8600 Jeanne D'Arc Blvd North Petrie's Landing III

TIA Report

Final

May 2026

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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8600 Jeanne d'Arc Blvd North – Petrie's Landing III

TIA Report

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The following report represents an update from the previous final report prepared in December 2024. This version provides general updates to existing and planned conditions plus addresses City of Ottawa comments received on February 3rd, 2026. Notably, the City of Ottawa advised that there is currently no funding secured for the construction of an active transportation bridge linking the Trim LRT Station to the north side of Highway 174 and therefore, there is no guaranteed timeline of when this bridge may be built. As such, a sensitivity scenario was added which explores the impacts of a non-transit-oriented development (TOD) and reduced transit mode shares in exchange for driver mode share trips. Some counts have been refreshed which account for additional development that have been built and occupied since the previous TIA Report version. Lastly, improvements to active transportation priority and connectivity have been further explored. It is understood that the densities proposed have not changed since the previous submission.

TIA Final Report

Parsons has been retained by Brigil to prepare a Transportation Impact Assessment (TIA) in support of a Zoning By-Law Amendment (ZBLA) and an Official Plan Amendment (OPA) for a residential development located at 8600 Jeanne d'Arc Blvd N., also known as Petrie's Landing III in Orléans district. This document follows the new TIA process, as outlined in the City Transportation Impact Assessment (TIA) Guidelines (2017). The following report represents Step 5 – Final Report.

1. 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 twelve mixed-use buildings with approximately 3,000 to 3,200 residential apartment units, 110,000 ft^2 of office space and 165,000 ft^2 of commercial space; and the location trigger, given that the development is located within a transit-oriented development (within 600m radius of Trim LRT Station) and spine cycling route. The safety trigger was not met. The Screening Form and responses to city comments have been provided in **Appendix A**.

2. Scoping Report

2.1. Existing and Planned Conditions

2.1.1. PROPOSED DEVELOPMENT

The subject site is located at the municipal addresses of 8600 Jeanne d'Arc Blvd N, bounded by Jeanne d'Arc Blvd to the north, Centre des Métiers Minto to the east, Ottawa Regional Road 174 (H174) to the south, and Taylor Creek to the west. The lot is currently vacant.

The proposed study area includes the intersections of Trim/H174, Trim/Jeanne d'Arc, Tweddle/Jeanne d'Arc, Tenth Line/Jeanne d'Arc, Tenth Line/St. Joseph, Old Tenth Line/St. Joseph, and roadway segments adjacent to the site or between intersections as shown in **Figure 1**. The latest envisioned development has been provided in **Figure 2** with a summary of site statistics in **Table 1**. Note that the final unit count is still being refined.

Figure 1: Local Context

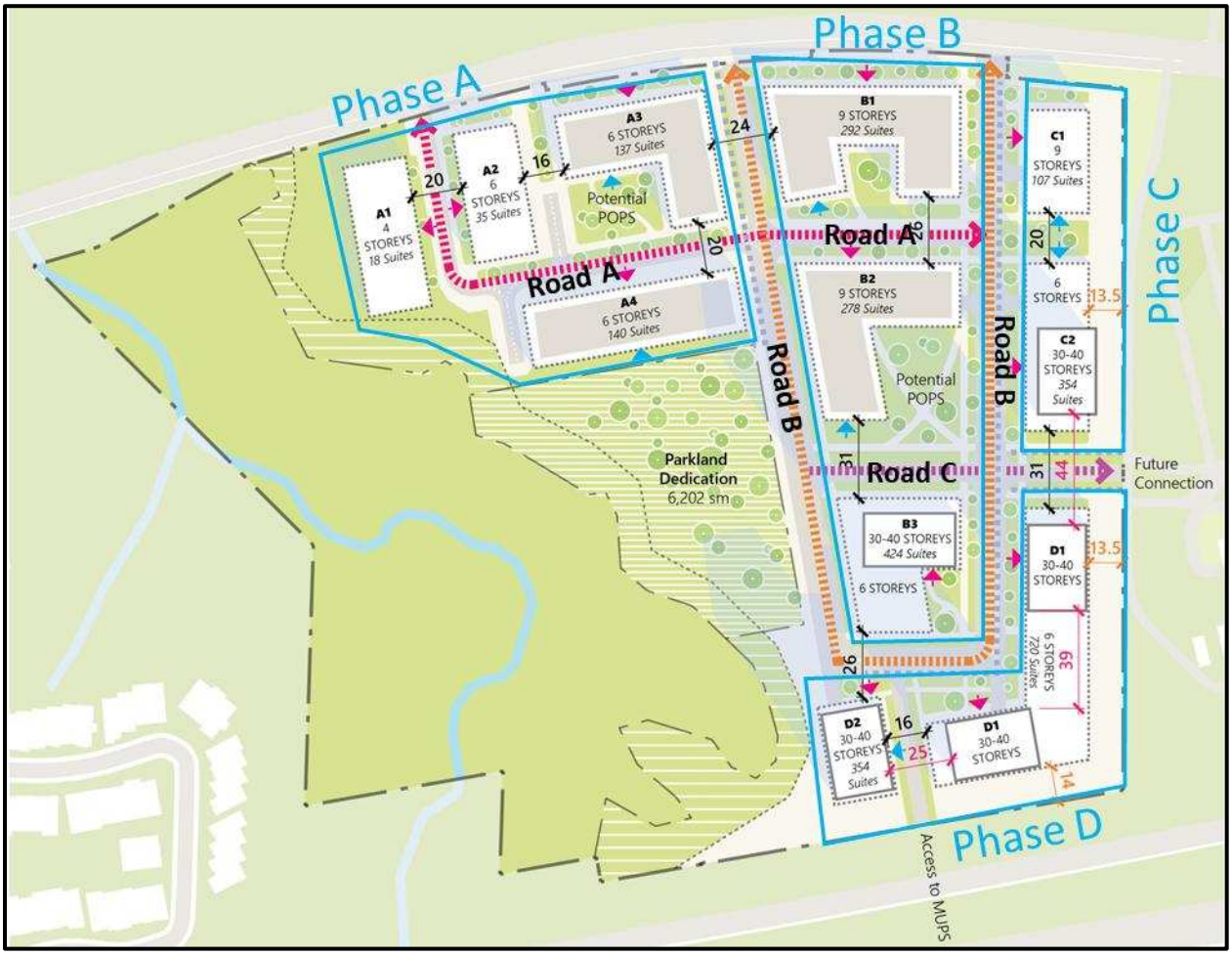
The development will be built out in multiple phases extending past 2030 horizon. Currently, there are four phases, A to D, proposed but are subject to change based on market demands. Once complete, the full buildout of the site will make use of three accesses into the site, including two public roads and a private road, all to and from Jeanne d'Arc Blvd.

Table 1: Proposed Site Statistics

Phase of Development (A to D) and Building Number	Number of Storeys	Number of Units[1]	Proposed Office Space (ft²)	Proposed Commercial Space (ft²)
A1	4	18	110,000 ft² with exact distribution to be determined.	165,000 ft² with exact distribution to be determined.
A2	6	88		
A3	6	141		
A4	6	145		
B1	9	302		
B2	9	288		
B3	30-40	439		
C1	9	110		
C2	30-40	408		
D1	30-40	830		
D2	30-40	408		
	Combined Totals	3,177	110,000 ft²	165,000 ft²

1. The number of units and office/commercial GFA is still being refined and will be confirmed by Site Plan Application. For the purpose of this analysis, the higher density estimates have been carried forward to analyze the 'worst case' scenario.

Figure 2: Proposed Site Plan



The property is currently zoned as development reserve (DR) for future urban developments. Under this zoning, this site has a specific policy clause which states "urban employment area", requiring the site to provide at least 10,000 m^2 (107,640 ft^2) of office space prior to permitting any residential uses. Once that policy is fulfilled, then mixed-use buildings including residential can be built, with a maximum height of 10-storeys which triggers the re-zoning application (ZBLA) and Official Plan Amendment (OPA) to allow a higher maximum building height proposed up to 40-storeys.

It is noteworthy that the Official Plan recommends intensification near rapid transit stations such as Trim LRT station expected to be completed in 2026[1]. Within the higher density principles, high-rise buildings have been categorized as 10 to 40-storeys high. The Orléans Corridor Secondary Plan that is currently ongoing also recommends parts of this development be granted permission to build up to 40-storeys and the other half limited to 9-storeys. More details regarding the secondary plan are provided in **Section 2.1.3**.

2.1.2. EXISTING CONDITIONS

Area Road Network

Ottawa Regional Road 174 (H174) is an east-west City-owned freeway, which extends from H417 in the west to past City of Ottawa limits, near Canan Road. Within the study area, H174 has a four-lane cross section and

[1] https://ottawa.ctvnews.ca/stage-2-of-ottawa-lrt-faces-further-delay-1.6333917#:~:text=It's%20now%20scheduled%20to%20open%20in%20late%202026.

auxiliary turn lanes are provided at its intersection with the recently realigned Trim Road. The posted speed limit within the study area is 90 km/h.

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

Jeanne d'Arc Blvd is a major collector roadway west of the realigned Trim Road. East of Trim Road, Jeanne d'Arc Blvd continues as Inlet Private as a local road. Within the study area, Jeanne d'Arc Blvd has a two-lane cross section. The posted speed limit was recently reduced to 50 km/h along the study area.

Tenth Line Road is a north-south arterial roadway that extends from Jeanne d'Arc Blvd in the north to Smith Road in the south. Within the study area, Tenth Line Road has a four-lane cross-section, the posted speed limit is 60 km/h.

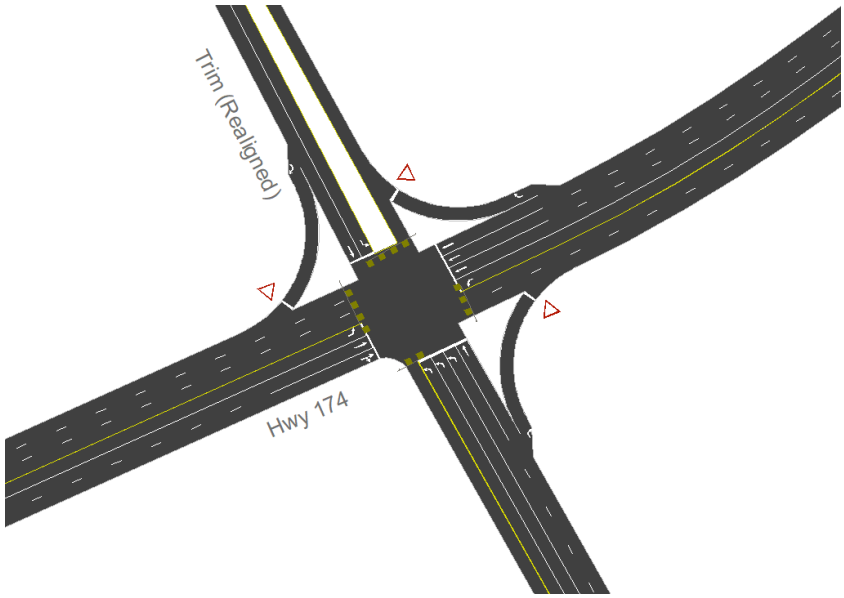
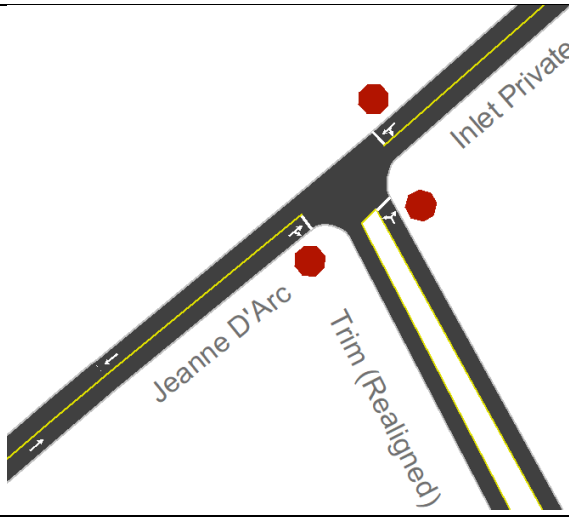
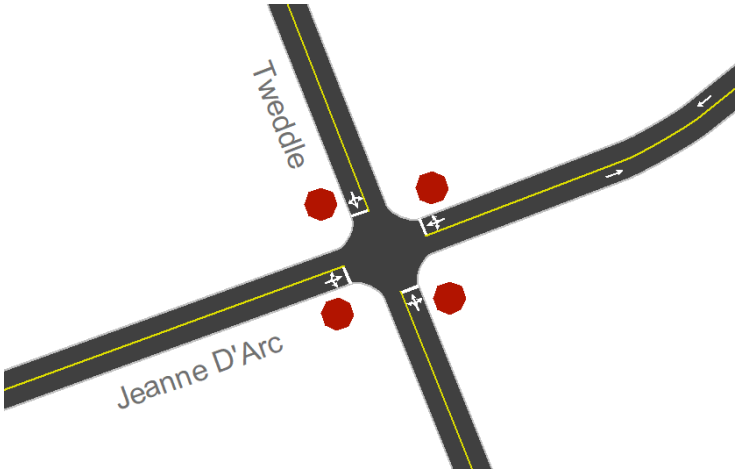
Inlet Private is the continuation of Jeanne d'Arc Blvd east of the realigned Trim Road and extends for about 200m to the east to Brigil Petrie's Landing I Towers. Inlet Private is a local roadway with an unposted speed limit assumed to be 50km/h.

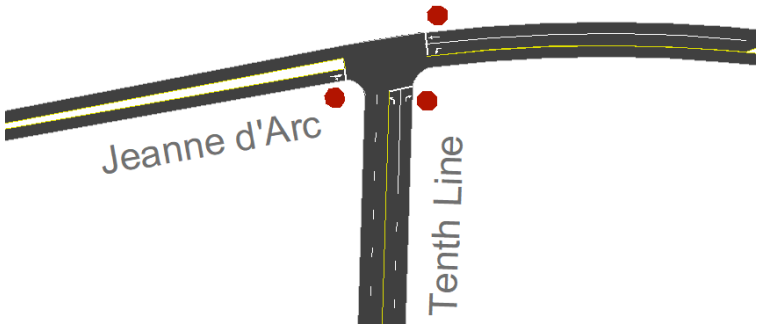
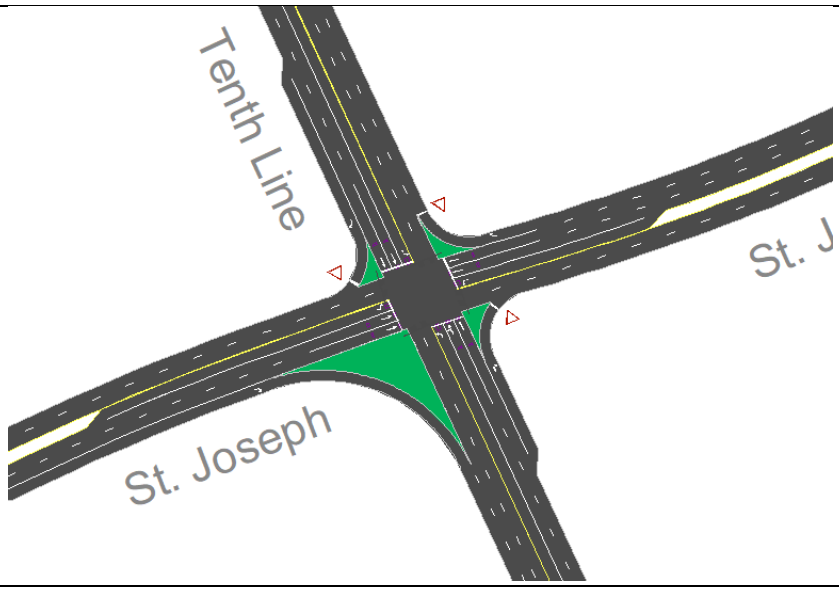
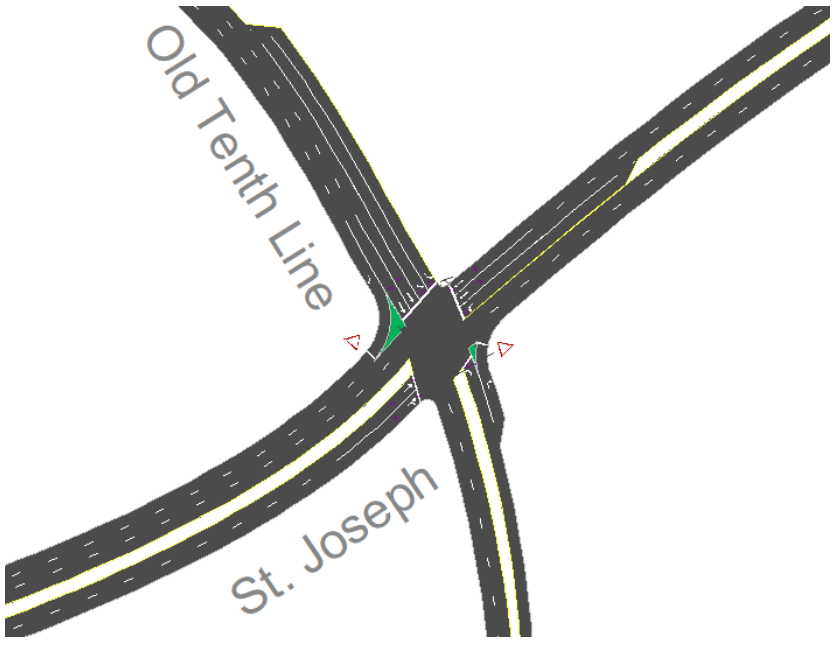
Tweddle Road is the northern continuation of former Trim Road, extending north of H174 to Petrie Island Beach. South of Jeanne d'Arc Blvd, Tweddle Road operates as a cul-de-sac. Tweddle Road is a local road with a posted speed limit of 40km/h.

Old Tenth Line Road is a north-south City-owned off-ramp that extends from H174 in the north (for eastbound off-vehicles) and extends to Tenth Line Road. South of St. Joseph, Old Tenth Line Road is an arterial road. Within the study area, Old Tenth Line Road has a three-lane cross-section, with two southbound lanes and one northbound lane. The posted speed limit is 60 km/h.

Existing Study Area Intersections

The Trim/H174 was recently 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.

Trim/H174 (realigned – ultimate) 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 has been built on the east leg of the intersection.	
Trim/Jeanne d'Arc (realigned) 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 has a bi-directional cross-ride facility which connects the MUP on the east side of Trim Road to the MUP on the south side of Jeanne d'Arc Blvd.	
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. Bi-directional cross-ride facilities are proposed on the east approach and north approach, connecting the MUP on the south side of Jeanne d'Arc east of Tweddle to the MUP on the north side of Jeanne d'Arc Blvd west of Tweddle Road.	

Tenth Line/Jeanne d'Arc The Tenth Line/Jeanne d'Arc intersection is an unsignalized three-legged all-way stop intersection. The eastbound approach consists of a single through-right turn lane. The westbound approach consists of a left-turn lane and a through lane. The northbound approach consists of a left-turn lane and a right-turn lane. All movements are permitted at this location.	
Tenth Line/St. Joseph The Tenth Line/St. Joseph intersection is a signalized four-legged intersection. All approaches except for the south approach consist of a channelized right-turn lane, a left-turn lane and two through lanes. The south approach consists of a channelized right-turn lane, a left-turn lane and a through-left shared lane, and a single through lane. All movements are permitted at this location.	
Old Tenth Line/St. Joseph The Old Tenth Line/St. Joseph intersection is a signalized four-legged intersection. The north approach is a one-way only off-ramp from H174 and consists of a channelized right-turn lane, a double left-turn lane and two through lanes. The west approach consists of a shared through-right lane and a through lane. The south approach consists of a single left-turn lane and a channelized right-turn lane. The east approach consists of a single left-turn lane and two through lanes. Trucks are not allowed to continue southbound, and pedestrians cannot cross on the east leg. Vehicles are not allowed to turn or continue northbound.	

Existing Driveways to Adjacent Developments

The existing driveways on adjacent roads to the development and within influence as shown in **Figure 3** include:

- Prestige Circle is a public road that provides 6 driveway accesses to Brigil's Petrie's Landing II which consists of approximately 460 residential. This road is approximately 420m west from the site's boundary line.
- Parkrose Private provides access to a small community of approximately 110 row houses. This access is approximately 180m west from the site's boundary line.
- Centre des Métiers Minto College is a technical school with approximately 90 parking spaces. This access is approximately 20m east from the site's boundary line.
- 8865 Jeanne d'Arc Blvd has 8 parking spaces to service the Brigil sale center. This access is approximately 360m east from the site's boundary line.

Figure 3: Existing Driveways Adjacent to Development

Existing Area Traffic Management Measures

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

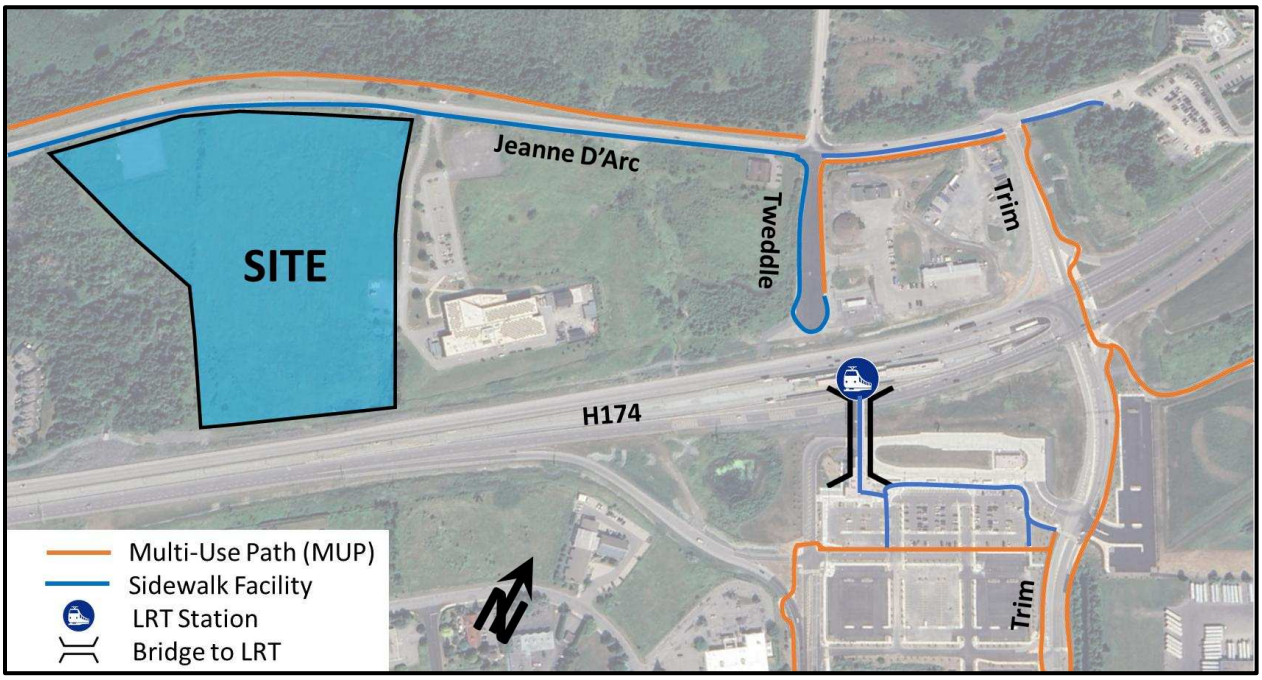
- Red light cameras at Tenth Line/St. Joseph and at Old Tenth Line/St. Joseph
- Two "Prepare to Stop when Flashing" signals on H174, each approximately 600m to the west of Old Trim Road and 600m to the east of Trim Road; and,
- One High Deer Collision Corridor signal on H174 westbound approximately 300m to the west of Old Trim Road.

Pedestrian/Cycling Network

There is 2m sidewalk on the south side of Jeanne d'Arc Blvd and Inlet Private. The north side of Jeanne d'Arc Blvd has a paved, separated 3m multi-use pathway (MUP) which extends from Tweddle Road westward to Tenth Line Road, but no facilities on the north side of Jeanne d'Arc Blvd east of Tweddle Road. 2m Sidewalk facilities are provided on the west side of former Trim Road (now called Tweddle Road) on the north side of H174. South of H174, the east and west sides of former Trim Road have paved multi-use pathways (MUPs).

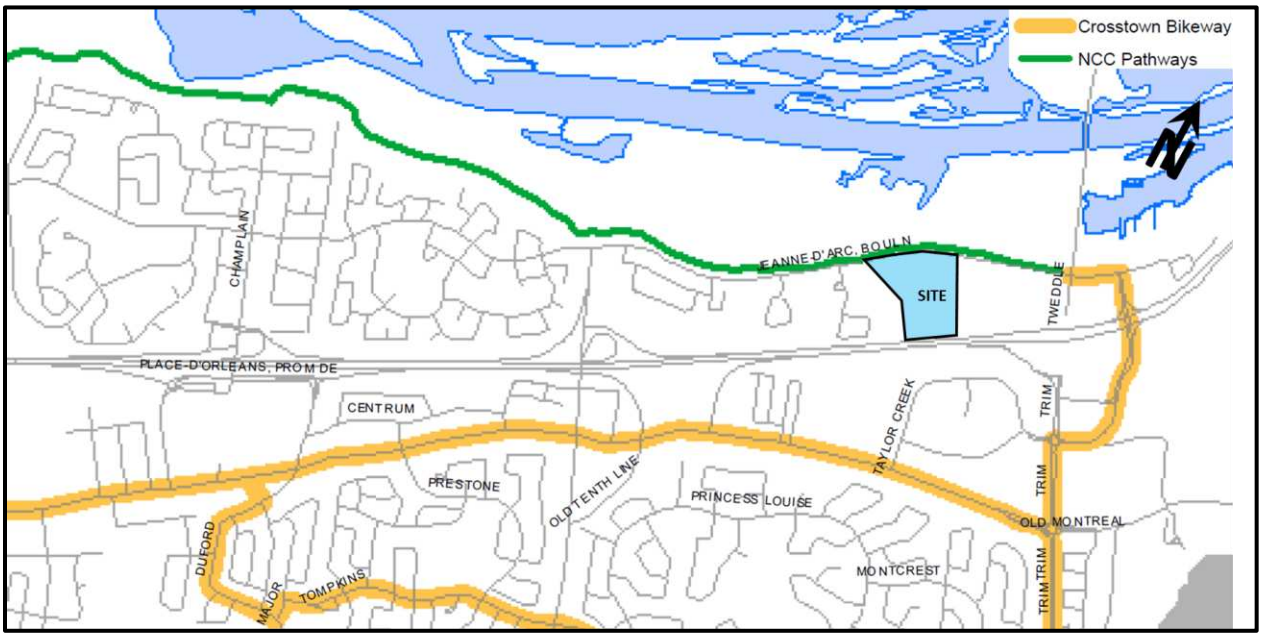
Since the realignment of Trim/H174 intersection new facilities have been incorporated on the realigned Trim Road, including a 3m MUP on the east side from Jeanne d'Arc Blvd to the most southernly point of Trim Road withing the study area. A new 3m MUP on the south side of Jeanne d'Arc Blvd from Trim to Tweddle was recently built. Tenth Line Road, Old Tenth Line Road and St. Joseph Boulevard all have sidewalks on both sides of the road. Relevant sidewalks and Multi-Use Pathways (MUPs) have been illustrated in **Figure 4**.

Figure 4: Existing Sidewalks and MUPs Near the Site



The Crosstown Bikeway Network (March 1, 2023)[2] from the new Transportation Master Plan as shown in **Figure 5**, classifies the realigned Trim Rd and St. Joseph Blvd as a "cross-town bikeway", while the pathway just north of Jeanne d'Arc Blvd is classified as part of NCC pathways. Jeanne d'Arc Blvd west of Tweddle has paved shoulders and a Multi-Use Pathway (MUP) on the north side of the road. The new realigned Trim Road has MUPs on both sides of the road south of H174 and on the east side of the road north of H174. A new MUP has been added to the south side of Jeanne d'Arc Blvd between Tweddle Rd and Trim Rd. St. Joseph Boulevard has bike lanes east of Old Tenth Line Road, originating just east of the eastbound on ramp to beyond Trim Road.

Figure 5: Crosstown Bikeway Network (TMP Phase 1)



[2] Crosstown Bikeway Network, March 1, 2023

Transit Network

The transit network for the study area is illustrated in **Figure 6** with nearby transit stops shows in **Figure 7**. The following OC Transpo routes currently operating within 600m walking distance to the site include:

- **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 #0755 and #0754).

Figure 6: Area Transit Network

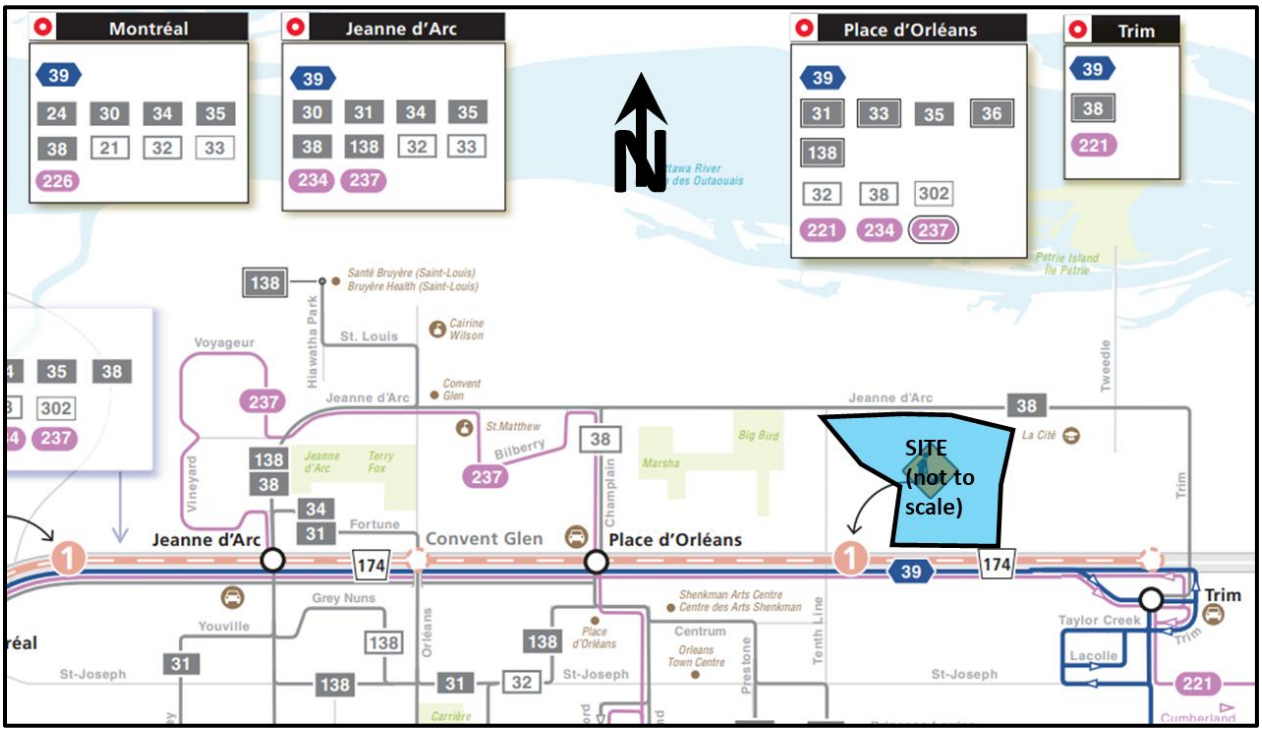
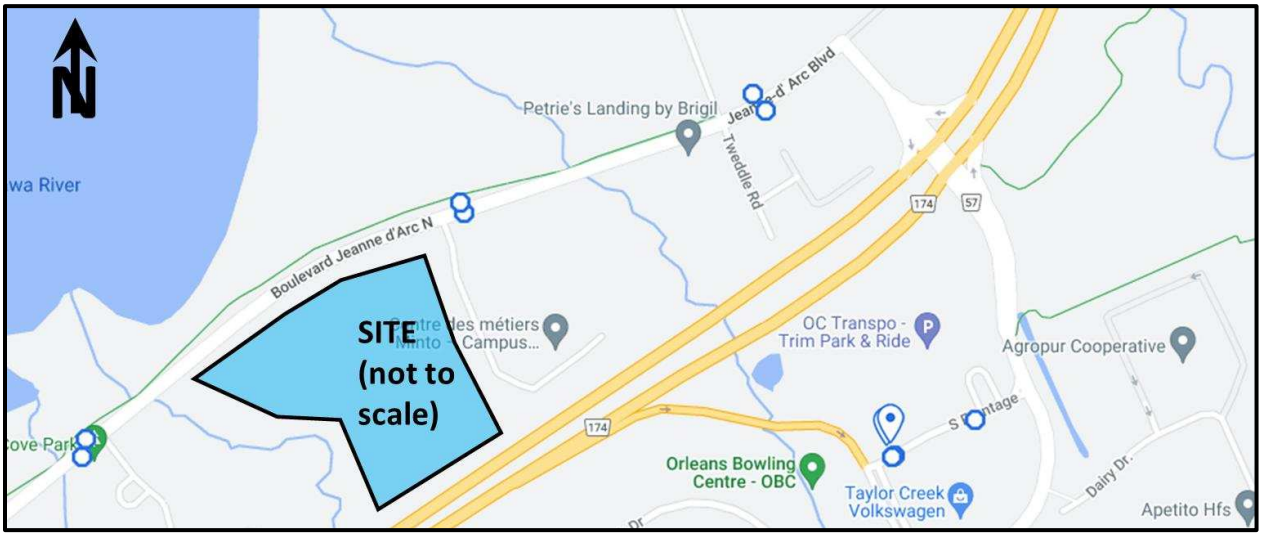


Figure 7: Nearby Transit Stops



Peak Hour Travel Demands

The existing peak hour traffic vehicle and active travel volumes within the study area, as illustrated in **Figure 8** and **Figure 9** respectively, were obtained from the City of Ottawa and counts performed by Parsons. The peak hour traffic volume count data has been provided in **Appendix B**. Note that intersections counted prior to 2024 had additional volumes layered on to reflect trip generations for developments built after their count date. The 2018 count was balanced with the more recent 2024 count on St. Joseph Blvd.

Figure 8: Existing Peak Hour Traffic Volumes

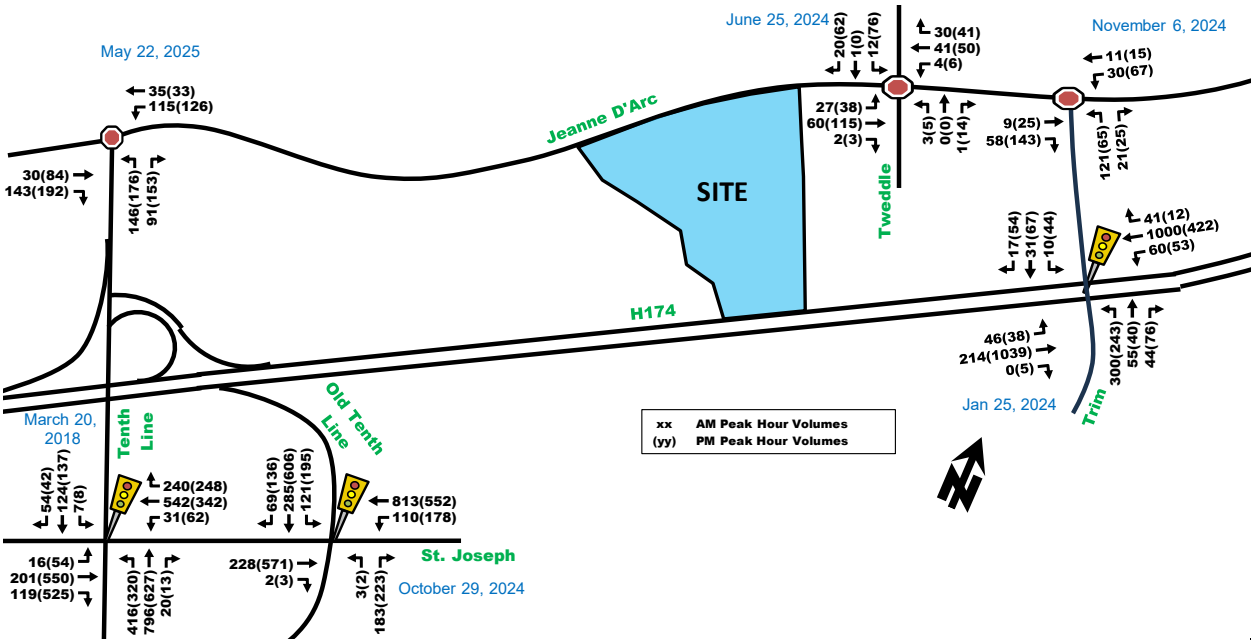
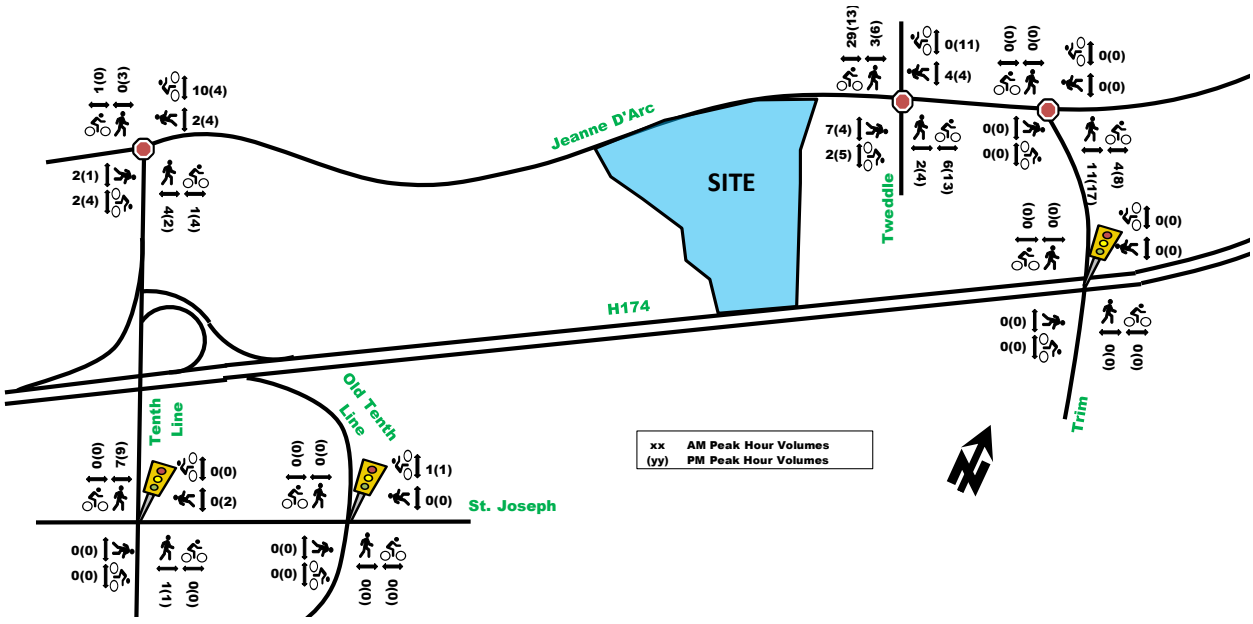


Figure 9: Existing Peak Hour Pedestrian/Cycling Volumes

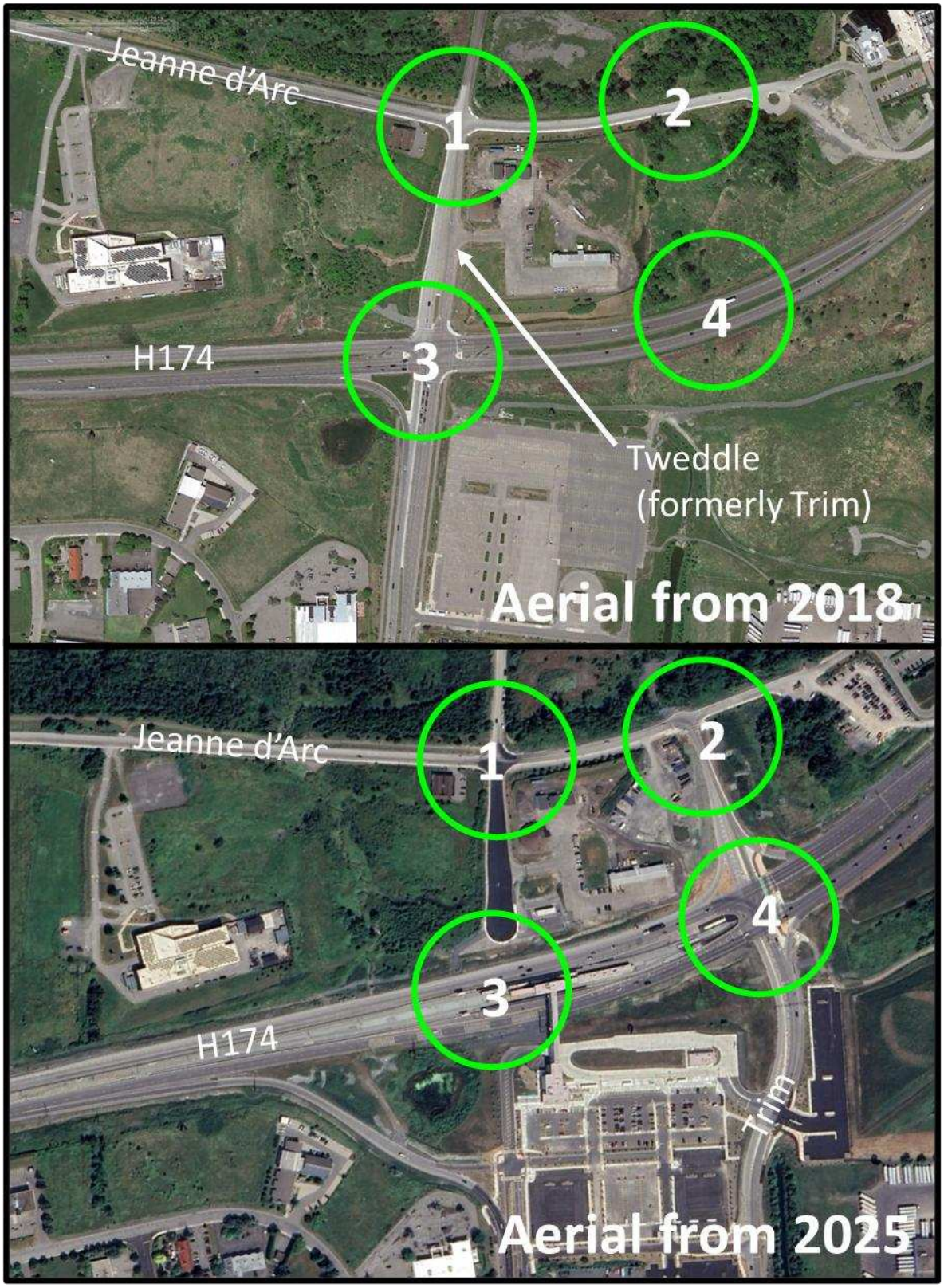


Existing Road Safety Conditions

This section has been updated to include the latest 5 years' worth of collision data (2019-2024, 2023 missing) obtained from the City of Ottawa open data source for all intersections and 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).

