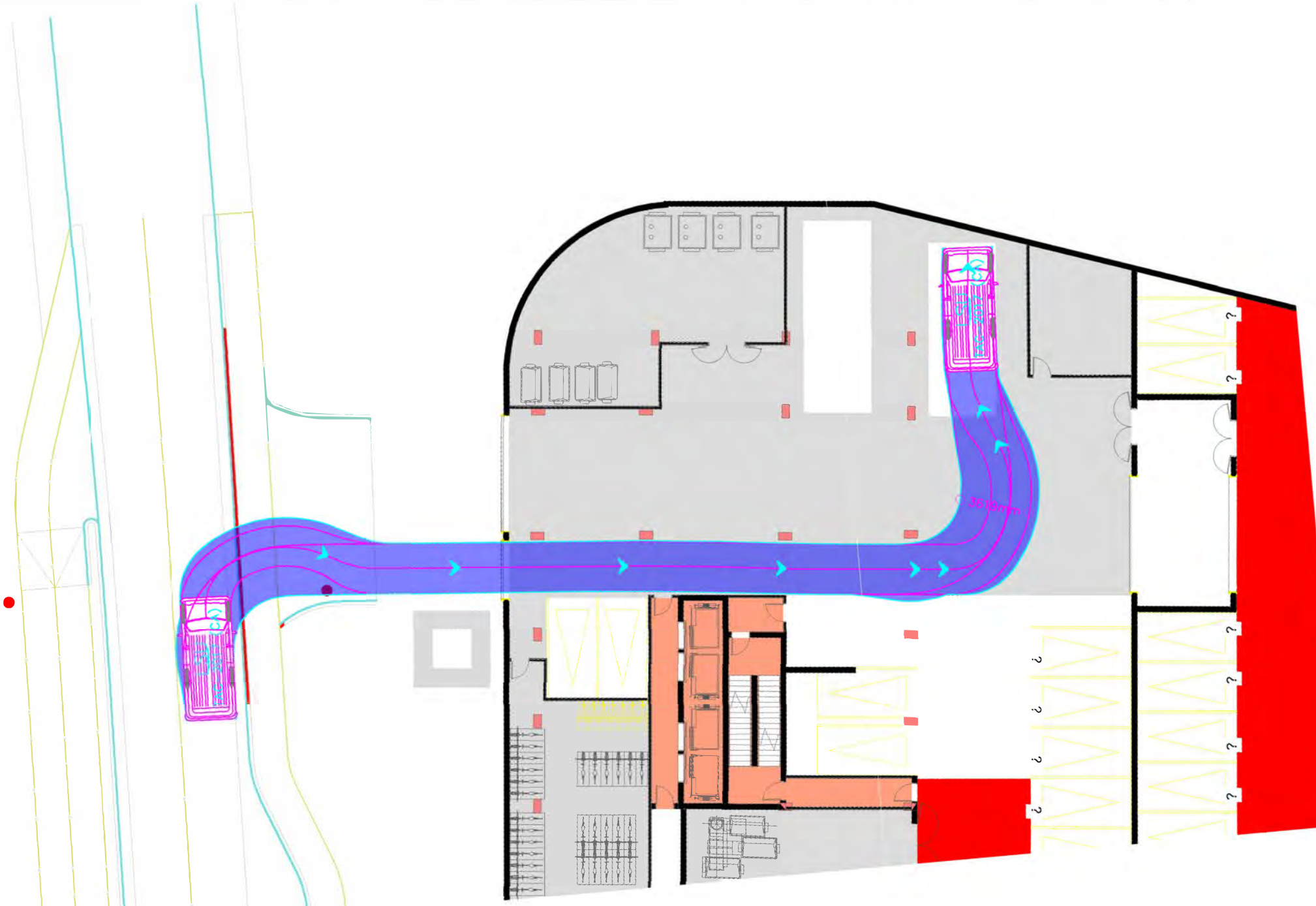
800 3400

LSU Not to Scale

mm

Width	2600
Track	2600
Lock to Lock Time	6.0
Steering Angle	40.3

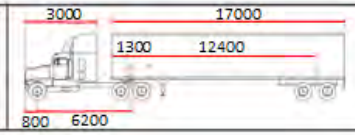
Drawing Description	Internal Loading Bay		
Client	1015 Tweddle	Date	Figure Number
Project Number	479234	Project Description	



PARSONS

Note: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall provide the location of utilities and shall be responsible for adequate protection from damage.

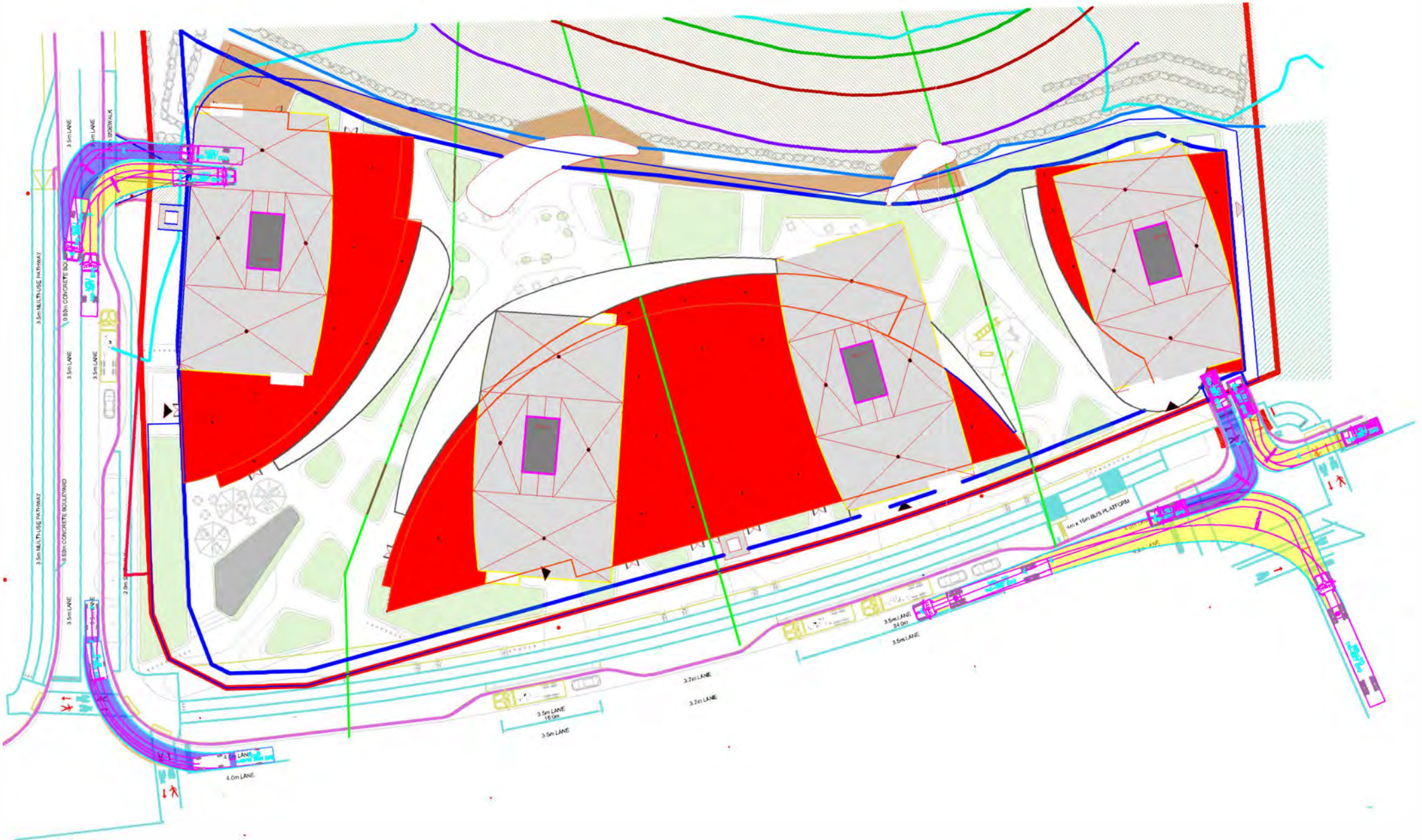
N



WB-20 Not to Scale

	mm
Width	2600
Track	2600
Lock to Lock Time	6.0
Steering Angle	28.2

Drawing Description	Other turning checks		
Client	1015 Tweddle Rd	Date	Figure Number
Project Number	479234	Project Description	



Appendix I:

MMLOS: Road Segment Analysis

Multi-Modal Level of Service - Segments Form

Project: 479234
Consultant: Parsons
Date: Feb 14, 2025
Scenario: 1015 Tweddle Rd

	Segment Name	**Jeanne d'Arc Existing Conditions**				**Jeanne d'Arc Future Conditions**				**Tweddle Existing Conditions**				**Tweddle Futu**					
	OP Transect / Policy Area	**Within 600m of a rapid transit station**				**Within 600m of a rapid transit station**				**Within 600m of a rapid transit station**				**Within 600m of a ra**					
	Segment Component	**Majority (>50%)**		**Critical**		**Majority (>50%)**		**Critical**		**Majority (>50%)**		**Critical**		**Majority (>50%)**					
	Side of Street	**W or N**	**E or S**	**W or N**	**E or S**	**W or N**	**E or S**	**W or N**	**E or S**	**W or N**	**E or S**	**W or N**	**E or S**	**W or N**	**E or S**				
Pedestrian	**PLOS Inputs**																		
	Posted Speed (km/h)	60 km/h		60 km/h		60 km/h		60 km/h		40 km/h		40 km/h		40 km/h					
	Two-Way ADT	2,800		2,800		4,500		4,500		1,500		1,500		1,800					
	Pedestrian Facility	None	Multi-Use Pathway			Sidewalk	Multi-Use Pathway			None	None			Multi-Use Pathway	Sidewalk				
	Does the facility meet the TMP Sidewalk or MUP Policy? If not, for MUPs, does the location have a low volume of peak daily users AND are pedestrian volumes likely less than 20% of total users?	No	Yes			Yes	Yes			No	No			Yes	Yes				
	Facility Width (m)	-	3.50m			4.00m	3.50m			-	-			3.50m	2.00m				
	Offset from Motor Vehicle Travel Lanes (m)	-	1.5-2.99m			≥ 3.0m	1.5-2.99m			-	-			< 0.5m	≥ 3.0m				
	Presence of Adjacent Parking?	-	-			Yes	-			-	-			-	Yes				
	General Purpose Curb Lane ADT	-	≤ 3000			> 3000	> 3000			-	-			≤ 3000	≤ 3000				
	Max. Distance between Controlled Crossings (m)	-	≤ 200m			≤ 200m	≤ 200m			-	-	-	-	≤ 200m	≤ 200m				
	Score	**0.00**	**5.00**	-	-	**4.25**	**4.25**	-	-	**0.00**	**0.00**	-	-	**4.25**	**5.00**				
	PLOS	**F**	**A**	**-**	**-**	**B**	**B**	**-**	**-**	**F**	**F**	**-**	**-**	**B**	**A**				
	Target PLOS	**A**				**A**				**A**				**A**					
Bicycle	**BLOS Inputs**																		
	Cycling Route Classification	**Cross-Town Bikeway**				**Cross-Town Bikeway**				**Elsewhere**				**Elsew**					
	Cycling Facility	Shared Operating Space	Multi-Use Pathway	Input PLOS First	Input PLOS First	Cycle Track	Multi-Use Pathway	Input PLOS First	Input PLOS First	Shared Operating Space	Shared Operating Space	Input PLOS First	Input PLOS First	Multi-Use Pathway	Shared Operating Space				
	Is the minimum level of separation provided according to OTM Book 18 Pre-Selection Nomograph - Rural Context (Figure 5.6)? (for paved shoulders)	-	-			-	-			-	-			-	-				
	Facility Operation	-	-			Bidirectional	-			-	-			-	-				
	Pedestrian/Cyclist Volume	-	Low to Moderate Volume MUP (≤ 100 users per hour)			-	Low to Moderate Volume MUP (≤ 100 users per hour)			-	-			-	-				
	Facility Width	-	≥ 3.5m			≥ 3.5m	≥ 3.5m			-	-			3.5	-				
	Boulevard/Buffer Width (excluding curb)	-	≥ 1.5m or any boulevard width with continuous traffic barrier			0.6-1.49m with adjacent parking	≥ 1.5m or any boulevard width with continuous traffic barrier			-	-			-	-				
	Unsignalized Roadway Crossing Type (where cyclists are required to yield)	None	None			None	None			None	None			None	None				
	Number of Travel Lanes at Crossing	-	-			-	-			-	-			-	-				
	Crossing includes Median Refuge (≥ 2.7m)	-	-			-	-			-	-			-	-				
	Cross-street Posted Speed (km/h)	-	-			-	-			-	-			-	-				
	Cycling Path Blockages (e.g. bus stops and/or loading zones)	Rare	-			-	-			Rare	Rare			Rare	Rare				
	Score	**0.75**	**5.00**	-	-	**4.50**	**5.00**	-	-	**3.30**	**3.30**	-	-	**5.00**	**3.30**				
	BLOS	**E**	**A**	**-**	**-**	**A**	**A**	**-**	**-**	**C**	**C**	**-**	**-**	**A**	**C**				
	Target BLOS	**A**				**A**				**B**				**B**					
Transit	**TLOS Inputs**																		
	Transit Facility	**Mixed Traffic**				**Mixed Traffic**													
	Facility Type	Mixed Traffic	Mixed Traffic			Mixed Traffic	Mixed Traffic												
	On-Street Parking / Driveway Friction	-	-			-	-												
	Expected Transit Running Time (Qualitative)	Slightly Impeded or Unimpeded	Slightly Impeded or Unimpeded			Slightly Impeded or Unimpeded	Slightly Impeded or Unimpeded												
	Transit Travel Speed (Mixed Traffic Only)	Enter Speed (if available)	Enter Speed (if available)			Enter Speed (if available)	Enter Speed (if available)												
	TLOS	**C**	**C**			**C**	**C**			**-**	**-**			**-**	**-**				
	Target TLOS	**E (D if road connects to transit station)**				**E (D if road connects to transit station)**				**-**				**-**					
Public Realm	**PRLOS Inputs**																		
	Context	Other Streets	Other Streets			Other Streets	Other Streets			Other Streets	Other Streets			Other Streets	Other Streets				
	Inner Boulevard Width	≤ 0.6m	2.0-3.99m			2.0-3.99m	2.0-3.99m			≤ 0.6m	≤ 0.6m			≤ 0.6m	≤ 0.6m				
	Middle Boulevard Width	≤ 0.5m	≤ 0.5m			0.5-1.49m	≤ 0.5m			≤ 0.5m	≤ 0.5m			≤ 0.5m	≤ 0.5m				
	Outer Boulevard (Frontage) Width	≥ 3.0m	≥ 3.0m			≥ 3.0m	≥ 3.0m			≥ 3.0m	≥ 3.0m			≥ 3.0m	≥ 3.0m				
	Transit Route on Segment?	Yes	Yes			Yes	Yes			No	No			No	No				
	Bus Stop Elements	No platform or shelter	Curbside landing zone with no shelter			Curbside landing zone with no shelter	Curbside landing zone with no shelter			-	-			-	-				
	Number of Midblock Traffic Lanes (both travel directions)	≤ 2				≤ 2				≤ 2				≤ 2					
	Score	**9.90**	**25.50**			**25.50**	**25.50**			**19.50**	**19.50**			**30.00**	**25.50**				
	PRLOS	**E**	**A**			**A**	**A**			**C**	**C**			**A**	**A**				
		C				**A**				**C**				**A**					

Multi-Modal Level of Service - Segments Form

Project: 479234
Consultant: Parsons
Date: Feb 14, 2025
Scenario: 1015 Tweddle Rd

	Segment Name	re Conditions	
	OP Transect / Policy Area	apid transit station	
	Segment Component	**Critical**	
	Side of Street	**W or N**	**E or S**
Pedestrian	**PLOS Inputs**		
	Posted Speed (km/h)	40 km/h	
	Two-Way ADT	1,800	
	Pedestrian Facility		
	Does the facility meet the TMP Sidewalk or MUP Policy? If not, for MUPs, does the location have a low volume of peak daily users AND are pedestrian volumes likely less than 20% of total users?		
	Facility Width (m)		
	Offset from Motor Vehicle Travel Lanes (m)		
	Presence of Adjacent Parking?		
	General Purpose Curb Lane ADT		
	Max. Distance between Controlled Crossings (m)		
	Score	-	-
	PLOS	**-**	**-**
	Target PLOS	\	
Bicycle	**BLOS Inputs**		
	Cycling Route Classification	vhere	
	Cycling Facility	Input PLOS First	Input PLOS First
	Is the minimum level of separation provided according to OTM Book 18 Pre-Selection Nomograph - Rural Context (Figure 5.6)? (for paved shoulders)		
	Facility Operation		
	Pedestrian/Cyclist Volume		
	Facility Width		
	Boulevard/Buffer Width (excluding curb)		
	Unsignalized Roadway Crossing Type (where cyclists are required to yield)		
	Number of Travel Lanes at Crossing		
	Crossing includes Median Refuge (≥ 2.7m)		
	Cross-street Posted Speed (km/h)		
	Cycling Path Blockages (e.g. bus stops and/or loading zones)		
	Score	-	-
	BLOS	**-**	**-**
	Target BLOS	3	
Transit	**TLOS Inputs**		
	Transit Facility		
	Facility Type		
	On-Street Parking / Driveway Friction		
	Expected Transit Running Time (Qualitative)		
	Transit Travel Speed (Mixed Traffic Only)		
	TLOS		
	Target TLOS		
Public Realm	**PRLOS Inputs**		
	Context		
	Inner Boulevard Width		
	Middle Boulevard Width		
	Outer Boulevard (Frontage) Width		
	Transit Route on Segment?		
	Bus Stop Elements		
	Number of Midblock Traffic Lanes (both travel directions)		
	Score		
	PRLOS		

Appendix J:

TDM Checklist

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	☑ *Parking underground*
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☑ *entrances towards road*
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☑ *Modern design building*
	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)*	☑ *MUP and sidewalks proposed*
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)*	☑ *Internal pathways shown on current plan*

		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)*	☑ To be built to city standards
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)*	☑ To be built to city standards
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)*	☑ MUP and sidewalks proposed connecting to other MUPs
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☑ MUP and sidewalks proposed connecting to Trim Station
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☑ Street lighting available
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	☑ pedestrian friendly design with courtyards, seating and lights.
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)*	☑ Bike parking proposed in secured lit rooms.
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)*	☑ Large chunk of bike parking in first floor, exceeds minimum.
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)*	☑ Criteria met.
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	☑ Higher than minimum proposed and additional outdoor racks for guests.
	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)*	☑ Majority of bike parking proposed in secured lit rooms.
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)	☑ A bike repair station is available at the northwest quadrant of Tweddle/Jeanne d'Arc intersection at junction of new MUPs
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☑ The site is proposing benches along its frontage
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	☑ as part of this development, the client is proposing a new bus pad
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	☑ Three layby locations proposed.
	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)*	☑ Client will investigate.
	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	☑ Client will investigate.
	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	☑ Within permitted.
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	☑ The site is proposing paid visitor parking (with the exception of short-term parking on laybys).
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)*	☑ The site proposes a blended paid parking garage for both residential and visitor parking.
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)	☑ The site is proposing paid visitor parking (with the exception of short-term parking on laybys).