Upon analyzing the collision data, the total number of collisions observed within the study area was determined to be 177 collisions within the past five years.

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

Classification of Accident	Angle	Head-On	Other	Rear End	Sideswipe	Single Vehicle	Turning Movement	Unattended Vehicle	Pedestrian	Cyclist	Total	% Total
P.D. only	7	—	—	8	1	4	5	—	—	1	**25**	**14%**
Non-fatal injury	14	2	2	62	30	18	19	1	—	—	**148**	**84%**
Non-reportable	—	—	—	3	1	—	—	—	—	—	**4**	**2%**
Total	**21**	**2**	**2**	**73**	**32**	**22**	**24**	**1**	**—**	**1**	**177**	**100%**
% of Total	**12%**	**1%**	**1%**	**41%**	**18%**	**12%**	**14%**	**1%**	**—**	**1%**	**—**	**—**

Table 3: Summary of Collision Locations and Injury Causing Collisions

Location	# Collisions 2019-2024[2]	% Causing Injury	Collisions with		Most Frequent Type
			Peds	Bikes	
Realigned Trim/H174 Intersection[1]	36	25%	0	0	Rear-end (47%)
St. Joseph/Tenth Line	61	8%	0	0	Rear-end (44%)
Old Tenth Line-OR174/St. Joseph	25	12%	0	0	Turning (28%
Jeanne d'Arc/Tenth Line	6	50%	0	1	Rear-end (50%)
Jeanne d'Arc/Trim	2	50%	0	0	Rear-end, single (50%)

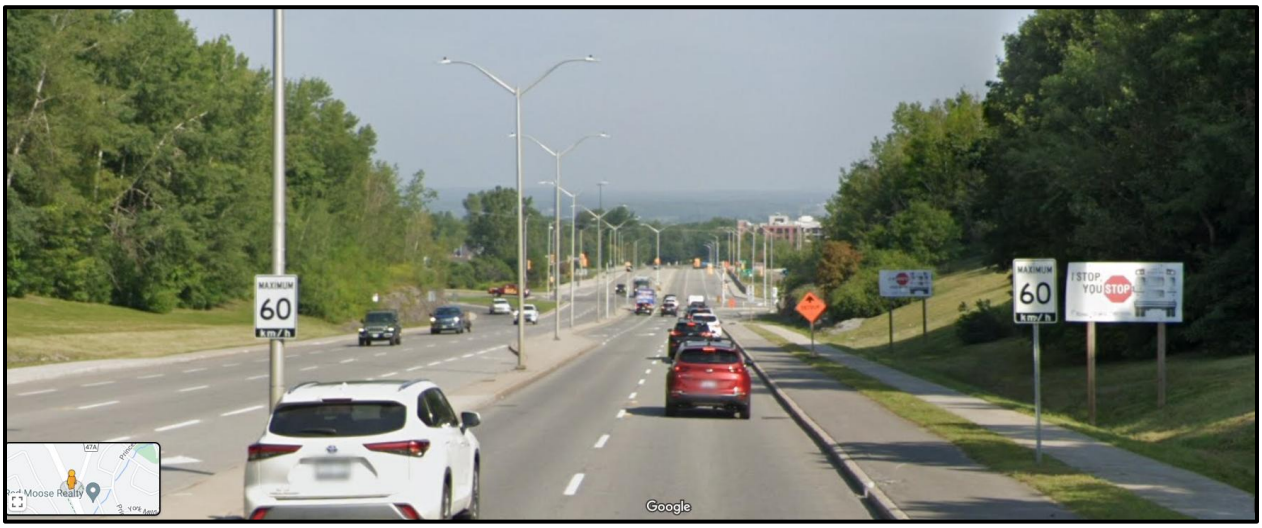
1. Includes years 2021, 2022 and 2024
2. Data excludes the year 2023.

Table 4: Summary of Mid-Block Collisions and Injury Causing Collisions

Midblock Location	# Collisions 2019-2024[3]	Length of Segment	% Causing Injury	# Collisions with AT	Most frequent type of collision and % of total collision at that location
H174 EB to Trim	16	-	6%	0	Sideswipe (38%)
H174 WB to Trim	5	-	0%	0	Other (40%)
H174 to Old Tenth	3	380m	0%	0	Single veh (67%)
Tenth Line	15	1,070m	13%	0	Rear-end (53%)
Trim	2	400m	0%	0	Rear-end, single (50%)
Jeanne d'Arc	2	2,330m	50%	0	Rear-end, single (50%)
St. Joseph	2	810m	0%	0	Sideswipe (100%)
Tweddle	1	160m	0%	0	Head-on (100%)

Upon analyzing the data, the intersection of St. Joseph/Tenth Line had the highest number of collisions, with 61 reported. Of the collisions, 27 or 44% of them were rear ends, 14 or 23% were sideswipe and 12 or 20% were angle, generally resulting in low injury. The heavy northbound movement may have sight line issues caused by grades from the road dropping from the plateau escarpment down to the valley below as shown in **Figure 11**.

Figure 11: Tenth Line Road Looking North Towards Tenth Line/St. Joseph Intersection



The heavy northbound movement and reduced total reaction time available due to grades impeding vision of downstream vehicles which may suddenly stop due to a red light could cause this increased risk of collision at this location. Most collisions, 90% result in property damage only. The City of Ottawa could consider adding an advanced "prepare to stop" flashing beacon upstream of the intersection to warn drivers of upcoming red lights and likely stopped vehicles.

The intersection of H174/Trim also experienced higher collisions relative to other intersections within the study area (based on 3 years' worth of data). A total of 17 or 47% collisions were rear end with low injury rate (only 2), while 10 or 28% resulted from turning movement with 4 resulting in injury and 2 or 6% were angled collisions with both resulting in injury. The angled collisions insinuate that either a north-south vehicle or an east-west vehicle failed to stop at a red light. Due to the high operating speeds of the highway, both collisions resulting in injury is expected.

Similarly, the intersection of Old Tenth Line-H174 Off-Ramp/St. Joseph also experienced angled collisions, with 3 of them (50% of angled collisions) resulting in injury. The most frequent collision type was turning movement with 7 collisions (28%).

The intersection of Jeanne d'Arc/Tenth Line had few collisions reported (approximately 1.2 collisions per year), however one of them involved a cyclist which resulted in injury. This intersection provides a gateway to the Ottawa River Pathway and is expected to have a higher degree of active transportation users.

The mid-block collision analysis showed that most road segments operate well with few collisions reported. Of note, the H174 eastbound mainline noted 16 collisions between Tenth Line and Trim, with most collisions condensed near to the Trim/H174 intersection. A mixture of sideswipe, single vehicle and rear-end collisions was noted (with 6, 5 and 4 collisions respectively). 94% of collisions resulted in property damage only.

Along Tenth Line Rd, there's been 15 recorded collisions, with 8 of them being rear-end between the westbound off-ramp and St. Joseph Blvd and 3 between St. Joseph Blvd and Old Tenth Line Rd. Of the collisions, only 13% resulted in injury.

2.1.3. PLANNED CONDITIONS

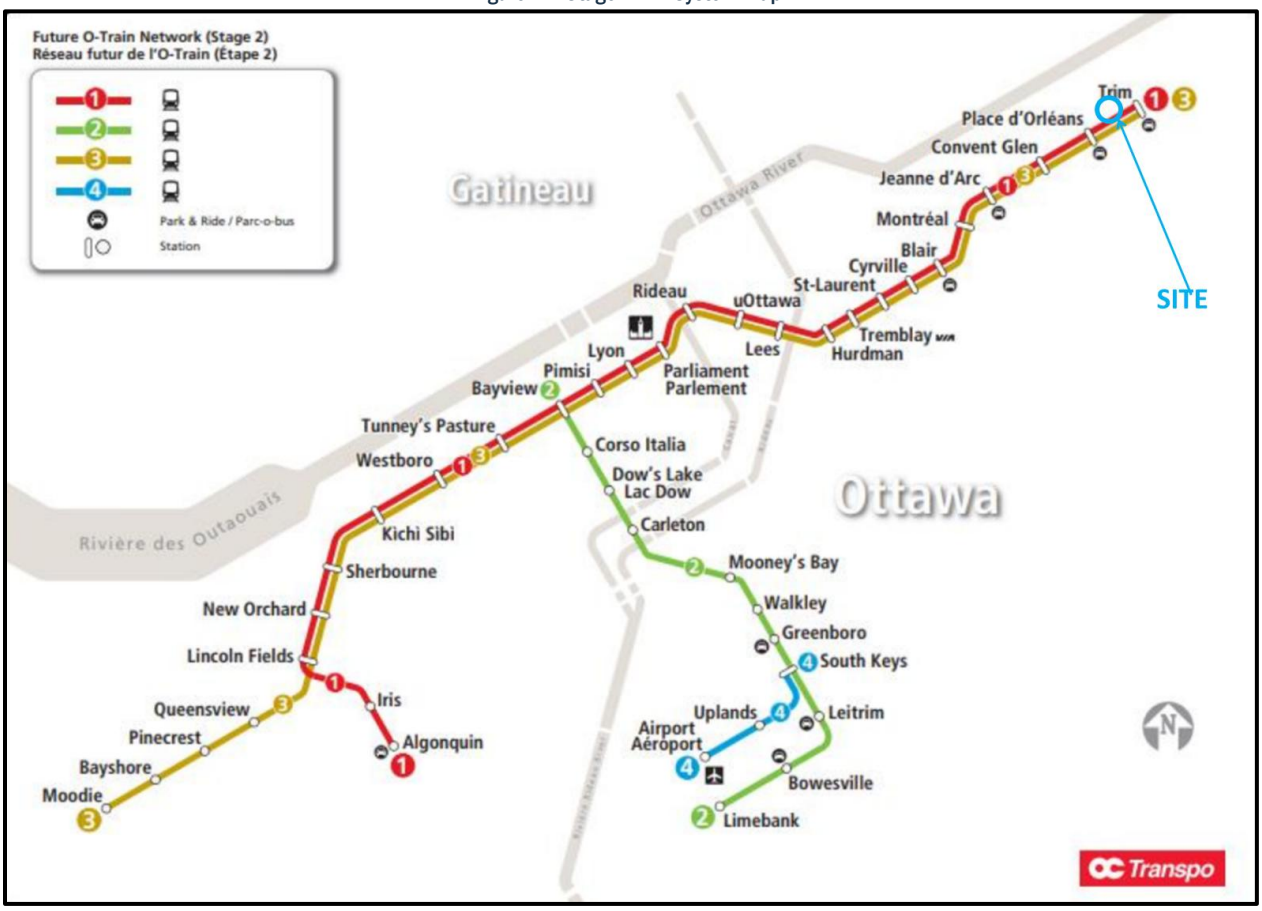
Planned Study Area Transportation Network Changes

Stage 2 LRT (Construction Began 2019)

Stage 2 of the City of Ottawa Light Rapid Transit (LRT) system is currently under construction. Stage 2, as shown in **Figure 12,** is a package of three extensions – south, east and west – totaling 44 km of new rail and

24 new LRT stations. Stage 1, which has been operational since 2019, operates Line 1 and 3 from Tunney's Pasture to Blair Station. The southern extension consisting of Line 2 and 4 has been completed and has been in operation since mid-2025. The eastern extension consisting of the Confederation Line 1 and 3 adjacent to the site is estimated to be completed by 2026. The subject site will be located within 400 to 900m of rapid transit Trim Station if the planned active transportation bridge from the north side of H174 is built, however 1,400 to 1,900m walking distance based on existing pedestrian infrastructure. While the active transportation bridge is planned, there is no funding secured for this project and it is unclear when this connection might be built. The western extension of Lines 1 and 3 west of Tunney's Pasture are forecasted operational by 2028.

Figure 12: Stage 2 LRT System Map



The Trim LRT Station was built at the former H174/Trim at-grade intersection which was relocated approximately 250m east. The new Trim Park n' Ride was modified to include a new bus loop, bus laybys and a bus platform. When the system begins operations in 2026, the station will be accessible via a bridge over H174 which connects to the south side of the highway only. Based on existing conditions, the site is 1,400 to 1,900m walking distance via the at-grade H174/Trim intersection and bridge from the south. As discussed below, there are future plans to provide a new bridge to the north side of H174 which would significantly reduce walking distance from the site to the Trim LRT Station, however its construction timing is unknown.

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 infrastructure to conveniently connect to rapid transit stations.

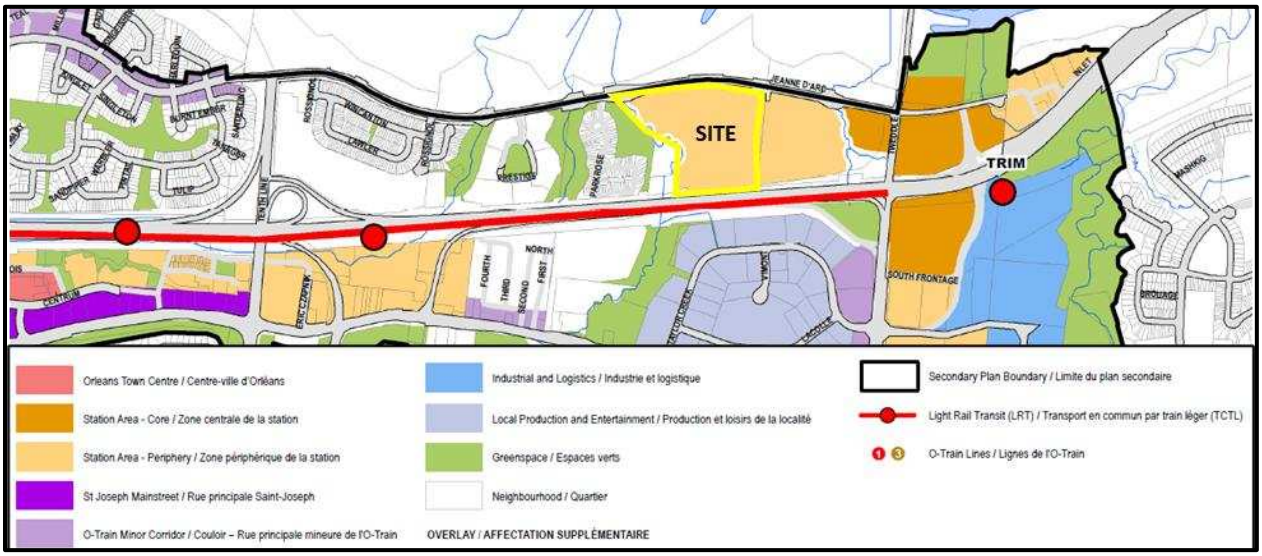
To support this city policy, a direct connection from the LRT Station to the PMTSA designated area north of H174 is critical. The subject site can be within 400 to 900m walking distance to the Trim LRT Station should a

direct connection from the site to the LRT Station via a new bridge be provided. The PMTSA area north of H174 which would benefit from this new bridge connection include approximate 6,000+ units proposed, commercial and office uses and La Cite College (as part of Petrie's Landing I, 1015 Tweddle Rd and this development). Developments within 600 to 800m walking distance to rapid transit are considered Transit Oriented Developments (TOD) and are consistent with developments within a PMTSA designated area.

Orléans Corridor Secondary Plan (Council Approved late 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 corridor connectivity. Based on **Figure 13**, the site is located within the "Station Area – Periphery" designation which allows higher densities for developments located within walkable distances to major rapid transit stations. It is noteworthy that the Secondary Plan is currently undergoing an appeal process.

Figure 13: Orléans Corridor Secondary Plan – Schedule A: Designation Plan



Policy 28 within the Orléans Corridor Secondary Plan states:

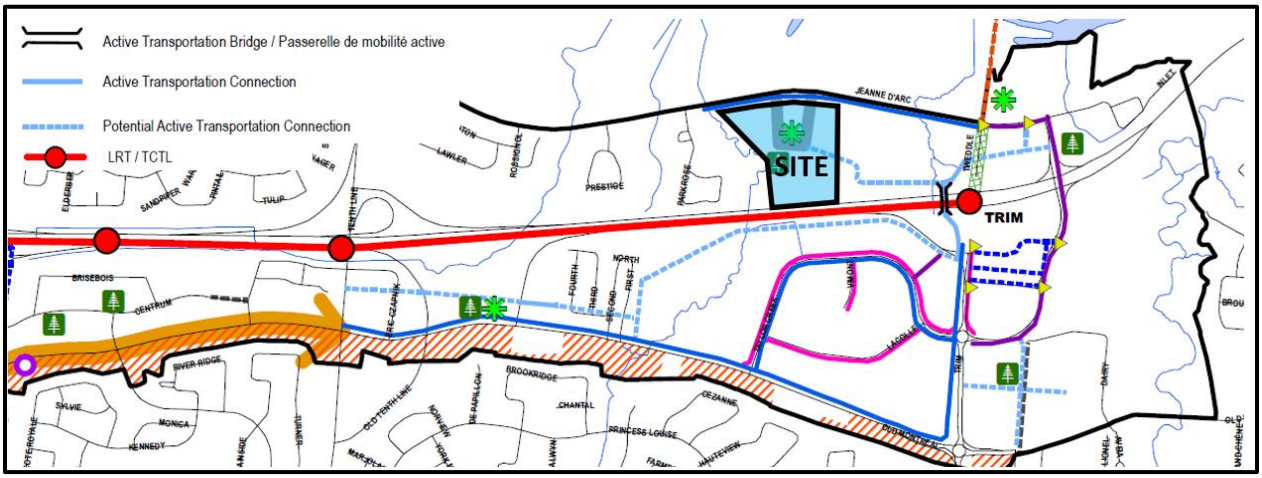
"A multi-use pathway (MUP) will be constructed to link Tweddle Road, connecting the future active transportation bridge to the future street network in the master planned development site at 8600 Jeanne d'Arc Blvd. The pathway will cross the watercourse west of Tweddle Road, utilize the Highway 174 right-of-way, and may traverse the Collège La Cité campus, linking the station with both the campus, and the future street network of the master planned development. The MUP will be designed, funded, and constructed by the proponent of the master planned development at 8600 Jeanne d'Arc Blvd, as a condition of development approval and completed prior to occupancy of the first phase"[3]

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 1,400m to 1,900m via the Trim/H174 intersection to 400 to 900m walk from all locations within site. The City of Ottawa is currently working on the detailed design of the bridge, expected to be completed in late 2026 and the proponent is undertaking a study to provide a connection from this site to the future bridge via a new MUP as per the Orléans Corridor Secondary Plan. However, as previously mentioned, the city has not secured funding to construct this bridge and when this bridge will be built is unclear.

[3] https://pub-ottawa.escribemeetings.com/filestream.ashx?DocumentId=94222

Figure 14 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.

Figure 14: Orléans Corridor Secondary Plan – Schedule C Mobility Improvements



Transportation Master Plan – (Phase 1 Approved in 2024, Phase 2 Approved July 2025)

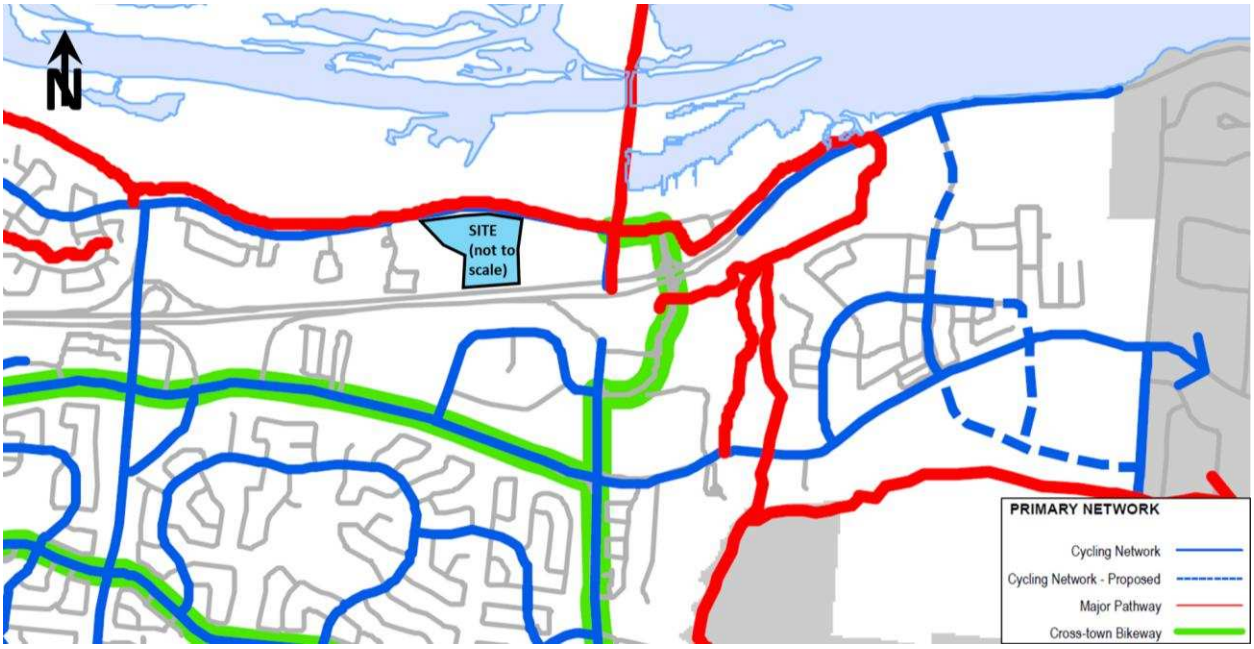
Phase 1 of the TMP placed a large focus on amplifying density near rapid transit stations and creating a focus on 15-minute neighbourhoods. To support this policy, the TMP has illustrated the future bridge connection over H174 near to the Trim LRT Station within the "Active Transportation Major Structures". The 'Cycling Priority Network' as part of Phase 2 of the TMP highlights the active transportation bridge proposed just west of Tweddle Rd over H174 as being within priority projects. The TMP Table A1 states *"pedestrian and cycling crossing from Trim O-Train Station to the north side of OR174"*.

It is understood that the city has identified the need for an active transportation bridge crossing H174 that will provide connectivity to the Trim LRT Station, located approximately 35m west of Tweddle Rd. The detailed design for this bridge is in progress at the time of this report, however, funding has not been secured, and the estimated time for implementation is still uncertain. This bridge is a critical piece of infrastructure to support future development north of Highway 174; its absence would result in approximately 400m – 600m of added walking distance for all residents north of the highway to access the LRT Station.

The 'Priority Transit Network' and the 'Priority Road Network', both approved in July 2025, do not propose any new facilities within the study area, Trim Rd is proposed as a transit priority corridor south of H174.

Within the July 2025 approved "Cycling Network" as part of TMP update, Tweddle Rd and the Ottawa River Pathway located just north of Jeanne d'Arc Blvd are classified as a 'major pathway'. This pathway is proposed to continue on the south side of Jeanne d'Arc Blvd east of Trim Rd, extending between Brigil Petrie's Landing I development and H174 towards the Cardinal Creek pathways. The MUP facilities on Trim Rd which are part of the Crosstown Bikeway Network have been finalized and are operational. **Figure 15** depicts the existing and future network.

Figure 15: Existing and Future "Cycling Network"



Source: Transportation Master Plan, Map D1.

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 1km radius of the subject site. **Figure 16** illustrates the location and relative size of relevant other area developments while **Table 5** provides a description.

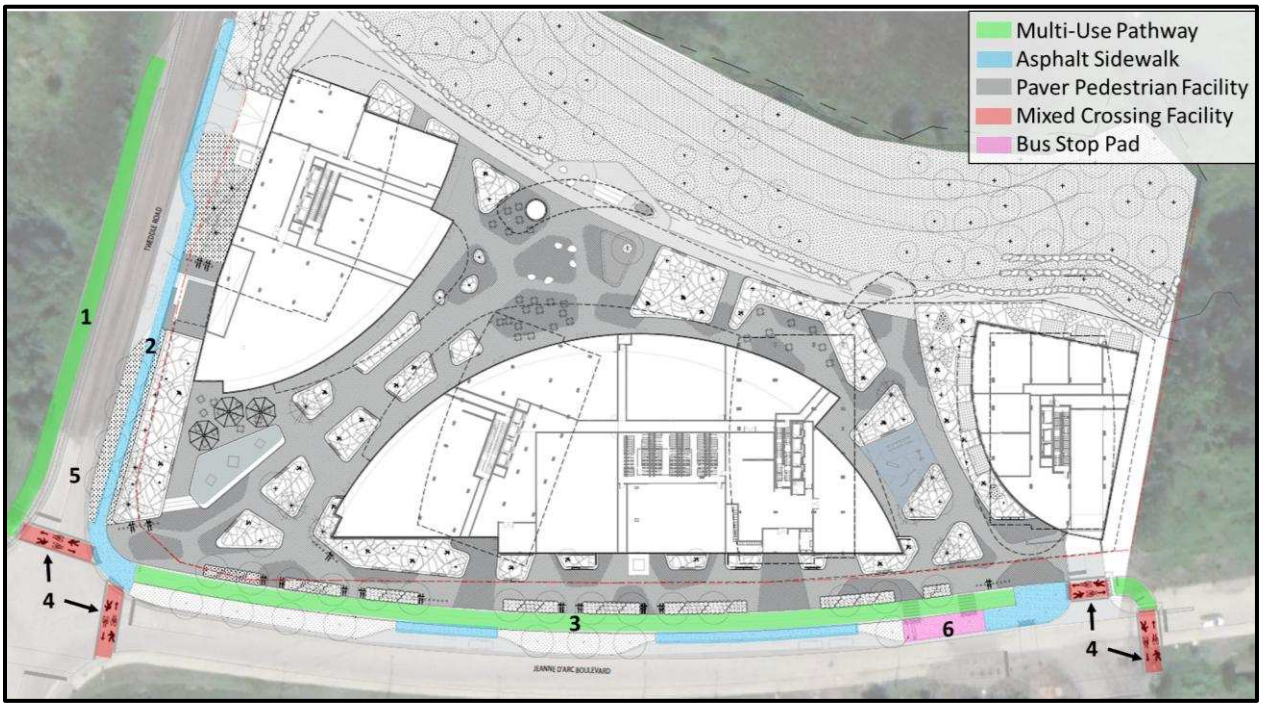
Figure 16: Other Area Developments

Table 5: Other Area Developments

# on Figure	Municipal Address	Proposed Development	Two-Way Peak Hour Vehicle Trips	Additional Notes
1	Petrie's Landing I (8900 Jeanne d'Arc)	1,320 residential units within 6 towers, plus ground floor retail	300 AM, 270 PM	Four towers already built, though only 3 captured within counts. Net forecasted trips remaining will be layered.
2	Petrie's Landing II (Prestige Circle)	460 residential units within 8 blocks.	155 AM, 130 PM	Blocks 1-7 captured within existing counts. Block 8 volumes layered on to background volumes.
3	1015 Tweddle	1,260 residential units within 4 towers plus 26,000 ft² commercial	145 AM, 140 PM	Construction has not started. This development will be added to background traffic volumes.
4	Cardinal Creek (Tamarack Homes)	1,446-unit subdivision with 430,000 ft² shopping	1,460 AM, 2,619 PM	About a third of this developed has been built and has been captured within background volumes. Net forecasted trips remaining will be layered.
5	Phoenix Homes	483-unit subdivision	250 AM, 295 PM	Construction has not started. This development will be added to background traffic volumes.
6	Hillside Commons	274 residential units within a 9-storey building	60 AM, 60 PM	Construction has not started. This development will be added to background traffic volumes.
7	265 Centrum	1,127 residential units within 3 towers, plus ground floor retail	545 AM, 555 PM	Construction has not started. This development will be added to background traffic volumes.

It is noteworthy that the development at 1015 Tweddle Rd proposed roadway modifications to the intersections of Tweddle/Jeanne d'Arc and Trim/Jeanne d'Arc. **Figure 17** illustrates the proposed roadway modifications, including the addition of a new MUP on the west side of Tweddle Rd and a new MUP on the north side of Jeanne d'Arc Blvd fronting the site shown as #1 and #3 below. The site plan also proposes new bus stops (#6), new sidewalks (#2) and new mixed crossing facilities (#4). Additionally, they propose softening the grades on Tweddle Rd from existing 7-9% grades to 5%, thus meeting AODA standards (#5).

Figure 17: 1015 Tweddle Rd Proposed Road Modifications Fronting that Site



2.2. Study Area and Time Periods

Full buildout of the proposed residential development is envisioned well beyond 2030. For the purpose of this analysis, it will be assumed that the development will be complete by 2035, using the weekday morning and afternoon peak hour time periods.

Proposed study area intersections and boundary roads are outlined below and highlighted in **Figure 18**.

- Trim/H174 intersection;
- Trim/Jeanne d'Arc intersection;
- Tweddle/Jeanne d'Arc intersection;
- Tenth Line/Jeanne d'Arc;
- Tenth Line/St. Joseph intersection;
- Old Tenth Line/St. Joseph intersection; and,
- Along Jeanne d'Arc Blvd adjacent to the site.

Figure 18: Study Area Boundaries and Intersections

2.3. Exemption Review

Table 6 below summarizes the modules/elements of the TIA process which 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 6: Exemptions Review Summary

Module	Element	Exemption Consideration
4.1 Development Design	4.1.2 Circulation and Access	Only required for Site Plan Application (SPA)
4.2 Parking	All Elements	Only required for SPA. The parking is expected to meet By-Law requirements once a Site Plan Application (SPA) is submitted

3. Forecasting Report

3.1. Development-Generated Travel Demand

As requested by City of Ottawa staff, for the purpose of this assessment to be consistent with city policy including the Official Plan, the Orléans Corridor Secondary Plan and the Transportation Master Plan, but also acknowledging the importance and uncertainty regarding the future construction of the H174 pedestrian bridge to the Trim LRT Station, two scenarios will be assessed:

1. A scenario assuming status quo, where existing facilities to get to the LRT are required, resulting in a walking distance of 1,400 to 1,900m from the LRT Station
2. A scenario assuming a direct connection to LRT is provided via a new active transportation bridge, resulting in a walking distance of 400 to 900m from the LRT Station

Each scenario will have a different trip generation and mode share assumptions, which will result in different road network implications. Scenario 1 is the more conservative scenario where there the pedestrian bridge is not completed by full buildout of the subject site, resulting in higher auto-driver and auto-passenger mode shares that will increase operational stress in the road network. Scenario 2 is the optimal outcome where the pedestrian bridge is constructed by full buildout of the subject site, resulting in greater transit use and lower operational stress in the road network.

3.1.1. TRIP GENERATION AND MODE SHARES

The latest plan of subdivision proposes 3,022 units, however, for this trip generation analysis, 3,200 units will be used to show a higher unit potential consistent with previous plans and submissions.

Trip generation rates for proposed residential units, envisioned within twelve buildings, were based on the City's 2020 TRANS Trip Generation Manual. The trip generation rates for proposed commercial and office uses were based on the ITE's Trip Generation Manual 11th Edition. These rates have been summarized in **Table 7**.

Each phase will be analyzed individually through their Site Plan Application (SPA) submissions, however for this ZBLA and OPA submission, only the most critical ultimate buildout scenario will be analyzed.

Table 7: 2020 TRANS Residential Trip Generation Rates & ITE Commercial/Office Rates

Land Use	Data Source	Units or Size	Trip Rates	
			AM Peak	PM Peak
High Rise Apartments	TRANS 2020	3,200 units	T = 0.80(du)	T = 0.90(du)
Shopping Center (>150K ft²)	ITE 820	165,000 ft²	T = 0.84(x)	T = 3.40(x)
General Office	ITE 710	110,000 ft²	T = 0.86Ln(x) + 1.16	T = 0.83Ln(x) + 1.29
Note: T = Average Vehicle Trip Ends; du = dwelling units; x = GFA in 1,000 ft²; average rate equation was used for commercial				

ITE derives its trip generation rates based on empirical data from various sites observed. Shopping centers are normally large stand-alone isolated buildings in major arterial nodes with regional attractions (i.e. malls), which does not meet the developments site context with small dispersed commercial uses within the twelve buildings and accessed by an isolated arterial route.

Similarly, office land-uses generally comprise large complexes, with office-only uses such as the office buildings downtown or Tunney's Pasture Complex as an example. In this development context, the scale of office space is much smaller and is not expected to attract as many regional trips and will have a higher local draw. Therefore, the commercial and office people trips were reduced by 40% and 10% respectively was deemed appropriate. Note that further discussion regarding pass-by trips and internal reduction have been provided in following "Other Assumptions" below and **Table 12**.

Using the TRANS Trip Generation rates, the total amount of person trips generated by the upper limit of 3,200 residential units was calculated. Similarly, using the ITE trip rates, commercial and office vehicle trip generation rates were converted to modified person trips by multiplying them by 1.28 to account for typical North American auto occupancy, transit use and non-motorized mode. This modified person trip was then multiplied by the respective land use size to obtain a person trip. The resultant people trip generation per land use are summarized in **Table 8**.

Table 8: Projected Peak Period Person Trip Generation – TRANS Model 2020 & ITE

Land Use	Land Use Size	AM Peak Period Person Trips	PM Peak Period Person Trips
Twelve Residential Buildings	3,200 units	**2,560**	**2,880**
Commercial Uses	165,000 ft²	*177*	*718*
Commercial Uses 40% Reduction		**106**	**431**
Office Uses	110,000 ft²	*233*	*230*
Office Uses 10% Reduction		**209**	**207**

The projected site peak period person trips for residential uses were then divided based on the mode shares for Orléans according to TRANS 2020 table 5, as summarized in **Table 9**.

Table 9: 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%	1,386	61%	1,743
Auto Passenger	7%	182	13%	363
Transit	29%	734	21%	604
Cycling	0%	0	0%	0
Walking	10%	258	6%	170
Total Person Trips	100%	2,560	100%	2,880

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 10**. Note that conversion factors for passenger trips are assumed to be the same as auto driver.

Table 10: Peak Period to Peak Hour Conversion Factor (2020 TRANS Manual - Residential)

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 10**, the derived peak period trips by mode shares for Orléans, 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 11**.

Table 11: 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%	194	432	626	61%	418	303	721
Auto Passenger	7%	25	57	82	13%	87	63	150
Transit	29%	118	262	379	21%	155	112	267
Cycling	0%	0	0	0	0%	0	0	0
Walking	10%	44	97	141	6%	48	35	83
Total Person Trips	100%	381	847	1,228	100%	708	513	1,221
Total 'New' Residential Auto Trips		**194**	**432**	**626**	-	**418**	**303**	**721**

Mode Share Assumptions:

As previously discussed, two scenarios were developed to identify road network implications with and without the proposed pedestrian bridge by full buildout of the subject site. The specific mode share rationale for each scenario is provided below.

Scenario 1 – The bridge over H174 gets built after this development: this scenario would require transit users either take existing transit route #38 to connect to the LRT Station or walk a relatively far distance. This scenario will also be applicable (on a far more conservative basis) if a direct portal to the LRT Station is not provided, requiring transit users to cross from the north side of the highway to the south side of the highway, go down to grade level, turn back around and go up to a new bridge to cross half of the highway to the LRT Station located within the highway median. This scenario would require transit users to walk approximately 1,400m to 1,900m to get to the LRT Station based on where from the site they are coming from. This distance exceeds the typical transit-oriented development (TOD) threshold and is therefore proposed to use mode shares which focuses heavier on single driver mode shares versus transit reliance. Note that this also impacts potential retail and office trips to and from the site.

Scenario 2 – The bridge over H174 is provided and has a direct connection to the LRT Station: this scenario would reduce the walking distance to the LRT Station by over a kilometer for existing conditions and up to 400m shorter walking distance should a bridge with an indirect LRT station portal be built. The total distance from anywhere within the site to the LRT Station would then be reduced to approximately 400 to 900m, resulting in a far more convenient connection between the site and transit. Under this scenario, it is forecasted that a larger proportion of trips to and from the site will rely on the conveniently accessible LRT system. Those located furthest from the LRT Station (northwest quadrant) could be served by bus route #38 which connects to the LRT Station. Note that the highest density and height buildings are proposed closest to the MUP and LRT Station.

The proposed mode shares for each land use have been summarized in **Table 12**.

Table 12: TRANS and Proposed Mode Shares for Each Land Use

Land Use	Travel Mode	TRANS Mode Share		Proposed Mode Share S1	Proposed Mode Share S2	Proposed Modal Share Rationale
		AM	PM	AM & PM	AM & PM	
Residential	Auto Driver	54%	61%	65%	40%	For S2, the site will be within 400 to 900m walk to high quality transit (LRT) with the proposed new MUP and active transportation bridge over H174. A large shift from driving alone to transit is anticipated. The site is located near MUPs and cycling trails which may promote cycling for those who commute within Orleans. Walking trips may be a little far removed for major destinations. S1 maintains TRANS mode shares.
	Auto Pass.	7%	13%	15%	10%	
	Transit	29%	21%	15%	45%	
	Cycling	0%	0%	3%	3%	
	Walking	10%	6%	2%	2%	
Commercial	Auto Driver	77%	71%	70%	55%	This development is not located adjacent to a major commuter arterial road. It is unlikely that people will significantly divert their driving trips to this location. Currently, there are over 10,000 residential units built or proposed within a 1km radius, with Petrie's Landing I, II and III, 1015 Tweddle, etc., which would attract some active transportation trips.
	Auto Pass.	14%	20%	13%	8%	
	Transit	3%	2%	10%	30%	
	Cycling	0%	1%	2%	2%	
	Walking	6%	5%	5%	5%	
Office	Auto Driver	71%	71%	65%	50%	For S2, the site will be within 400 to 900m walk to high quality transit (LRT) with the proposed new MUP and active transportation bridge over H174. A large shift from driving alone to transit is anticipated. The site is located near MUPs and cycling trails which may attract some trips from within Orleans. Some residents from nearby high-density developments may walk to an office space at the site.
	Auto Pass.	6%	6%	13%	8%	
	Transit	13%	13%	15%	35%	
	Cycling	1%	1%	2%	2%	
	Walking	8%	8%	5%	5%	

Other Assumptions:

Given the mix of land uses proposed onsite, an internal reduction rate was also applied 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 local resident shopping within the development prior to travelling to work. These trips may be reduced to eliminate potentially 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 use. Pass-by trips are intermediate trips along the original route between the primary origin and destination, such as a trip to retail within this site between an origin and destination trip that is not within this site. These are not considered 'new' trips, but trips already exist on the network. **Appendix E** of the ITE Trip Generation Manual 3rd edition was used to determine pass-by rates. Pass-by trips were calculated after the internal reduction factor was applied. Note that a slightly lower than recommended pass-by trip for commercial uses was used given that Jeanne d'Arc Blvd adjacent to the site does not provide direct connectivity serving large communities and overall traffic volumes on Jeanne d'Arc Blvd are low, providing a low pool of vehicles which may produce a pass-by trip.

Trip Generation for Scenario 1 (S1) – No Pedestrian Bridge

The lack of a pedestrian bridge to the LRT Station will reduce transit mode share, with more people opting to drive instead. The S1 mode shares are shown in **Table 12**. The people trips from **Table 8** and **Table 11** for commercial/office and residential respectively were then distributed based on these mode shares to produce the forecasted trips generated by each mode share. **Table 13**, **Table 14** and **Table 15** summarize the forecasted trips generated for each land use.

Table 13: Residential Peak Hour Trips Generated – Scenario 1

Travel Mode	Mode Share	AM Peak Hour (Trips/hr)			PM Peak Hour (Trips/hr)		
		In	Out	Total	In	Out	Total
Auto Driver		259	576	835	447	327	773
Pre-Internal Reduction	65%	*263*	*586*	*849*	*490*	*355*	*844*
Vehicles Reduced		*-4*	*-10*	*-14*	*-43*	*-28*	*-71*
Auto Passenger	15%	61	135	196	113	82	195
Transit	15%	61	135	196	113	82	195
Cycling	3%	12	27	39	23	16	39
Walking	2%	8	18	26	15	11	26
Total Person Trips	100%	401	891	1292	710	518	1228
Total 'New' Residential Auto Trips		**259**	**576**	**835**	**447**	**327**	**773**

Table 14: Shopping Center Peak Hour Trips Generated – Scenario 1

Travel Mode	Mode Share	AM Peak Hour (Trips/hr)			PM Peak Hour (Trips/hr)		
		In	Out	Total	In	Out	Total
Auto Driver		35	20	55	118	114	232
Pre-Internal Reduction	70%	*46*	*29*	*75*	*145*	*158*	*303*
Vehicles Reduced		*-11*	*-9*	*-20*	*-27*	*-44*	*-71*
Auto Passenger	13%	9	6	15	27	30	57
Transit	10%	6	4	10	20	22	42
Cycling	2%	1	1	2	5	5	10
Walking	5%	3	1	4	9	10	19
Total Person Trips	100%	54	32	86	179	181	360
Less Pass-by 0% AM (25% PM)		0	0	0	-29	-29	-58
Total 'New' Shopping Center Auto Trips		**35**	**20**	**55**	**89**	**85**	**174**

Table 15: General Office Peak Hour Trips Generated – Scenario 1

Travel Mode	Mode Share	AM Peak Hour (Trips/hr)			PM Peak Hour (Trips/hr)		
		In	Out	Total	In	Out	Total
Auto Driver	65%	110	12	122	7	98	105
Pre-Internal Reduction		*119*	*17*	*136*	*23*	*112*	*135*
Vehicles Reduced		*-9*	*-5*	*-14*	*-16*	*-14*	*-30*
Auto Passenger	13%	24	4	28	5	23	28
Transit	15%	28	4	32	5	25	30
Cycling	2%	6	1	7	1	6	7
Walking	5%	6	1	7	1	6	7
Total Person Trips	100%	174	22	196	19	158	177
Less Pass-by 0% AM (0% PM)		0	0	0	0	0	0
Total 'New' General Office Auto Trips		**110**	**12**	**122**	**7**	**98**	**105**

The total trip generation by mode shares for all land uses combined (summing **Table 13**, **Table 14** and **Figure 13**) has been provided in **Table 16**.

Table 16: Total Combined Trip Generation – Scenario 1

Travel Mode	AM Peak Hour (Trips/hr)			PM Peak Hour (Trips/hr)		
	In	Out	Total	In	Out	Total
Auto Driver	404	608	1,012	572	539	1,110
Pre-Internal Reduction	*428*	*632*	*1,060*	*658*	*625*	*1,282*
Vehicles Reduced	*-24*	*-24*	*-48*	*-86*	*-86*	*-172*
Auto Passenger	94	145	239	145	135	280
Transit	95	143	238	138	129	267
Cycling	19	29	48	29	27	56
Walking	17	20	37	25	27	52
Total Person Trips	629	945	1,574	908	857	1,765
Less Pass-by AM (PM)	0	0	0	-29	-29	-58
Total 'New' Combined Auto Trips	**404**	**608**	**1,012**	**543**	**510**	**1,052**

Without a pedestrian bridge, the forecasted vehicular volumes are roughly 1,000 during the morning and afternoon peak hours.

Trip Generation for Scenario 2 – With Pedestrian Bridge

This scenario assumes that a bridge over H174 provides a direct connection to the Trim LRT Station, resulting in shorter distance walked to transit and direct access to the LRT platform. In this scenario, residents will have better access to transit. The people trips from **Table 11** were therefore modified with the mode shares proposed in **Table 12** to produce new modified residential trips by mode shares as shown in **Table 17**. Similarly, the mode shares from **Table 12** were used to derive the new commercial and office trips generated.

Table 17: Residential Peak Hour Trips Generated – Scenario 2

Travel Mode	Mode Share AM & PM	AM Peak Hour (Trips/hr)			PM Peak Hour (Trips/hr)		
		In	Out	Total	In	Out	Total
Auto Driver	40%	159	353	512	267	198	466
Pre-Internal Reduction		*162*	*360*	*522*	*301*	*218*	*520*
Vehicles Reduced		*-3*	*-7*	*-10*	*-34*	*-20*	*-54*
Auto Passenger	10%	40	90	131	75	55	130
Transit	45%	182	405	588	339	245	585
Cycling	3%	12	27	39	23	16	39
Walking	2%	8	18	26	15	11	26
Total Person Trips	100%	402	894	1296	719	526	1245
Total 'New' Residential Auto Trips		**159**	**353**	**512**	**267**	**198**	**466**

Table 18: Shopping Center Peak Hour Trips Generated – Proposed Mode Shares

Travel Mode	Mode Share	AM Peak Hour (Trips/hr)			PM Peak Hour (Trips/hr)		
		In	Out	Total	In	Out	Total
Auto Driver	55%	28	16	44	94	90	184
Pre-Internal Reduction		*36*	*23*	*59*	*114*	*124*	*238*
Vehicles Reduced		*-8*	*-7*	*-15*	*-20*	*-34*	*-54*
Auto Passenger	8%	6	4	10	17	18	35
Transit	30%	19	12	31	61	68	129
Cycling	2%	1	1	2	4	4	8
Walking	5%	3	1	4	10	11	21
Total Person Trips	100%	57	34	91	186	191	377
Less Pass-by 0% AM (25% PM)		0	0	0	-23	-23	-46
Total 'New' Shopping Center Auto Trips		**28**	**16**	**44**	**71**	**67**	**138**

Table 19: General Office Peak Hour Trips Generated – Proposed Mode Shares

Travel Mode	Mode Share	AM Peak Hour (Trips/hr)			PM Peak Hour (Trips/hr)		
		In	Out	Total	In	Out	Total
Auto Driver	50%	85	9	94	7	75	82
Pre-Internal Reduction		*92*	*13*	*105*	*18*	*86*	*104*
Vehicles Reduced		*-7*	*-4*	*-11*	*-11*	*-11*	*-22*
Auto Passenger	8%	15	3	18	3	14	17
Transit	35%	64	9	73	12	60	72
Cycling	2%	3	0	4	1	3	4
Walking	5%	9	1	9	1	9	10
Total Person Trips	100%	176	22	198	24	161	185
Less Pass-by 0% AM (0% PM)		0	0	0	0	0	0
Total 'New' General Office Auto Trips		**85**	**9**	**94**	**7**	**75**	**82**

The combined trips generated at full buildout using the proposed mode shares, assuming direct connectivity to LRT via a new MUP and active transportation bridge over H174 can be found on **Table 20**.

Table 20: Total Combined Trips Generated – Scenario 2

Travel Mode	AM Peak Hour (Trips/hr)			PM Peak Hour (Trips/hr)		
	In	Out	Total	In	Out	Total
Auto Driver	272	378	650	368	363	732
Pre-Internal Reduction	*290*	*396*	*686*	*433*	*428*	*862*
Vehicles Reduced	*-18*	*-18*	*-36*	*-65*	*-65*	*-130*
Auto Passenger	61	97	159	95	87	182
Transit	265	426	692	412	373	786
Cycling	16	28	45	28	23	51
Walking	20	20	39	26	31	57
Total Person Trips	635	950	1,585	929	878	1,807
Less Pass-by AM (PM)	0	0	0	-23	-23	-46
Total 'New' Combined Auto Trips	**272**	**378**	**650**	**345**	**340**	**686**

As shown in **Table 20,** should a pedestrian and cyclist connectivity plus a bridge directly to the Trim LRT Station be provided, reducing walking distances to approximately 400 to 900m to the LRT Station, then the proposed site is projected to generate approximately 650 to 685 new auto-trips per hour during the weekday commuter peak hours if the proposed twelve buildings with ground retail and office uses were built.

The increase in two-way transit trips is estimated to be approximately 690 to 785 persons per hour, and the increase in walk/cycling trips is approximately 85 to 110 persons per hour during the peak hours.

3.1.2. TRIP DISTRIBUTION

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 19**.

Figure 19: Site Generated Traffic Percent Distribution

3.1.3. TRIP ASSIGNMENT

As discussed in **Section 3.1.1**, two unique scenarios will be tested within this TIA as follows:

- Scenario 1 assuming a bridge over H174 is built but without direct connection to the Trim LRT Station or built after buildout of this development, with future forecasted site generated volumes shown in **Figure 20**.
- Scenario 2 assuming a bridge over H174 is built with direct connection to the Trim LRT Station, with future forecasted site generated volumes shown in **Figure 21**.

Figure 20: 'New' Site-Generated Traffic – Scenario 1 without Direct Connection to LRT

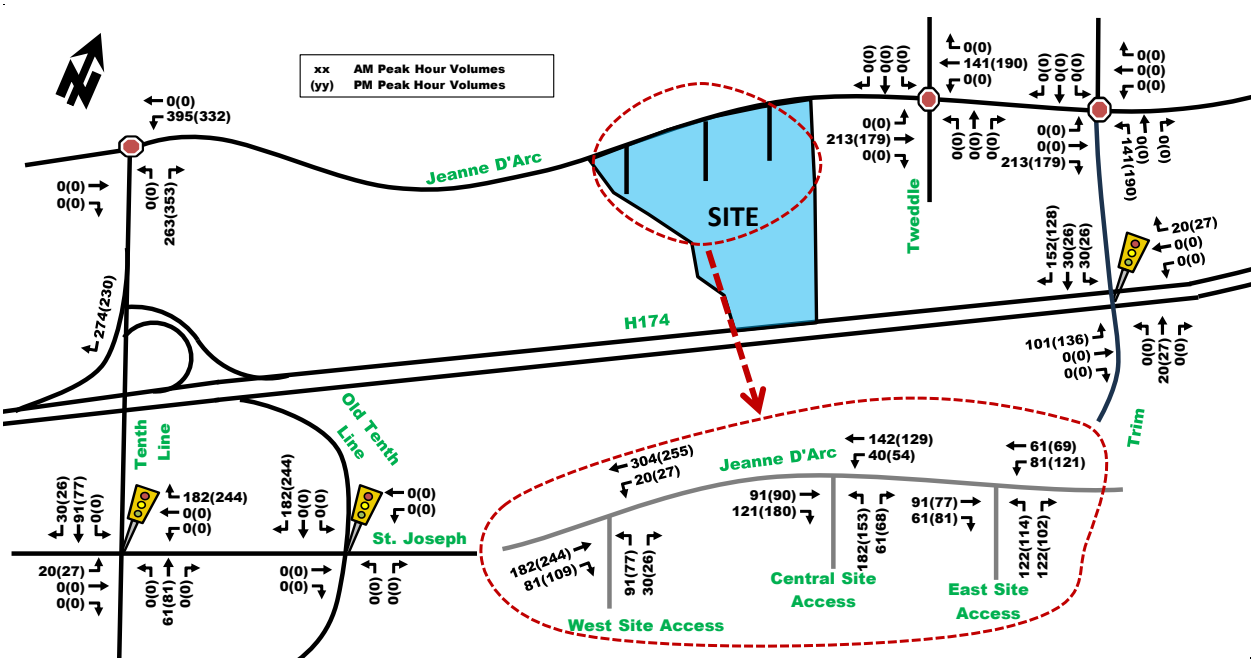
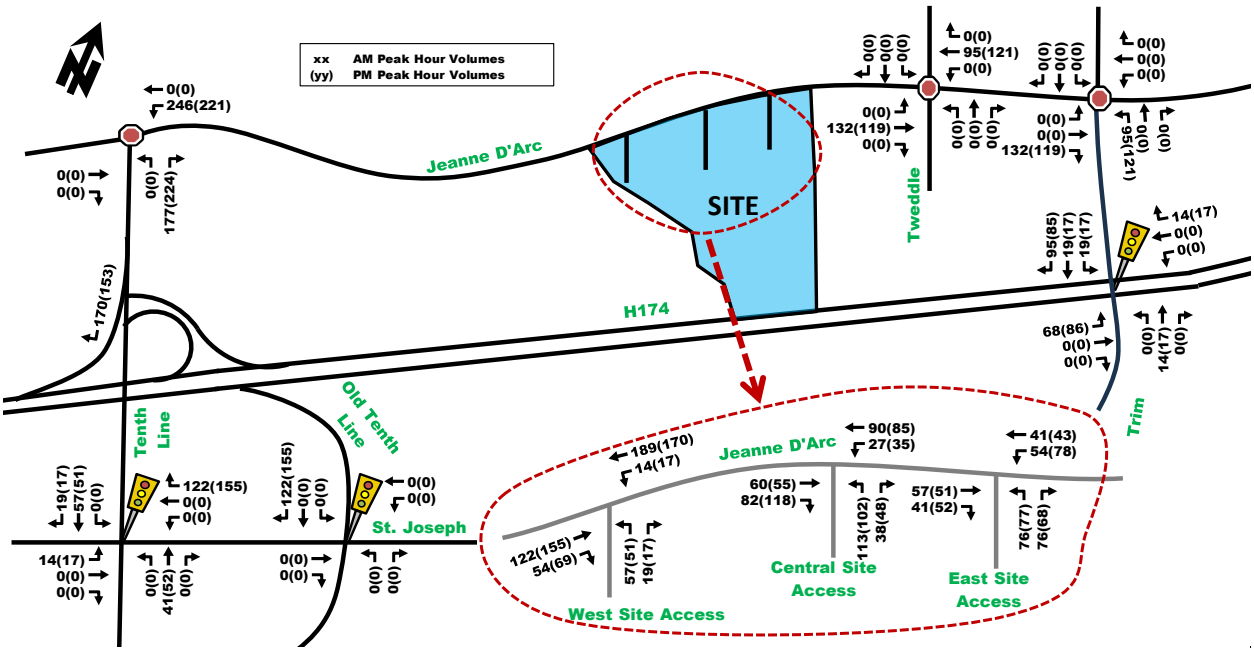


Figure 21: 'New' Site-Generated Traffic – Scenario 2 with Direct Connection to LRT



3.2. Background Network Travel Demands

3.2.1. TRANSPORTATION NETWORK PLANS

As mentioned in Section 2.1.3 Planned Conditions, the Stage 2 LRT expansion is currently underway, with estimated completion of Trim LRT Station by 2026, located within 800m radius of the entire site, with a large portion of the development within 600m radius.

For further detail, refer to **Section 2.1.3**.

3.2.2. BACKGROUND GROWTH

The emphasis in the Official Plan and Transportation Master Plan 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 to reduce the use of the private auto.

Once Stage 2 LRT extension is completed, approximately 77% of Ottawa residents will be within 5km of light rail[4]. More specifically, this development and nearby developments will be located even closer to LRT, with this development located completely within 800m radius 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 21**) was calculated based on historical traffic count data (years 2010, 2012, and 2017, 2023 and 2024) provided by the City of Ottawa at the Trim/H174 intersection near the site. Detailed background traffic growth analysis is included as **Appendix F**.

Table 21: 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 21**, 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 21**, 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. OTHER DEVELOPMENTS

As previously discussed, the City of Ottawa is currently undertaking a detailed design for the proposed active transportation bridge connection from the north side of H174 to the Trim LRT Station. However, this bridge has not secured funding and it is unclear when this bridge will be built. The lack of this bridge connection will make taking transit less attractive and would in turn result in higher driver mode shares.

In reviewing other area developments from **Section 2.1.3**, the following observations were made:

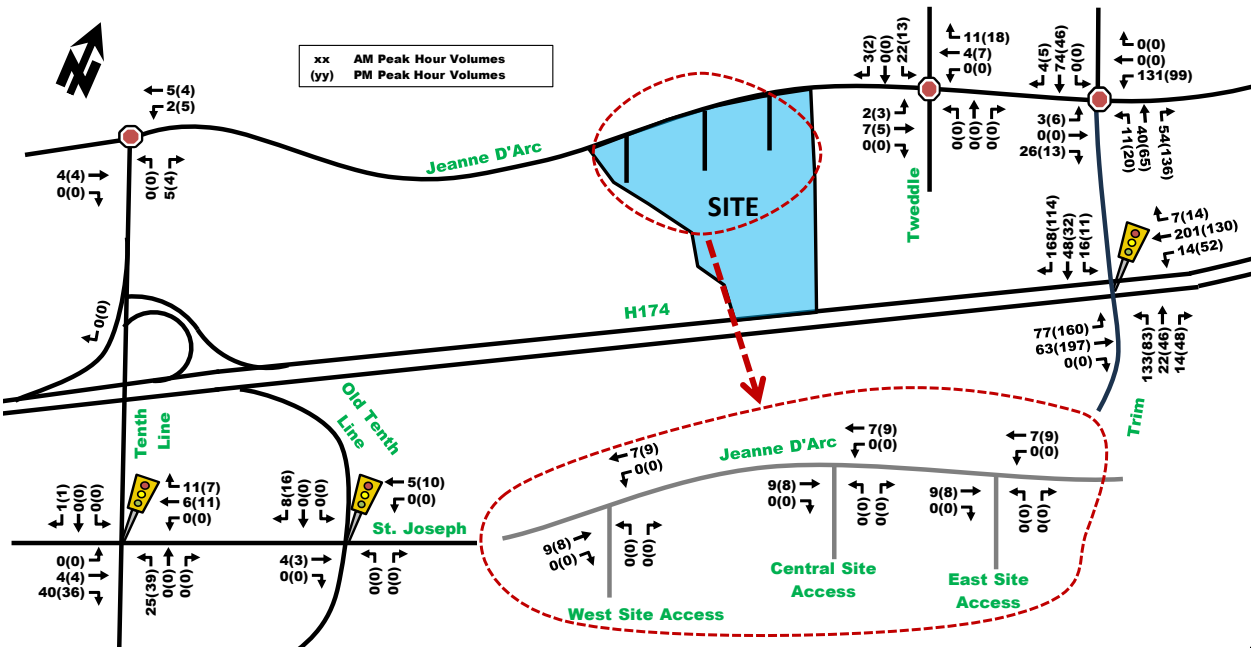
- Petrie's Landing I: while the new bridge would significantly improve safety for active transportation crossing the bridge, it will likely have negligible effects on walking distance
- 1015 Tweddle: the site will be between 300 to 450m walking distance if a bridge with direct portal to the LRT Station is provided or 800 to 1,000m if no bridge is provided. Two different volume sets with and without the bridge connection will be developed, using the mode shares from the TIA for with a bridge connection and assuming TRANS mode shares for Orleans for residential uses if no bridge is provided

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

- Centre des Métiers Minto: while no TIA is available, it is understood that the college is anticipated to increase in size from current 350 student enrollment to up to 1,000 students in the future[5]. The pedestrian bridge would reduce walking distances to the LRT Station from current 1,550m to 500m. While this will have an impact in the future, since no active application is available, it will not be considered in future background volumes
- Other developments will likely not be impacted as they are further away or would use different routes to get to the LRT Station.

Figure 22 illustrates the site generated volumes for other area developments including the remainder of Petrie's Landing I and II, remainder of Cardinal Creek, Phoenix Developments, 265 Centrum, and 3277 St. Joseph assuming a direct bridge connection is provided. These volumes will be layered on to existing traffic volumes to generate future background volumes.

Figure 22: Other Area Development Background Volumes with Direct LRT Connection

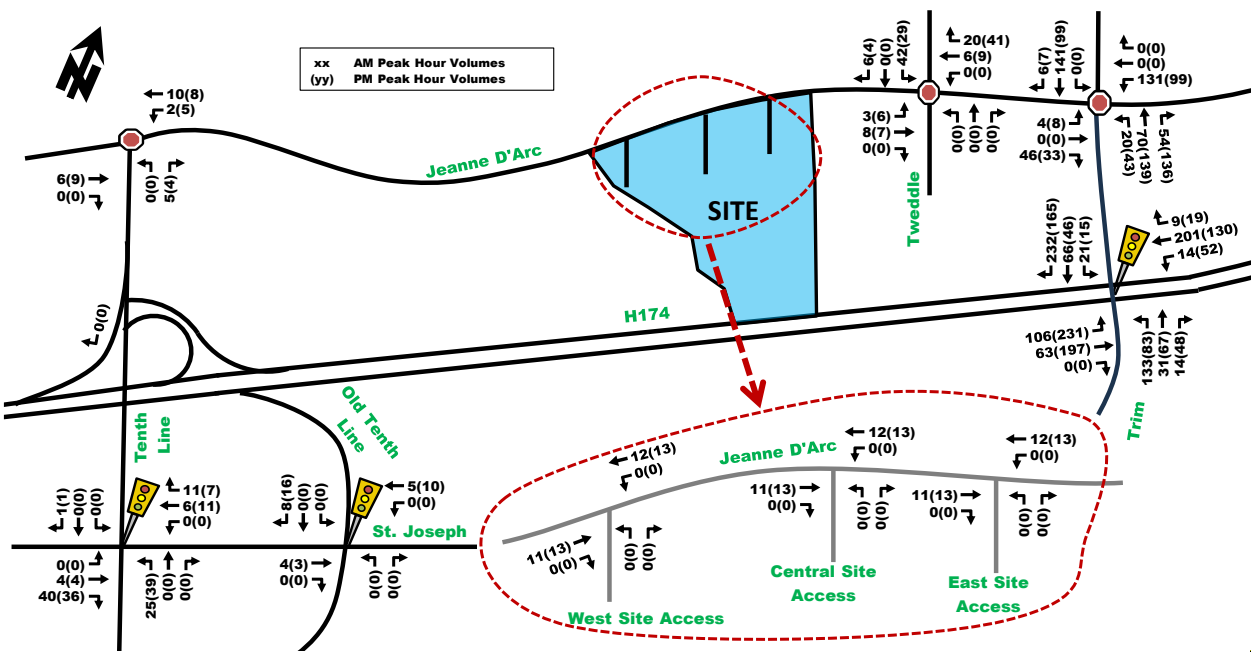


Some developments are located within two shown intersections, resulting in the appearance of unbalanced volumes.

Figure 23 illustrates the site generated volumes for other area developments should the active transportation bridge not be provided and will be used as a basis for S1 analysis.

[5] https://www.viefrancaisecapitale.ca/pouvoir/centre_des_metiers_minto-eng

Figure 23: Other Area Development Background Volumes without Direct LRT Connection



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 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 many have returned 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 seamless connectivity to Orléans, requiring transit users to transfer at Blair Station and continue their commute on a bus. By 2026, Stage 2 LRT expansion is anticipated, which would eliminate the need to transfer from LRT to a bus and highly improve commuter 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 800m radius of one of the Stage 2 LRT stations, Trim Station. The station has been built 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 between 1,400 to 1,900m walk. Given the large population growth proposed north of the highway with this development, Petrie's Landing I, 1015 Tweddle Rd 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 critical to support these developments. This new bridge connection would then reduce the walking distance from this development to the LRT Station to within 400 to 900m. 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 under this scenario.

However, as previously stated, the City of Ottawa has confirmed that it currently does not have allotted funding to construct this bridge. As requested by city staff, a sensitivity scenario will be completed where the network will be tested against mode shares where the bridge connection to the LRT Station from the north is not provided and the development is no longer within a transit-oriented development area. This scenario will be a car-focused trip generation. Lastly, it should be noted that this development is not anticipated to be built in one go, rather it will be a long-term phased project, where it allows time for this new bridge connection to be implemented prior to the completion of this development.

4. Strategy Report

4.1.1. DESIGN FOR SUSTAINABLE MODES

Location of Transit Facilities

A large portion of the site is within 600m radius of the future Trim LRT Station which is forecasted to be operational by 2026. However, H174 provides a large physical barrier from the site to the LRT Station using existing infrastructure, resulting in walking distances of approximately 1,400 to 1,900m walk which would severely impact the attractiveness of transit ridership for this development.

To reduce the required travel distance for active users north of Trim LRT Station, the city defined a new MUP connection along the north side of H174 as well as a pedestrian bridge over H174 with a direct connection to the LRT platforms.

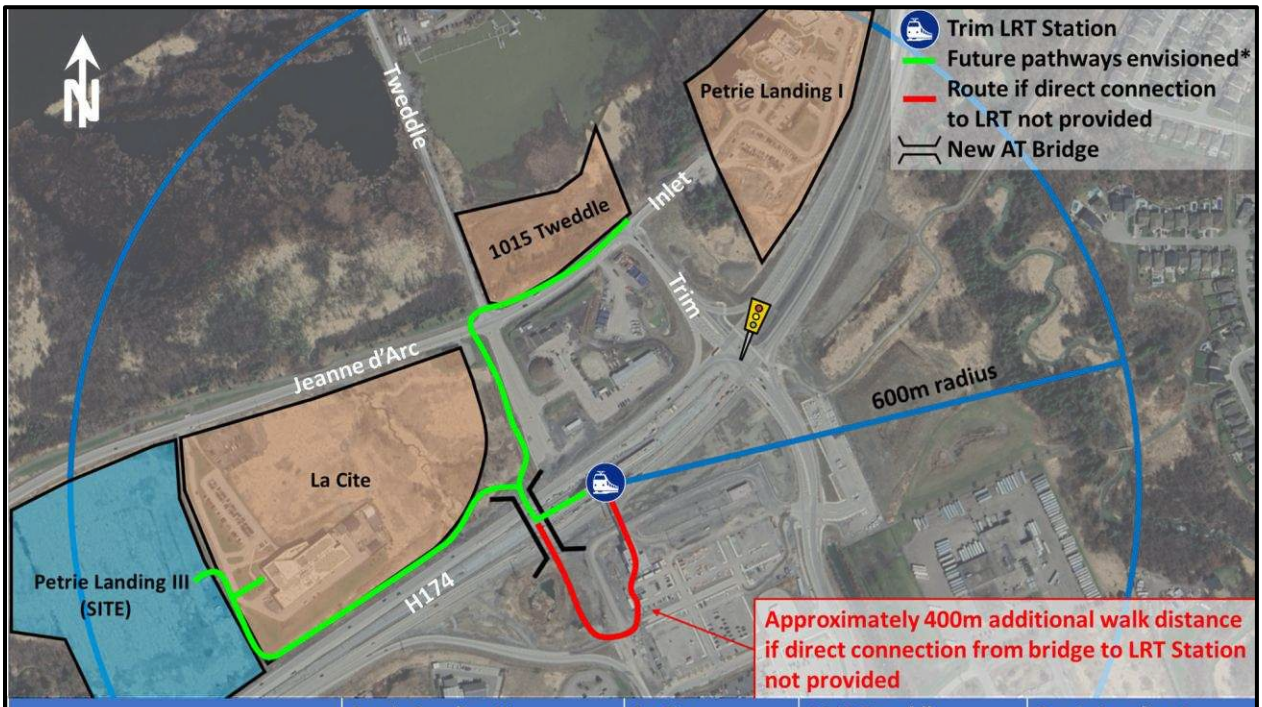
At the time of this report, bridge piers for the bridge have been built as part of the Stage 2 LRT project while the detailed design of the bridge structure is being finalized. However, the bridge is only identified in the "needs" road network, but not in the Phase 1 "priority" network. This means there is currently no funding for this project. City staff as well as the local Councillor are exploring funding alternatives to complete this critical.

A direct connection from the bridge to the LRT Station would reduce the walking distance from the subject site to the LRT Station to a more reasonable range, between 400m to 900m, which is generally consistent with a transit-oriented development (TOD). **Figure 24** illustrates the location of the proposed active transportation bridge and possible routes from the site to the LRT Station.

As previously discussed in Section 2.1.2, there are no bus stops along the proposed development frontage. There is an opportunity to relocate nearby stops or add new stops to more equitably capture community traffic.

A pedestrian cross-over (PXO) is recommended just west of the western access to provide a crossing point to and from the westbound bus stop on Jeanne d'Arc Blvd. Further details to the PXO crossing will be provided in **Section 4.9**. Refer to **Section 4.5** for supportive development design and infrastructure checklist to promote alternate modes of transportation.

Figure 24: Walking Scenarios to Trim LRT Station



	Petrie Landing III	La Cite	1015 Tweddle	Petrie Landing I
Development Size	3,200 units + office + retail	~1,000 students	1,260 units + retail	1,320 units + retail
Existing Conditions	1,400 to 1,900 m	1,550 m	800 to 1,000 m	900 to 1,150 m
Bridge built, with portal to LRT	400 to 900 m	500 m	300 to 450 m	550 to 800 m

Pedestrian/Cycling Routes and Facilities

The latest site concept proposes internal walkways that permeate the site, providing connectivity from all buildings to sidewalk infrastructure within the site and connecting to the external site network. The Orléans Corridor Secondary Plan proposes physically separated cycling facilities on Jeanne d'Arc Blvd from the western edge of the site to the recently built MUP on the east side of Tweddle Road. An additional MUP already exists on the north side of Jeanne d'Arc Blvd.

Based on OTM Book 18, Figure 5.5, and proposed internal roads of 30km/h plus estimated traffic volumes of less than 2,500 vehicles per day, per access, then a shared operating space is deemed adequate without the need for a designated biking space or physically separated facilities. This can be reviewed during site plan application to ensure that future conditions are still comparable.

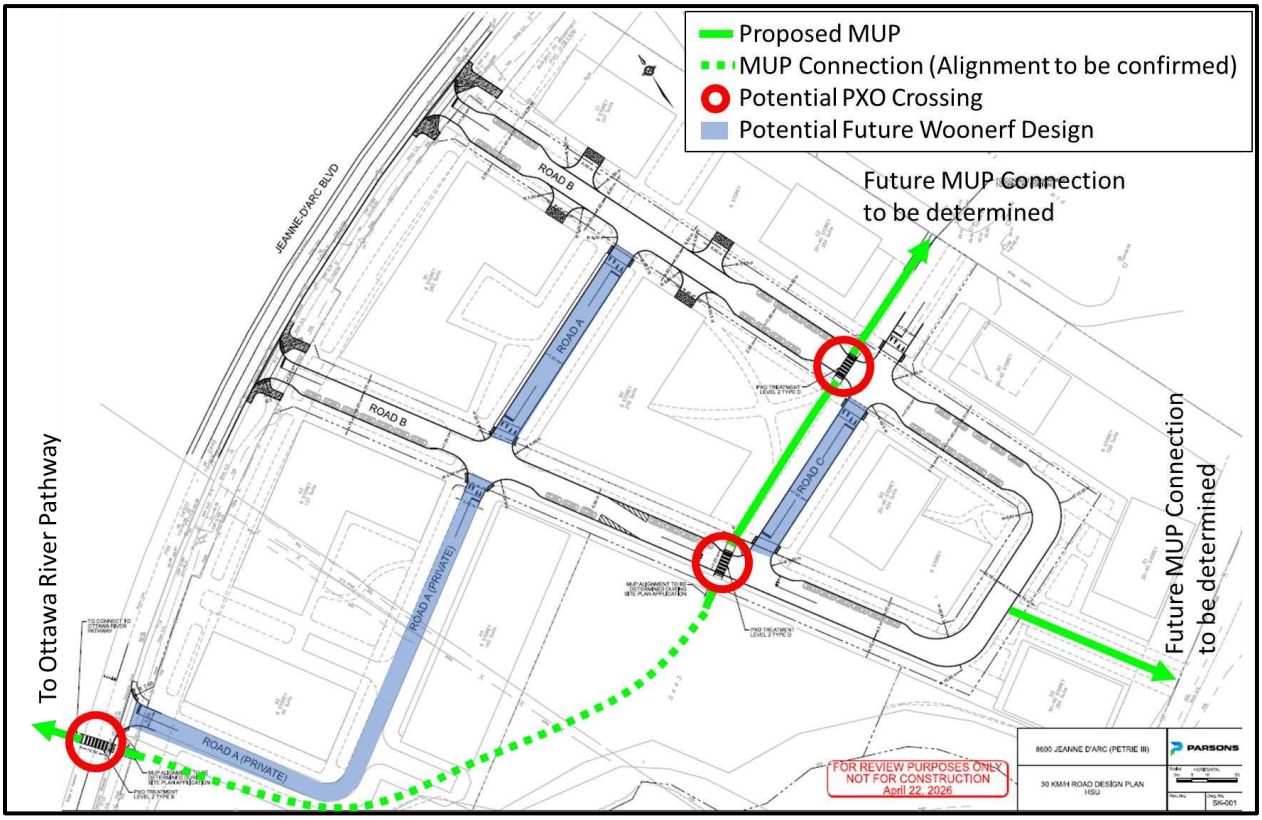
As mentioned previously and shown in **Figure 24**, a new MUP between Centre des Métiers Minto and north side of H174 is proposed, which would significantly shorten the distance between this development and future Trim LRT Station, so long that a new bridge connection to the north is provided. The applicant has committed to implementing this MUP that would extend through the parkland from the western edge of Road C to just west of the western access to Jeanne d'Arc Blvd, providing a convenient facility to bus stops on Jeanne d'Arc Blvd and connecting to the Ottawa River Pathway. Parts of Roads A and C may also be designed as a Woonerf design to provide further active user priority. Based on traffic volumes, none of the internal intersections meet the warrant for signalization or all-way-stop-control (further discussed in **Section 4.9**).

To provide crossing opportunities for active users, two PXOs are proposed directly north of Road C crossing Road B. These PXOs will provide a continuous active transportation corridor from the Ottawa River Pathway to the future MUP headed to the Trim LRT Station and bisecting the site as illustrated in the conceptual **Figure 25**. The PXOs as shown directly north of Road C would provide approximately 200m separation to the nearest east-west controlled intersection crossings at Jeanne d'Arc Blvd, thus meeting guidance from OTM and TAC for

preferred distance between nearest controlled crossings. The exact alignment of this MUP and consideration for a Woonerf design will be reviewed during Site Plan Application.

Internal facilities are anticipated to meet or exceed city design standards and roads are envisioned to be built as complete streets, prioritizing active transportation. **Section 4.1.3.** provides more details on proposed road and active transportation infrastructure.

Figure 25: MUP Network and Crossing Locations



Bicycle Parking

Bicycle parking is anticipated to meet or exceed the minimum by-law. Further details will be available during Site Plan Application process.

4.1.2. CIRCULATION AND ACCESS

Exempt, refer to **Table 6**.

4.1.3. NEW STREETS NETWORK

The new roads proposed along with their designation for the development have been illustrated in **Figure 26** and described below. The internal site roads are all proposed as 30km/h streets, designed in accordance with the Local Residential Street 30km/h Design Toolbox. Various bulbouts, on-street parking and neckdowns have been proposed as shown in Geometric Road Design Drawing (GRDD) which has been provided in **Appendix G**. The GRDD has been designed to accommodate MSU type trucks meeting at the public road curves without overlapping sweep paths, however larger HSU trucks would overlap if they encountered each other at the same time. Based on the size of commercial units envisioned and condo units normally being smaller than a single detached home, it is not expected that a large quantity of HSU type trucks will use these roads, and the risk of two HSU trucks meeting at these bends is very unlikely. For this reason, providing tighter road bends is recommended to promote traffic calming. On-street parking has been proposed at various locations.