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)*	☑ Client will investigate if coordination with LRT schedule can be done.
		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)*	☐ not applicable
		3.4	**Private transit service**	
BETTER		3.4.1	Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	☐ not applicable
		4.	**CARSHARING & BIKESHARING**	
		4.1	**Bikeshare stations & memberships**	
BETTER		4.1.1	Contract with provider to install on-site bikeshare station (*multi-family)*	☑ Client will investigate.
BETTER		4.1.2	Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☑ Client will investigate.
		4.2	**Carshare vehicles & memberships**	
BETTER		4.2.1	Contract with provider to install on-site carshare vehicles and promote their use by residents	☑ Client will investigate.
BETTER		4.2.2	Provide residents with carshare memberships, either free or subsidized	☑ Client will investigate.
		5.	**PARKING**	
		5.1	**Priced parking**	
BASIC	★	5.1.1	Unbundle parking cost from purchase price *(condominium)*	☐ not applicable
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	☐

TDM-Supportive Development Design and Infrastructure Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

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: *Non-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	☑ *Parking underground*
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☑ *entrances towards road*
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☑ *Modern design building*
	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)*	☑ *MUP and sidewalks proposed*
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)*	☑ *Internal pathways shown on current plan*

		TDM-supportive design & infrastructure measures: *Non-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)*	☑ To be built to city standards
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)*	☑ To be built to city standards
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)*	☑ MUP and sidewalks proposed connecting to other MUPs
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☑ MUP and sidewalks proposed connecting to Trim Station
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☑ Street lighting available
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	☑ pedestrian friendly design with courtyards, seating and lights.
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: *Non-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)*	☑ Bike parking proposed in secured lit rooms.
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)*	☑ Large chunk of bike parking in first floor, exceeds minimum.
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)*	☑ Criteria met.
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	☑ Higher than minimum proposed and additional outdoor racks for guests.
BETTER	2.1.5	Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	☑ Multiple outdoor bike racks are proposed along the site, likely to exceed commercial customer demands.
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single office 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)*	☑ Majority of bike parking proposed in secured lit rooms.
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	☐
	2.3	**Shower & change facilities**	
BASIC	2.3.1	Provide shower and change facilities for the use of active commuters	☐
BETTER	2.3.2	In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	☐
	2.4	**Bicycle repair station**	
BETTER	2.4.1	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)	☑ A bike repair station is available at the northwest quadrant of Tweddle/Jeanne d'Arc intersection at junction of new MUPs

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☑ The site is proposing benches along its frontage
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	☑ as part of this development, the client is proposing a new bus pad
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐
	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	☑ Three layby locations proposed.
	4.2	**Carpool parking**	
BASIC	4.2.1	Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools	☐
BETTER	4.2.2	At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces *(see Zoning By-law Section 94)*	☑ Client will investigate.
	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	☑ Client will investigate.

	TDM-supportive design & infrastructure measures: *Non-residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
	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	☑ Within permitted.
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	☑ The site is proposing paid visitor parking (with the exception of short-term parking on laybys).
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)*	☑ The site proposes a blended paid parking garage for both residential and visitor parking.
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	Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)	☑ The site is proposing paid visitor parking (with the exception of short-term parking on laybys).
	7.	**OTHER**	
	7.1	**On-site amenities to minimize off-site trips**	
BETTER	7.1.1	Provide on-site amenities to minimize mid-day or mid-commute errands	☑ The site provides amenities such as restaurant, café, commercial, gym, etc

TDM Measures Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

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: *Non-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	☑
		2.2 Bicycle skills training	
		Commuter travel	
BETTER	*	2.2.1 Offer on-site cycling courses for commuters, or subsidize off-site courses	☐
		2.3 Valet bike parking	
		Visitor travel	
BETTER		2.3.1 Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games)	☐

		TDM measures: *Non-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	☑
BASIC		3.1.2 Provide online links to OC Transpo and STO information	☑
BETTER		3.1.3 Provide real-time arrival information display at entrances	☑ Client will investigate if coordination with LRT schedule can be done.
		3.2 Transit fare incentives	
		Commuter travel	
BETTER		3.2.1 Offer preloaded PRESTO cards to encourage commuters to use transit	☐
BETTER	*	3.2.2 Subsidize or reimburse monthly transit pass purchases by employees	☐
		Visitor travel	
BETTER		3.2.3 Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	☐ not applicable
		3.3 Enhanced public transit service	
		Commuter travel	
BETTER		3.3.1 Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	☐ not applicable
		Visitor travel	
BETTER		3.3.2 Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	☐ not applicable
		3.4 Private transit service	
		Commuter travel	
BETTER		3.4.1 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	☐ not applicable
		Visitor travel	
BETTER		3.4.2 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	☐ not applicable

		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		4. RIDESHARING	
		4.1 Ridematching service	
		Commuter travel	
BASIC	*	4.1.1 Provide a dedicated ridematching portal at OttawaRideMatch.com	☐
		4.2 Carpool parking price incentives	
		Commuter travel	
BETTER		4.2.1 Provide discounts on parking costs for registered carpools	☐ Site is not anticipated to generate many employee trips.
		4.3 Vanpool service	
		Commuter travel	
BETTER		4.3.1 Provide a vanpooling service for long-distance commuters	☐ Site is not anticipated to generate many employee trips.
		5. CARSHARING & BIKESHARING	
		5.1 Bikeshare stations & memberships	
BETTER		5.1.1 Contract with provider to install on-site bikeshare station for use by commuters and visitors	☐ ✓ Client will investigate.
		Commuter travel	
BETTER		5.1.2 Provide employees with bikeshare memberships for local business travel	☐ ✓ Client will investigate.
		5.2 Carshare vehicles & memberships	
		Commuter travel	
BETTER		5.2.1 Contract with provider to install on-site carshare vehicles and promote their use by tenants	☐ ✓ Client will investigate.
BETTER		5.2.2 Provide employees with carshare memberships for local business travel	☐ ✓ Client will investigate.
		6. PARKING	
		6.1 Priced parking	
		Commuter travel	
BASIC	*	6.1.1 Charge for long-term parking (daily, weekly, monthly)	☑ Client proposing paid parking
BASIC		6.1.2 Unbundle parking cost from lease rates at multi-tenant sites	✓
		Visitor travel	
BETTER		6.1.3 Charge for short-term parking (hourly)	✓ paid parking except on-street layby

		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		7. TDM MARKETING & COMMUNICATIONS	
		7.1 Multimodal travel information	
		Commuter travel	
BASIC	*	7.1.1 Provide a multimodal travel option information package to new/relocating employees and students	☑
		Visitor travel	
BETTER	*	7.1.2 Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games)	☐
		7.2 Personalized trip planning	
		Commuter travel	
BETTER	*	7.2.1 Offer personalized trip planning to new/relocating employees	☐
		7.3 Promotions	
		Commuter travel	
BETTER		7.3.1 Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes	☐
		8. OTHER INCENTIVES & AMENITIES	
		8.1 Emergency ride home	
		Commuter travel	
BETTER	*	8.1.1 Provide emergency ride home service to non-driving commuters	☐ nearby LRT
		8.2 Alternative work arrangements	
		Commuter travel	
BASIC	*	8.2.1 Encourage flexible work hours	☐
BETTER		8.2.2 Encourage compressed workweeks	☐
BETTER	*	8.2.3 Encourage telework	☐
		8.3 Local business travel options	
		Commuter travel	
BASIC	*	8.3.1 Provide local business travel options that minimize the need for employees to bring a personal car to work	☐
		8.4 Commuter incentives	
		Commuter travel	
BETTER		8.4.1 Offer employees a taxable, mode-neutral commuting allowance	☐
		8.5 On-site amenities	
		Commuter travel	
BETTER		8.5.1 Provide on-site amenities/services to minimize mid-day or mid-commute errands	☐

Appendix K:

Warrant Analysis

Trim / Jeanne d'Arc - (peak hour signal warrant)

Signal Warrant		Description		Minimum Requirement for Two-Lane Roadways	Compliance		
				Restricted Flow - Operating Speed Less Than 70 km/h	Sectional %	Entire %	Warrant
Intersection	1. Minimum Vehicular Volume	(1) A	Vehicle Volume, All Approaches for Each of the Heaviest 8 Hours of on Average Day, and	720	53%	53%	53% No
		(4) B	Vehicle Volume, Along Minor Streets for Each of the Same 8 Hours	170	115%		
	2. Delay to Cross Traffic	(1) A	Vehicle Volume, Along Major Street for Each of the Heaviest 8 Hours of an Average Day, and	720	26%	26%	
		(2) B	Combined Vehicle and Pedestrian Volume Crossing the Major Street for Each of the Same 8 Hours	75	172%		

Notes

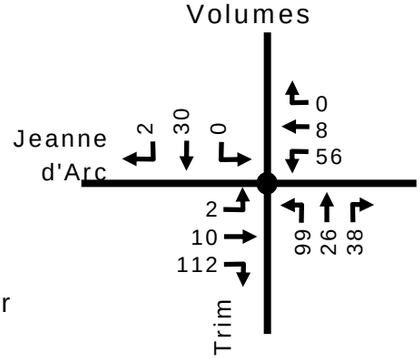
1 *Vehicle Volume Warrants (1A), (2A) and (5B) for Roadways Having Two or More Moving Lanes in one Direction Should Be 25% Higher Than Values Given Above* — No

2 *For Definition of Crossing Volume Refer to Note 4 on the Signal Warrant Analysis Form B2.03.08*

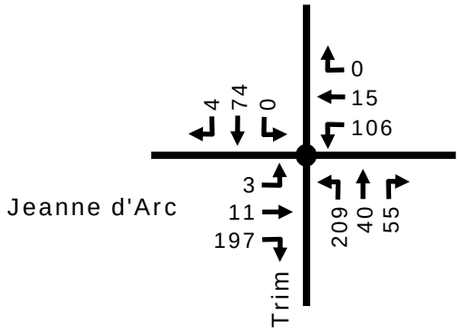
3 *The Lowest Sectional Percentage Governs the Entire Warrant*

4 *For "T" Intersections the Warrant Values for Minor Street Should be Increased by 50% (Warrant 1B only)* — No

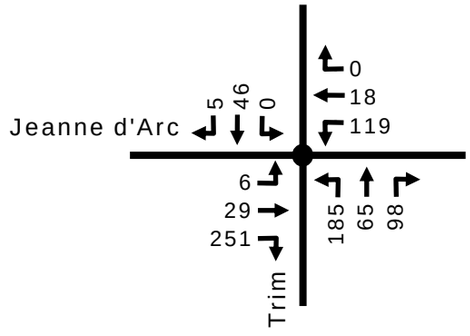
Average 8 Hour Volumes



AM Peak Hour Volumes



PM Peak Hour Volumes



Tweddle/Jeanne d'Arc - (peak hour signal warrant)

Signal Warrant			Description	Minimum Requirement for Two-Lane Roadways	Compliance		
				Restricted Flow - Operating Speed Less Than 70 km/h	Sectional %	Entire %	Warrant
Intersection	1. Minimum Vehicular Volume	(1) A	Vehicle Volume, All Approaches for Each of the Heaviest 8 Hours of on Average Day, and	720	39%	35%	35% No
		(4) B	Vehicle Volume, Along Minor Streets for Each of the Same 8 Hours	170	35%		
	2. Delay to Cross Traffic	(1) A	Vehicle Volume, Along Major Street for Each of the Heaviest 8 Hours of an Average Day, and	720	30%	30%	
		(2) B	Combined Vehicle and Pedestrian Volume Crossing the Major Street for Each of the Same 8 Hours	75	44%		

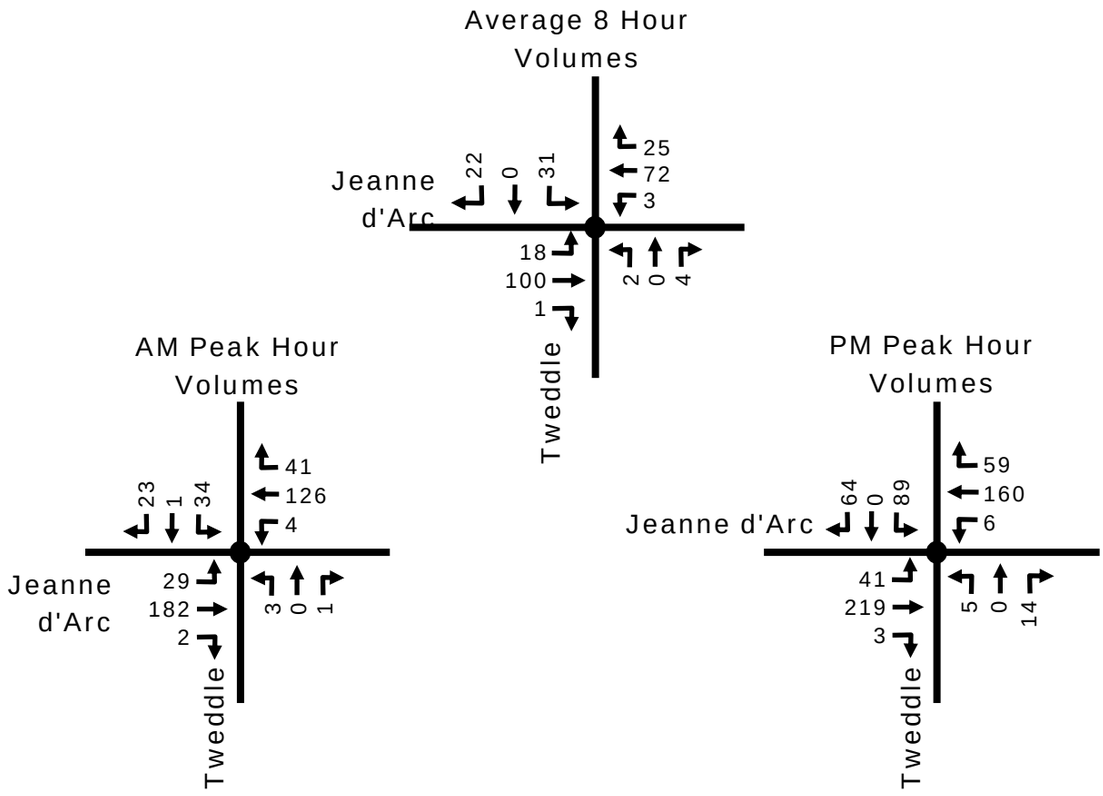
Notes

1 *Vehicle Volume Warrants (1A), (2A) and (5B) for Roadways Having Two or More Moving Lanes in one Direction Should Be 25% Higher Than Values Given Above* — No

2 *For Definition of Crossing Volume Refer to Note 4 on the Signal Warrant Analysis Form B2.03.08*

3 *The Lowest Sectional Percentage Governs the Entire Warrant*

4 *For "T" Intersections the Warrant Values for Minor Street Should be Increased by 50% (Warrant 1B only)* — No



Appendix L:

MMLOS: Intersection Analysis

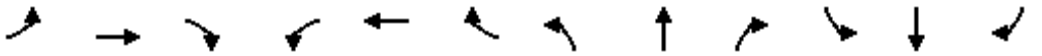
Multi-Modal Level of Service - Intersections Form

Project: 479234
Consultant: Parsons
Date: Feb 14, 2025
Scenario: 1015 Tweddle Rd

	Intersection Name	**Trim/H174 - Existing**			
	OP Transect / Policy Area	**Within 600m of a rapid transit station**			
Pedestrian	**PLOS Inputs**				
	Pedestrians Crossing the	**North Leg**	**South Leg**	**East Leg**	**West Leg**
	Number of Travel Lanes Crossed	5	6	8	7
	Median Refuge (≥2.7m)	No	No	Yes	No
	Crosswalk Treatment	Zebra Stripe Hi-Vis Markings			
	Signal Cycle Length (sec)	130.0			
	Effective Walk Time (sec)	20.8			
	Conflict with Right-Turn Vehicles (For PLOS & BLOS)	**WBR**	**EBR**	**NBR**	**SBR**
	Right-Turn Geometry	Right-Turn With No Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel
	Right-Turn Signal Phasing	Permissive	-	-	-
	Right-Turn Volume	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	> 150 to 300 veh/h
	Right-Turn Effective Corner Radius	≤ 8m	-	-	-
	Cross-street Posted Speed (km/h)	50 km/h		100 km/h	
	Conflict with Left-Turn Vehicles (For PLOS & BLOS)	**EBL**	**WBL**	**SBL**	**NBL**
	Left-Turn Signal Phasing	Fully Protected	Fully Protected	Fully Protected	Fully Protected
	Left-Turn Volume	-	-	-	-
	Left-Turn Opposing Lanes	-	-	-	-
	Score	-	-	1.35	-
	PLOS	-	-	E	-
		E			
	Target PLOS	A			
Bicycle	**BLOS Inputs**				
	Cycling Route Classification	Cross-Town Bikeway			
	Cyclists Crossing the	**North Leg**	**South Leg**	**East Leg**	**West Leg**
	Type of Cycling Facility Across Leg	Crossride			
	Two-Way ADT (in Cyclist Travel Direction)	500			
	Floating Bike Lane or Right-Turn Lane Crossover Approaching the Crossing?	No			
	Crossride Operation	Bidirectional			
	Target Crossride Setback Met?	-	-	-	
	Right-Turn Vehicle Volume from Adjacent Roadway > 100 veh/h?	-			
	Cyclist Left-Turn Operation	**WBL**	**EBL**	**NBL**	**SBL**
	Cyclist Left-Turn Treatment Type	No Left-Turn			
	Vehicle Lanes Crossed by Cyclists	-			
	Score	-	-	110	-
	BLOS	-	-	B	-
		B			
	Target BLOS	A			
Transit	**TLOS Inputs**				
	Transit Facility	Mixed Traffic			
	Vehicles Travelling	**Southbound**	**Northbound**	**Westbound**	**Eastbound**
	Average Transit Delay	56-80 sec	36-55 sec		
	Example Transit Priority Treatment	-	-		
	TLOS	E	D	-	-
		D			
	Target TLOS	E (D if road connects to transit station)			
Auto	**AutoLOS Inputs**				
	Overall Intersection Volume to Capacity Ratio	0.91 to 1.00			
	Individual Movements V/C Ratios and Queue Lengths	See Separate Traffic Operations Table			
	AutoLOS	E			
	Target AutoLOS	E			

Appendix M:

Synchro Analysis: Existing Conditions



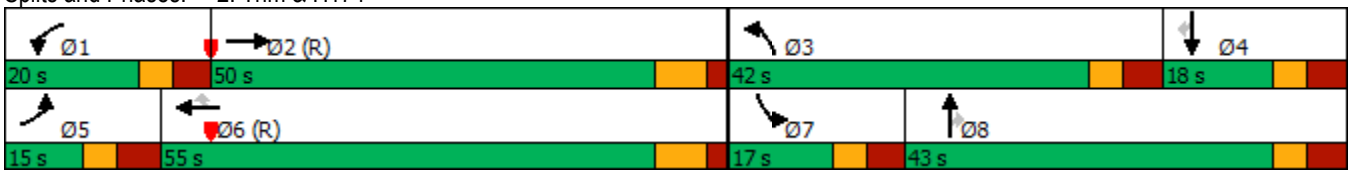
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	214	0	60	1000	41	300	55	44	15	47	26
Future Volume (vph)	46	214	0	60	1000	41	300	55	44	15	47	26
Satd. Flow (prot)	1695	3390	0	1695	4871	1517	4780	1784	1517	1695	1784	1517
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1695	3390	0	1695	4871	1517	4780	1784	1517	1695	1784	1517
Satd. Flow (RTOR)						218			156			217
Lane Group Flow (vph)	51	238	0	67	1111	46	333	61	49	17	52	29
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			4
Detector Phase	5	2		1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	1.0	5.0		1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Minimum Split (s)	8.5	41.2		8.5	41.2	41.2	8.2	42.4	42.4	7.9	12.4	12.4
Total Split (s)	15.0	50.0		20.0	55.0	55.0	42.0	43.0	43.0	17.0	18.0	18.0
Total Split (%)	11.5%	38.5%		15.4%	42.3%	42.3%	32.3%	33.1%	33.1%	13.1%	13.8%	13.8%
Yellow Time (s)	3.3	5.1		3.3	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	4.2	2.1		3.8	2.1	2.1	3.9	4.1	4.1	3.6	4.1	4.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.2		7.1	7.2	7.2	7.2	7.4	7.4	6.9	7.4	7.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	9.3	69.7		10.5	70.4	70.4	14.4	24.8	24.8	6.9	11.8	11.8
Actuated g/C Ratio	0.07	0.54		0.08	0.54	0.54	0.11	0.19	0.19	0.05	0.09	0.09
v/c Ratio	0.42	0.13		0.49	0.42	0.05	0.63	0.18	0.12	0.19	0.32	0.09
Control Delay	67.4	19.8		68.6	22.1	0.1	60.4	43.0	0.6	63.2	57.7	0.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.4	19.8		68.6	22.1	0.1	60.4	43.0	0.6	63.2	57.7	0.5
LOS	E	B		E	C	A	E	D	A	E	E	A
Approach Delay		28.2			23.8			51.4			41.7	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	12.7	16.2		16.7	62.4	0.0	29.3	12.4	0.0	4.3	13.0	0.0
Queue Length 95th (m)	25.5	33.4		30.9	104.7	0.0	38.7	23.3	0.0	12.0	22.7	0.0
Internal Link Dist (m)		686.1			478.0			348.7			179.7	
Turn Bay Length (m)	175.0			150.0		120.0	200.0		40.0	150.0		40.0
Base Capacity (vph)	125	1817		172	2665	928	1279	488	528	131	186	353
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.13		0.39	0.42	0.05	0.26	0.13	0.09	0.13	0.28	0.08

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 54.5 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 31.2	Intersection LOS: C
Intersection Capacity Utilization 54.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Trim & H174



Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	9	58	30	11	0	121	0	21	0	0	0
Future Vol, veh/h	0	9	58	30	11	0	121	0	21	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	10	64	33	12	0	134	0	23	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.8	8.2	0
HCM LOS	A	A	A	-

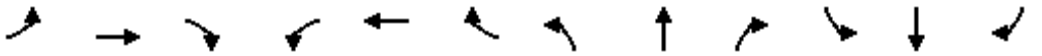
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	85%	0%	73%	0%
Vol Thru, %	0%	13%	27%	100%
Vol Right, %	15%	87%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	142	67	41	0
LT Vol	121	0	30	0
Through Vol	0	9	11	0
RT Vol	21	58	0	0
Lane Flow Rate	158	74	46	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.185	0.079	0.057	0
Departure Headway (Hd)	4.221	3.829	4.518	4.363
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	844	941	798	0
Service Time	2.278	1.829	2.518	2.363
HCM Lane V/C Ratio	0.187	0.079	0.058	0
HCM Control Delay	8.2	7.2	7.8	7.4
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0.7	0.3	0.2	0

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	60	2	4	41	30	3	0	1	12	1	20
Future Vol, veh/h	27	60	2	4	41	30	3	0	1	12	1	20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	67	2	4	46	33	3	0	1	13	1	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.7	7.3	7.4	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	75%	30%	5%	36%
Vol Thru, %	0%	67%	55%	3%
Vol Right, %	25%	2%	40%	61%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	89	75	33
LT Vol	3	27	4	12
Through Vol	0	60	41	1
RT Vol	1	2	30	20
Lane Flow Rate	4	99	83	37
Geometry Grp	1	1	1	1
Degree of Util (X)	0.005	0.113	0.089	0.04
Departure Headway (Hd)	4.277	4.117	3.851	3.959
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	826	870	927	892
Service Time	2.36	2.145	1.889	2.036
HCM Lane V/C Ratio	0.005	0.114	0.09	0.041
HCM Control Delay	7.4	7.7	7.3	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.4	0.3	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	1039	5	53	422	12	243	40	76	56	85	69
Future Volume (vph)	38	1039	5	53	422	12	243	40	76	56	85	69
Satd. Flow (prot)	1695	3387	0	1695	4871	1517	4780	1784	1517	1695	1784	1517
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1695	3387	0	1695	4871	1517	4780	1784	1517	1695	1784	1517
Satd. Flow (RTOR)						218			156			217
Lane Group Flow (vph)	42	1160	0	59	469	13	270	44	84	62	94	77
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			4
Detector Phase	5	2		1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	1.0	5.0		1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Minimum Split (s)	8.5	41.2		8.5	41.2	41.2	8.2	42.4	42.4	7.9	12.4	12.4
Total Split (s)	16.0	54.0		16.0	54.0	54.0	33.0	43.0	43.0	17.0	27.0	27.0
Total Split (%)	12.3%	41.5%		12.3%	41.5%	41.5%	25.4%	33.1%	33.1%	13.1%	20.8%	20.8%
Yellow Time (s)	3.3	5.1		3.3	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	4.2	2.1		3.8	2.1	2.1	3.9	4.1	4.1	3.6	4.1	4.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.2		7.1	7.2	7.2	7.2	7.4	7.4	6.9	7.4	7.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	8.1	67.4		9.0	67.9	67.9	12.7	21.3	21.3	9.0	14.6	14.6
Actuated g/C Ratio	0.06	0.52		0.07	0.52	0.52	0.10	0.16	0.16	0.07	0.11	0.11
v/c Ratio	0.40	0.66		0.50	0.18	0.01	0.58	0.15	0.22	0.53	0.47	0.21
Control Delay	69.6	28.2		72.9	19.2	0.0	60.9	46.4	1.4	74.9	59.6	1.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.6	28.2		72.9	19.2	0.0	60.9	46.4	1.4	74.9	59.6	1.3
LOS	E	C		E	B	A	E	D	A	E	E	A
Approach Delay		29.7			24.6			46.8			44.4	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	10.5	113.1		14.7	22.7	0.0	23.8	10.4	0.0	15.5	23.4	0.0
Queue Length 95th (m)	22.5	#196.1		29.3	40.0	0.0	32.6	18.0	0.0	30.2	35.2	0.0
Internal Link Dist (m)		686.1			478.0			348.7			179.7	
Turn Bay Length (m)	175.0			150.0		120.0	200.0		40.0	150.0		40.0
Base Capacity (vph)	116	1755		126	2544	896	948	488	528	131	294	432
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.66		0.47	0.18	0.01	0.28	0.09	0.16	0.47	0.32	0.18

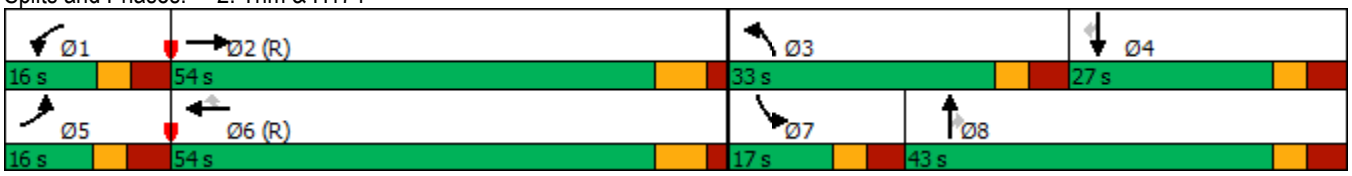
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 54.5 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 32.8	Intersection LOS: C
Intersection Capacity Utilization 63.4%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 2: Trim & H174



Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	25	143	67	15	0	65	0	25	0	0	0
Future Vol, veh/h	0	25	143	67	15	0	65	0	25	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	28	159	74	17	0	72	0	28	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	8.1	8.1	0
HCM LOS	A	A	A	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	72%	0%	82%	0%
Vol Thru, %	0%	15%	18%	100%
Vol Right, %	28%	85%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	90	168	82	0
LT Vol	65	0	67	0
Through Vol	0	25	15	0
RT Vol	25	143	0	0
Lane Flow Rate	100	187	91	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.125	0.19	0.112	0
Departure Headway (Hd)	4.487	3.668	4.418	4.632
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	804	958	799	0
Service Time	2.487	1.767	2.513	2.635
HCM Lane V/C Ratio	0.124	0.195	0.114	0
HCM Control Delay	8.1	7.6	8.1	7.6
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0.4	0.7	0.4	0

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

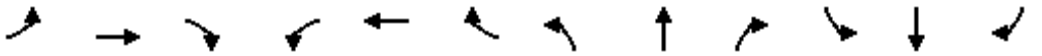
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	115	3	6	50	41	5	0	4	76	0	62
Future Vol, veh/h	38	115	3	6	50	41	5	0	4	76	0	62
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	128	3	7	56	46	6	0	4	84	0	69
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	7.9	7.7	8.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	56%	24%	6%	55%
Vol Thru, %	0%	74%	52%	0%
Vol Right, %	44%	2%	42%	45%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	156	97	138
LT Vol	5	38	6	76
Through Vol	0	115	50	0
RT Vol	4	3	41	62
Lane Flow Rate	10	173	108	153
Geometry Grp	1	1	1	1
Degree of Util (X)	0.013	0.215	0.128	0.188
Departure Headway (Hd)	4.593	4.463	4.262	4.419
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	779	806	843	813
Service Time	2.62	2.482	2.282	2.44
HCM Lane V/C Ratio	0.013	0.215	0.128	0.188
HCM Control Delay	7.7	8.7	7.9	8.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.8	0.4	0.7