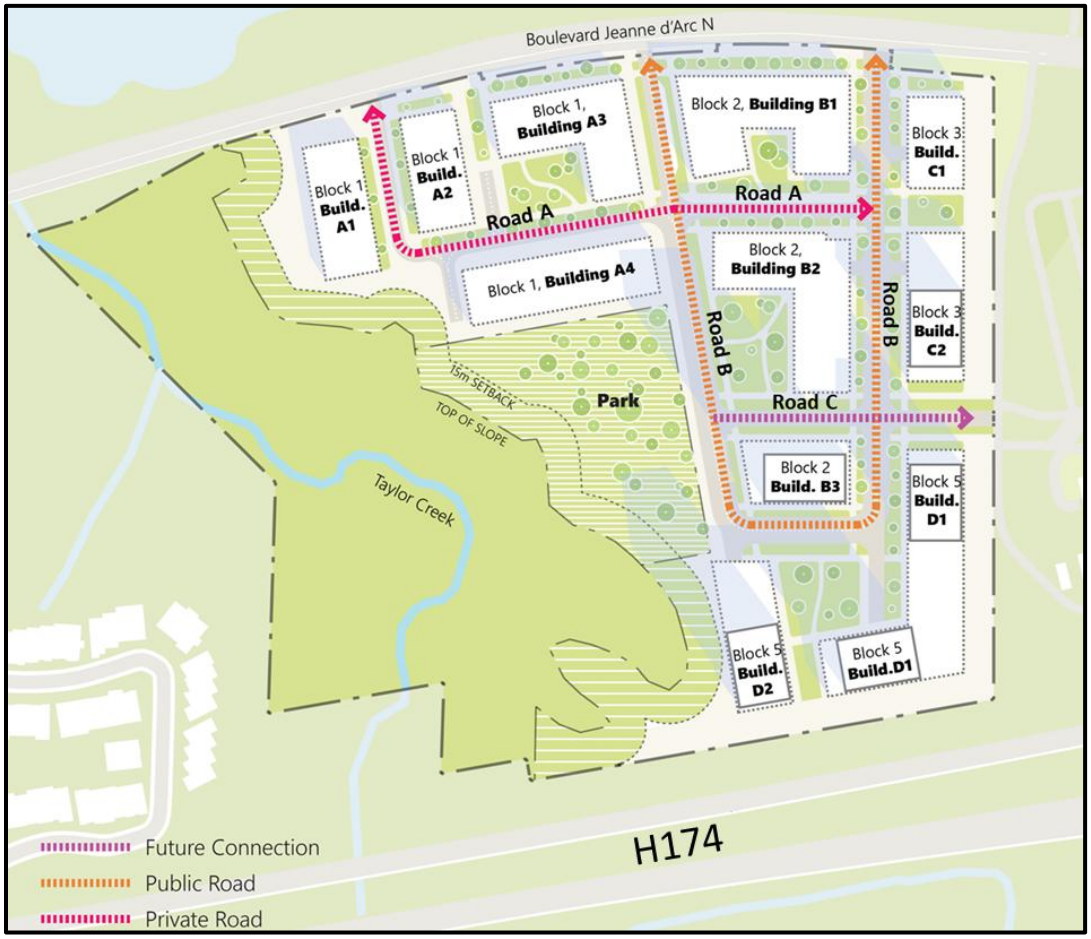
Road A: A private road as shown in red will provide access to the western site access and bisect both sides of the public local road crescent. The private road will be treated like a private laneway with a focus on active transportation and providing limited vehicle access for trucks, deliveries and local resident access. This road may be a candidate for Woonerf Design. The design of Road A is still being refined and will be confirmed at the Site Plan Control stage.

Road B: A public local road crescent with an understood 18m right-of-way (ROW) as shown in orange has been proposed, which would provide access to the central and eastern site accesses. The cross-section for the public road has been proposed in accordance with the recently released 2023 City of Ottawa 18m ROW local street cross-section. The 18m City of Ottawa ROW has been provided in **Appendix G** along with the draft Plan of Subdivision schematic**.** As per the City of Ottawa 18m ROW, it will include a single travel lane per direction varying from 3.0 to 3.5m with periodic bulb-outs for loading or parking. Parking dimensions have been reduced to 2.2m wide as per city comments. The 18m ROW public road is anticipated to have 1.8m wide sidewalks on both sides of the road and varying boulevard widths for landscaping and utility infrastructure.

This road is expected to be designed as 30 km/h residential streets, based on the corresponding City toolbox document, which includes both horizontal and vertical deflections measures such as bulb-outs and speed humps. Traffic calming measures will be confirmed during Site Plan Control stage.

Road C: A future connection to the Centre des Métiers Minto as shown in purple may be provided or may be reserved for active transportation users only. This connection is conceptual at this time and will be confirmed during Site Plan Control stage. This road may be a candidate for Woonerf Design.

Figure 26: Proposed New Streets Servicing the Site



4.2. Parking

This section is exempt, refer to **Table 6**. To be confirmed during the Site Plan Control application for each future development Phase.

4.3. Boundary Street Design

4.3.1. EXISTING & FUTURE CONDITIONS

The following section has been updated to the new MMLOS spreadsheet and guidelines. The boundary street to the proposed development is Jeanne d'Arc Blvd.

- *Jeanne d'Arc Blvd:*
  - 1 vehicle travel lane in each direction;
  - 3m MUP on north side of road with greater than 8m boulevard separation;
  - 2m sidewalk on south side of road with bike lane boulevard separation;
  - Less than 3,000 vehicles per day existing, assumed exceeds 3,000 in future;
  - Posted speed 50km/h;
  - Classified as major collector roadway;
  - Classified as part of the Crosstown Bikeway Network. Existing curbside bike lanes and paved shoulder. Assumed physically separated bike lanes in future as per Orléans Corridor Secondary Plan; and,
  - Not identified as a Truck Route.

The proposed site is located within 600m of a rapid transit and not within 300m of a school. Multi-modal Level of Service analysis for the subject road segments adjacent to the site is summarized in **Table 22** with detail analysis provided in **Appendix H**. Note that truck level of service is no longer tested in this segment (geometrical check only).

Table 22: 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
Jeanne d'Arc North Side Existing	B	A	B	A	B	E	B	N/A
Jeanne d'Arc South Side Existing	B	A	D	A	B	E	B	N/A
Jeanne d'Arc North Side Future	A	A	B	A	B	E	A	N/A
Jeanne d'Arc South Side Future	A	A	C	A	B	E	A	N/A

Pedestrian

During existing conditions, the PLoS was not achieved given the distance to the nearest controlled crossing. Should the envisioned PXO crossing be provided on the west side of the western access, the PLoS target would be met in the future.

Bicycle

The BLoS target was not met in existing nor future conditions. To achieve the target level of service, the Ottawa River Pathway would need to be widened to at least 3.5m or cycle-tracks on Jeanne d'Arc Blvd would need to be widened to 1.8m and provide at least 1m buffer from the road.

Transit

Transit delays are minimal on Jeanne d'Arc Blvd and the TLoS target was met on all horizons.

Public Realm

The public realm improved from a 'B' to an 'A' given that bus stops will be added in the future within the road segment fronting the site.

4.4. Access Intersection Location

As per the new City of Ottawa TIA Guidelines revisions from June 14, 2023, this module has been compressed and former sections 4.4.2 Access Control and 4.4.3 Access Design have been moved to sections 4.9.1 and 4.9.2 respectively. This module will focus on the location of the future access intersections.

As previously discussed in Section 4.1.3, the development is proposing three new access to Jeanne d'Arc Blvd. The easternmost driveway is proposed as a public road along with the center access, and the western access is proposed as a private road. From east to west, the accesses will have a separation of approximately 100m from east to center access and 120m from center to western access. The type of access control will be determined in Section 4.9.1.

Although the quantity of parking spaces is not yet known at this time, it can be assumed that the development will provide more than 300 parking spaces. According to the City of Ottawa Private Approach By-Law Section 25, if a site has more than 300 parking spaces, a minimum distance between the private approach and signalized intersection is 75m. In the unlikely event that an access needs to be signalized, the distance between each access is greater than 75m and would thus satisfy the Private Approach By-Law.

4.5. Transportation Demand Management

4.5.1. CONTEXT FOR TDM

It was assumed that trips generated by the proposed development will have a general balanced inbound and outbound distribution during peak hours. 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, while office uses are likelier to arrive in the morning peak period and depart in the afternoon. 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 between 400 to 900m from future Trim LRT Station, making it a great candidate for transit-oriented travel. Additionally, shared parking provisions for residential/commercial/office 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 infrastructure and measures checklist has been completed as a recommended draft list given that this is a zoning by-law application and not a detailed Site Plan Application (SPA). These checklists will be revisited during SPA submission for each phase of development. The draft measures have been provided in Appendix I.

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.
- Thirteen (13) of fourteen (14) Basic measures related to walking and cycling, transit, ridesharing and parking are anticipated to be satisfied or are not applicable.
- Five (5) of the of the seven (7) candidate Better measures are also proposed or are non-applicable, including:

- Providing bikeshare and rideshare facilities.
- 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:

- Six (6) out of seven (7) "basic" measures related to walking, cycling, transit, parking and TDM marketing will likely be satisfied. 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.
- Six (6) out of eleven (11) "better" measures related to walking, cycling, transit, parking and TDM marketing will likely be satisfied. One (1) of those, which has been designated by an asterisk (*), is considered by the TDM Measures to be some of the most dependably effective tools to encourage sustainable travel modes. This includes:
  - Contract with provider to install on-site bikeshare and carshare.
  - Offer on-site cycling courses for residents or subsidize off-site courses.
  - *Offer personalized trip planning to new residents.
  - Conduct periodic surveys to identify travel related behaviors.

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. 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.

Although not an adjacent neighbourhood and rather an internal site road, the new public local road loop will be designed as a 30km/h residential street, including speed humps and bulb-outs as well as on-street parking as traffic calming methods (as discussed in **Section 4.1.3.**). The internal roads are short in distance and have various curvatures and features to dissuade speeding within the site. The internal roads do not provide connectivity to any other city road or developments, mitigating any risk of traffic infiltration or shortcutting through the site. As such, the local road classification for the new public street was considered appropriate.

4.7. Transit

4.7.1. ROUTE CAPACITY

Section 3.1.2 projects up to 785 two-way transit trips during the busiest transit demand peak hour in the heaviest transit-use scenario (S2). 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 to support this intensity of transit use.

Should a direct connection to the LRT be provided via the bridge envisioned, then all buildings will be within 400 to 900m 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 or be built after the buildout of this development (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 resulting in a less attractive transit option and

far less people forecasted taking transit. 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). It is noteworthy that the highest densities proposed within the site are all located on the southeast quadrant of the site, closest to the LRT Station.

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. Should the bridge to the LRT be built after this development, then additional local route #38 trips may be required to support transit demands or a direct shuttle service from the site to the station may be needed to support the development.

4.7.2. TRANSIT PRIORITY

Jeanne d'Arc Blvd is not part of a transit priority corridor. The intersections from the site to Jeanne d'Arc Blvd are anticipated to be stop controlled on the site access and free-flow on Jeanne d'Arc Blvd, thus not significantly affecting bus travel times.

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

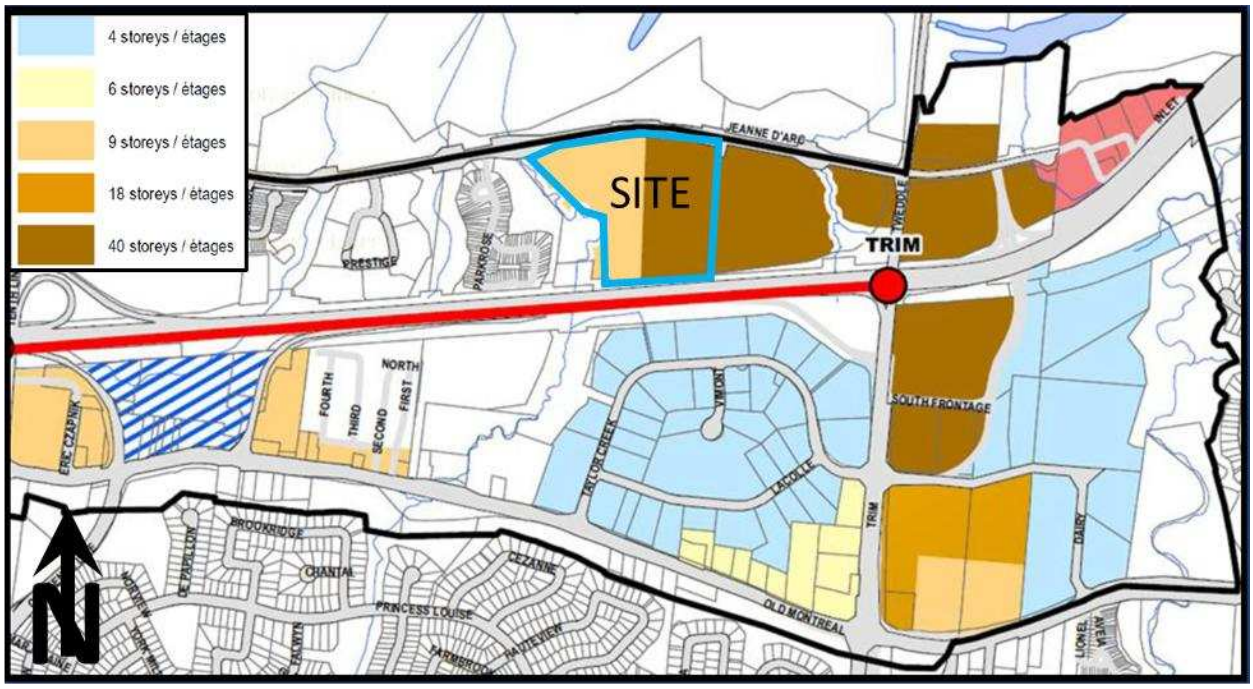
4.8. Review of Network Concept

The proposed site is currently zoned as DR (developmental reserve) which allow buildings up to 3-storeys or 11m high. All buildings will exceed 3-storeys high, and given the densities proposed, the development will exceed 200 peak hour person trips more than the equivalent volume permitted by the established zoning.

Although there will be an increase in people trips by the new development, far exceeding the current established zoning, it does fit within the Orléans Corridor Secondary Plan and Official Plan guidelines context should a direct connection to LRT be provided. Within the Official Plan for the City of Ottawa, the site is located in a Protected Major Transit Station Area (PMTSA), and within the Orléans Corridor Secondary Plan, the eastern half of the site is located within a Station Core Zone, which have targets for providing high density near these major transit hubs.

In addition, within the Orléans Corridor Secondary Plan, the eastern half of the site has been denoted as a zone allowing 40-storey high buildings, and the western half with 9-storey buildings allowed, as seen in **Figure 27** (and provided in high definition in **Appendix D**). The latest site concept for this development as shown in **Figure 2** proposes buildings with maximum heights consistent with the secondary plan.

Figure 27: Orléans Corridor Secondary Plan Maximum Building Heights



Given the site's context, with the proposed MUP and bridge connection from the site to the future Trim LRT Station via the north side of H174, achieving a walking distance of 400 to 900m to high quality rapid transit facilities, then the scale of this development is considered adequate and aligns with City of Ottawa's long term planning vision.

4.9. Intersection Design

4.9.1. INTERSECTION CONTROL

For the purpose of warrant analysis, the more conservative Scenario 1 assuming a direct connection to the LRT Station is not provided will be used. If a warrant is not met in Scenario 1, then it will also not be met in Scenario 2 which has fewer vehicle trips forecasted.

A traffic signal warrant for the three site intersections was completed and the need for traffic signals at any of the site accesses was not warranted.

Similarly, an all-way-stop-control (AWSC) warrant was performed at all site access intersections, where the west access did not meet the AWSC warrant, the central access was approaching the warrant and the eastern access met the warrant. However, an AWSC added to Jeanne d'Arc Blvd would result in new delays to OC Transpo bus routes and is likely not needed in terms of intersection performance. For this purpose, **Section 4.9.3**. will assume that all study area intersections will be kept as unsignalized intersections with stop control on the southern leg unless shown to be required operationally. If intersection operations are subpar, then consideration for AWSC or signalized intersection will be further explored. Similarly, warrants for AWSC were completed at internal intersections and none met the warrant, thus all internal intersections will keep a stop-control on the minor movement only.

It's recommended that each individual Site Plan Application reassess the need for a revised intersection control. All warrant analysis has been provided in **Appendix J** and a brief summary in **Table 23**.

4.9.2. INTERSECTION DESIGN

The internal roads have been designed to city's standard for a 30km/h residential street as shown in **Appendix G**. Auxiliary left-turn lane warrants were reviewed using the Geometric Design Guide Part 3 Nomographs (MTO left-turn warrant), with detailed analysis in **Appendix K** and a brief summary in **Table 23**. Note that Jeanne d'Arc Blvd has had its speed reviewed and changed as of 2025 with a new posted 50km/h (design of 60km/h tested). Overall, it was found that the central and east accesses may be a candidate for an auxiliary left-turn lane.

A further review of the feasibility of an auxiliary left-turn lane was conducted and various geometric challenges were noted which further outweigh the desire to provide an auxiliary left-turn lane into the site. Challenges include:

- Shifting the road further north: would experience challenges with steep grades, an existing guiderail and an existing culvert along the north side. Any significant shift in this direction would likely impact the culvert, guiderail, and grading, leading to substantial reconstruction.
- Roadway buffers/paved shoulders: the existing 1.5m buffer is currently used as cycling lanes and has been identified by the Orleans Corridor Secondary Plan as a desired bike lane. Remove these paved shoulders would negatively affect cyclist safety and is therefore not recommended to be changed.
- Shifting the road further south: While a southerly shift of the roadway might technically create space for a 3.25m auxiliary left-turn lane, doing so would probably require a complete removal of the south side ditch and reconstruction of the sidewalk plus curb. There isn't sufficient width to both shift the roadway by 3.25m and existing 1.8m sidewalk while retaining the ditch.
- South ditch: is a critical drainage feature where all catch basins along that section appear to drain into this ditch. There does not appear to be a storm sewer system available to tie the catch basins into if the ditch were to be removed. As a result, eliminating the ditch would create significant drainage issues or potential storm sewer installation.
- Overall, the challenges associated with providing an auxiliary left-turn lane into the site outweigh the benefits of providing a dedicated turn lane, especially considering the low through volumes. In addition, the warrant was completed using the most conservative scenario 1. A review of Synchro will determine if these turn lanes are required operationally.

There may be consideration for a right-turn storage/deceleration lane, particularly at the central access which forecasts up to 180 right-turns during the PM peak hour within the conservative Scenario 1. However, the site context and low through volumes may negate the need for this storage lane. Challenges noted for a left-turn lane are also applicable to right-turn lanes. Further review for the need of right-turn lanes is recommended during Site Plan Application.

The upcoming analysis will assume no auxiliary right-turn or left-turn lanes will be provided, resulting in a more conservative analysis. The outcome of the intersection capacity results in this study (**Section 4.9.3**) will further confirm the auxiliary lane requirements based on a capacity and delay perspective. Potential implications related to future driveways to the subject site and site access to Jeanne d'Arc Blvd (such as truck movements) will be reviewed during the Site Plan Control application for each individual phase of development.

Table 23: Warrant Analysis Summary Table

Warrant Type	Intersection Location		
	West	Center	East
Signal Warrant	56% No	50% No	43% No
All-Way-Stop-Control Warrant	37% No	96% No	111% Yes
Left-Turn Lane Storage Warrant	0m	15m	15m

A pedestrian crossing (PXO) is preferred over an AWSC to avoid excessive delays on Jeanne d'Arc Blvd. Based on the Ontario Traffic Manual (OTM) Book 15, Figure 2, there may be a need for a pedestrian crossing referred to as a PXO. Even if the pedestrian volumes crossing Jeanne d'Arc Blvd do not meet the initial flow chart required volumes, the site still has a strong pedestrian desire line to and from the north side of the road, to either access the westbound transit bus stop or the multi-use pathway north of the Jeanne d'Arc Blvd. Table 7 within the OTM Book 15 was then used to determine which type of PXO would be most appropriate to cross Jeanne d'Arc Blvd and also Road B just north of Road C for MUP continuity.

At this time, it is assumed that the 50km/h speed limit will be retained in the future (used 60km/h design), the crossing would be for a 2-lane cross-section road and the daily two-way vehicular volume will be greater than the 4,500 lower bound, resulting in the need for a level 2 Type B PXO treatment. A Type B PXO includes rectangular rapid flashing beacons with tell-tale, no passing zone and warning sign for pedestrian ahead. **Appendix L** includes the decision-making tool and sample Type B PXO treatments for mid-block and at an unsignalized intersection. The preferred PXO location was west of the western access to align the newly proposed MUP through the parkland connecting to the Ottawa River Pathway and the future MUP to the LRT Station. Crossing Road B, a level 2 type D PXO treatment has been identified.

Multi-Modal Level of Service

This section has been updated with the new MMLOS tool and guideline. Only signalized intersections are considered for the intersection Level of Service measures in the MMLOS Guidelines. The MMLOS analysis is summarized in **Table 24**, with detailed analyses provided in **Appendix M**.

Table 24: 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	E	D
Tenth Line/St. Joseph	E	B	F	B	B	E
Old Tenth Line/St. Joseph	C	C	D	B	-	N/A

Pedestrian

- Only the intersection of Old Tenth Line/St. Joseph met the desired PLoS. The number of lanes required to be crossed, the occasional permissive turning movement and operating speeds were all factors that diminished the PLoS elsewhere. No mitigation would lower the PLoS to a level close to the desired MMLOS target without significantly reducing the vehicle capacity.

Bicycle

- None of the intersections achieved the BLoS targets. Providing a smart channel with a raised crosswalk crossing the bi-directional cycle-track at Trim/H174 would achieve the desired BLoS target. At Tenth Line/St. Joseph and Old Tenth Line/St. Joseph, providing fully protected left-turns, cross-rides and protected corners at all approaches would meet the desired target.

Transit

- The TLoS was met at Tenth Line/St. Joseph but technically not at Trim/H174. On a further review of the Trim/H174, there are two transit routes, with route #39 being a frequent transit route and having a TLoS target of 'D' and route #38 being a local route and having a TLoS target of 'E'. Route #38 meets the desired target and the route #39 meets it for the eastbound direction. Only the westbound direction performing the northbound left-turn has anticipated delays longer than desirable.

4.9.3. INTERSECTION PERFORMANCE

Existing Conditions

The following **Table 25** provides a summary of the existing traffic operations at the study area intersection based on volumes from **Figure 8** and Synchro (V12) 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 N**.

Table 25: 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
Signalized Intersections						
Trim/H174	B(B)	0.63(0.66)	NBL(EBT)	30.9(32.2)	A(B)	0.42(0.63)
Tenth Line/St. Joseph	C(C)	0.79(0.74)	NBT(NBT)	31.9(29.2)	C(C)	0.74(0.71)
Old Tenth Line/St. Joseph	B(C)	0.70(0.79)	WBT(WBL)	14.1(15.7)	A(A)	0.59(0.58)
Unsignalized Intersections						
Trim/Jeanne d'Arc	A(A)	8(8)	NB(NB)	8(8)	A(A)	-
Tweddle/Jeanne d'Arc	A(A)	8(9)	EB(EB)	8(8)	A(A)	-
Tenth Line/Jeanne d'Arc	B(B)	10(12)	WB(EB)	10(12)	B(B)	-
Note: Analysis of signalized intersections assumes a PHF of 0.90 and a saturation flow rate of 1800 veh/h/lane.						

As shown in **Table 25**, all intersections operate overall very well and have critical movements within acceptable performance.

Future Scenario 1 Conditions – A Bridge Connection to the LRT is not Provided

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. Two different background scenarios were prepared, one assuming that a bridge connection from the north to the LRT is not provided and the other that it is. Regionally, it will not have a major impact on traffic volumes, but locally to this site, it may influence mode shares for developments such as 1015 Tweddle Rd.

Background Conditions (S1)

Figure 28 shows the projected background volumes in the network considering approved and proposed developments within the area and 1015 Tweddle Rd modified to not be within a TOD zone. The projected operational results are shown in **Table 26**. The detailed Synchro results can be found in **Appendix O**.

Figure 28: Future 2035 Background Study Area Intersection Volumes without LRT Bridge

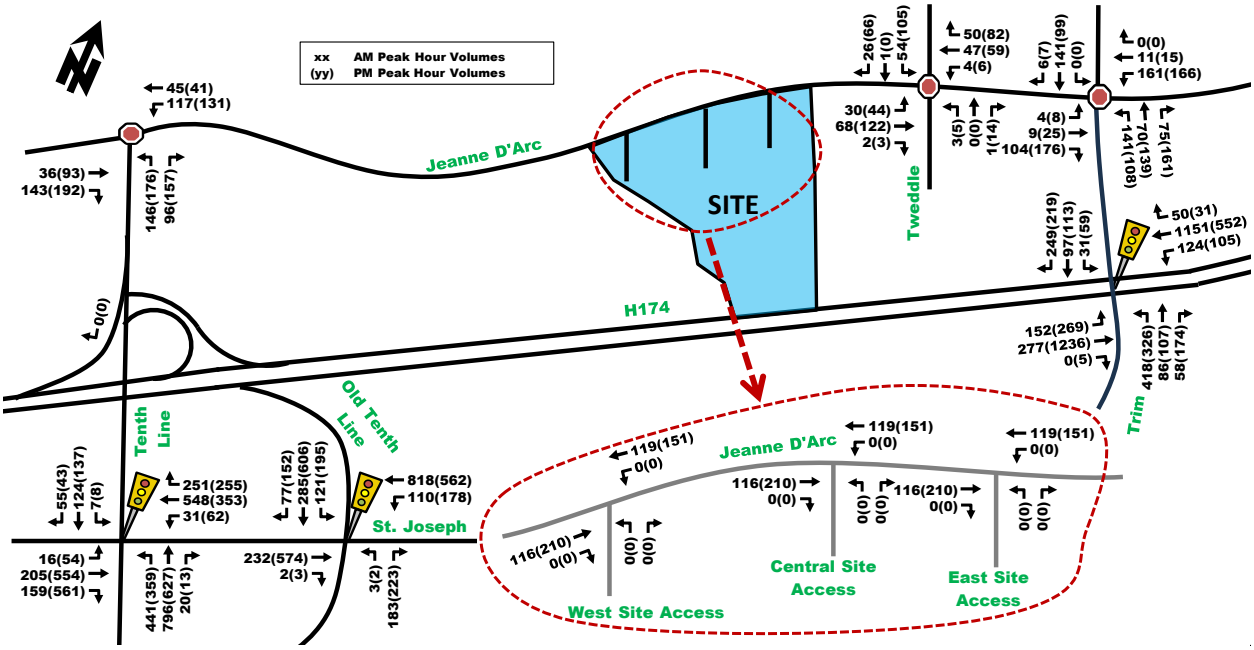


Table 26: Future 2035 Background Intersection Performance without LRT Bridge

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized Intersections						
Trim/H174	C(D)	0.72(0.82)	EBL(EBL)	39.0(40.4)	A(A)	0.60(0.54)
Tenth Line/St. Joseph	C(C)	0.73(0.72)	NBT(EBR)	29.9(28.1)	B(B)	0.69(0.65)
Old Tenth Line/St. Joseph	B(B)	0.69(0.62)	WBT(WBL)	13.8(14.0)	A(A)	0.57(0.52)
Unsignalized Intersections						
Trim/Jeanne d'Arc	B(B)	11(14)	NB(NB)	10(12)	B(B)	-
Tweddle/Jeanne d'Arc	A(A)	8(9)	SB(EB)	8(9)	A(A)	-
Tenth Line/Jeanne d'Arc	B(B)	10(11)	NB(WB)	9(11)	A(B)	-
Note: Analysis of signalized intersections assumes a PHF of 1.00 and a saturation flow rate of 1800 veh/h/lane.						

As seen in **Table 26**, most intersections will operate similarly to existing or slightly worse given the increase in background traffic volumes. All intersections continue to operate overall at good LoS 'B' or better and with critical movements of 'D' or better.

Full-Buildout Including Development (S1)

The future full-buildout volumes assuming the S1 mode shares reflecting no direct link to the future Trim LRT Station are illustrated in **Figure 29**. The projected intersection performance are summarized in **Table 27**, with detailed Synchro results provided in **Appendix P**.

Figure 29: Full-Buildout 2035 Total Projected Peak Hour Traffic Volumes – Scenario 1

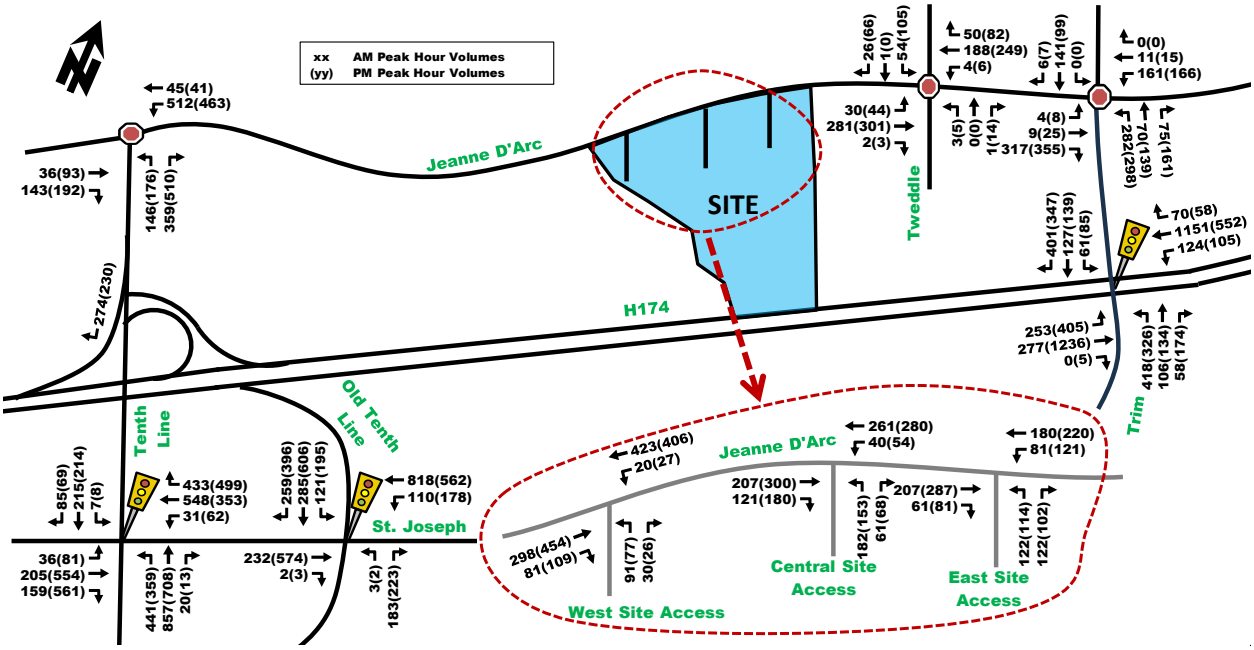


Table 27: Full-Buildout 2035 Intersection Performance – Scenario 1

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized Intersections						
Trim/H174[1]	D(D)	0.85(0.83)	SBR(EBT)	45.5(42.7)	C(C)	0.73(0.78)
Tenth Line/St. Joseph	C(C)	0.76(0.75)	NBT(WBR)	31.6(29.1)	C(C)	0.73(0.73)
Old Tenth Line/St. Joseph	B(B)	0.69(0.62)	WBT(WBL)	12.6(12.8)	A(A)	0.57(0.52)
Unsignalized Intersections						
Trim/Jeanne d'Arc	C(F)	20(59)	NB(NB)	16(37)	C(E)	-
Tweddle/Jeanne d'Arc	B(B)	10(12)	EB(EB)	10(11)	B(B)	-
Tenth Line/Jeanne d'Arc	F(F)	55(63)	WB(WB)	33(43)	D(E)	-
West Access/Jeanne d'Arc	C(C)	19(23)	NB(NB)	3(2)	A(A)	-
Central Access/Jeanne d'Arc	C(D)	22(29)	NB(NB)	6(7)	A(A)	-
East Access/Jeanne d'Arc	C(D)	20(29)	NB(NB)	7(8)	A(A)	-

Note: Analysis of signalized intersections assumes a PHF of 1.00 and a saturation flow rate of 1800 veh/h/lane. 1. Signal timing was optimized to improve intersection operations.

As shown in **Table 27**, the addition of all the proposed density within this development and adjacent developments without supporting infrastructure results in intersections operating above capacity and with critical level of service of 'F'. Given that the site has only two outlets, either via Trim Rd or Tenth Line Rd, there are no alternative routing options to access the Highway.

This analysis demonstrates the importance of the pedestrian bridge over H174 and validates policy direction in the Transportation Master Plan, Official Plan and Orleans Corridor Secondary Plan. It should be acknowledged that this analysis is for the full buildout of all known developments north of H174, which will progress gradually in the coming decades. There is strong local support for this bridge, including the local Councillor who helped allocate funds for the detailed design that is currently underway.

While there is still time to construct the bridge before the road network falters, the city should initiate this process immediately. Traffic conditions should also be analyzed at each future Site Plan Application received in this community.

Future Scenario 2 Conditions – A Bridge Connection to the LRT is Provided

Background Conditions (S2)

Figure 30 shows the projected background volumes in the network considering approved and proposed developments within the area, including the base volumes produced for 1015 Tweddle Rd assuming a TOD development. The projected operational results are shown in **Table 28**. The detailed Synchro results can be found in **Appendix O**.

Figure 30: Future 2035 Background Study Area Intersection Volumes with LRT Bridge

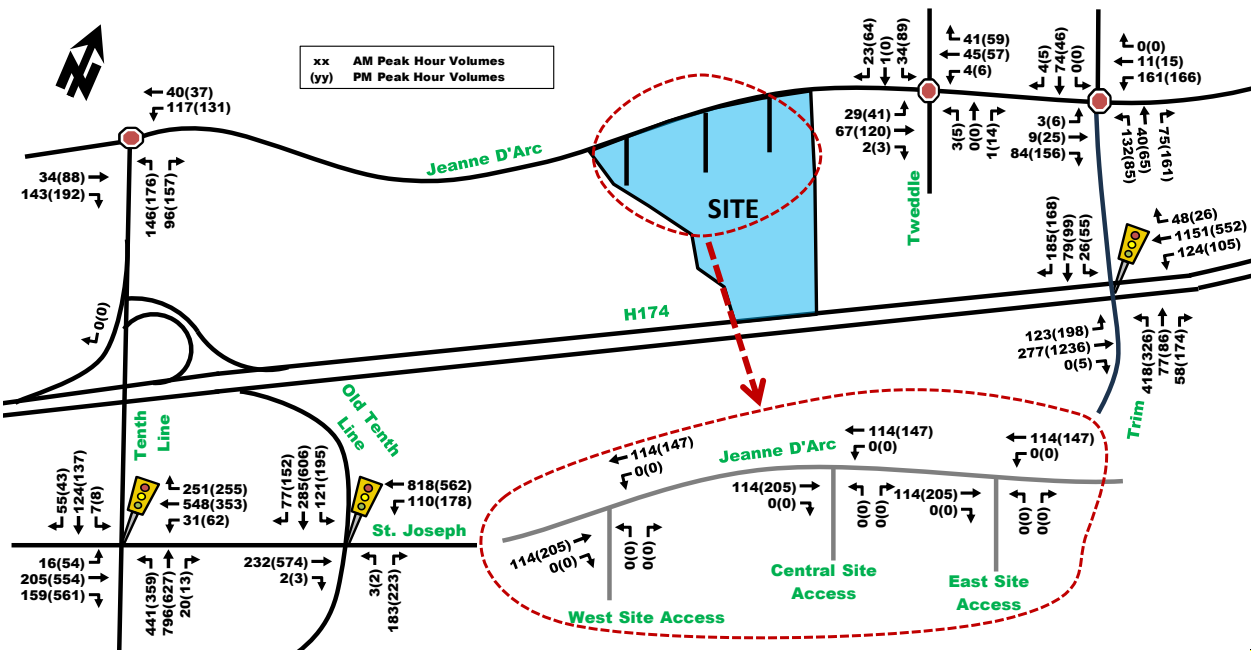


Table 28: Future 2035 Background Intersection Performance with LRT Bridge

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized Intersections						
Trim/H174	B(D)	0.68(0.81)	NBL(EBT)	37.9(39.1)	A(C)	0.50(0.75)
Tenth Line/St. Joseph	C(C)	0.73(0.72)	NBT(EBR)	29.9(28.1)	B(B)	0.69(0.65)
Old Tenth Line/St. Joseph	B(B)	0.69(0.62)	WBT(WBL)	13.8(14.0)	A(A)	0.57(0.52)
Unsignalized Intersections						
Trim/Jeanne d'Arc	B(B)	10(11)	NB(NB)	9(10)	A(B)	-
Tweddle/Jeanne d'Arc	A(A)	8(9)	SB(EB)	8(8)	A(A)	-
Tenth Line/Jeanne d'Arc	B(B)	10(11)	NB(WB)	9(11)	A(B)	-
Note: Analysis of signalized intersections assumes a PHF of 1.00 and a saturation flow rate of 1800 veh/h/lane.						

As seen in **Table 28**, most intersections will operate similarly to existing or slightly worse given the increase in background volumes. All intersections continue to operate overall at good LoS 'C' or better and with critical movements of 'D' or better.

Full-Buildout Including Development (S2)

The future full-buildout volumes assuming proposed mode shares S2 reflecting a direct link to the future Trim LRT Station are illustrated in **Figure 29**. The projected intersection performance are summarized in **Table 29**, with detailed Synchro results provided in **Appendix P**.

Figure 31: Full-Buildout 2035 Total Projected Peak Hour Traffic Volumes – Scenario 2

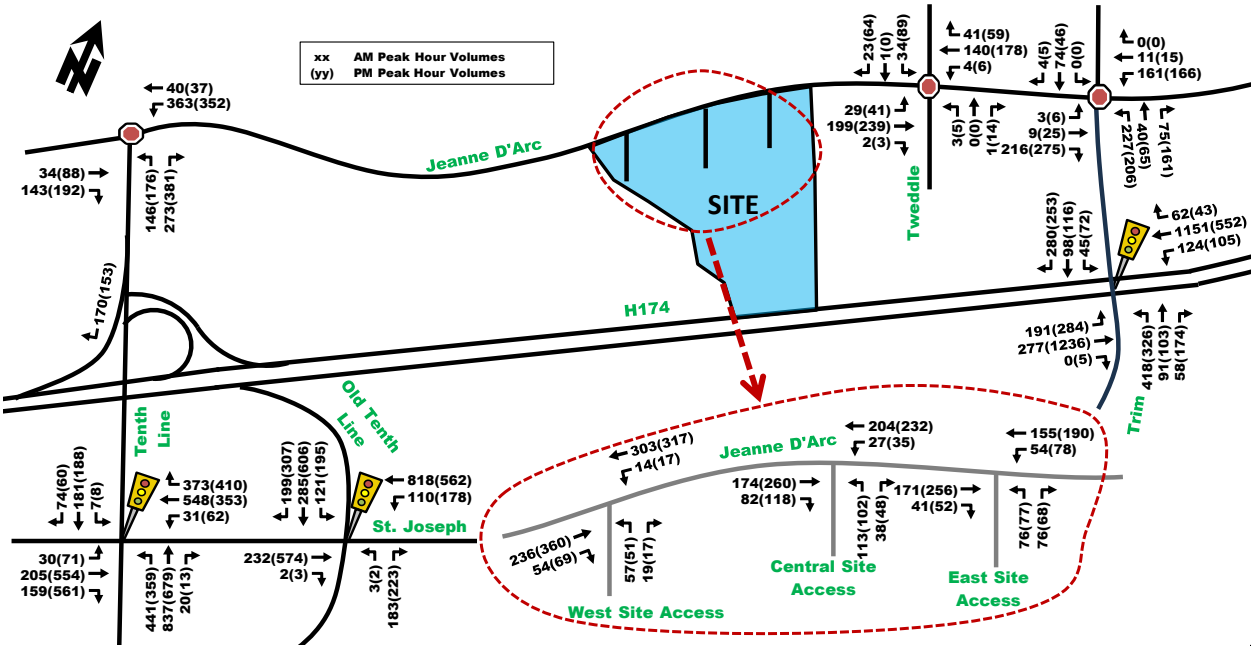


Table 29: Full-Buildout 2035 Intersection Performance – Scenario 2

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized Intersections						
Trim/H174[1]	C(C)	0.78(0.80)	EBL(EBL)	40.6(40.8)	B(A)	0.63(0.49)
Tenth Line/St. Joseph	C(C)	0.76(0.72)	NBT(EBR)	31.3(28.2)	C(C)	0.73(0.71)
Old Tenth Line/St. Joseph	B(B)	0.69(0.62)	WBT(WBL)	13.0(13.2)	A(A)	0.57(0.52)
Unsignalized Intersections						
Trim/Jeanne d'Arc	B(C)	13(17)	NB(NB)	11(14)	B(B)	-
Tweddle/Jeanne d'Arc	A(B)	9(10)	EB(EB)	9(10)	A(B)	-
Tenth Line/Jeanne d'Arc	C(C)	20(23)	WB(WB)	15(18)	C(C)	-
West Access/Jeanne d'Arc	B(C)	14(16)	NB(NB)	2(2)	A(A)	-
Central Access/Jeanne d'Arc	B(C)	14(17)	NB(NB)	4(4)	A(A)	-
East Access/Jeanne d'Arc	B(C)	14(17)	NB(NB)	4(4)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 1.00 and a saturation flow rate of 1800 veh/h/lane. 1. Signal timing was optimized to improve intersection operations.						