Appendix N:

Synchro Analysis: Background 2035 Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	288	5	126	1186	44	424	75	60	39	81	150
Future Volume (vph)	126	288	5	126	1186	44	424	75	60	39	81	150
Satd. Flow (prot)	1695	3357	0	1695	4871	1517	4780	1784	1517	1695	1784	1517
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1689	3357	0	1264	4871	1458	4780	1784	1151	1355	1784	1517
Satd. Flow (RTOR)		2				278			216			276
Lane Group Flow (vph)	126	293	0	126	1186	44	424	75	60	39	81	150
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			4
Detector Phase	5	2		1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	1.0	5.0		1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Minimum Split (s)	8.5	41.2		8.5	41.2	41.2	8.2	42.4	42.4	7.9	12.4	12.4
Total Split (s)	30.0	60.8		12.8	43.6	43.6	28.4	42.4	42.4	14.0	28.0	28.0
Total Split (%)	23.1%	46.8%		9.8%	33.5%	33.5%	21.8%	32.6%	32.6%	10.8%	21.5%	21.5%
Yellow Time (s)	3.3	5.1		3.3	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	4.2	2.1		3.8	2.1	2.1	3.9	4.1	4.1	3.6	4.1	4.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.2		7.1	7.2	7.2	7.2	7.4	7.4	6.9	7.4	7.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	14.9	52.1		11.5	48.3	48.3	16.8	33.4	33.4	6.8	20.7	20.7
Actuated g/C Ratio	0.11	0.40		0.09	0.37	0.37	0.13	0.26	0.26	0.05	0.16	0.16
v/c Ratio	0.65	0.22		0.84	0.66	0.06	0.69	0.16	0.13	0.44	0.29	0.32
Control Delay	69.9	25.7		99.5	38.1	0.2	60.0	37.7	0.6	75.3	49.5	1.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.9	25.7		99.5	38.1	0.2	60.0	37.7	0.6	75.3	49.5	1.8
LOS	E	C		F	D	A	E	D	A	E	D	A
Approach Delay		39.0			42.6			50.7			26.7	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	31.4	25.0		~47.3	97.2	0.0	37.3	14.7	0.0	9.8	17.7	0.0
Queue Length 95th (m)	49.8	35.0		#87.2	121.9	0.0	47.4	27.4	0.0	21.8	33.7	0.0
Internal Link Dist (m)		686.1			478.0			348.7			179.7	
Turn Bay Length (m)	160.0			130.0		120.0	200.0		40.0	150.0		40.0
Base Capacity (vph)	293	1385		150	1809	716	779	480	467	93	321	499
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.21		0.84	0.66	0.06	0.54	0.16	0.13	0.42	0.25	0.30

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 54.5 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

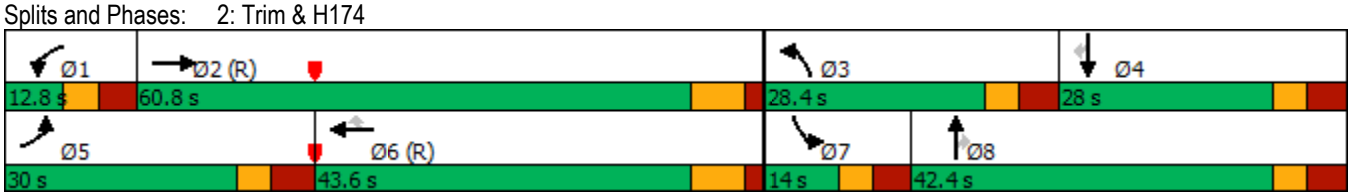
Maximum v/c Ratio: 0.84

Intersection Signal Delay: 42.1	Intersection LOS: D
Intersection Capacity Utilization 83.3%	ICU Level of Service E
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 2: Trim & H174



Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	11	177	106	15	0	200	0	55	0	0	0
Future Vol, veh/h	0	11	177	106	15	0	200	0	55	0	0	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	11	177	106	15	0	200	0	55	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	9	10	0
HCM LOS	A	A	A	-

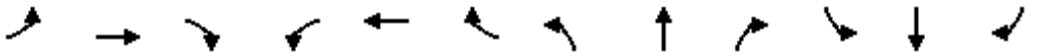
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	78%	0%	88%	0%
Vol Thru, %	0%	6%	12%	100%
Vol Right, %	22%	94%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	255	188	121	0
LT Vol	200	0	106	0
Through Vol	0	11	15	0
RT Vol	55	177	0	0
Lane Flow Rate	255	188	121	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.329	0.216	0.166	0
Departure Headway (Hd)	4.647	4.145	4.936	4.946
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	773	865	726	0
Service Time	2.683	2.175	2.97	2.998
HCM Lane V/C Ratio	0.33	0.217	0.167	0
HCM Control Delay	10	8.3	9	8
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	1.4	0.8	0.6	0

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	181	2	4	124	30	3	0	1	12	1	20
Future Vol, veh/h	27	181	2	4	124	30	3	0	1	12	1	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	181	2	4	124	30	3	0	1	12	1	20
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.5	8	7.8	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	75%	13%	3%	36%
Vol Thru, %	0%	86%	78%	3%
Vol Right, %	25%	1%	19%	61%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	210	158	33
LT Vol	3	27	4	12
Through Vol	0	181	124	1
RT Vol	1	2	30	20
Lane Flow Rate	4	210	158	33
Geometry Grp	1	1	1	1
Degree of Util (X)	0.005	0.241	0.178	0.041
Departure Headway (Hd)	4.767	4.137	4.048	4.438
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	755	861	877	812
Service Time	2.769	2.196	2.12	2.438
HCM Lane V/C Ratio	0.005	0.244	0.18	0.041
HCM Control Delay	7.8	8.5	8	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.9	0.6	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	1271	5	114	575	19	329	73	182	76	111	189
Future Volume (vph)	163	1271	5	114	575	19	329	73	182	76	111	189
Satd. Flow (prot)	1695	3382	0	1695	4871	1517	4780	1784	1517	1695	1784	1517
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1681	3382	0	1585	4871	1458	4780	1784	1155	1354	1784	1517
Satd. Flow (RTOR)						278			216			276
Lane Group Flow (vph)	163	1276	0	114	575	19	329	73	182	76	111	189
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			4
Detector Phase	5	2		1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	1.0	5.0		1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Minimum Split (s)	8.5	41.2		8.5	41.2	41.2	8.2	42.4	42.4	7.9	12.4	12.4
Total Split (s)	33.0	57.6		17.0	41.6	41.6	21.3	42.4	42.4	13.0	34.1	34.1
Total Split (%)	25.4%	44.3%		13.1%	32.0%	32.0%	16.4%	32.6%	32.6%	10.0%	26.2%	26.2%
Yellow Time (s)	3.3	5.1		3.3	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	4.2	2.1		3.8	2.1	2.1	3.9	4.1	4.1	3.6	4.1	4.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.2		7.1	7.2	7.2	7.2	7.4	7.4	6.9	7.4	7.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	17.8	54.5		10.1	46.4	46.4	13.2	29.8	29.8	7.0	23.3	23.3
Actuated g/C Ratio	0.14	0.42		0.08	0.36	0.36	0.10	0.23	0.23	0.05	0.18	0.18
v/c Ratio	0.71	0.90		0.87	0.33	0.03	0.68	0.18	0.42	0.84	0.35	0.38
Control Delay	69.4	46.1		109.1	33.3	0.1	63.7	38.5	5.5	119.6	48.4	2.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.4	46.1		109.1	33.3	0.1	63.7	38.5	5.5	119.6	48.4	2.5
LOS	E	D		F	C	A	E	D	A	F	D	A
Approach Delay		48.8			44.6			42.4			39.7	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	40.5	167.6		29.5	41.2	0.0	29.0	14.3	0.0	19.8	24.3	0.0
Queue Length 95th (m)	60.9	#216.1		#64.1	56.3	0.0	39.5	26.8	10.5	#51.2	41.6	0.2
Internal Link Dist (m)		686.1			478.0			348.7			179.7	
Turn Bay Length (m)	160.0			130.0		120.0	200.0		40.0	150.0		40.0
Base Capacity (vph)	332	1419		131	1740	699	518	480	468	90	369	532
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.90		0.87	0.33	0.03	0.64	0.15	0.39	0.84	0.30	0.36

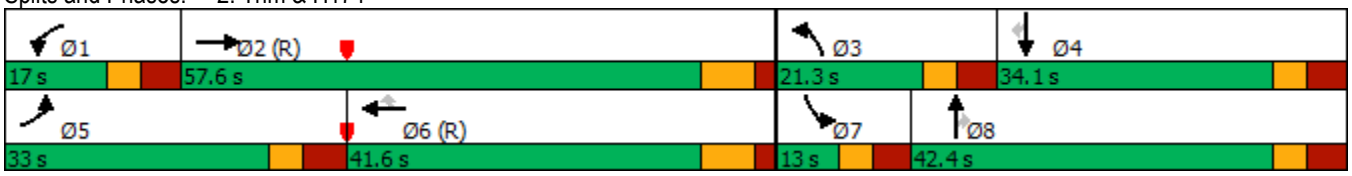
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 54.5 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 45.5	Intersection LOS: D
Intersection Capacity Utilization 91.2%	ICU Level of Service F
Analysis Period (min) 15	