As shown in **Table 29**, all intersections will operate at good LoS 'C' or better and with critical movements of good 'C' or better. A direct pedestrian connection to the Trim LRT Station from the north of H174 results in significant operational improvements across all intersections, due to the notable reduction in vehicle demand.

4.9.4. QUEUEING ANALYSIS

The following **Table 30** summarizes queuing results based on SimTraffic software for various intersection locations, where deemed sensitive or at risk of queue spillback on to upstream intersections using the full buildout 2035 traffic volumes for Scenarios 1 and 2.

Table 30: Queueing Analysis at Sensitive Locations – 2035 Full Buildout

Movement & Location	Storage Length + Taper	Queue AM (PM) (in meters) using SimTraffic			
		S1 – No LRT Bridge[1]		S2 – LRT Bridge	
		50th Percentile	95th Percentile	50th Percentile	95th Percentile
EBL Trim/H174	200 m	59 **(507)**	96 **(829)**	44 (68)	74 (109)
EB Trim/Jeanne d'Arc	160 m	39 (33)	79 (78)	19 (22)	39 (38)
NB Trim/Jeanne d'Arc	150 m	52 (70)	93 (129)	38 (49)	71 (84)
WB Tenth Line/Jeanne d'Arc	100 m	32(7)	53(15)	24(23)	39(35)
NB Tenth Line/Jeanne d'Arc	-	16(44)	24(115)	12(17)	20(29)
WBL Site Access (crit.)	-	7 (9)	18 (26)	5 (7)	14 (18)
NB Site Access (crit.)	-	20 (19)	36 (36)	12 (13)	23 (24)

1. Based on visual observations, the EBT queues at Trim/H174 were directly affected by EBL spillover, therefore the EBL was measured as the combined queue formed. The queues at Trim/Jeanne d'Arc were taken from a sensitivity scenario which allowed higher throughput from the Trim/H174 intersection which was metered in the S1 scenario.

As seen in **Table 30**, the impacts of providing an active transportation bridge connection from the north side of H174 to the LRT Station makes a notable impact to forecasted queues along sensitive locations. The following observations have been made:

- The inclusion of the active transportation bridge to the LRT Station results in approximately 45m shorter queue length for the northbound movement at Trim/Jeanne d'Arc, reducing the 95th percentile storage capacity utilization from 86% (nearing capacity) to 56%
- The inclusion of the active transportation bridge to the LRT Station results in approximately 85m shorter queue length for the northbound movement at Tenth Line/Jeanne d'Arc intersection
- The inclusion of the active transportation bridge to the LRT Station results in approximately 720m shorter queue length for the eastbound left-turn at Trim/H174, reducing the queues from completely spilling over on to the highway mainline to being fully accommodated within the available storage length

For Scenario 1, assuming a bridge connection to the LRT Station is not provided, the eastbound left-turn queues at Trim/H174 pose a safety concern where vehicles are forecasted to spill on to the mainline with fast operating vehicles. The following **Section 4.9.5** provides potential mitigation measures should a bridge connection to the LRT Station not be provided. Detailed SimTraffic outputs have been provided in **Appendix Q.**

4.9.5. SCENARIO 1 MITIGATION

This section analyses what would be required to functionally make Scenario 1 work, assuming a direct connection to LRT is not provided.

As detailed in **Table 27** and **Table 30**, there were three noted areas of concern:

1. Forecasted intersection level of service of 'F' at Tenth Line/Jeanne d'Arc
2. Forecasted intersection level of service of 'F' at Trim/Jeanne d'Arc
3. Forecasted long queues with spillover on to the highway mainline at Trim/H174

The following mitigation measures were explored which resulted in adequate performance:

1. Convert the intersection of Tenth Line/Jeanne d'Arc from an all-way-stop-control to a signalized controlled intersection. This mitigation improves the critical level of service from 'F' to 'C' at this location
2. Maintain the all-way-stop-control and provide a second northbound lane at the intersection of Trim/Jeanne d'Arc to separate northbound left-turns from northbound through-right turns (currently only has a single all-movement lane). This lane addition would be required to support mitigation number 3 below. This mitigation improves the critical level of service from 'F' to 'C' at this location

3. Provide a second eastbound left-turn lane with a secondary northbound receiving lane at Trim/H174. This alternative would likely require a shift in eastbound through lanes on the highway to accommodate the extra turning lane given that the intersection is constrained by the rail corridor. This mitigation reduces the forecasted eastbound left-turn queues from approximately 830m to 40m, which would be contained within the auxiliary turn lanes.

Figure 32 illustrates the lane geometries required to support mitigations number 2 and 3 listed above.

Figure 32: Lane Geometry Modifications Required to Support Scenario 1

5. 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 completely within 800m radius from the site is currently under construction as part of the Confederation LRT Line Expansion, anticipated to be operational by year 2026.
- All study area intersections currently operate at good LoS 'C' or better, with critical movements operating at good LoS 'C' or better.

Proposed Development

- Brigil is proposing a mixed-use development consisting of 12 buildings ranging in height from 4 to 40-storeys. A total of 3,022 residential units are currently being proposed (used 3,200 units for trip generation for a more conservative max potential), approximately 110,000 ft^2 of office space and 165,000 ft^2 of commercial retail space is envisioned. The site will likely be built out in four phases, extending past the year 2030 horizon.
- The City of Ottawa's Transportation Master Plan highlights a future bridge connection over H174 near to the Trim LRT Station within the "Active Transportation Major Structures" and within the cycling priority network.

- The Orléans Corridor Secondary Plan and the Official Plan also highlight this bridge connection and designate the area as part of a Station Core Area and Protected Major Transit Station Area (PMTSA) respectively. The direct connection to the LRT is a key aspect in supporting these land designations.
- Within the Orléans Corridor Secondary Plan, a clause states that a multi-use pathway (MUP) along the north side of H174 from the development to a future new grade-separated crossing to the Trim LRT Station will be required for development approval prior to the occupancy of the first phase. The developer intends to build this MUP which would connect to the active transportation bridge crossing H174 and to the Trim LRT Station.
- The combination of the new MUP plus active transportation bridge would reduce the walking distance from the site from 1,400-1,900 meters to 400-900 meters, significantly improving the accessibility to the LRT Station and making transit a more attractive option.
- As part of conversation with City of Ottawa Staff, they have confirmed that a detailed design is being prepared for the future active transportation bridge connecting the north side of H174 to the LRT station; however, they have also advised that no funding has been secured and the timeline for this bridge being built is currently unknown.
- Therefore, two scenarios have been prepared to analyze the transportation impacts from this development:
    - Scenario 1: assumes a direct connection to LRT is not provided and has a heavier reliance on vehicle trips generated, similar to the Orleans TRANS mode shares
    - Scenario 2: assumes a direct connection to LRT is provided, with a better balance between vehicle and transit trips generated
- Both scenarios 1 and 2 forecast a similar number of active transportation trips (in the range of 85 to 110 'new' two-way trips excluding trips destined to transit ridership), however the number of vehicular trips and transit trips vary significantly. For scenario 1, approximately 1,010 to 1,050 'new' two-way vehicle trips are forecasted compared to scenario 1 which forecasts approximately 650 to 685 'new' two-way vehicle trips. In contrast, scenario 2 forecasts approximately 690 to 785 'new' two-way transit trips compared to 240 to 265 new' two-way transit trips for scenario 1.
- The proposed development includes a new local public street (Road B) and two new local private streets (Road A and C). The public street has been proposed designed according to the recent City of Ottawa 18m ROW local road cross section including 1.8m wide sidewalks on both sides. The private road is still being refined but is expected to function as a private laneway catered to active transportation users, with limited access to delivery trucks and residential access. A future connection to Centre des Métiers Minto (Road C) has been identified, but this connection is currently conceptual, and the road user type has yet to be identified. There is consideration for a Woonerf design for Roads A and C which will be further explored during the site plan application process.

  The site roads are proposed as a 30km/h residential street, based on the corresponding City of Ottawa toolbox, which includes speed humps and periodic bulbouts with parking on one side. Two mid-block crossings as a PXO are proposed directly north of Road C which will form part of an internal MUP facility linking the Ottawa River Pathway to the future MUP towards the active transportation bridge. A mid-block crossing on Jeanne d'Arc Blvd west of the western access is also proposed to provide connectivity to the Ottawa River Pathway and a future westbound bus stop.

  With three access intersections to Jeanne d'Arc Blvd to spread site generated traffic, and no connection to any other road eliminating the risk of cut through or infiltrated traffic, the designation as local streets is appropriate.

- TDM measures are highly encouraged for the site, including but not limited to 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. TDM measures will be confirmed in each Site Plan Application.

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 and 1015 Tweddle Rd. Two distinct future background volumes were derived, with and without a direct connection to the LRT. While regionally this would have minimal impacts, locally it will have a greater impact to commuter habits, particularly for 1015 Tweddle Rd and Centre des Métiers Minto. No additional background volume growth was applied.
- The MMLOS road segment analysis showed that by adding a mid-block crossing on Jeanne d'Arc Blvd, the pedestrian level of service could be met in the future (currently not met). For cyclists, a minor improvement was shown in the future should cycle-tracks replace the existing curbside bike lane, however wider bike lanes would be required to achieve the BLoS target. The transit target was met, and the public realm was improved with the addition of a new bus stop fronting the site.
- The MMLOS intersection (for signalized intersections only) analysis showed that pedestrian level of service was only met at Old Tenth Line/St. Joseph. No feasible changes were identified to meet the PLoS targets. None of the intersections met the cycling level of service. Providing a smart channel with a raised crosswalk crossing the bi-directional cycle-track at Trim/H174 would achieve the desired BLoS target. At Tenth Line/St. Joseph and Old Tenth Line/St. Joseph, providing fully protected left-turns, cross-rides and protected corners at all approaches would meet the desired target. The transit level of service was generally met at all locations except for the westbound route #39.
- Traffic operations confirmed that if this development and adjacent developments were supported by infrastructure conducive of taking transit, such as providing the direct bridge link from the north side of H174 to the Trim LRT station, then this development and other nearby proposed developments would result in adequate intersection performance both in terms of capacity and queueing (Scenario 2).
- However, if a direct bridge link from the north side of H174 to the Trim LRT station is not provided (Scenario 1), then various challenges arise:
    - The site is currently accessible via only two outlets, Tenth Line Rd and Trim Rd. Scenario 1 demonstrated that both Trim/Jeanne d'Arc and Tenth Line/Jeanne d'Arc would operate above capacity and with notable queues. Since both outlets would experience this congestion, then traffic does not have a way to balance itself and congestion will continue.
    - The eastbound left-turn at Trim/H174 is forecasted to have very long queues, extending almost a kilometer in length. This queue would spill on to the high operating speed highway mainline and result in dangerous conditions.
    - The analysis demonstrates that the bridge connection to LRT is a critical piece of infrastructure required to support this and adjacent developments by full buildout should no roadway modifications be completed.
    - A sensitivity analysis demonstrated that providing a secondary eastbound left-turn lane along with a secondary receiving northbound lane would mitigate queues at Trim/H174. The secondary northbound receiving lane could extend to Trim/Jeanne d'Arc, providing added capacity to the northbound movement and mitigating the poor level of service at that intersection. Finally, upgrading the Tenth Line/Jeanne d'Arc intersection into a traffic signal would resolve the poor level of service forecasted at that location.

- While operationally scenario 1 is not recommended from a transportation perspective without modifications to the road network, assuming no connection to the LRT Station from the north is provided, it is worth acknowledging that the growth anticipated north of H174 will be gradual and over the course of the next few decades. This provides an opportunity for funding for this bridge to be secured and built prior to the full buildout of this and adjacent developments. It is recommended that as each phase moves forward under Scenario 1, traffic analysis be conducted to ensure that the additional density can be supported prior to the construction of the bridge connection to LRT.
- Warrants were completed and none of the site access intersections were deemed candidates for signalized intersections. An all-way-stop-control could be considered on Jeanne d'Arc Blvd but it would negatively impact transit service on a major collector road and is therefore not recommended or required from an operational perspective. A PXO crossing Jeanne d'Arc Blvd to access a new westbound bus stop and connecting to the Ottawa River Pathway is preferred. Internal to the site, an all-way-stop-control was not warranted. The need for a left-turn lane was warranted at both the center and east access, however, operationally it is not required and the low through volumes and posted speed of 50km/h result in low concern for the need for these turning lanes. Additionally, the effort to implement these turn lanes outweighs the benefits and is therefore not recommended. Right-turn lanes are also not recommended based on the effort to implement.
- Active transportation details will become available once a Site Plan Application is filed for each phase of development, however the site is anticipated to provide a network of integrated sidewalk facilities which connect to the MUP proposed along the north side of H174 to the future active transportation bridge over H174.

Based on the preceding report, the proposed Brigil Development located at 8600 Jeanne d'Arc Blvd is recommended from a transportation perspective should a direct bridge connecting the north side of H174 to the Trim LRT Station be provided. Since the development is anticipated to be built gradually over the following upcoming decades, an opportunity to move forward with the initial phases could be supported. As each new phase advances to Site Plan design, it is recommended that refreshed traffic analysis be done to ensure they can be supported prior to the implementation of this new bridge. By full buildout of this development and adjacent developments, a direct link to the LRT via a new active transportation bridge is recommended and assumed to be in place by then or alternate mitigation measures such as described in Section 4.9.5 are recommended.

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APPENDIX A

SCREENING FORM

PARSONS

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City of Ottawa 2017 TIA Guidelines

TIA Screening Form

Date	8-Jun-23
Project	Petrie's Landing III
Project Number	478566 - 01000

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

Module 1.1 - Description of Proposed Development	
Municipal Address	8600 Jeanne D'Arc Boulevard N
Description of location	Vacant land bound by Jeanne D'Arc, Hwy 174, Taylor Creek and Centre des Metiers Minto Desjardins de la Cite
Land Use	Mixed-use, proposing residential, retail, restaurant/bar and office space
Development Size	Proposed appoximately 3,177 residential units, 110,000sqft office space, 165,000sqft ground floor commercial spaces
Number of Accesses and Locations	3 proposed, 2 public roads with ROW 20m, 1 private road with ROW
Development Phasing	Multi-phased
Buildout Year	2030+
Sketch Plan / Site Plan	See attached

Module 1.2 - Trip Generation Trigger		
Land Use Type	Townhomes or Apartments	
Development Size	3000	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 is a spine route
Development is in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone. (See Sheet 3)	Yes	Within 600m of 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	No	
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?	No	

Demonstration Plan

- Tower Separation Dimensions
- Tower Separation Dimensions
- Phasing Line
- Future Connection
- Public Road
- Private Road
- Primary Entrance
- Secondary Entrance
- Non-Residential Podium

Block	Use*	Unit Total	Gross Floor Area Total
Block 1 "A" buildings	Residential Low-Rise Residential / Mixed-Use Mid-Rise	392	39,150 m²
Block 2 "B" buildings	Residential / Mixed-Use Mid-Rise Residential / Mixed-Use High-Rise	1,089	88,015 m²
Block 3 "C" buildings	Residential / Mixed-Use Mid-Rise Residential / Mixed-Use High-Rise	477	37,908 m²
Block 5 "D" buildings	Residential / Mixed-Use High-Rise	1,065	83,172 m²
Total		3,022 units	248,245 m²

*the proposed uses are subject to change, and through the refinement of the Draft Plan of Subdivision, the location of non-residential uses will be confirmed.

APPENDIX B

TRAFFIC COUNT DATA

Transportation Services - Traffic Services

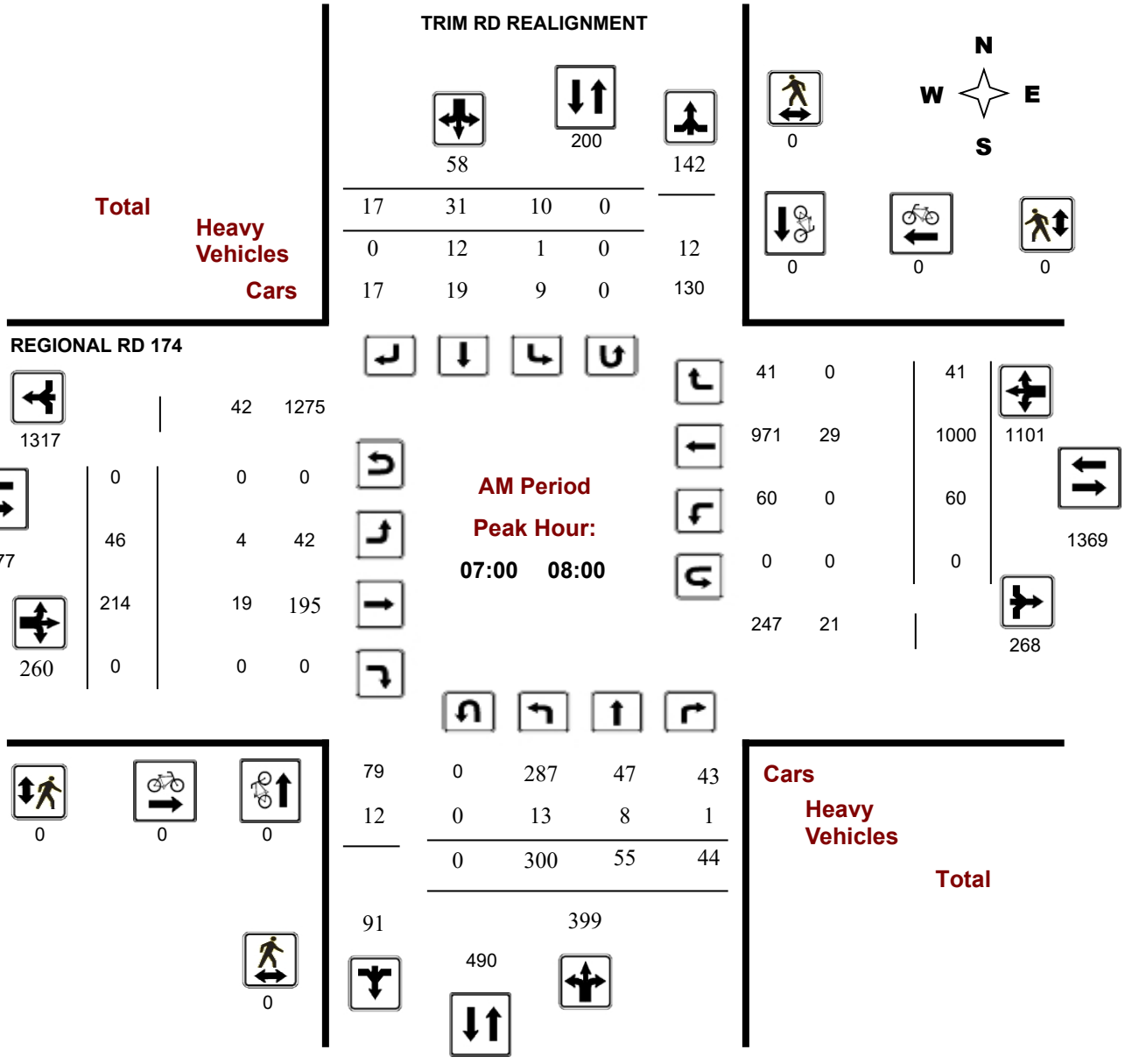
Turning Movement Count - Study Results

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

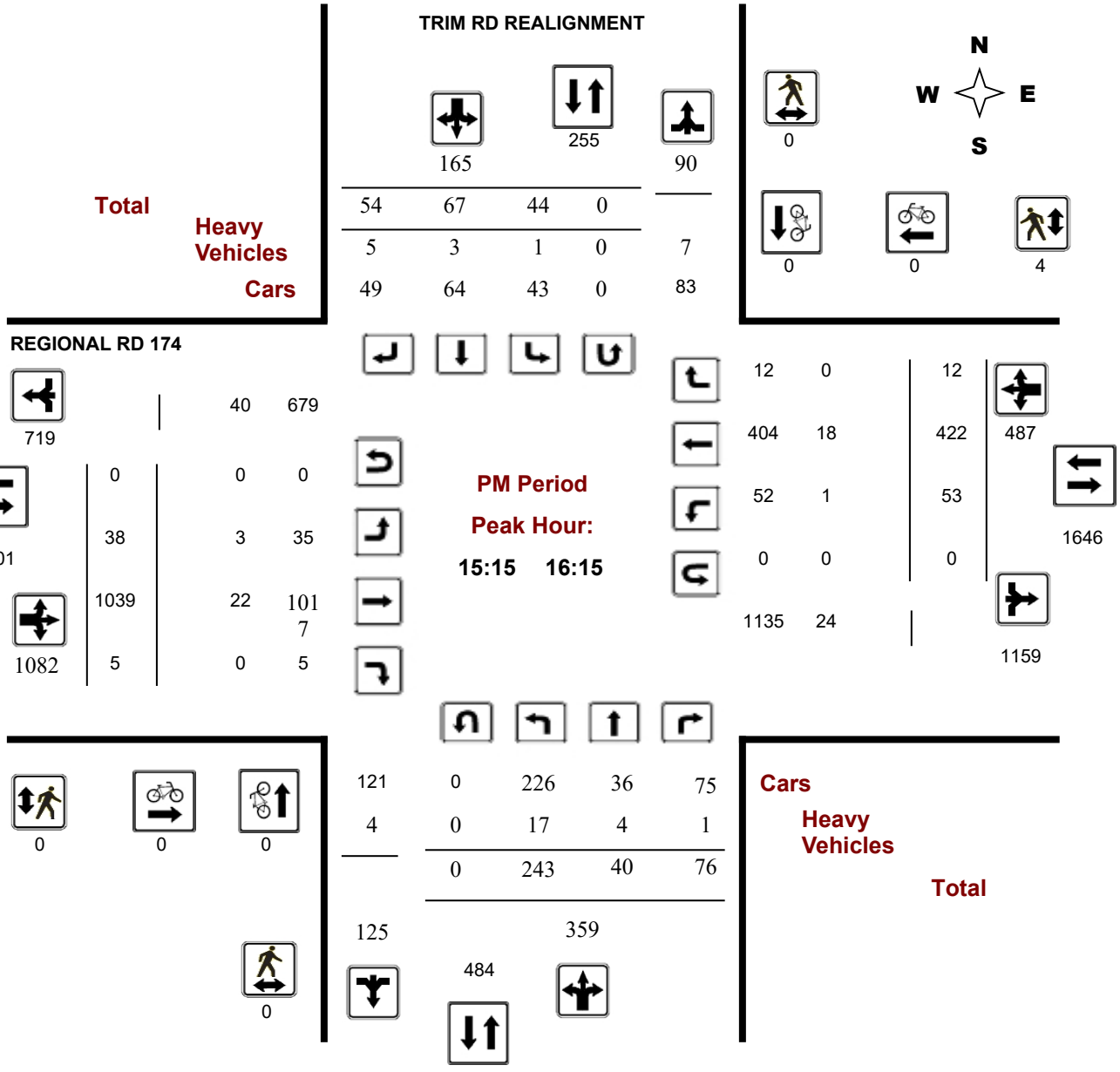
Turning Movement Count - Study Results

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

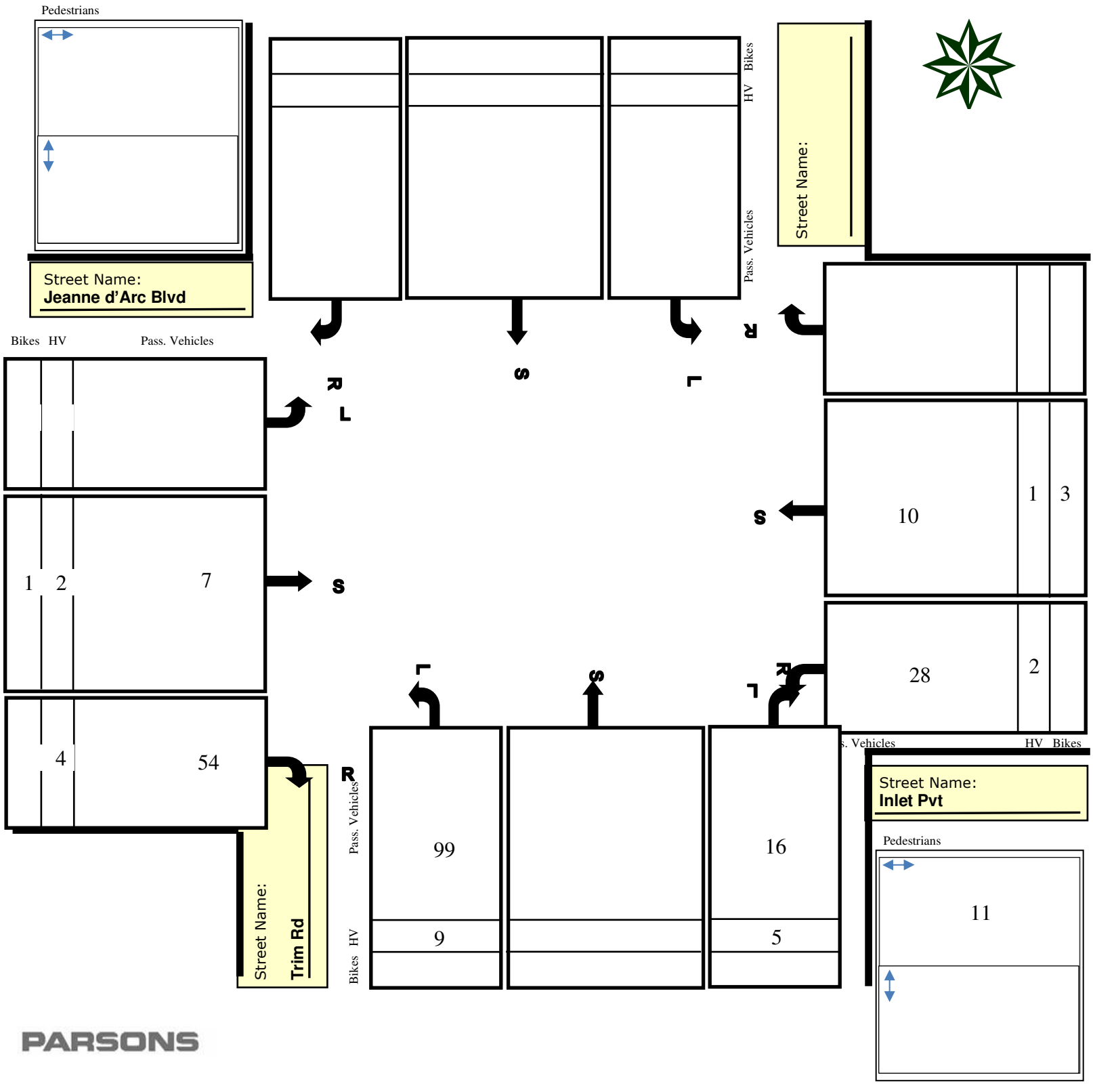
Intersection: **Jeanne d'Arc Blvd** at **Trim Rd**

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

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

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

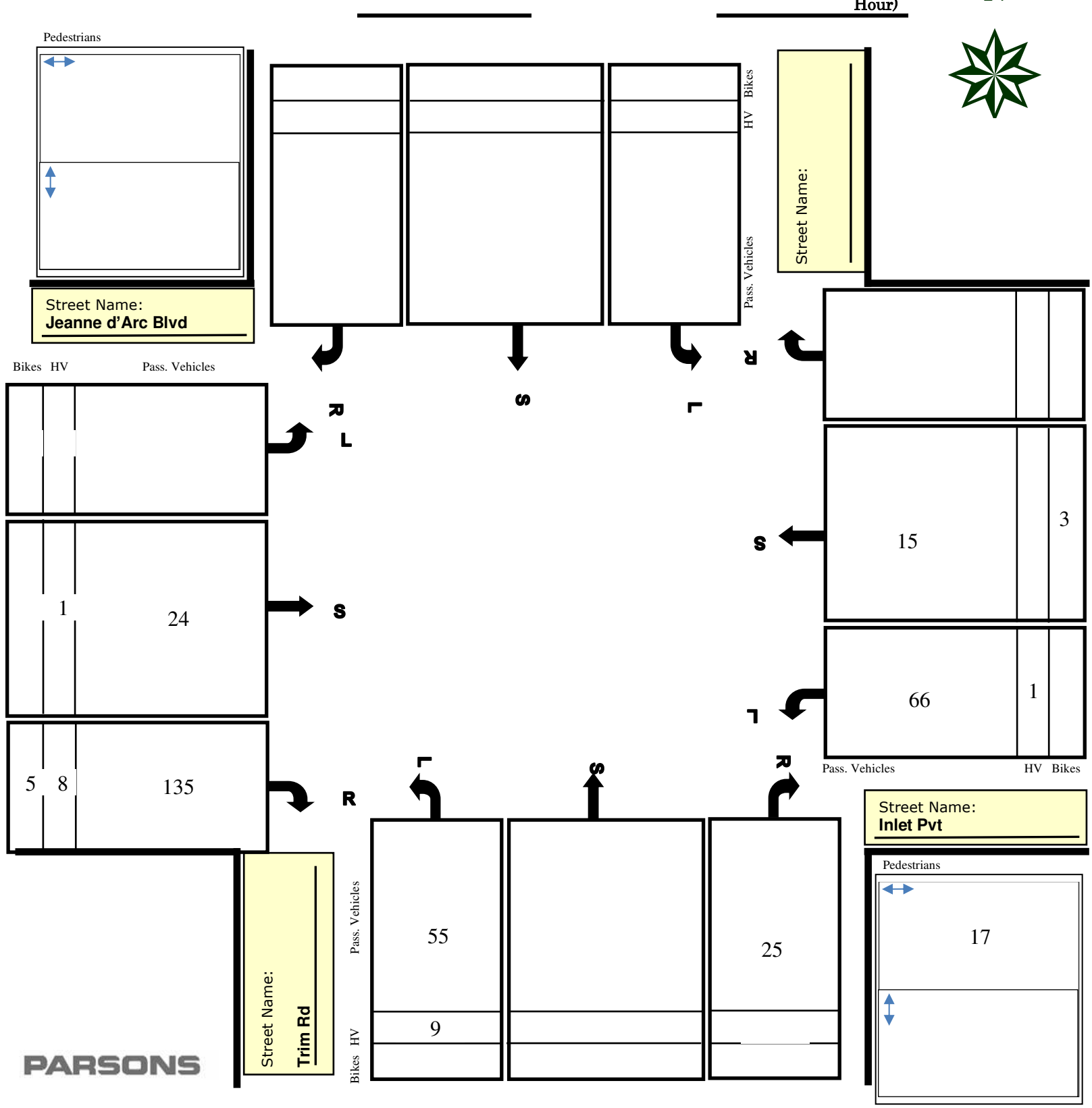
TIME PERIOD: From: **7:30 AM** To: **8:30 AM**



PARSONS

DIRECTIONAL TRAFFIC FLOW

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



PARSONS

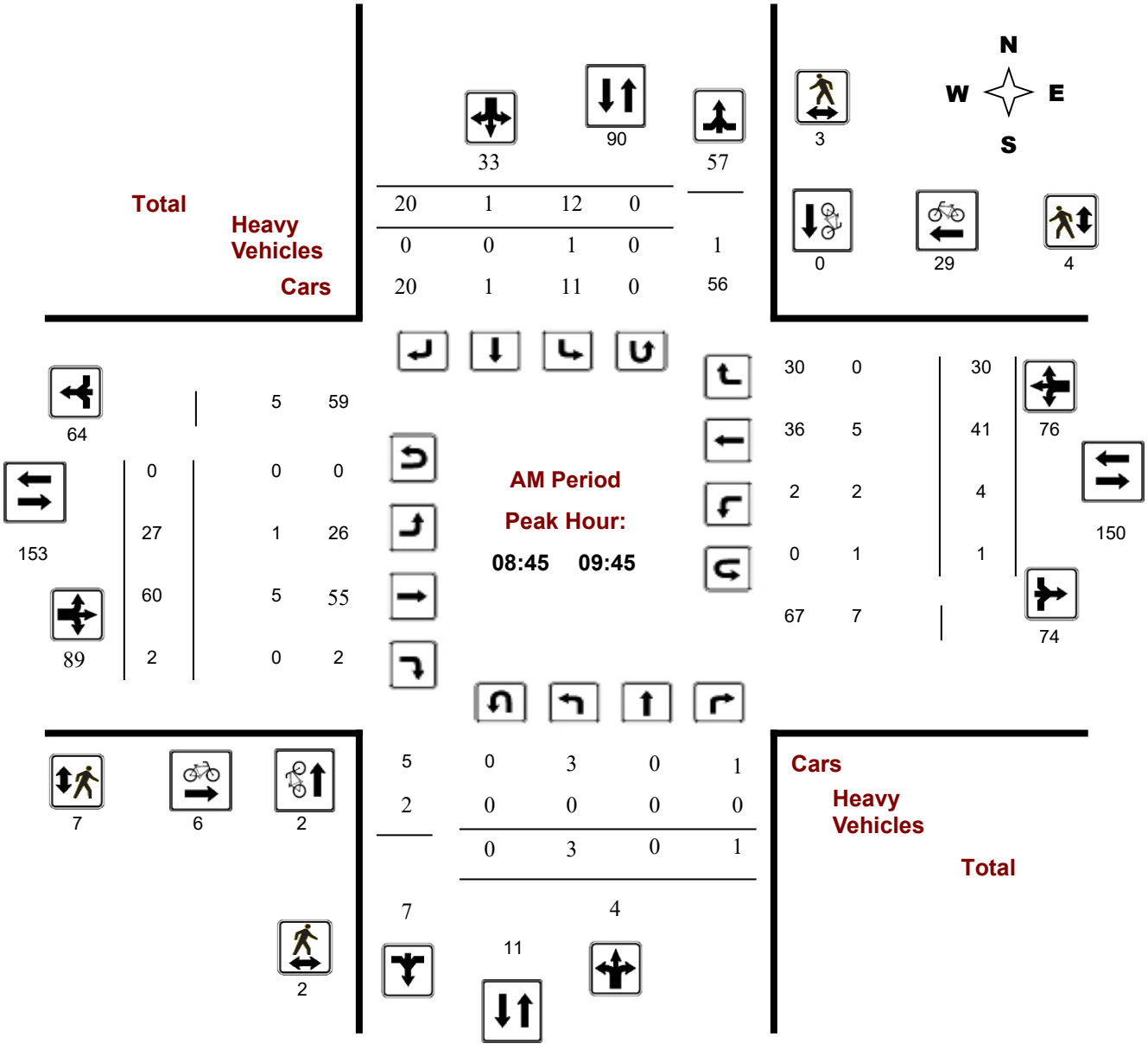
Transportation Services - Traffic Services

Turning Movement Count - Study Results

TWEDDLE RD & JEANNE-D'ARC BLVD

Survey Date: Tuesday, June 25, 2024
Start Time: 07:00
WO No: 41857
Device: Miovision

AM Period Peak Hour Diagram



Transportation Services - Traffic Services

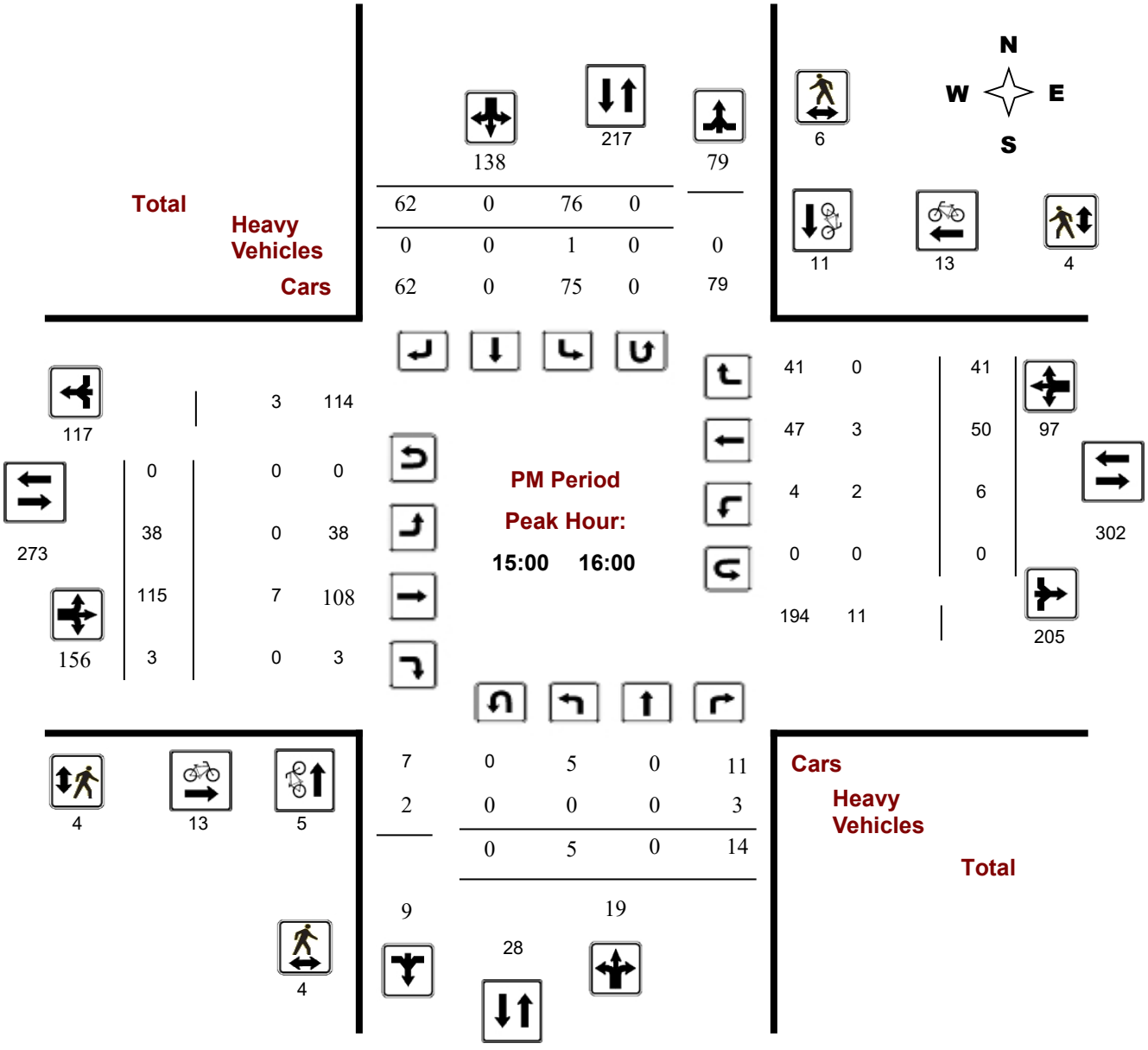
Turning Movement Count - Study Results

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



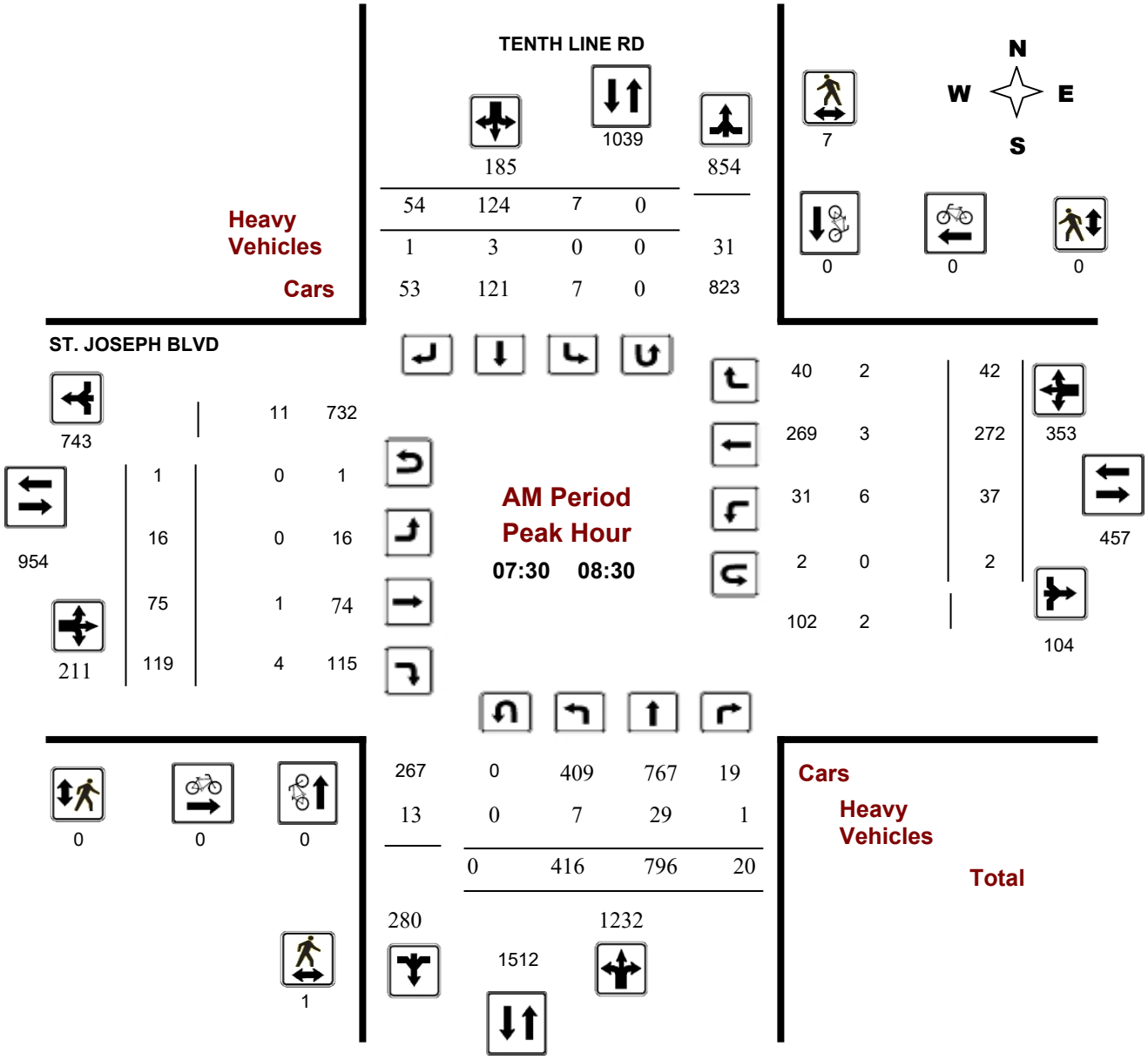
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ST. JOSEPH BLVD @ TENTH LINE RD

Survey Date: Tuesday, March 20, 2018 **WO No:** 37613

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



Comments

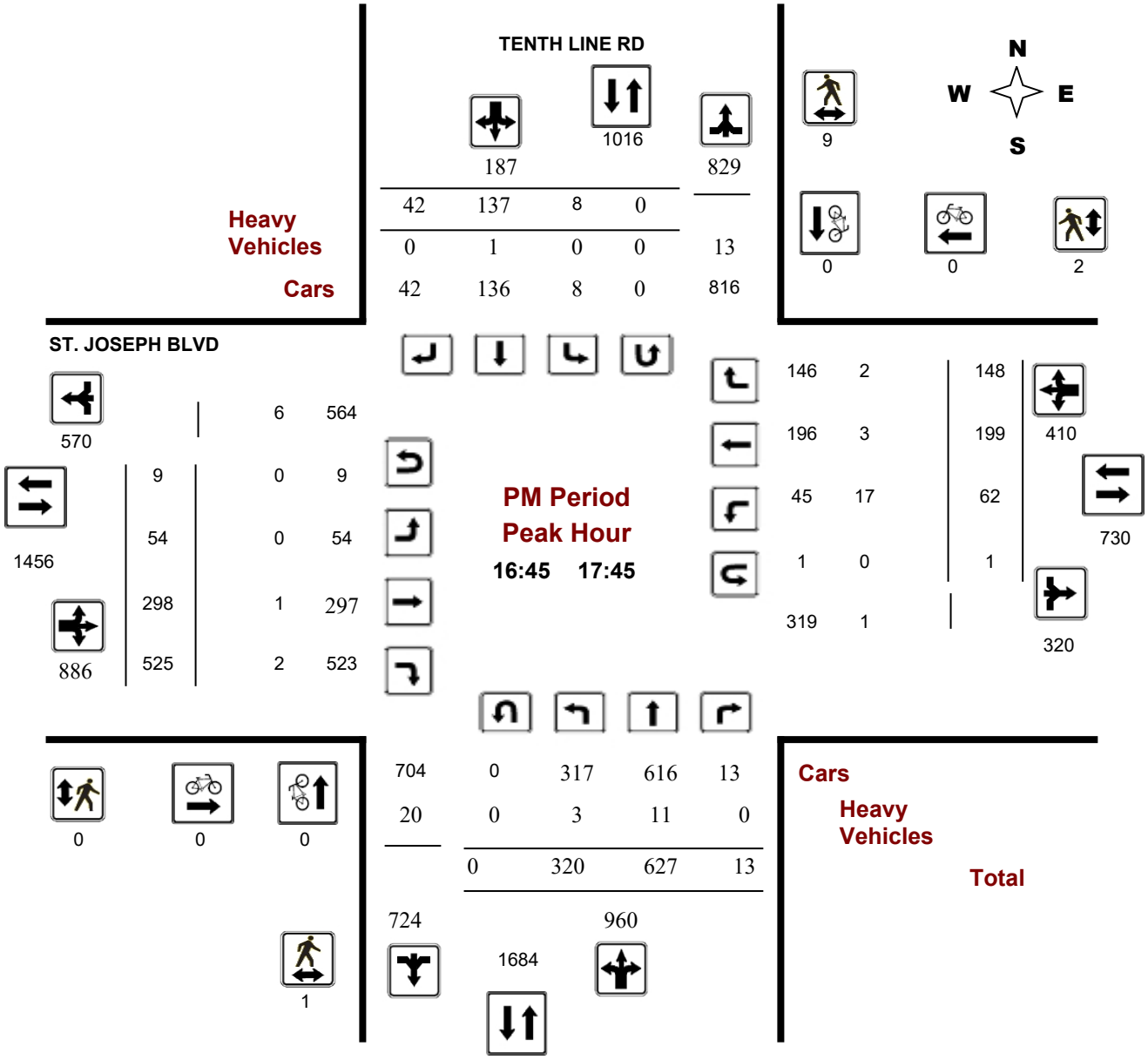
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ST. JOSEPH BLVD @ TENTH LINE RD

Survey Date: Tuesday, March 20, 2018 **WO No:** 37613

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



Comments

Transportation Services - Traffic Services

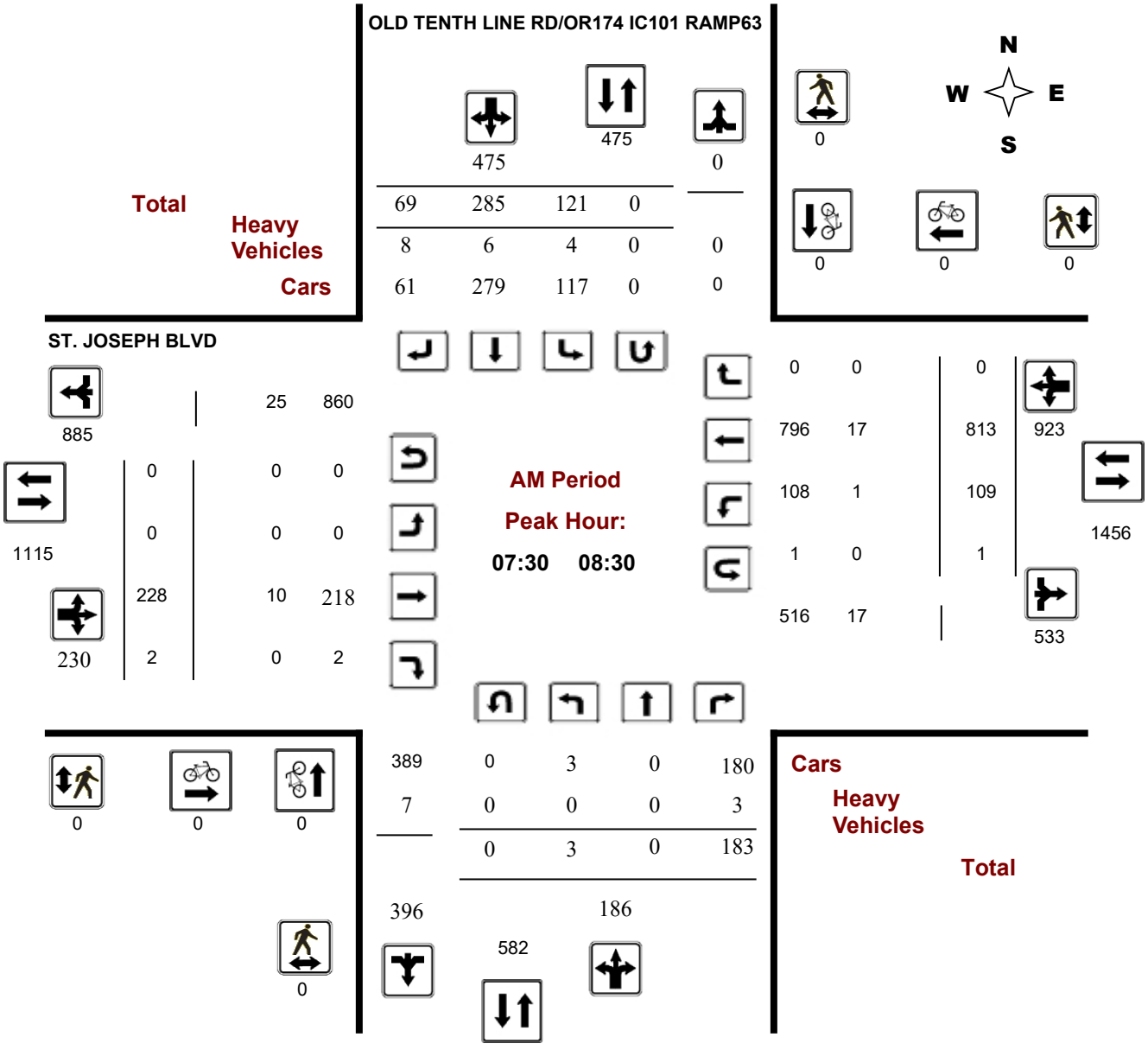
Turning Movement Count - Study Results

OLD TENTH LINE RD/OR174 IC101 RAMP63 @ ST. JOSEPH BLVD

Survey Date: Tuesday, October 29, 2024 **WO No:** 42337

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

AM Period Peak Hour Diagram



Transportation Services - Traffic Services

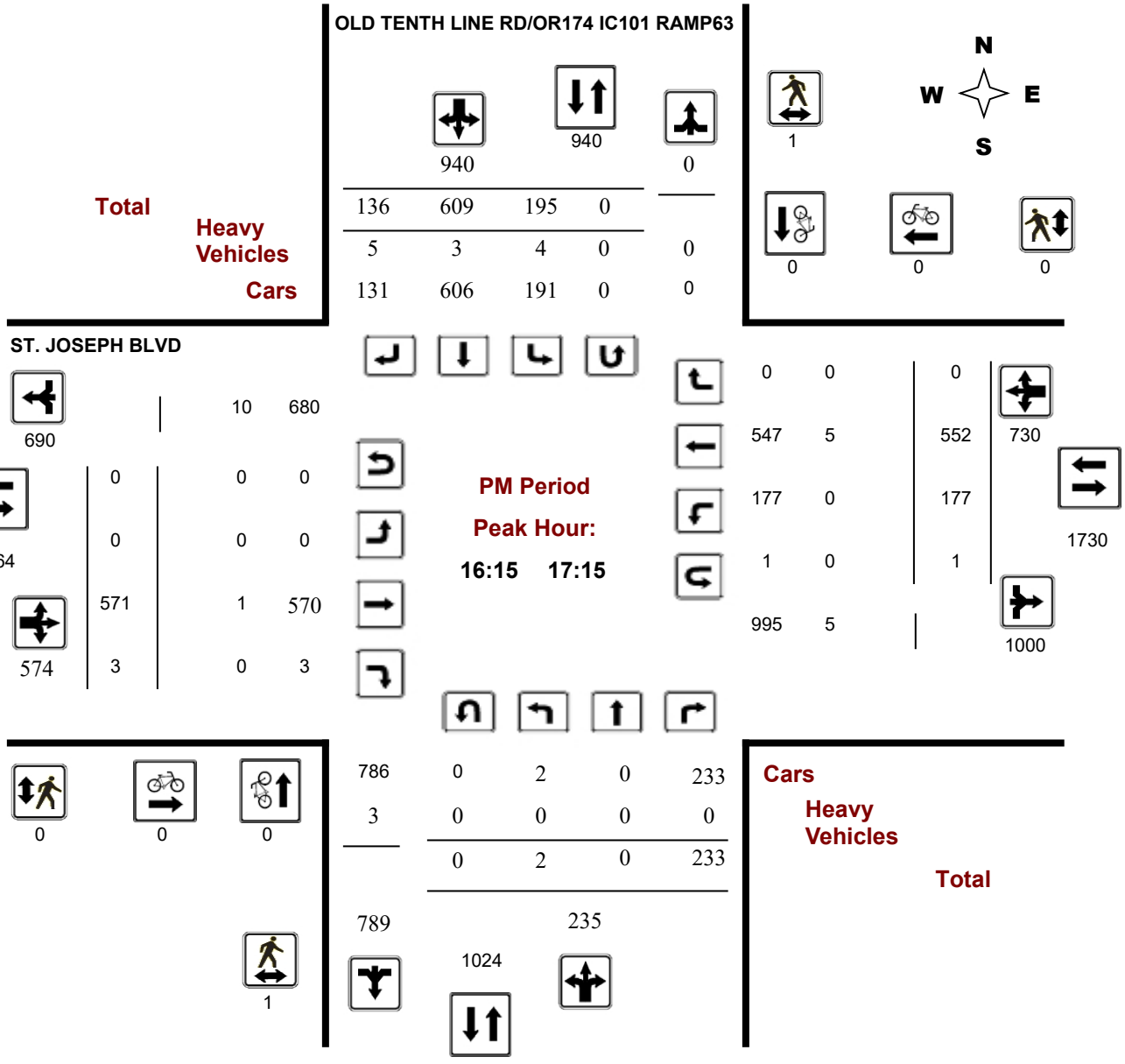
Turning Movement Count - Study Results

OLD TENTH LINE RD/OR174 IC101 RAMP63 @ ST. JOSEPH BLVD

Survey Date: Tuesday, October 29, 2024 **WO No:** 42337

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

PM Period Peak Hour Diagram



Transportation Services - Traffic Services

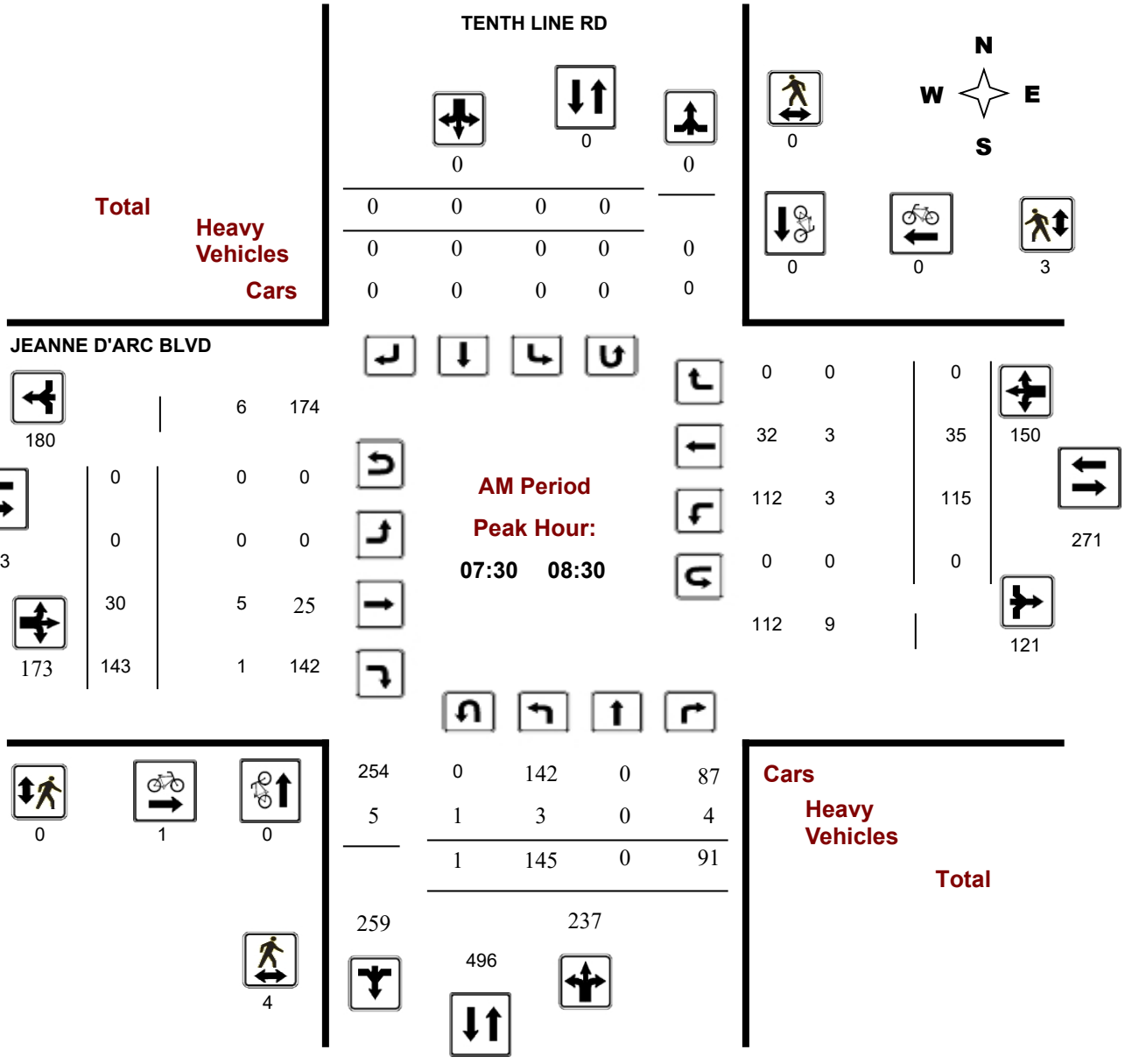
Turning Movement Count - Study Results

JEANNE D'ARC BLVD @ TENTH LINE RD

Survey Date: Thursday, May 22, 2025 **WO No:** 42738

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

AM Period Peak Hour Diagram



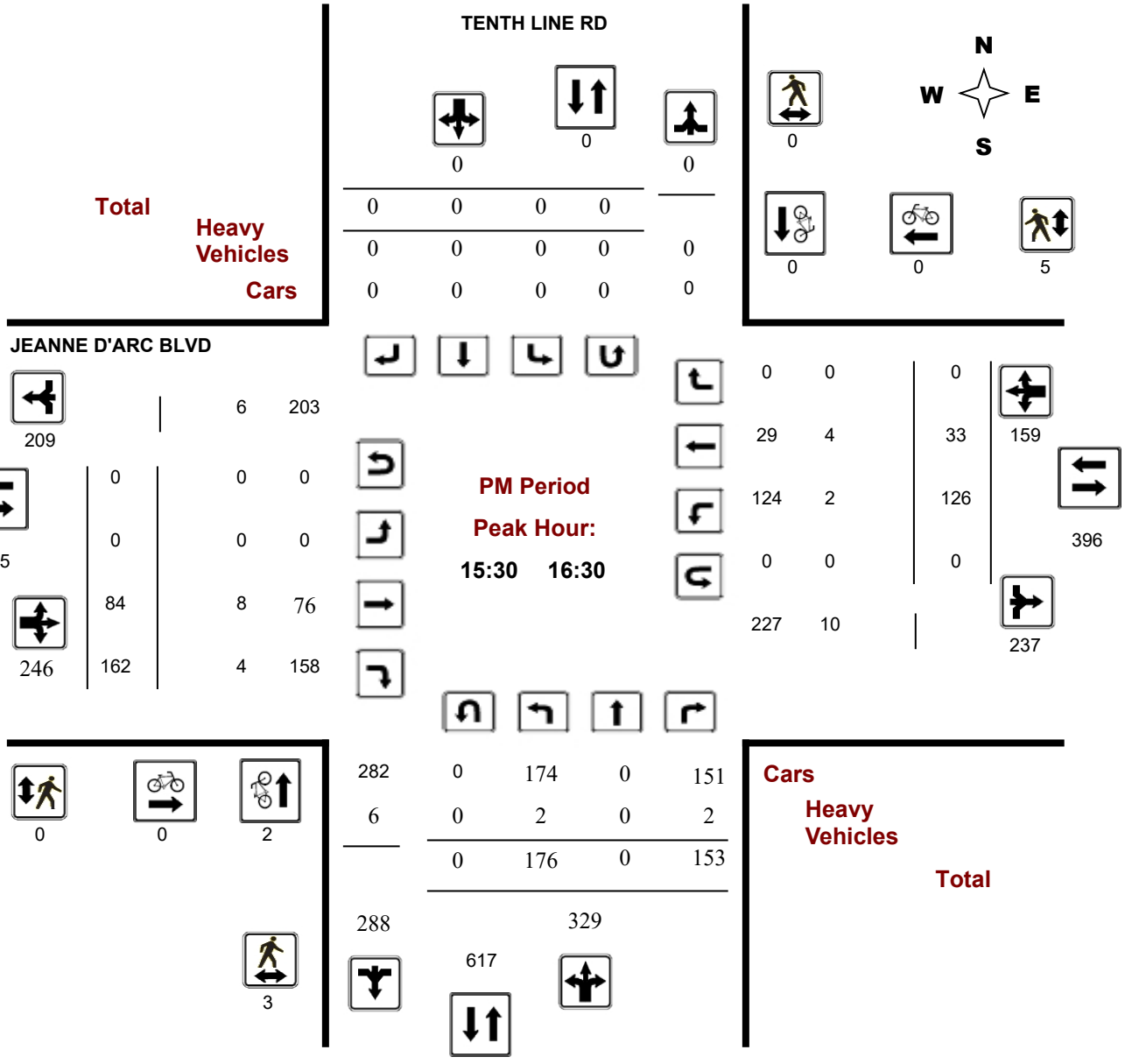
Transportation Services - Traffic Services

Turning Movement Count - Study Results

JEANNE D'ARC BLVD @ TENTH LINE RD

Survey Date: Thursday, May 22, 2025
Start Time: 07:00
WO No: 42738
Device: Miovision

PM Period Peak Hour Diagram



APPENDIX C

COLLISION DATA

CITY OF OTTAWA COLLISIONS (OPEN DATA) · APRIL 7, 2026

Collision Summary Report

177	0	25	17	0	1
TOTAL	FATAL	INJURY	LOCATIONS	PED	CYC

177 collisions across 17 named locations · 1 without location data (included in totals only)

ALL LOCATIONS — SUMMARY

Data period: **2019–2024 (filtered: 2019, 2020, 2021, 2022, 2024)**

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL
Non-fatal Injury	7	—	—	8	1	4	5	—	—	1	**25**
Property Damage Only	14	2	2	62	30	18	19	1	—	—	**148**
Non-Reportable	—	—	—	3	1	—	—	—	—	—	**4**
Total	**21**	**2**	**2**	**73**	**32**	**22**	**24**	**1**	**—**	**1**	**177**
% of total	*12%*	*1%*	*1%*	*41%*	*18%*	*12%*	*14%*	*1%*	—	*1%*	—

LOCATION BREAKDOWN

#1 ST. JOSEPH BLVD @ TENTH LINE RD — +1 nearby match

Data period: **2019–2024 (filtered: 2019, 2020, 2021, 2022, 2024)**

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Non-fatal Injury	2	—	—	2	1	—	—	—	—	—	**5**	*8%*
Property Damage Only	10	1	—	24	13	3	4	—	—	—	**55**	*90%*
Non-Reportable	—	—	—	1	—	—	—	—	—	—	**1**	*2%*
Total	**12**	**1**	**—**	**27**	**14**	**3**	**4**	**—**	**—**	**—**	**61**	*100%*
% of total	*20%*	*2%*	—	*44%*	*23%*	*5%*	*7%*	—	—	—	—	—

#2 REGIONAL RD 174 @ TRIM RD REALIGNMENT

+2 nearby matches

Data period: **2021–2024 (filtered: 2021, 2022, 2024)**

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Non-fatal Injury	2	—	—	2	—	1	4	—	—	—	9	25%
Property Damage Only	—	—	—	14	3	2	6	—	—	—	25	69%
Non-Reportable	—	—	—	1	1	—	—	—	—	—	2	6%
Total	2	—	—	17	4	3	10	—	—	—	36	100%
% of total	6%	—	—	47%	11%	8%	28%	—	—	—	—	—

#3 OLD TENTH LINE RD/OR174 IC101 RAMP63 @ ST. JOSEPH BLVD

Data period: **2019–2024 (filtered: 2019, 2020, 2021, 2022, 2024)**

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Non-fatal Injury	3	—	—	—	—	—	—	—	—	—	3	12%
Property Damage Only	3	—	—	6	2	4	7	—	—	—	22	88%
Total	6	—	—	6	2	4	7	—	—	—	25	100%
% of total	24%	—	—	24%	8%	16%	28%	—	—	—	—	—

#4 REGIONAL ROAD 174 EB btwn TRIM RD & REGIONAL ROAD 174 UNDIVIDED

Data period: **2019–2024 (filtered: 2019, 2021, 2022, 2024)**

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Non-fatal Injury	—	—	—	1	—	—	—	—	—	—	1	6%
Property Damage Only	—	—	—	3	6	5	1	—	—	—	15	94%
Total	—	—	—	4	6	5	1	—	—	—	16	100%
% of total	—	—	—	25%	38%	31%	6%	—	—	—	—	—

#5 TENTH LINE RD btwn OR174 IC101 RAMP26 & ST. JOSEPH BLVD

Data period: **2019–2024 (filtered: 2019, 2020, 2021, 2024)**

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Non-fatal Injury	—	—	—	1	—	—	—	—	—	—	1	11%
Property Damage Only	—	—	—	7	1	—	—	—	—	—	8	89%
Total	—	—	—	8	1	—	—	—	—	—	9	100%
% of total	—	—	—	89%	11%	—	—	—	—	—	—	—

#6 JEANNE D'ARC BLVD @ TENTH LINE RD

1 cyc

Data period: **2019–2022 (filtered: 2019, 2021, 2022)**

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Non-fatal Injury	–	–	–	1	–	1	1	–	–	1	3	50%
Property Damage Only	–	–	–	2	1	–	–	–	–	–	3	50%
Total	–	–	–	3	1	1	1	–	–	1	6	100%
% of total	–	–	–	50%	17%	17%	17%	–	–	17%	–	–

#7 REGIONAL ROAD 174 WB btwn TRIM RD & REGIONAL ROAD 174 UNDIVIDED

Data period: **2020–2024 (filtered: 2020, 2021, 2024)**

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Property Damage Only	–	–	2	–	1	2	–	–	–	–	5	100%
Total	–	–	2	–	1	2	–	–	–	–	5	100%
% of total	–	–	40%	–	20%	40%	–	–	–	–	–	–

#8 TENTH LINE RD btwn ST. JOSEPH BLVD & OLD TENTH LINE RD

Data period: **2019–2024 (filtered: 2019, 2022, 2024)**

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Non-fatal Injury	–	–	–	1	–	–	–	–	–	–	1	25%
Property Damage Only	–	–	–	2	1	–	–	–	–	–	3	75%
Total	–	–	–	3	1	–	–	–	–	–	4	100%
% of total	–	–	–	75%	25%	–	–	–	–	–	–	–

#9 OR174 IC101 RAMP63 btwn REGIONAL ROAD 174 & OLD TENTH LINE RD

Data period: **2021**

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Property Damage Only	–	–	–	1	–	2	–	–	–	–	3	100%
Total	–	–	–	1	–	2	–	–	–	–	3	100%
% of total	–	–	–	33%	–	67%	–	–	–	–	–	–

#10 TENTH LINE RD btwn OR174 IC101 RAMP36 & OR174 IC101 RAMP61

Data period: 2019–2020

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Property Damage Only	1	–	–	–	–	–	1	–	–	–	2	*100%*
Total	**1**	**–**	**–**	**–**	**–**	**–**	**1**	**–**	**–**	**–**	**2**	***100%***
% of total	*50%*	–	–	–	–	–	*50%*	–	–	–	–	–

#11 TRIM RD btwn JEANNE D'ARC BLVD N & REGIONAL ROAD 174

Data period: 2019–2020

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Property Damage Only	–	–	–	1	–	–	–	1	–	–	2	*100%*
Total	**–**	**–**	**–**	**1**	**–**	**–**	**–**	**1**	**–**	**–**	**2**	***100%***
% of total	–	–	–	*50%*	–	–	–	*50%*	–	–	–	–

#12 JEANNE D'ARC BLVD @ TRIM RD

Data period: 2020–2021

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Non-fatal Injury	–	–	–	–	–	1	–	–	–	–	1	*50%*
Property Damage Only	–	–	–	1	–	–	–	–	–	–	1	*50%*
Total	**–**	**–**	**–**	**1**	**–**	**1**	**–**	**–**	**–**	**–**	**2**	***100%***
% of total	–	–	–	*50%*	–	*50%*	–	–	–	–	–	–

#13 JEANNE D'ARC BLVD btwn HARLEQUIN CRES & TENTH LINE RD

Data period: 2019

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Property Damage Only	–	–	–	1	–	–	–	–	–	–	1	*100%*
Total	**–**	**–**	**–**	**1**	**–**	**–**	**–**	**–**	**–**	**–**	**1**	***100%***
% of total	–	–	–	*100%*	–	–	–	–	–	–	–	–

#14 JEANNE D'ARC BLVD btwn TENTH LINE RD & ROSSIGNOL CRES

Data period: 2020

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Non-fatal Injury	–	–	–	–	–	1	–	–	–	–	1	*100%*
Total	**–**	**–**	**–**	**–**	**–**	**1**	**–**	**–**	**–**	**–**	**1**	***100%***
% of total	–	–	–	–	–	*100%*	–	–	–	–	–	–

#15 ST. JOSEPH BLVD btwn ST. JOSEPH BLVD & Proposed

Data period: **2020**

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Property Damage Only	–	–	–	–	1	–	–	–	–	–	1	*100%*
Total	–	–	–	–	1	–	–	–	–	–	1	*100%*
% of total	–	–	–	–	*100%*	–	–	–	–	–	–	–

#16 ST. JOSEPH BLVD btwn OLD TENTH LINE RD & OR174 IC101 RAMP45

Data period: **2020**

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Property Damage Only	–	–	–	–	1	–	–	–	–	–	1	*100%*
Total	–	–	–	–	1	–	–	–	–	–	1	*100%*
% of total	–	–	–	–	*100%*	–	–	–	–	–	–	–

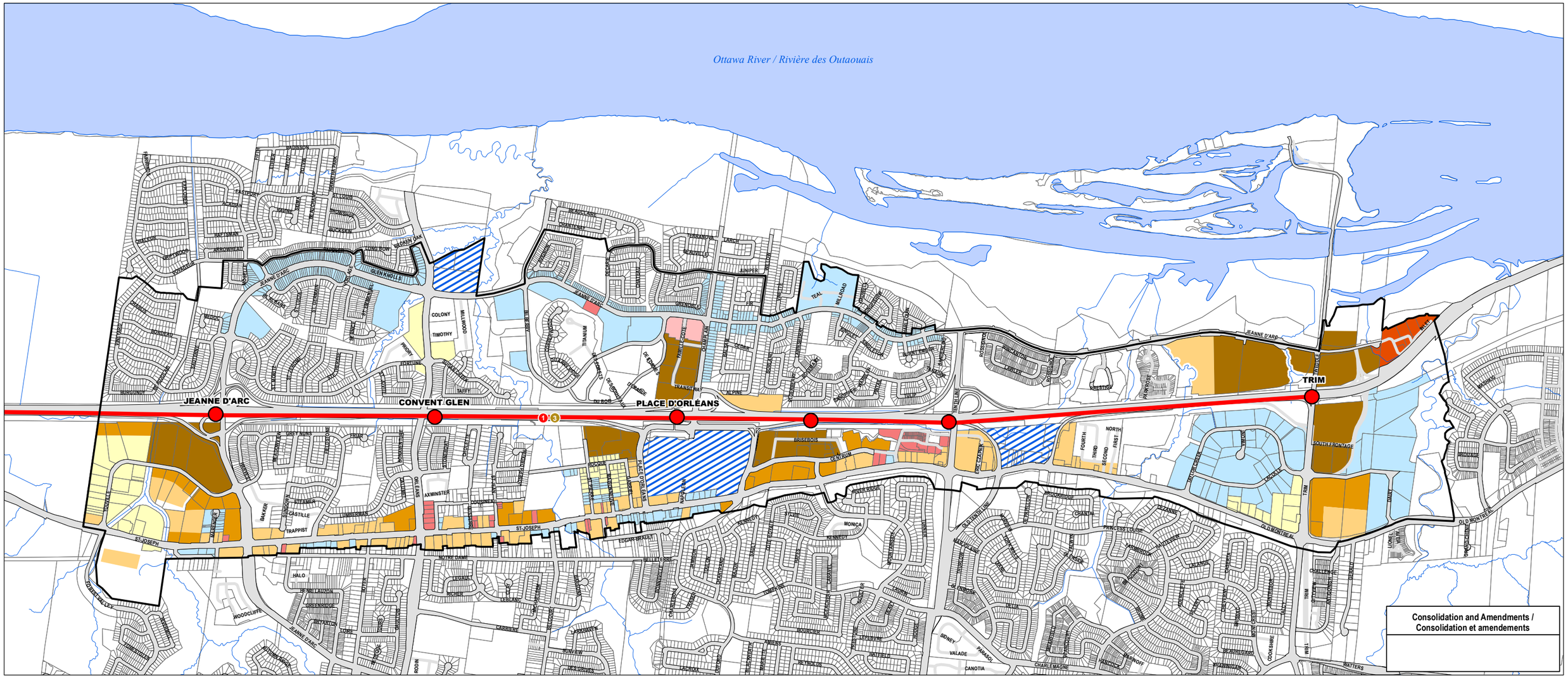
#17 TRIM RD btwn END & JEANNE D'ARC BLVD

Data period: **2021**

SEVERITY	ANGLE	HEAD-ON	OTHER	REAR-END	SIDESWIPE	SINGLE VEHICLE	TURNING MVMT	UNATTENDED VEHICLE	PED	CYC	TOTAL	%
Property Damage Only	–	1	–	–	–	–	–	–	–	–	1	*100%*
Total	–	1	–	–	–	–	–	–	–	–	1	*100%*
% of total	–	*100%*	–	–	–	–	–	–	–	–	–	–

APPENDIX D

ORLEANS CORRIDOR SECONDARY PLAN – MOBILITY



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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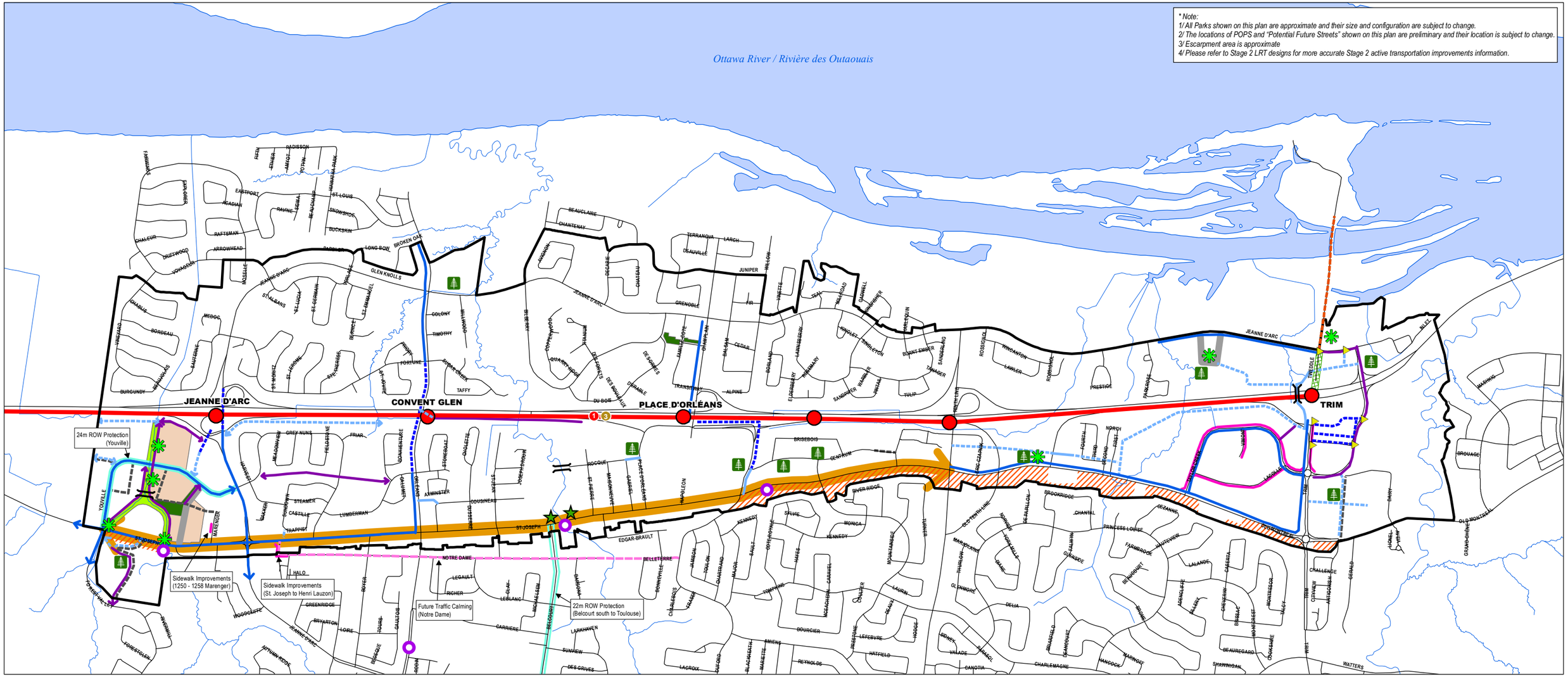

* Note:
1/ All Parks shown on this plan are approximate and their size and configuration are subject to change.
2/ The locations of POPS and "Potential Future Streets" shown on this plan are preliminary and their location is subject to change.
3/ Escarpment area is approximate
4/ Please refer to Stage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

- 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

0 187.5 375 750 1,125 1,500 m

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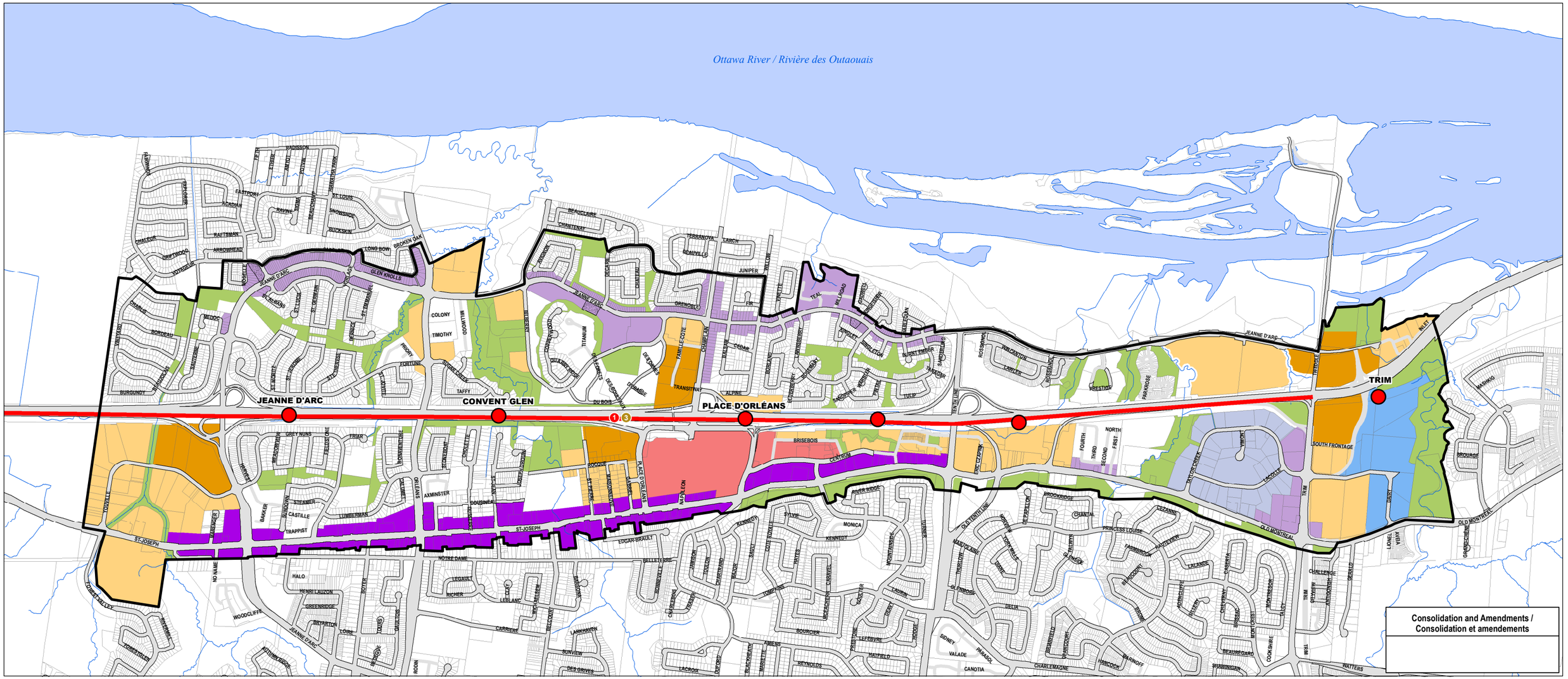

Orleans Town Centre / Centre-ville d'Orléans

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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APPENDIX E

INTERNAL TRIP GENERATION REDUCTION CALCULATIONS

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Petrie's Landing III	**Organization:**	Parsons
Project Location:	8600 Jeanne D'Arc	**Performed By:**	
Scenario Description:	Scenario 2 - TOD	**Date:**	6/26/2023
Analysis Year:		**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				105	92	13
Retail				59	36	23
Restaurant				0		
Cinema/Entertainment				0		
Residential				522	162	360
Hotel				0		
All Other Land Uses[2]				0		
				686	290	396

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		4	0	0	0	0
Retail	4		0	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	4	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	686	290	396
Internal Capture Percentage	5%	6%	5%
External Vehicle-Trips[5]	650	272	378
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	8%	31%
Retail	22%	30%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	2%
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:	Petrie's Landing III
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	92	92	1.00	13	13
Retail	1.00	36	36	1.00	23	23
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	162	162	1.00	360	360
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		4	8	0	0	0
Retail	7		3	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	7	4	72	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		12	0	0	0	0
Retail	4		0	0	3	0
Restaurant	13	3		0	8	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	6	0	0		0
Hotel	3	1	0	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	7	85	92	85	0	0
Retail	8	28	36	28	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	159	162	159	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	4	9	13	9	0	0
Retail	7	16	23	16	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	7	353	360	353	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:	Petrie's Landing III	**Organization:**	Parsons
Project Location:	8600 Jeanne D'Arc	**Performed By:**	
Scenario Description:	Scenario 2 - TOD	**Date:**	6/26/2023
Analysis Year:		**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				104	18	86
Retail				238	114	124
Restaurant				0		
Cinema/Entertainment				0		
Residential				519	301	218
Hotel				0		
All Other Land Uses[2]				0		
				861	433	428

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		150			150	
Retail					150	
Restaurant						
Cinema/Entertainment						
Residential		150				
Hotel						

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

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		9	0	0	2	0
Retail	2		0	0	32	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	9	11	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	861	433	428
Internal Capture Percentage	15%	15%	15%
External Vehicle-Trips[5]	731	368	363
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	61%	13%
Retail	18%	27%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	11%	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.