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

Splits and Phases: 2: Trim & H174



Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	29	242	119	18	0	171	0	98	0	0	0
Future Vol, veh/h	0	29	242	119	18	0	171	0	98	0	0	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	29	242	119	18	0	171	0	98	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.3	9.3	10.4	0
HCM LOS	A	A	B	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	64%	0%	87%	0%
Vol Thru, %	0%	11%	13%	100%
Vol Right, %	36%	89%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	269	271	137	0
LT Vol	171	0	119	0
Through Vol	0	29	18	0
RT Vol	98	242	0	0
Lane Flow Rate	269	271	137	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.355	0.319	0.193	0
Departure Headway (Hd)	4.748	4.241	5.071	5.215
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	753	846	704	0
Service Time	2.8	2.284	3.124	3.291
HCM Lane V/C Ratio	0.357	0.32	0.195	0
HCM Control Delay	10.4	9.3	9.3	8.3
HCM Lane LOS	B	A	A	N
HCM 95th-tile Q	1.6	1.4	0.7	0

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

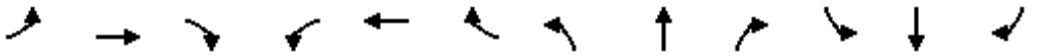
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	218	3	6	159	41	5	0	15	76	0	62
Future Vol, veh/h	38	218	3	6	159	41	5	0	15	76	0	62
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	218	3	6	159	41	5	0	15	76	0	62
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.9	9.1	8	9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	15%	3%	55%
Vol Thru, %	0%	84%	77%	0%
Vol Right, %	75%	1%	20%	45%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	259	206	138
LT Vol	5	38	6	76
Through Vol	0	218	159	0
RT Vol	15	3	41	62
Lane Flow Rate	20	259	206	138
Geometry Grp	1	1	1	1
Degree of Util (X)	0.027	0.329	0.258	0.186
Departure Headway (Hd)	4.779	4.573	4.501	4.85
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	744	785	795	737
Service Time	2.839	2.611	2.54	2.897
HCM Lane V/C Ratio	0.027	0.33	0.259	0.187
HCM Control Delay	8	9.9	9.1	9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.4	1	0.7

Appendix O:

Synchro Analysis: Future 2035 Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	288	5	126	1186	47	424	85	60	44	101	219
Future Volume (vph)	162	288	5	126	1186	47	424	85	60	44	101	219
Satd. Flow (prot)	1695	3357	0	1695	4871	1517	4780	1784	1517	1695	1784	1517
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1689	3357	0	1264	4871	1458	4780	1784	1151	1359	1784	1517
Satd. Flow (RTOR)		2				278			216			276
Lane Group Flow (vph)	162	293	0	126	1186	47	424	85	60	44	101	219
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			4
Detector Phase	5	2		1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	1.0	5.0		1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Minimum Split (s)	8.5	41.2		8.5	41.2	41.2	8.2	42.4	42.4	7.9	12.4	12.4
Total Split (s)	30.0	60.8		12.8	43.6	43.6	28.4	42.4	42.4	14.0	28.0	28.0
Total Split (%)	23.1%	46.8%		9.8%	33.5%	33.5%	21.8%	32.6%	32.6%	10.8%	21.5%	21.5%
Yellow Time (s)	3.3	5.1		3.3	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	4.2	2.1		3.8	2.1	2.1	3.9	4.1	4.1	3.6	4.1	4.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.2		7.1	7.2	7.2	7.2	7.4	7.4	6.9	7.4	7.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	17.3	52.1		11.3	45.7	45.7	16.8	33.6	33.6	6.8	20.9	20.9
Actuated g/C Ratio	0.13	0.40		0.09	0.35	0.35	0.13	0.26	0.26	0.05	0.16	0.16
v/c Ratio	0.72	0.22		0.86	0.69	0.07	0.69	0.18	0.13	0.49	0.35	0.46
Control Delay	71.2	25.6		102.8	40.8	0.2	60.0	38.1	0.6	78.9	51.1	5.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.2	25.6		102.8	40.8	0.2	60.0	38.1	0.6	78.9	51.1	5.0
LOS	E	C		F	D	A	E	D	A	E	D	A
Approach Delay		41.9			45.1			50.5			26.8	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	40.2	24.9		~47.3	100.2	0.0	37.3	16.8	0.0	11.1	22.4	0.0
Queue Length 95th (m)	61.4	35.0		#87.2	124.6	0.0	47.4	30.6	0.0	23.8	40.5	8.0
Internal Link Dist (m)		686.1			478.0			348.7			179.7	
Turn Bay Length (m)	160.0			130.0		120.0	200.0		40.0	150.0		40.0
Base Capacity (vph)	293	1385		147	1712	692	779	480	467	93	322	500
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.21		0.86	0.69	0.07	0.54	0.18	0.13	0.47	0.31	0.44

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 54.5 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

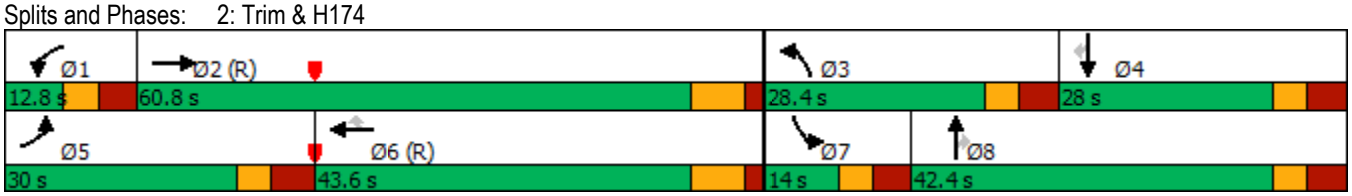
Maximum v/c Ratio: 0.86

Intersection Signal Delay: 43.3	Intersection LOS: D
Intersection Capacity Utilization 85.4%	ICU Level of Service E
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 2: Trim & H174



Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	0	57	13	0	33
Future Vol, veh/h	25	0	57	13	0	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	0	57	13	0	33

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	97	64	0	0	70	0
Stage 1	64	-	-	-	-	-
Stage 2	33	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	902	1000	-	-	1531	-
Stage 1	959	-	-	-	-	-
Stage 2	989	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	902	1000	-	-	1531	-
Mov Cap-2 Maneuver	902	-	-	-	-	-
Stage 1	959	-	-	-	-	-
Stage 2	989	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	902	1531	-
HCM Lane V/C Ratio	-	-	0.028	-	-
HCM Control Delay (s)	-	-	9.1	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	11	197	106	15	0	209	40	55	0	74	4
Future Vol, veh/h	3	11	197	106	15	0	209	40	55	0	74	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	11	197	106	15	0	209	40	55	0	74	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.2	9.6	11.3	8.8
HCM LOS	A	A	B	A

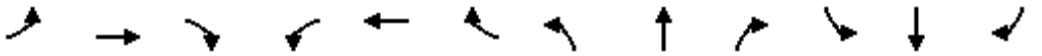
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	69%	1%	88%	0%
Vol Thru, %	13%	5%	12%	95%
Vol Right, %	18%	93%	0%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	304	211	121	78
LT Vol	209	3	106	0
Through Vol	40	11	15	74
RT Vol	55	197	0	4
Lane Flow Rate	304	211	121	78
Geometry Grp	1	1	1	1
Degree of Util (X)	0.409	0.263	0.178	0.11
Departure Headway (Hd)	4.843	4.486	5.309	5.082
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	739	793	670	697
Service Time	2.913	2.553	3.388	3.173
HCM Lane V/C Ratio	0.411	0.266	0.181	0.112
HCM Control Delay	11.3	9.2	9.6	8.8
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	2	1.1	0.6	0.4

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	182	2	4	126	41	3	0	1	34	1	23
Future Vol, veh/h	29	182	2	4	126	41	3	0	1	34	1	23
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	182	2	4	126	41	3	0	1	34	1	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	8.2	7.9	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	75%	14%	2%	59%
Vol Thru, %	0%	85%	74%	2%
Vol Right, %	25%	1%	24%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	213	171	58
LT Vol	3	29	4	34
Through Vol	0	182	126	1
RT Vol	1	2	41	23
Lane Flow Rate	4	213	171	58
Geometry Grp	1	1	1	1
Degree of Util (X)	0.005	0.248	0.198	0.075
Departure Headway (Hd)	4.843	4.196	4.166	4.649
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	742	843	867	774
Service Time	2.855	2.284	2.166	2.658
HCM Lane V/C Ratio	0.005	0.253	0.197	0.075
HCM Control Delay	7.9	8.7	8.2	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	1	0.7	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	1271	5	114	575	23	329	89	182	79	123	229
Future Volume (vph)	221	1271	5	114	575	23	329	89	182	79	123	229
Satd. Flow (prot)	1695	3382	0	1695	4871	1517	4780	1784	1517	1695	1784	1517
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1681	3382	0	1585	4871	1458	4780	1784	1155	1361	1784	1517
Satd. Flow (RTOR)						278			216			276
Lane Group Flow (vph)	221	1276	0	114	575	23	329	89	182	79	123	229
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			4
Detector Phase	5	2		1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	1.0	5.0		1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Minimum Split (s)	8.5	41.2		8.5	41.2	41.2	8.2	42.4	42.4	7.9	12.4	12.4
Total Split (s)	33.0	57.6		17.0	41.6	41.6	21.3	42.4	42.4	13.0	34.1	34.1
Total Split (%)	25.4%	44.3%		13.1%	32.0%	32.0%	16.4%	32.6%	32.6%	10.0%	26.2%	26.2%
Yellow Time (s)	3.3	5.1		3.3	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	4.2	2.1		3.8	2.1	2.1	3.9	4.1	4.1	3.6	4.1	4.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.2		7.1	7.2	7.2	7.2	7.4	7.4	6.9	7.4	7.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	21.3	54.4		10.1	42.8	42.8	13.2	29.7	29.7	7.2	23.4	23.4
Actuated g/C Ratio	0.16	0.42		0.08	0.33	0.33	0.10	0.23	0.23	0.06	0.18	0.18
v/c Ratio	0.80	0.90		0.87	0.36	0.03	0.68	0.22	0.42	0.85	0.38	0.46
Control Delay	72.8	46.3		109.1	36.1	0.1	63.7	39.5	5.5	119.6	49.2	5.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	46.3		109.1	36.1	0.1	63.7	39.5	5.5	119.6	49.2	5.1
LOS	E	D		F	D	A	E	D	A	F	D	A
Approach Delay		50.2			46.6			42.4			38.7	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	54.7	167.6		29.5	43.4	0.0	29.0	17.6	0.0	20.6	27.1	0.0
Queue Length 95th (m)	80.4	#216.1		#64.1	57.1	0.0	39.5	31.7	10.5	#53.3	45.5	10.2
Internal Link Dist (m)		686.1			478.0			348.7			179.7	
Turn Bay Length (m)	160.0			130.0		120.0	200.0		40.0	150.0		40.0
Base Capacity (vph)	332	1416		131	1604	666	518	480	468	93	369	532
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.90		0.87	0.36	0.03	0.64	0.19	0.39	0.85	0.33	0.43