Project Name:	Petrie's Landing III
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	18	18	1.00	86	86
Retail	1.00	114	114	1.00	124	124
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	301	301	1.00	218	218
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		17	3	0	2	0
Retail	2		36	5	32	6
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	9	92	46	0		7
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		9	0	0	12	0
Retail	6		0	0	138	0
Restaurant	5	57		0	48	0
Cinema/Entertainment	1	5	0		12	0
Residential	10	11	0	0		0
Hotel	0	2	0	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	11	7	18	7	0	0
Retail	20	94	114	94	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	34	267	301	267	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	11	75	86	75	0	0
Retail	34	90	124	90	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	20	198	218	198	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.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Petrie's Landing III	**Organization:**	Parsons
Project Location:	8600 Jeanne D'Arc	**Performed By:**	
Scenario Description:	Scenario 1 - No LRT Bridge	**Date:**	5/8/2026
Analysis Year:		**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				136	119	17
Retail				75	46	29
Restaurant				0		
Cinema/Entertainment				0		
Residential				849	263	586
Hotel				0		
All Other Land Uses[2]				0		
				1,060	428	632

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		5	0	0	0	0
Retail	5		0	0	4	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	4	6	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,060	428	632
Internal Capture Percentage	5%	6%	4%
External Vehicle-Trips[5]	1,012	404	608
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	8%	29%
Retail	24%	31%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	2%
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:	Petrie's Landing III
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	119	119	1.00	17	17
Retail	1.00	46	46	1.00	29	29
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	263	263	1.00	586	586
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		5	11	0	0	0
Retail	8		4	0	4	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	12	6	117	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		15	0	0	0	0
Retail	5		0	0	5	0
Restaurant	17	4		0	13	0
Cinema/Entertainment	0	0	0		0	0
Residential	4	8	0	0		0
Hotel	4	2	0	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	9	110	119	110	0	0
Retail	11	35	46	35	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	4	259	263	259	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	5	12	17	12	0	0
Retail	9	20	29	20	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	10	576	586	576	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:	Petrie's Landing III	**Organization:**	Parsons
Project Location:	8600 Jeanne D'Arc	**Performed By:**	
Scenario Description:	Scenario 1 - No LRT Bridge	**Date:**	5/8/2026
Analysis Year:		**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				135	23	112
Retail				303	145	158
Restaurant				0		
Cinema/Entertainment				0		
Residential				845	490	355
Hotel				0		
All Other Land Uses[2]				0		
				1,283	658	625

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		150			150	
Retail					150	
Restaurant						
Cinema/Entertainment						
Residential		150				
Hotel						

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

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		12	0	0	2	0
Retail	3		0	0	41	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	13	15	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,283	658	625
Internal Capture Percentage	13%	13%	14%
External Vehicle-Trips[5]	1,111	572	539
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	70%	13%
Retail	19%	28%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	9%	8%
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:	Petrie's Landing III
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	23	23	1.00	112	112
Retail	1.00	145	145	1.00	158	158
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	490	490	1.00	355	355
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		22	4	0	2	0
Retail	3		46	6	41	8
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	14	149	75	0		11
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		12	0	0	20	0
Retail	7		0	0	225	0
Restaurant	7	73		0	78	0
Cinema/Entertainment	1	6	0		20	0
Residential	13	15	0	0		0
Hotel	0	3	0	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	16	7	23	7	0	0
Retail	27	118	145	118	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	43	447	490	447	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	14	98	112	98	0	0
Retail	44	114	158	114	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	28	327	355	327	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

PROJECTED BACKGROUND GROWTH

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

GEOMETRIC ROAD DESIGN DRAWING

TITLE FRAME: 863.6mm x 558.8mm City of Ottawa 2008
Plot Date: 4/22/2026
Last Saved: 4/22/2026 9:35:33 AM
Consultant's Information: pw:\\WAN\A01PWIN101.Parsons.com:Ontario Province\Documents\City of Ottawa Projects 2023\478566 - 8600 Jeanne D'arc\30_Design\CAD\Roadway\02-Xref\478566-pln-container.dgn
478566-pln-container.dgn 4/22/2026 9:41:10 AM

JEANNE-D'ARC BLVD

ROAD A

ROAD B

ROAD C

ROAD A (PRIVATE)

TO CONNECT TO NEW MUP TO TRIM LRT STATION

TO CONNECT TO OTTAWA RIVER PATHWAY

PXO TREATMENT LEVEL 2 TYPE D

PXO TREATMENT LEVEL 2 TYPE B

MUP ALIGNMENT TO BE DETERMINED DURING SITE PLAN APPLICATION

FOR REVIEW PURPOSES ONLY
NOT FOR CONSTRUCTION
April 22, 2026

8600 JEANNE D'ARC (PETRIE III)

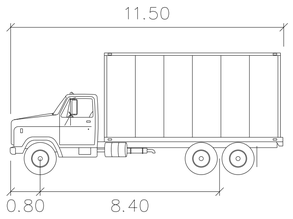
30 KM/H ROAD DESIGN PLAN
HSU

PARSONS

Scale: HORIZONTAL
0m 5 10 20

Rev. No.

Dwg. No.
SK-001



HSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

JEANNE-D'ARC BLVD

ROAD A

ROAD B

ROAD C

ROAD A (PRIVATE)

TO CONNECT TO NEW MUP TO TRIM LRT STATION

PXO TREATMENT LEVEL 2 TYPE D

MUP ALIGNMENT TO BE DETERMINED DURING SITE PLAN APPLICATION

TO CONNECT TO OTTAWA RIVER PATHWAY

PXO TREATMENT LEVEL 2 TYPE B

FOR REVIEW PURPOSES ONLY
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30 KM/H ROAD DESIGN PLAN
HSU

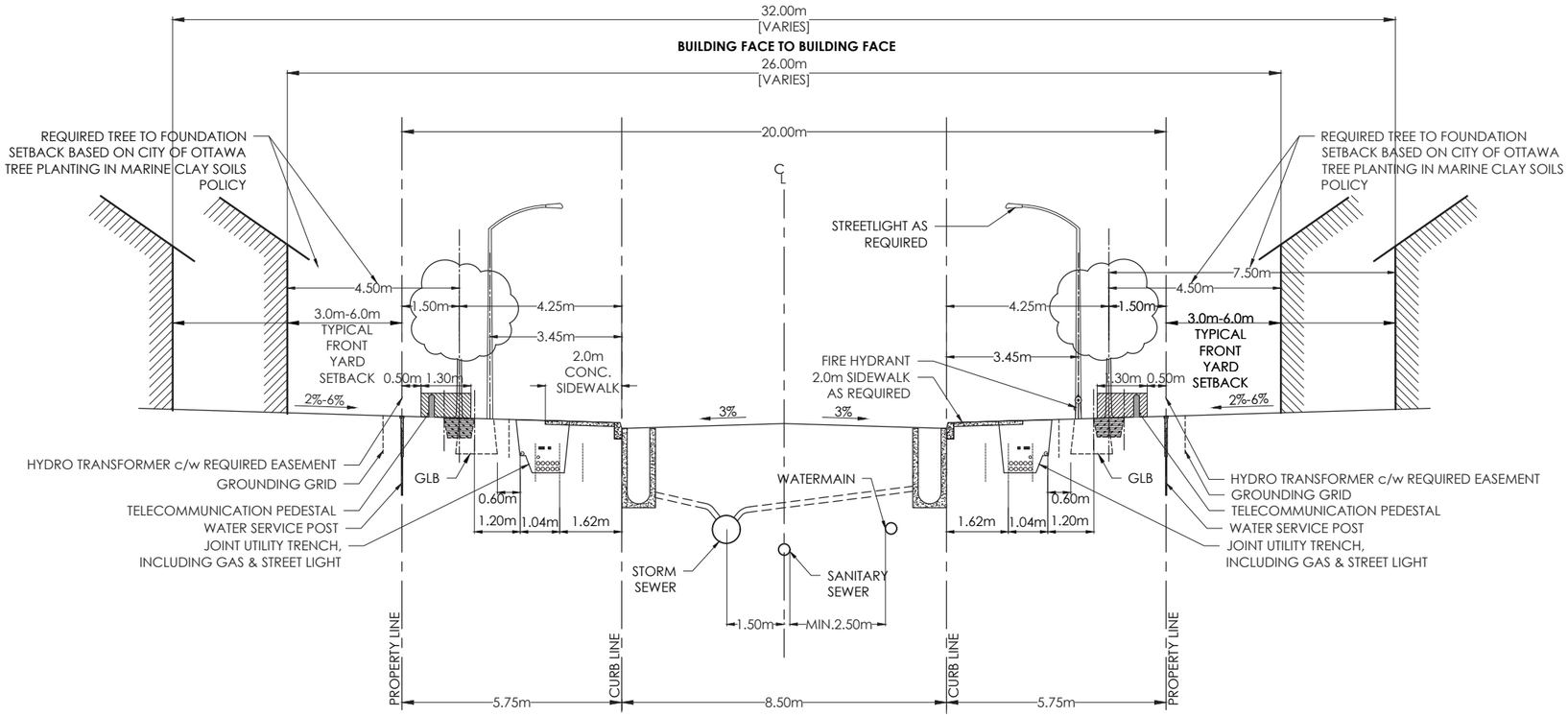
PARSONS

Scale: HORIZONTAL
0m 5 10 20

Rev. No.

Dwg. No.
SK-001

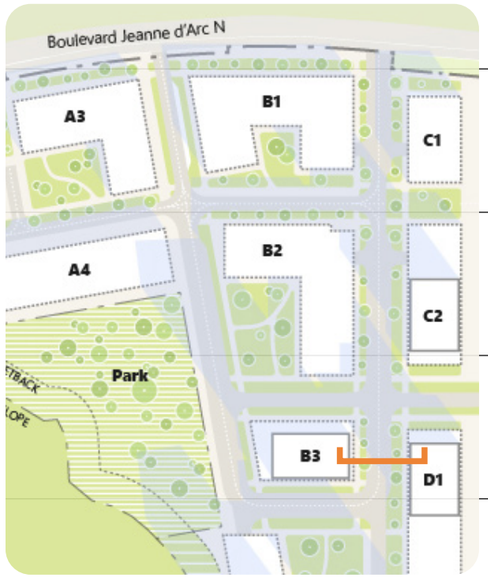
1. STANDARD CROSS-SECTIONS TO BE READ IN CONJUNCTION WITH THE GENERAL STANDARD CROSS-SECTION NOTES AND OTHER APPLICABLE CITY AND UTILITY PLANS AND DETAILS.
2. CONCRETE CURBS TO BE CONSTRUCTED AS PER CITY OF OTTAWA STANDARD DETAILS.
3. TYPICAL FRONT YARD SETBACK IS TO BE CLEAR AND UNENCUMBERED OF ANY SUBSURFACE BUILDING ENCROACHMENTS.
4. FIRE HYDRANTS TO BE LOCATED ON THE WATERMAIN SIDE OF THE STREET.
5. CATCH BASINS TO BE PER CITY OF OTTAWA DETAIL S2.
6. GAS MAIN SHALL HAVE A MINIMUM OF 0.6M CLEARANCE FROM STRUCTURES E.G.CATCH BASINS AND HYDRANTS) AND 1.2 M FROM TREE ROOT BALL.
7. STREETLIGHTS CAN BE LOCATED ON EITHER SIDE OF THE RIGHT-OF-WAY.
8. GAS MAIN SHALL HAVE A MINIMUM OF 0.6 M CLEARANCE FROM STRUCTURES E.G. CATCH BASINS AND HYDRANTS) AND 1.2 M FROM TREE ROOT BALL.
9. JOINT-USE UTILITY TRENCH (JUT) UNDER SIDEWALK AS PER DETAIL UDS0049 (REV 22) HELD BY OTTAWA HYDRO.
10. GRADE LEVEL BOX (GLB) AS DRAWN SHOWS GLB3660. EXACT LOCATION TO BE CONFIRMED. THIS CROSS SECTION TO BE USED IF CONCRETE ENCASED HYDRO DUCT OR ANOTHER SEPARATE UTILITY DUCT IS REQUIRED. IF CONCRETE ENCASED HYDRO DUCT IS UTILIZED, INSTALATION AS PER DETAIL UDS0051.
11. WHEN CONCRETE DUCT BANKS ARE REQUIRED, ADDITIONAL CLEARANCE IS REQUIRED FOR THE INSTALLATION OF A 2.2M X 4.0M MAINTENANCE HOLE PER OTTAWA HYDRO DETAIL UCS0014. LOCATIONS TO BE DETERMINED DURING DESIGN PHASE.
12. TREE CLEARANCES TO HYDRO OTTAWA PLANT SHALL FOLLOW GCS0038.
13. CLEARANCES SHOWN ARE MINIMUMS.



Ottawa	20.0m ROW CROSS SECTION	REV.DATE: AUG. 2022 DWG. No. ROW-20.0

Site Sections

5 | Massing - Height, Density & Transition



APPENDIX H

MMLOS ANALYSIS: ROAD SEGMENTS

Multi-Modal Level of Service - Segments Form

Project: Petrie Landing III
Consultant: Parsons
Date: Apr 23, 2026
Scenario: 478566

	Segment Name	Jeanne d'Arc Existing				Jeanne d'Arc Future			
	OP Transect / Policy Area	Within 600m of a rapid transit station				Within 600m of a rapid transit station			
	Segment Component	Majority (>50%)		Critical		Majority (>50%)		Critical	
	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
Pedestrian	PLOS Inputs								
	Posted Speed (km/h)	50 km/h		50 km/h		50 km/h		50 km/h	
	Two-Way ADT	2,800		2,800		3,200		3,200	
	Pedestrian Facility	Multi-Use Pathway	Sidewalk			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?	Yes	Yes			Yes	Yes		
	Facility Width (m)	3.00m	2.00m			3.00m	2.00m		
	Offset from Motor Vehicle Travel Lanes (m)	≥ 3.0m	1.5-2.99m			≥ 3.0m	1.5-2.99m		
	Presence of Adjacent Parking?	No	-			No	-		
	General Purpose Curb Lane ADT	-	≤ 3000			-	> 3000		
	Max. Distance between Controlled Crossings (m)	> 400m	> 400m			≤ 200m	≤ 200m		
	Score	**3.75**	**3.75**	-	-	**5.00**	**5.00**	-	-
	PLOS	**B**	**B**	**-**	**-**	**A**	**A**	**-**	**-**
	Target PLOS	**A**				**A**			
Bicycle	BLOS Inputs								
	Cycling Route Classification	**Cross-Town Bikeway**				**Cross-Town Bikeway**			
	Cycling Facility	Multi-Use Pathway	Painted or Physically Separated Bike Lanes	Input PLOS First	Input PLOS First	Multi-Use Pathway	Cycle Track	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	-	Unidirectional			-	Unidirectional		
	Pedestrian/Cyclist Volume	High-Volume MUP (> 100 users per hour)	-			High-Volume MUP (> 100 users per hour)	-		
	Facility Width	3.0-3.49m	1.5-1.79m or 1.8m contraflow bike lane			3.0-3.49m	1.5m-1.79m		
	Boulevard/Buffer Width (excluding curb)	≥ 1.5m or any boulevard width with continuous traffic barrier	< 0.3m with one vehicle lane per direction			≥ 1.5m or any boulevard width with continuous traffic barrier	< 0.3m		
	Unsignalized Roadway Crossing Type (where cyclists are required to yield)	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			-	-		
	Score	**3.50**	**2.45**	-	-	**3.50**	**2.50**	-	-
	BLOS	**B**	**D**	**-**	**-**	**B**	**C**	**-**	**-**
	Target BLOS	**A**				**A**			
Transit	TLOS Inputs								
	Transit Facility	**Mixed Traffic**				**Mixed Traffic**			
	Facility Type	Mixed Traffic	Mixed Traffic			Mixed Traffic	Mixed Traffic		
	Expected Transit Running Time	Unimpeded	Unimpeded			Unimpeded	Unimpeded		
	Transit Travel Speed (if available)	Enter Speed (if available)	Enter Speed (if available)			Enter Speed (if available)	Enter Speed (if available)		
	TLOS	**B**	**B**			**B**	**B**		
	Target TLOS	**E (D for frequent transit routes)**				**E (D for frequent transit routes)**			
Public Realm	PRLOS Inputs								
	Context	Other Streets	Other Streets			Other Streets	Other Streets		
	Inner Boulevard Width	≥ 4.0m	≤ 0.6m			≥ 4.0m	≤ 0.6m		
	Middle Boulevard Width	≤ 0.5m	≤ 0.5m			≤ 0.5m	≤ 0.5m		
	Outer Boulevard (Frontage) Width	≥ 3.0m	≥ 3.0m			≥ 3.0m	≥ 3.0m		
	Transit Route on Segment?	Yes	Yes			Yes	Yes		
	Bus Stop Elements	No platform, landing zone or shelter	No platform, landing zone or shelter			Curbside platform with no shelter	Curbside platform with no shelter		
	Number of Midblock Traffic Lanes (both travel directions)	≤ 2				≤ 2			
	Score	**22.20**	**20.70**			**27.90**	**26.40**		
	PRLOS	**B**	**B**			**A**	**A**		
		B				**A**			

APPENDIX I

DRAFT 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	☑
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☑
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☑ anticipated MUP on north side of H174, connecting to a new bridge connection from Trim LRT Station to MUP on north side of H174.
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☑

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

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

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

TDM-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	☑
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☑
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☑
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☑
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☑

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

		TDM-supportive design & infrastructure measures: *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)*	☑
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☑
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☑
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	☑
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	☑
	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)*	☑
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)	☐

		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	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☑
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐
	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	☑
	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)*	☐
	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	☐

		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	☑
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☑
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☑
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	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)	☑
	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	☐

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	☐
		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)	☐
		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)	☐
		Visitor travel	
BETTER	3.3.2	Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	☐
		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)	☐
		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)	☐

		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	☐
		4.3 Vanpool service	
		Commuter travel	
BETTER	4.3.1	Provide a vanpooling service for long-distance commuters	☐
		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	☑
		Commuter travel	
BETTER	5.1.2	Provide employees with bikeshare memberships for local business travel	☑
		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	☑
BETTER	5.2.2	Provide employees with carshare memberships for local business travel	☐
		6. PARKING	
		6.1 Priced parking	
		Commuter travel	
BASIC	★ 6.1.1	Charge for long-term parking (daily, weekly, monthly)	☐
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)	☐

			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	☐
		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	☐

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

Legend

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

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

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

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

			TDM measures: *Residential developments*	Check if proposed & add descriptions
		3.	**TRANSIT**	
		3.1	**Transit information**	
BASIC		3.1.1	Display relevant transit schedules and route maps at entrances *(multi-family, condominium)*	☑
BETTER		3.1.2	Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐
		3.2	**Transit fare incentives**	
BASIC	★	3.2.1	Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	☑
BETTER		3.2.2	Offer at least one year of free monthly transit passes on residence purchase/move-in	☐
		3.3	**Enhanced public transit service**	
BETTER	★	3.3.1	Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels *(subdivision)*	☐
		3.4	**Private transit service**	
BETTER		3.4.1	Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	☐
		4.	**CARSHARING & BIKESHARING**	
		4.1	**Bikeshare stations & memberships**	
BETTER		4.1.1	Contract with provider to install on-site bikeshare station (*multi-family)*	☑
BETTER		4.1.2	Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☑
		4.2	**Carshare vehicles & memberships**	
BETTER		4.2.1	Contract with provider to install on-site carshare vehicles and promote their use by residents	☑
BETTER		4.2.2	Provide residents with carshare memberships, either free or subsidized	☐
		5.	**PARKING**	
		5.1	**Priced parking**	
BASIC	★	5.1.1	Unbundle parking cost from purchase price *(condominium)*	☐
BASIC	★	5.1.2	Unbundle parking cost from monthly rent *(multi-family)*	☑

TDM measures: *Residential developments*				Check if proposed & add descriptions
		6.	**TDM MARKETING & COMMUNICATIONS**	
		6.1	**Multimodal travel information**	
BASIC	★	6.1.1	Provide a multimodal travel option information package to new residents	☑
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☑

APPENDIX J

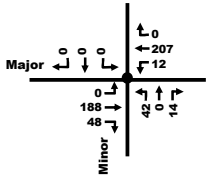
SIGNAL AND AWSC WARRANT ANALYSIS

West Site/Jeanne D'Arc - Existing

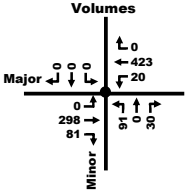
AWSC Warrant			Description	Minimum Requirement for a 'T' intersection	Compliance		
					Sectional %	Entire %	Warrant
Intersection	1. Minimum Volume Criterion	A	Vehicle Volume, All Approaches for Each of the Heaviest 8 Hours of on Average Day, or	200	256%	37%	**No**
		B	Vehicle Volume, All Approaches for the Heaviest Peak Hour, and	350	314%		
		C	Vehicle and pedestrian Volume, Along Minor Streets for Each of the Same 8 Hours, and	80	70%		
		D	The volume split between the major and minor streets	75/25	37%		
	2. Minimum Collision Criterion	A	Vehicle Volume, Along Major Street for Each of the Heaviest 8 Hours of an Average Day, and	9	0%	0%	

Note: ***0*** *preventable by AWSC collisions (i.e. right angle and turning movement collisions) were reported during a 3 year time period*

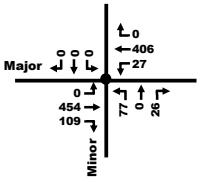
Average 8 Hour Volumes



AM Peak Hour Volumes



PM Peak Hour Volumes

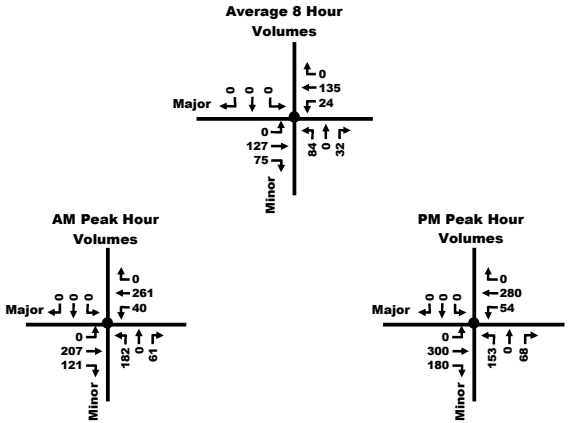


		Minor (West Site)							Major (Jeanne D'Arc)				
	Peak	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Existing	8 hr												
	AM	91	0	30	0	0	0	0	298	81	20	423	0
	PM	77	0	26	0	0	0	0	454	109	27	406	0
Site Generated	AM												
	PM												
	Avg. 8 hr	42	0	14	0	0	0	0	188	48	12	207	0

Central Site/Jeanne D'Arc - Existing

AWSC Warrant			Description	Minimum Requirement for a 'T' intersection	Compliance		
					Sectional %	Entire %	Warrant
Intersection	1. Minimum Volume Criterion	A	Vehicle Volume, All Approaches for Each of the Heaviest 8 Hours of on Average Day, or	200	239%	96%	**No**
		B	Vehicle Volume, All Approaches for the Heaviest Peak Hour, and	350	296%		
		C	Vehicle and pedestrian Volume, Along Minor Streets for Each of the Same 8 Hours, and	80	145%		
		D	The volume split between the major and minor streets	75/25	96%		
	2. Minimum Collision Criterion	A	Vehicle Volume, Along Major Street for Each of the Heaviest 8 Hours of an Average Day, and	9	0%	0%	

Note: ***0*** *preventable by AWSC collisions (i.e. right angle and turning movement collisions) were reported during a 3 year time period*

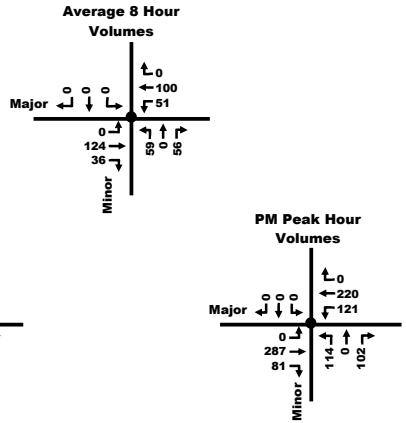


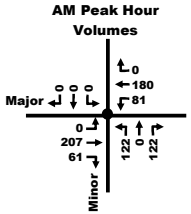
		Minor							Major				
		Central Site							Jeanne D'Arc				
	Peak	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Existing	8 hr												
	AM	182	0	61	0	0	0	0	207	121	40	261	0
	PM	153	0	68	0	0	0	0	300	180	54	280	0
Site Generated	AM												
	PM												
	Avg. 8 hr	84	0	32	0	0	0	0	127	75	24	135	0

East Site/Jeanne D'Arc - Existing

AWSC Warrant			Description	Minimum Requirement for a 'T' intersection	Compliance		
					Sectional %	Entire %	Warrant
Intersection	1. Minimum Volume Criterion	A	Vehicle Volume, All Approaches for Each of the Heaviest 8 Hours of on Average Day, or	200	213%	111%	**Yes**
		B	Vehicle Volume, All Approaches for the Heaviest Peak Hour, and	350	264%		
		C	Vehicle and pedestrian Volume, Along Minor Streets for Each of the Same 8 Hours, and	80	144%		
		D	The volume split between the major and minor streets	75/25	111%		
	2. Minimum Collision Criterion	A	Vehicle Volume, Along Major Street for Each of the Heaviest 8 Hours of an Average Day, and	9	0%	0%	

Note: ***0*** *preventable by AWSC collisions (i.e. right angle and turning movement collisions) were reported during a 3 year time period*





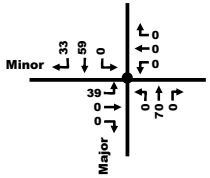
		Minor East Site							Major Jeanne D'Arc				
	Peak	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Existing	8 hr												
	AM	122	0	122	0	0	0	0	207	61	81	180	0
	PM	114	0	102	0	0	0	0	287	81	121	220	0
Site Generated	AM												
	PM												
	Avg. 8 hr	59	0	56	0	0	0	0	124	36	51	100	0

Road C / Road B - Internal SE

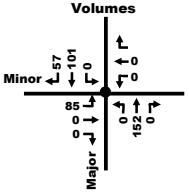
AWSC Warrant			Description	Minimum Requirement for a 'T' intersection	Compliance		
					Sectional %	Entire %	Warrant
Intersection	1. Minimum Volume Criterion	A	Vehicle Volume, All Approaches for Each of the Heaviest 8 Hours of on Average Day, or	200	101%	49%	**No**
		B	Vehicle Volume, All Approaches for the Heaviest Peak Hour, and	350	117%		
		C	Vehicle and pedestrian Volume, Along Minor Streets for Each of the Same 8 Hours, and	80	49%		
		D	The volume split between the major and minor streets	75/25	72%		
	2. Minimum Collision Criterion	A	Vehicle Volume, Along Major Street for Each of the Heaviest 8 Hours of an Average Day, and	9	0%	0%	

Note: ***0*** *preventable by AWSC collisions (i.e. right angle and turning movement collisions) were reported during a 3 year time period*

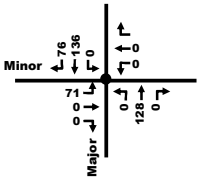
Average 8 Hour Volumes



AM Peak Hour Volumes



PM Peak Hour Volumes



		Major Road B								Minor Road C			
	Peak	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Existing	8 hr												
	AM	0	152	0	0	101	57	85	0	0	0	0	
	PM	0	128	0	0	136	76	71	0	0	0	0	
Site Generated	AM												
	PM												
	Avg. 8 hr	0	70	0	0	59	33	39	0	0	0	0	0

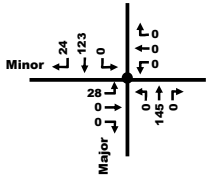
		In	Out	for Road B		For Road C
0.25	Aprox 25% of units S of Road B	404	608	101	152	57
0.14	Aprox 14% of units possibly on Road C	543	510	136	128	76

Road A / Road B - Internal NE

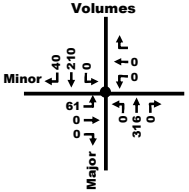
AWSC Warrant			Description	Minimum Requirement for a 'T' intersection	Compliance		
					Sectional %	Entire %	Warrant
Intersection	1. Minimum Volume Criterion	A	Vehicle Volume, All Approaches for Each of the Heaviest 8 Hours of on Average Day, or	200	160%	29%	**No**
		B	Vehicle Volume, All Approaches for the Heaviest Peak Hour, and	350	186%		
		C	Vehicle and pedestrian Volume, Along Minor Streets for Each of the Same 8 Hours, and	80	35%		
		D	The volume split between the major and minor streets	75/25	29%		
	2. Minimum Collision Criterion	A	Vehicle Volume, Along Major Street for Each of the Heaviest 8 Hours of an Average Day, and	9	0%	0%	

Note: ***0*** *preventable by AWSC collisions (i.e. right angle and turning movement collisions) were reported during a 3 year time period*

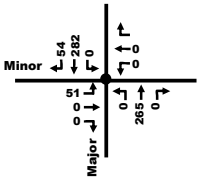
Average 8 Hour Volumes



AM Peak Hour Volumes



PM Peak Hour Volumes



			Major Road B							**Minor** Road A			
	Peak	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Existing	8 hr												
	AM	0	316	0	0	210	40	61	0	0	0	0	
	PM	0	265	0	0	282	54	51	0	0	0	0	
Site Generated	AM												
	PM												
	Avg. 8 hr	0	145	0	0	123	24	28	0	0	0	0	0

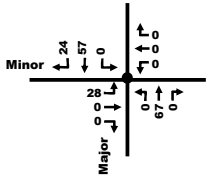
		In	Out	for Road B		For Road A
0.52	Aprox 52% of units S of Road B	404	608	210	316	40
0.1	Aprox 10% of units possibly on Road A (half of B1 + B2	543	510	282	265	54

Road A / Road B - Internal NW

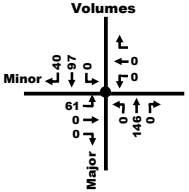
AWSC Warrant			Description	Minimum Requirement for a 'T' intersection	Compliance		
					Sectional %	Entire %	Warrant
Intersection	1. Minimum Volume Criterion	A	Vehicle Volume, All Approaches for Each of the Heaviest 8 Hours of on Average Day, or	200	88%	35%	**No**
		B	Vehicle Volume, All Approaches for the Heaviest Peak Hour, and	350	102%		
		C	Vehicle and pedestrian Volume, Along Minor Streets for Each of the Same 8 Hours, and	80	35%		
		D	The volume split between the major and minor streets	75/25	57%		
	2. Minimum Collision Criterion	A	Vehicle Volume, Along Major Street for Each of the Heaviest 8 Hours of an Average Day, and	9	0%	0%	

Note: ***0*** *preventable by AWSC collisions (i.e. right angle and turning movement collisions) were reported during a 3 year time period*

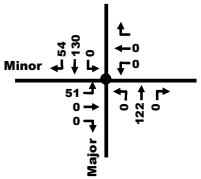
Average 8 Hour Volumes



AM Peak Hour Volumes



PM Peak Hour Volumes



			Major Road B							**Minor** Road A			
	Peak	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Existing	8 hr												
	AM	0	146	0	0	97	40	61	0	0	0	0	
	PM	0	122	0	0	130	54	51	0	0	0	0	
Site Generated	AM												
	PM												
	Avg. 8 hr	0	67	0	0	57	24	28	0	0	0	0	0

		In	Out	for Road B		For Road A
0.24	Aprox 24% of units S of Road B					
0.1	Aprox 10% of units possibly on Road A (half of Phase A	404	608	97	146	40
		543	510	130	122	54

West Site/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	71%	22%	**56% No**
		(4) B	Vehicle Volume, Along Minor Streets for Each of the Same 8 Hours	255	22%		
	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	63%	56%	
		(2) B	Combined Vehicle and Pedestrian Volume Crossing the Major Street for Each of the Same 8 Hours	75	56%		

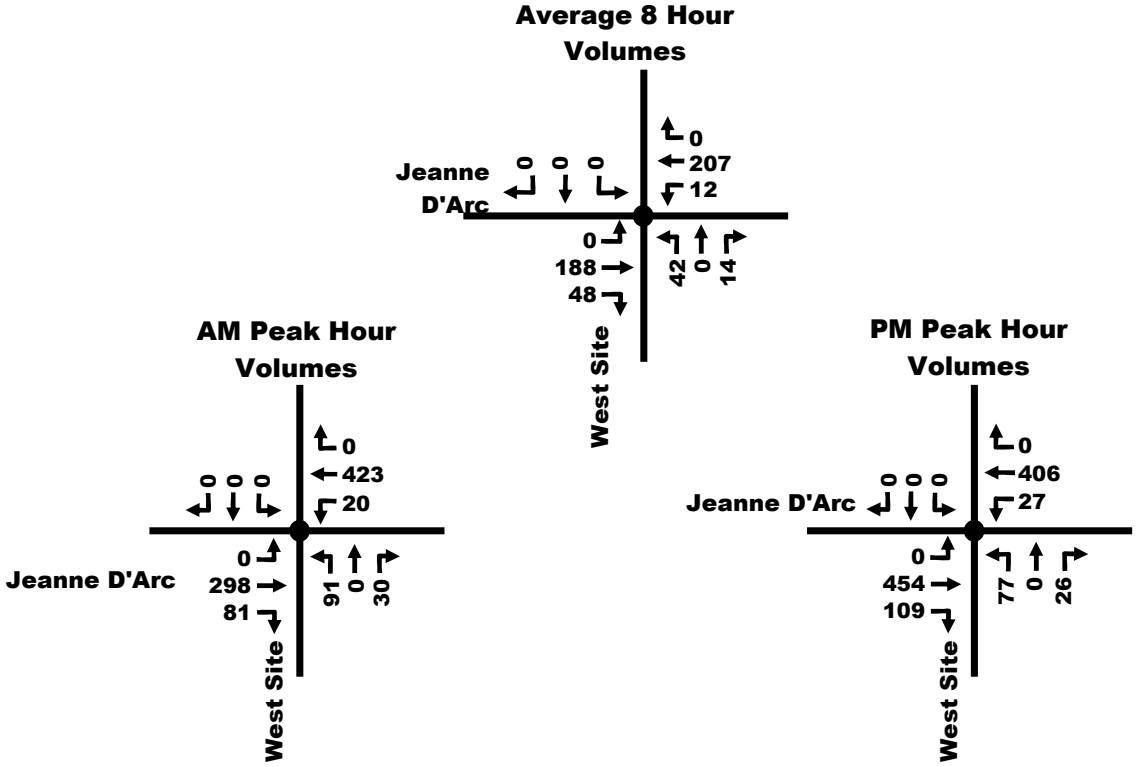
Notes

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)* — **Yes**



Central Site/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	66%	45%	**50% No**
		(4) B	Vehicle Volume, Along Minor Streets for Each of the Same 8 Hours	255	45%		
	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	50%	50%	
		(2) B	Combined Vehicle and Pedestrian Volume Crossing the Major Street for Each of the Same 8 Hours	75	112%		