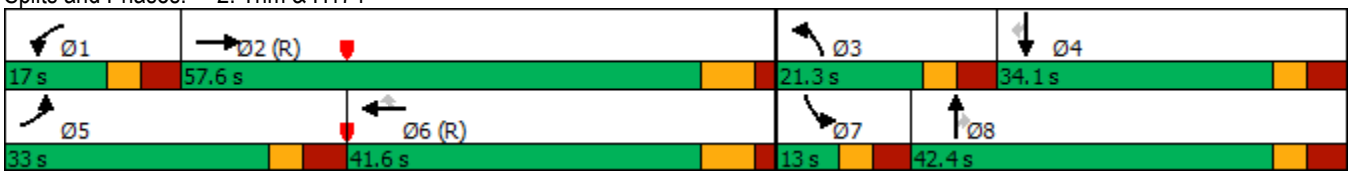
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 54.5 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 46.5	Intersection LOS: D
Intersection Capacity Utilization 101.5%	ICU Level of Service G
Analysis Period (min) 15	

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

Splits and Phases: 2: Trim & H174



Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	0	79	21	0	138
Future Vol, veh/h	15	0	79	21	0	138
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	0	79	21	0	138

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	228	90	0	0	100	0
Stage 1	90	-	-	-	-	-
Stage 2	138	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	760	968	-	-	1493	-
Stage 1	934	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	760	968	-	-	1493	-
Mov Cap-2 Maneuver	760	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	889	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	760	1493	-
HCM Lane V/C Ratio	-	-	0.02	-	-
HCM Control Delay (s)	-	-	9.8	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	29	251	119	18	0	185	65	98	0	46	5
Future Vol, veh/h	6	29	251	119	18	0	185	65	98	0	46	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	29	251	119	18	0	185	65	98	0	46	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.4	10.1	12.7	9
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	53%	2%	87%	0%
Vol Thru, %	19%	10%	13%	90%
Vol Right, %	28%	88%	0%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	348	286	137	51
LT Vol	185	6	119	0
Through Vol	65	29	18	46
RT Vol	98	251	0	5
Lane Flow Rate	348	286	137	51
Geometry Grp	1	1	1	1
Degree of Util (X)	0.487	0.366	0.212	0.078
Departure Headway (Hd)	5.041	4.723	5.575	5.499
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	720	766	645	653
Service Time	3.041	2.723	3.6	3.519
HCM Lane V/C Ratio	0.483	0.373	0.212	0.078
HCM Control Delay	12.7	10.4	10.1	9
HCM Lane LOS	B	B	B	A
HCM 95th-tile Q	2.7	1.7	0.8	0.3

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	41	219	3	6	160	59	5	0	14	89	0	64
Future Vol, veh/h	41	219	3	6	160	59	5	0	14	89	0	64
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	219	3	6	160	59	5	0	14	89	0	64
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.1	9.3	8.1	9.3
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	16%	3%	58%
Vol Thru, %	0%	83%	71%	0%
Vol Right, %	74%	1%	26%	42%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	263	225	153
LT Vol	5	41	6	89
Through Vol	0	219	160	0
RT Vol	14	3	59	64
Lane Flow Rate	19	263	225	153
Geometry Grp	1	1	1	1
Degree of Util (X)	0.026	0.339	0.282	0.209
Departure Headway (Hd)	4.872	4.639	4.514	4.927
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	729	773	794	725
Service Time	2.941	2.681	2.557	2.98
HCM Lane V/C Ratio	0.026	0.34	0.283	0.211
HCM Control Delay	8.1	10.1	9.3	9.3
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.1	1.5	1.2	0.8

Appendix P:

SimTraffic Queueing: Future 2035 Conditions

Intersection: 1: Trim & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	31.8	24.7	66.2	19.7
Average Queue (m)	14.5	11.6	28.3	9.7
95th Queue (m)	25.1	19.8	52.0	16.6
Link Distance (m)	185.0	134.8	179.2	79.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Trim & H174

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	NB
Directions Served	L	T	TR	L	T	T	T	L	L	L	T	R
Maximum Queue (m)	68.5	42.7	39.7	82.2	114.4	106.1	87.4	55.7	69.7	79.4	37.9	9.5
Average Queue (m)	34.7	24.3	18.3	38.0	75.1	69.5	54.2	12.9	43.3	52.6	13.8	0.3
95th Queue (m)	59.3	40.0	34.5	73.3	100.8	95.2	82.1	43.5	66.7	73.1	29.1	6.7
Link Distance (m)		697.7	697.7		488.1	488.1	488.1			360.3	360.3	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	160.0			130.0				200.0	200.0			40.0
Storage Blk Time (%)					0						0	
Queuing Penalty (veh)					0						0	

Intersection: 2: Trim & H174

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	25.1	59.1	47.2
Average Queue (m)	9.6	21.1	3.3
95th Queue (m)	19.7	42.2	22.9
Link Distance (m)		179.2	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	150.0		40.0
Storage Blk Time (%)		2	0
Queuing Penalty (veh)		4	0

Intersection: 3: Tweddle & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	25.2	23.8	7.1	12.9
Average Queue (m)	13.4	10.9	1.0	7.7
95th Queue (m)	21.6	17.7	5.4	13.8
Link Distance (m)	583.4	185.0	165.3	101.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Tweddle & Tweddle Access

Movement	WB
Directions Served	LR
Maximum Queue (m)	17.4
Average Queue (m)	5.8
95th Queue (m)	14.1
Link Distance (m)	60.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 4

Intersection: 1: Trim & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	43.3	27.2	70.5	16.3
Average Queue (m)	18.3	13.0	35.4	7.5
95th Queue (m)	34.0	21.6	60.7	13.9
Link Distance (m)	185.0	134.8	179.2	79.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Trim & H174

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	NB
Directions Served	L	T	TR	L	T	T	T	L	L	L	T	R
Maximum Queue (m)	139.2	203.8	200.3	52.8	68.6	61.1	45.7	46.4	68.2	73.6	46.1	45.7
Average Queue (m)	55.6	134.5	132.2	29.7	43.3	36.0	14.9	9.8	39.0	48.1	15.7	2.0
95th Queue (m)	109.6	192.0	191.1	52.8	62.2	56.3	37.9	36.4	62.4	68.0	33.9	17.1
Link Distance (m)		697.7	697.7		488.1	488.1	488.1			360.3	360.3	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	160.0			130.0				200.0	200.0			40.0
Storage Blk Time (%)		6									1	0
Queuing Penalty (veh)		14									1	0

Intersection: 2: Trim & H174

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	56.9	69.2	47.5
Average Queue (m)	26.6	24.9	5.6
95th Queue (m)	51.6	53.4	30.4
Link Distance (m)		179.2	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	150.0		40.0
Storage Blk Time (%)		2	0
Queuing Penalty (veh)		8	0

Intersection: 3: Tweddle & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	30.9	27.0	11.4	24.1
Average Queue (m)	16.4	13.5	4.4	12.3
95th Queue (m)	26.6	22.5	11.5	19.5
Link Distance (m)	583.4	185.0	165.3	101.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Tweddle & Tweddle Access

Movement	WB
Directions Served	LR
Maximum Queue (m)	9.2
Average Queue (m)	4.0
95th Queue (m)	11.2
Link Distance (m)	60.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 23

Intersection: 1: Trim & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	68.5	31.3	97.7	18.4
Average Queue (m)	27.0	15.2	47.9	8.2
95th Queue (m)	52.7	25.4	81.0	15.4
Link Distance (m)	185.0	134.8	179.2	79.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Trim & H174

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	NB
Directions Served	L	T	TR	L	T	T	T	L	L	L	T	R
Maximum Queue (m)	138.9	214.6	218.1	60.1	68.5	60.1	46.1	44.6	69.3	74.5	45.4	35.9
Average Queue (m)	76.3	135.8	133.4	28.7	44.2	36.6	15.6	9.7	40.3	48.3	17.0	3.6
95th Queue (m)	144.9	221.3	219.4	52.1	62.2	56.7	39.2	35.9	60.3	66.6	36.7	22.9
Link Distance (m)		697.7	697.7		488.1	488.1	488.1			360.3	360.3	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	160.0			130.0				200.0	200.0			40.0
Storage Blk Time (%)		7									1	0
Queuing Penalty (veh)		18									2	0

Intersection: 2: Trim & H174

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	52.4	64.0	47.0
Average Queue (m)	26.6	23.6	5.5
95th Queue (m)	51.5	47.3	30.3
Link Distance (m)		179.2	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	150.0		40.0
Storage Blk Time (%)		2	0
Queuing Penalty (veh)		7	0

Intersection: 3: Tweddle & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	32.3	26.8	9.0	25.6
Average Queue (m)	15.9	11.7	4.4	12.0
95th Queue (m)	25.2	19.2	11.3	19.4
Link Distance (m)	583.4	185.0	165.3	101.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Tweddle & Tweddle Access

Movement	WB
Directions Served	LR
Maximum Queue (m)	9.1
Average Queue (m)	3.1
95th Queue (m)	10.1
Link Distance (m)	60.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 27