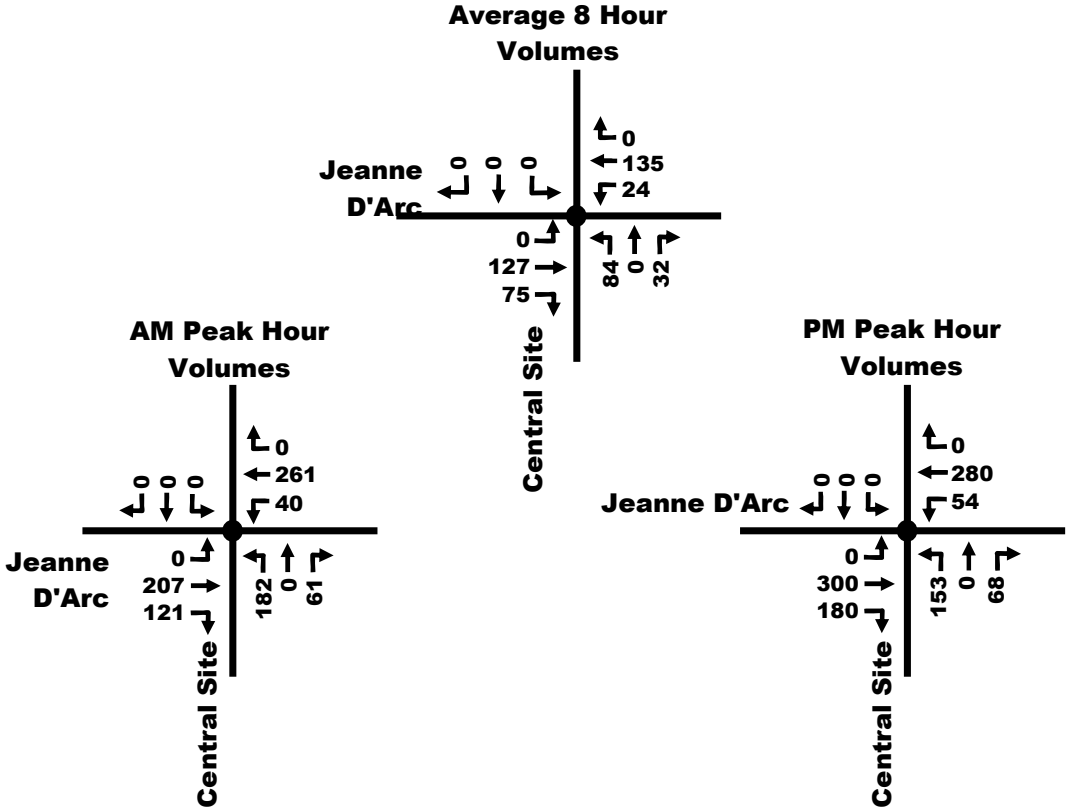
Notes

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)* **Yes**



East Site/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	51%	22%	**43% No**
		(4) B	Vehicle Volume, Along Minor Streets for Each of the Same 8 Hours	255	22%		
	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	43%	43%	
		(2) B	Combined Vehicle and Pedestrian Volume Crossing the Major Street for Each of the Same 8 Hours	75	75%		

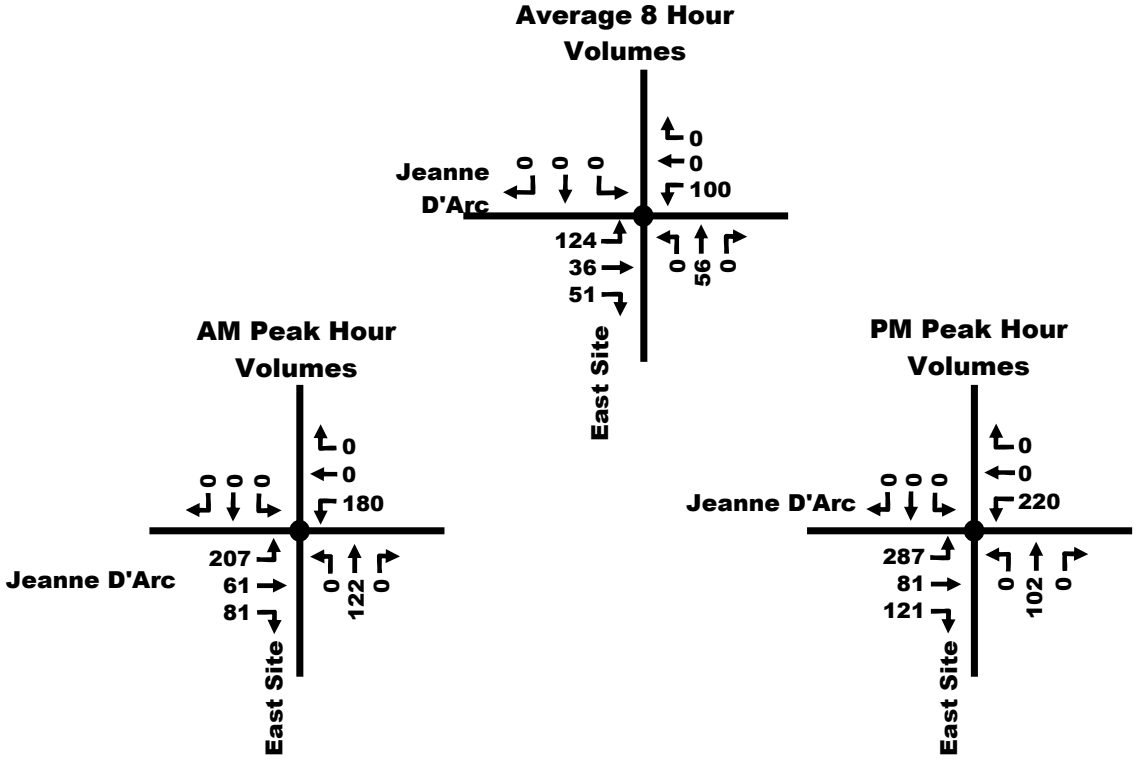
Notes

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)* — **Yes**



APPENDIX K

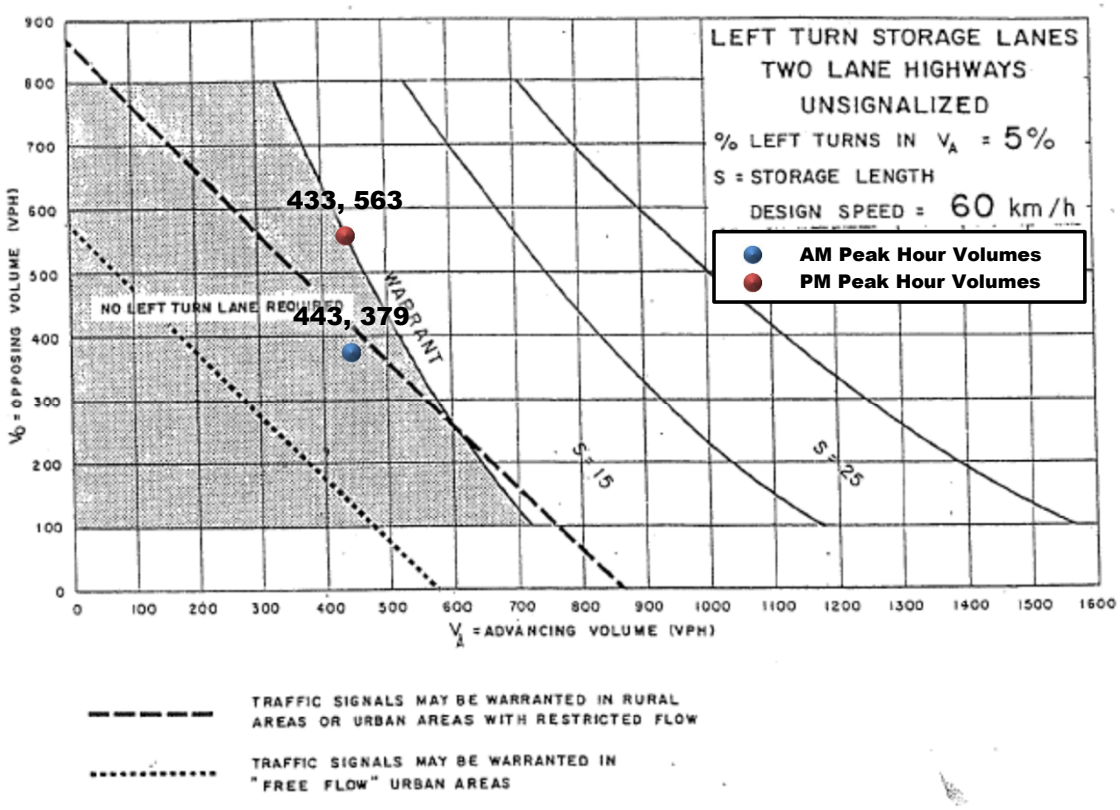
AUXILIARY LEFT-TURN LANE WARRANT

	Design Speed	Advancing Traffic Volume (V_A)		Opposing Traffic Volume (V_O)		Left Turn Traffic Volume (V_L)		% of Left Turning Traffic		Warrant Left Turn Lane
		AM	PM	AM	PM	AM	PM	AM	PM	
Existing										
West Access/Jeanne D'Arc	60	443	433	379	563	20	27	5%	6%	No

Peak	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
										Warrant?		
AM	91	0	30	0	0	0	0	298	81	20	423	0
PM	77	0	26	0	0	0	0	454	109	27	406	0

AM without LRT Connection

PM without LRT Connection



	Design Speed	Advancing Traffic Volume (V_A)		Opposing Traffic Volume (V_O)		Left Turn Traffic Volume (V_L)		% of Left Turning Traffic		Warrant Left Turn Lane
		AM	PM	AM	PM	AM	PM	AM	PM	
Existing										
Central Access/Jeanne D'Arc	60	301	334	328	480	40	54	13%	16%	No

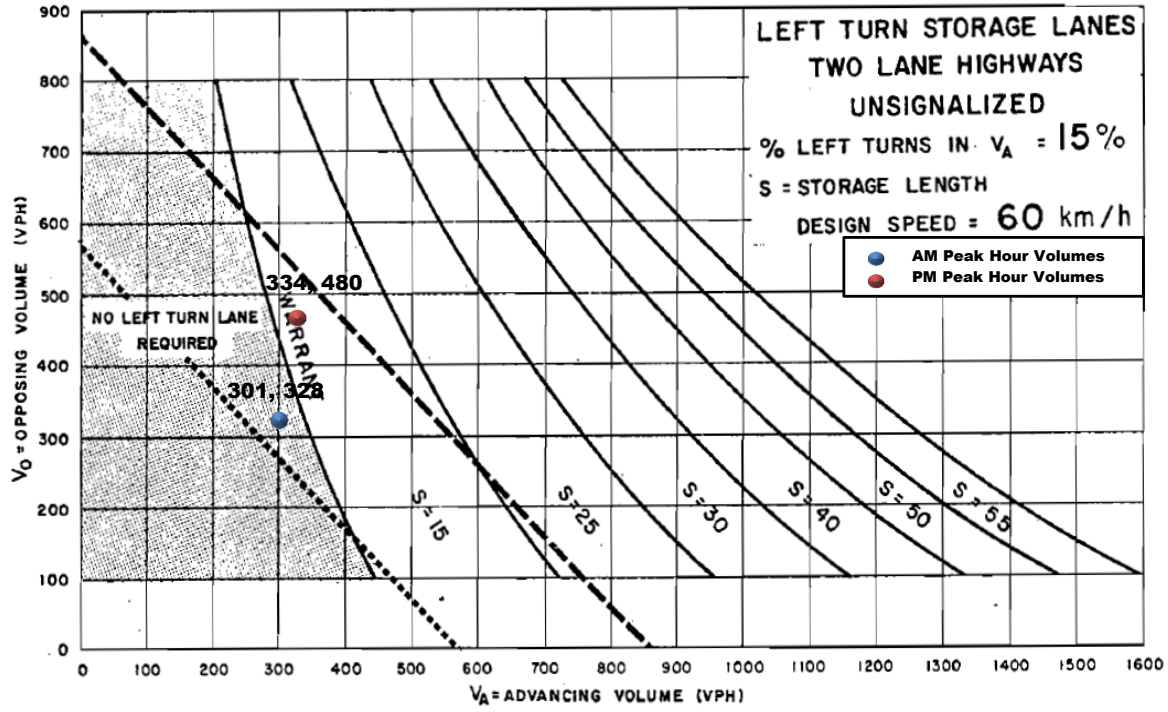
Peak	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
										Warrant?		
AM	182	0	61	0	0	0	0	207	121	40	261	0
PM	153	0	68	0	0	0	0	300	180	54	280	0

AM without LRT Connection

PM without LRT Connection

AT-GRADE INTERSECTIONS

APPENDIX A



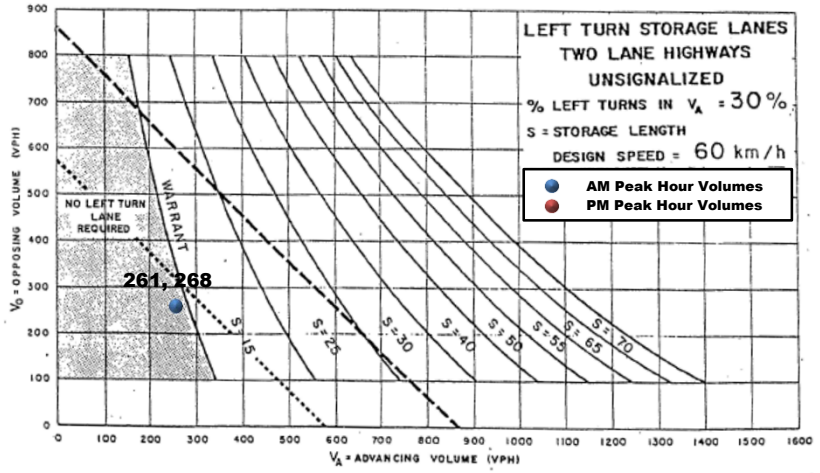
TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

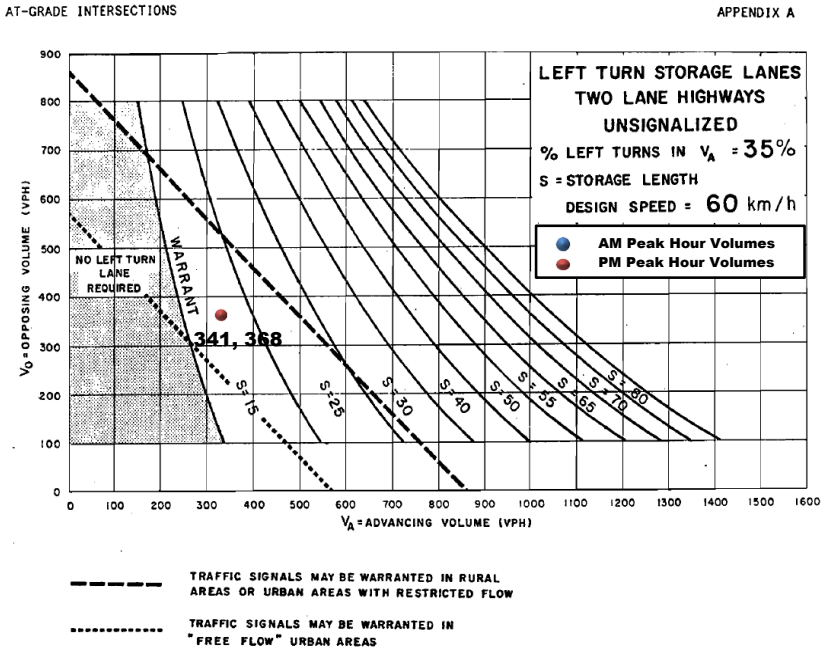
	Design Speed	Advancing Traffic Volume (V_A)		Opposing Traffic Volume (V_O)		Left Turn Traffic Volume (V_L)		% of Left Turning Traffic		Warrant Left Turn Lane
		AM	PM	AM	PM	AM	PM	AM	PM	
Existing										
East Access/Jeanne D'Arc	60	261	341	268	368	81	121	31%	35%	No

Peak	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
										Warrant?		
AM	122	0	122	0	0	0	0	207	61	81	180	0
PM	114	0	102	0	0	0	0	287	81	121	220	0

AM without LRT Connection



PM without LRT Connection



APPENDIX L

PXO WARRANT TOOL

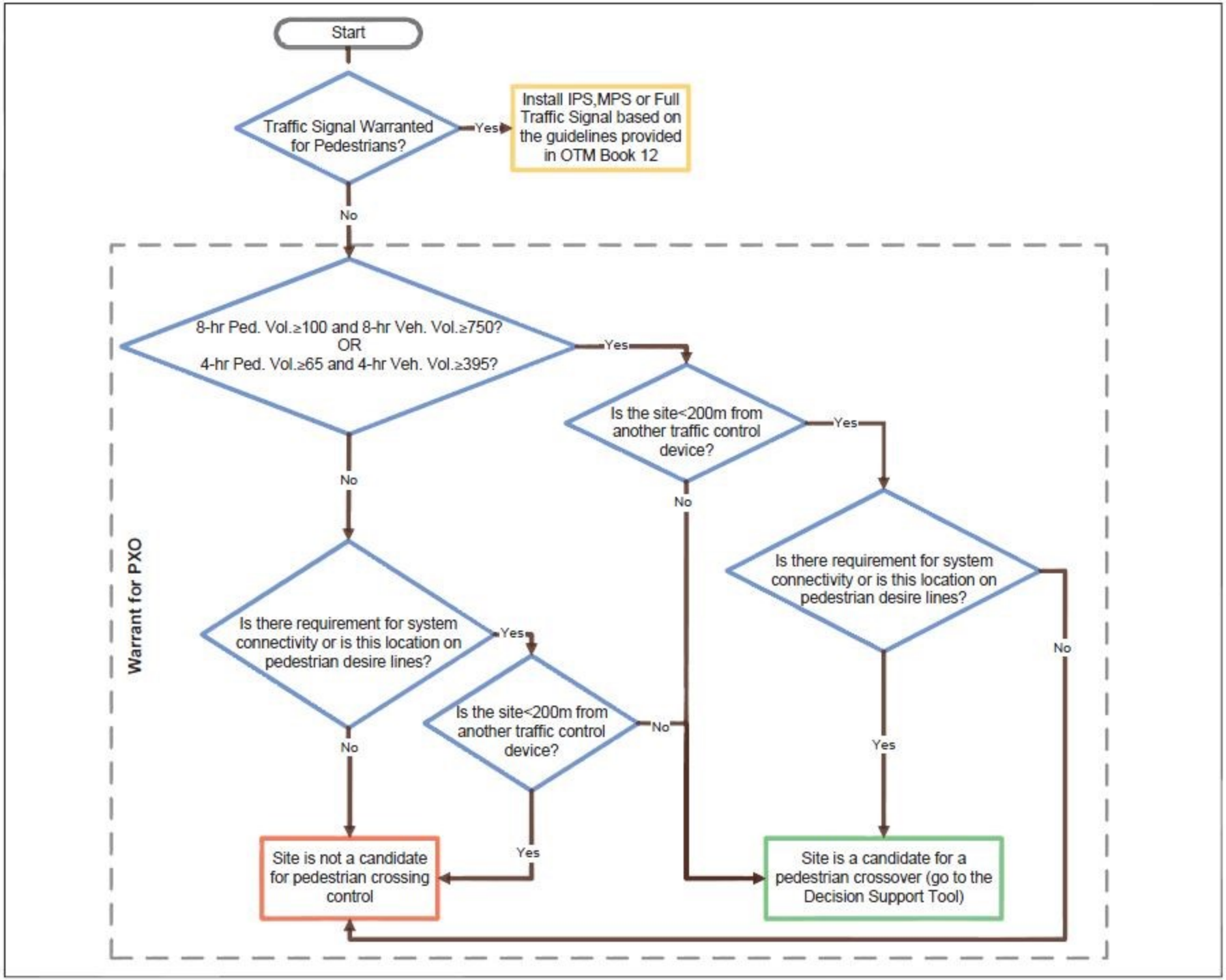


Figure 2: Decision Support Tool – Preliminary Assessment

Table 7: Pedestrian Crossover Selection Matrix

Two-way Vehicular Volume			Posted Speed Limit (km/h	Total Number of Lanes for the Roadway Cross Section[1]			
Time Period	Lower Bound	Upper Bound		1 or 2 Lanes	3 lanes	4 lanes w/raised refuge	4 lanes w/o raised refuge
8 Hour	750	2,250	≤50	Level 2 Type D	Level 2 Type C[3]	Level 2 Type D[2]	Level 2 Type B
4 Hour	395	1,185					
8 Hour	750	2,250	60	Level 2 Type C	Level 2 Type B	Level 2 Type C[2]	Level 2 Type B
4 Hour	395	1,185					
8 Hour	2,250	4,500	≤50	Level 2 Type D	Level 2 Type B	Level 2 Type D[2]	Level 2 Type B
4 Hour	1,185	2,370					
8 Hour	2,250	4,500	60	Level 2 Type C	Level 2 Type B	Level 2 Type C[2]	Level 2 Type B
4 Hour	1,185	2,370					
8 Hour	4,500	6,000	≤50	Level 2 Type C	Level 2 Type B	Level 2 Type C[2]	Level 2 Type B
4 Hour	2,370	3,155					
8 Hour	4,500	6,000	60	Level 2 Type B	Level 2 Type B	Level 2 Type C[2]	Level 2 Type B
4 Hour	2,370	3,155					
8 Hour	6,000	7,500	≤50	Level 2 Type B	Level 2 Type B	Level 2 Type C[2]	Level 1 Type A
4 Hour	3,155	3,950					
8 Hour	6,000	7,500	60	Level 2 Type B	Level 2 Type B		
4 Hour	3,155	3,950					
8 Hour	7,500	17,500	≤50	Level 2 Type B	Level 2 Type B		
4 Hour	3,950	9,215					
8 Hour	7,500	17,500	60	Level 2 Type B			
4 Hour	3,950	9,215					

Type A Type B Type C Type D

Approaches to roundabouts should be considered a separate roadways.

[1]The total number of lanes is representative of crossing distance. The width of these lanes is assumed to be between 3.0 m and 3.75 m according to MTO Geometric Design Standards for Ontario Highways (Chapter D.2). A cross sectional feature (e.g. bike lane or on-street parking) may extend the average crossing distance beyond this range of lane widths.

[2]Use of two sets of side mounted signs for each direction (one on the right side and one on the median)

[3] Use Level 2 Type B PXO up to 3 lanes total, cross section one-way.

The hatched cells in this table show that a PXO is not recommended for sites with these traffic and geometric conditions. Generally a traffic signal is warranted for such conditions.

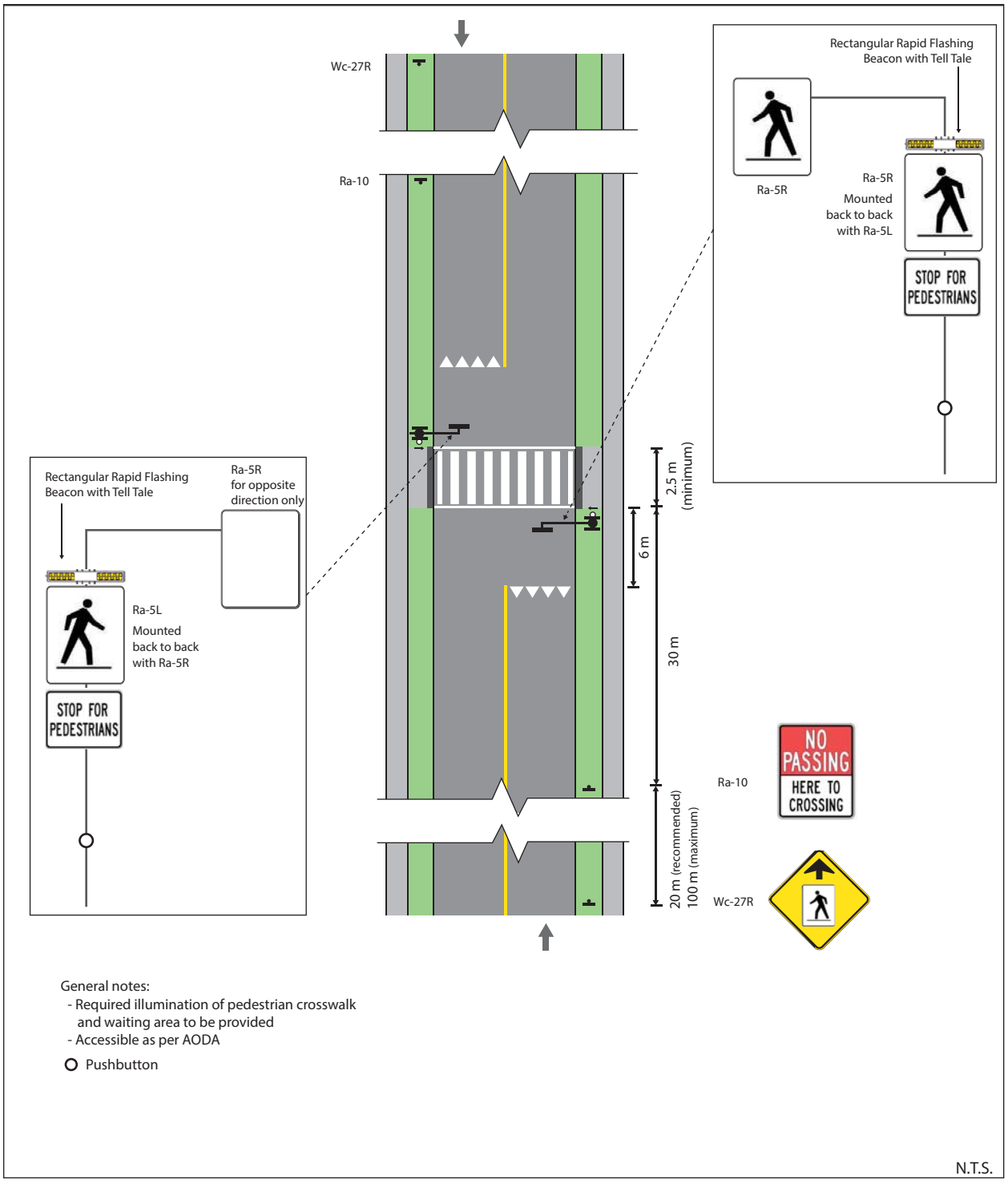


Figure 21: Pedestrian Crossover Level 2 Type B – Mid-block (2-lane, 2-way)

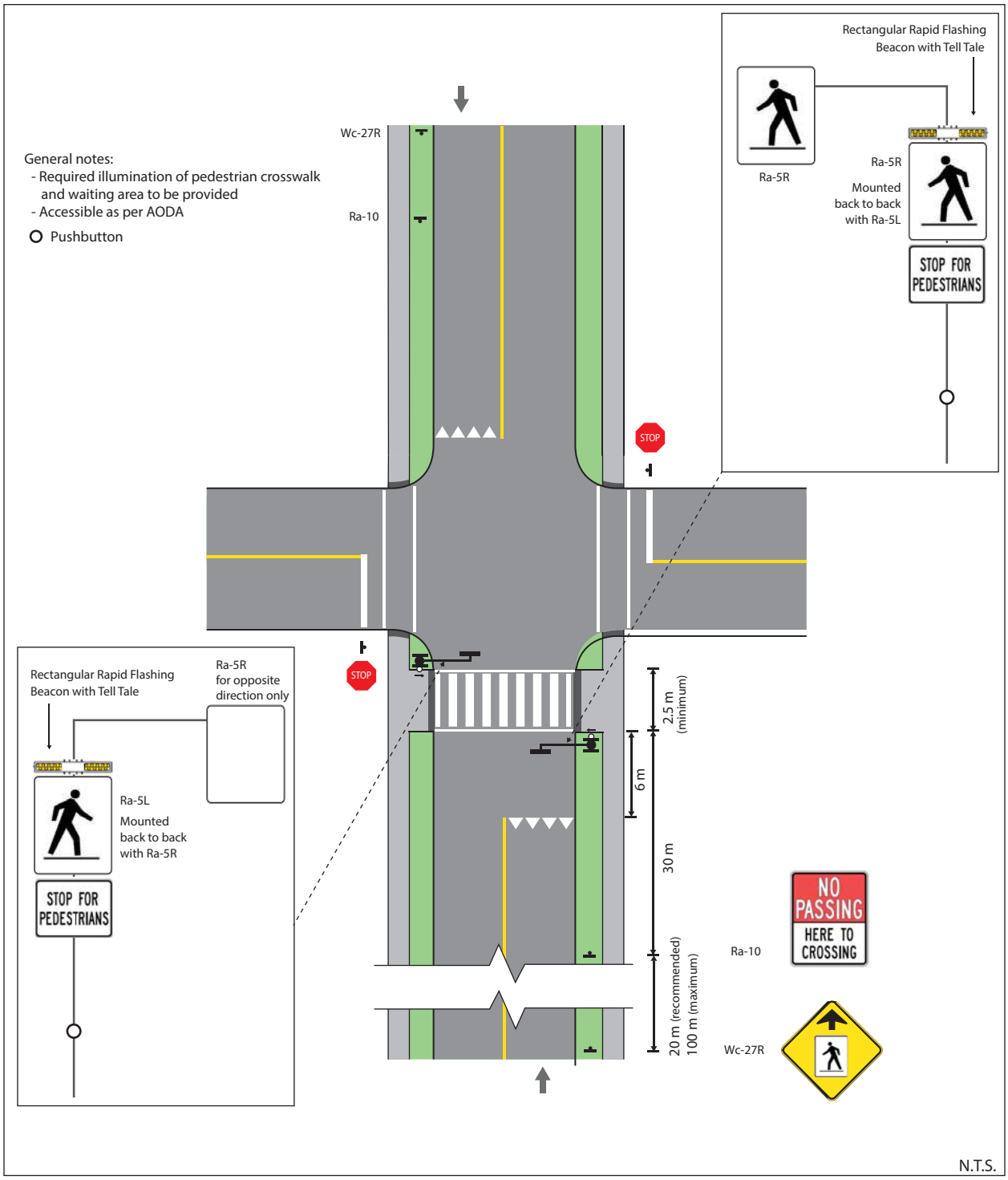


Figure 27: Pedestrian Crossover Level 2 Type B – Intersection (2-way)

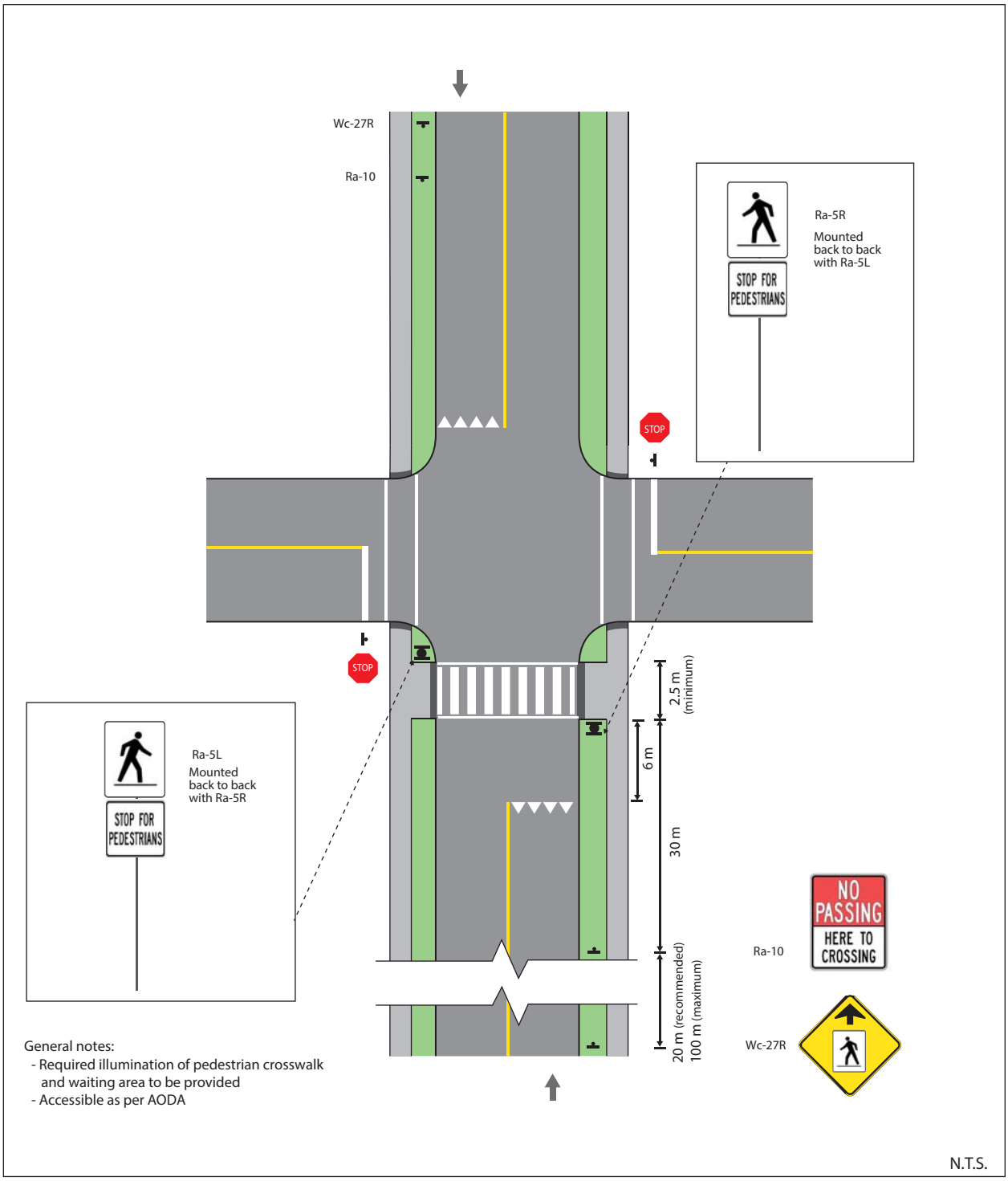


Figure 44: Pedestrian Crossover Level 2 Type D – Intersection (2-way)

APPENDIX M

MMLOS ANALYSIS: INTERSECTIONS

Multi-Modal Level of Service - Intersections Form

Project: Petrie Landing III
Consultant: Parsons
Date: Apr 23, 2026
Scenario: 478566

	Intersection Name	**Trim/H174**				**Tenth Line/St. Joseph**				**Old Tenth Line - H174/St. Joseph**				**Trim/H174**					
	OP Transect / Policy Area	**Within 600m of a rapid transit station**				**Mainstreet Corridor (outside a Hub)**				**Outer Urban or Suburban**				**Within 600m of a r**					
Pedestrian	**PLOS Inputs**																		
	Pedestrians Crossing the	**North Leg**	**South Leg**	**East Leg**	**West Leg**	**North Leg**	**South Leg**	**East Leg**	**West Leg**	**North Leg**	**South Leg**	**East Leg**	**West Leg**	**North Leg**	**South Leg**				
	Number of Travel Lanes Crossed	No Crosswalk	No Crosswalk	8	No Crosswalk	7	7	7	7	5	4	No Crosswalk	5	No Crosswalk	No Crosswalk				
	Median Refuge (≥2.7m)	-	-	Yes	-	No	No	No	No	No	No	-	No	-	-				
	Crosswalk Treatment	-	-	Zebra Stripe Hi-Vis Markings	-	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	-	Std Transverse Markings	-	-				
	Signal Cycle Length (sec)	130.0				130.0				82.0				13					
	Effective Walk Time (sec)	-	-	7.0	-	7.0	7.0	34.0	7.0	13.0	13.0	-	11.0	-	-				
	Conflict with Right-Turn Vehicles (For PLOS & BLOS)	**WBR**	**EBR**	**NBR**	**SBR**	**WBR**	**EBR**	**NBR**	**SBR**	**WBR**	**EBR**	**NBR**	**SBR**	**WBR**	**EBR**				
	Right-Turn Geometry	Conventional Right-Turn Channel	Right-Turn With No Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	No Right-Turn / Prohib.	Right-Turn With No Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Right-Turn With No Channel				
	Right-Turn Signal Phasing	-	Permissive	-	-	-	-	-	-	-	Protected-Permissive	-	-	-	Permissive				
	Right-Turn Volume	≤ 150 veh/h	≤ 150 veh/h	> 150 to 300 veh/h	> 300 veh/h	> 300 veh/h	> 300 veh/h	≤ 150 veh/h	≤ 150 veh/h	-	≤ 150 veh/h	> 150 to 300 veh/h	> 300 veh/h	≤ 150 veh/h	≤ 150 veh/h				
	Right-Turn Effective Corner Radius	-	≤ 8m	-	-	-	-	-	-	-	≤ 8m	-	-	-	≤ 8m				
	Cross-street Posted Speed (km/h)	50 km/h		50 km/h		60 km/h		60 km/h		60 km/h		60 km/h		50 km/h					
	Conflict with Left-Turn Vehicles (For PLOS & BLOS)	**EBL**	**WBL**	**SBL**	**NBL**	**EBL**	**WBL**	**SBL**	**NBL**	**EBL**	**WBL**	**SBL**	**NBL**	**EBL**	**WBL**				
	Left-Turn Signal Phasing	Fully Protected	Fully Protected	Fully Protected	Fully Protected	Perm or Prot+Perm	Perm or Prot+Perm	Fully Protected	Fully Protected	No Left-Turn / Prohib.	Perm or Prot+Perm	Fully Protected	Fully Protected	Fully Protected	Fully Protected				
	Left-Turn Volume	-	-	-	-	> 50 to 100 veh/h	> 50 to 100 veh/h	-	-	-	> 100 veh/h	-	-	-	-				
	Left-Turn Opposing Lanes	-	-	-	-	≥ 2	≥ 2	-	-	-	-	-	-	-	-				
	Score	**-**	**-**	**1.35**	**-**	**0.95**	**0.95**	**1.45**	**1.30**	**3.40**	**3.80**	**-**	**2.50**	**-**	**-**				
	PLOS	**-**	**-**	**E**	**-**	**E**	**E**	**E**	**E**	**C**	**B**	**-**	**C**	**-**	**-**				
		E				**E**				**C**				**D**					
	Target PLOS	**A**				**B**				**C**				**A**					
Bicycle	**BLOS Inputs**																		
	Cycling Route Classification	**Cross-Town Bikeway**				**Cross-Town Bikeway**				**Cross-Town Bikeway**				**Cross-Tow**					
	Cyclists Crossing the	**North Leg**	**South Leg**	**East Leg**	**West Leg**	**North Leg**	**South Leg**	**East Leg**	**West Leg**	**North Leg**	**South Leg**	**East Leg**	**West Leg**	**North Leg**	**South Leg**				
	Type of Cycling Facility Across Leg			Crossride		Bike Lane Through Intersection	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic						
	Two-Way ADT (in Cyclist Travel Direction)			4,000		17,000		15,000		10,000		13,000							
	Floating Bike Lane or Right-Turn Lane Crossover Approaching the Crossing?			No		Yes	No	No	No	No	No	No	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**	**WBL**	**EBL**	**NBL**	**SBL**	**WBL**	**EBL**	**NBL**	**SBL**	**WBL**	**EBL**				
	Cyclist Left-Turn Treatment Type			No Left-Turn		General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Dual Left-Turn Lanes	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	No Left-Turn	General Purpose Through-Left or Single Left-Turn Lane	No Left-Turn						
	Vehicle Lanes Crossed by Cyclists			-		Two or More Lanes Crossed	Two or More Lanes Crossed	-	Two or More Lanes Crossed	One Lane Crossed	-	No Lane Crossed	-						
	Score	**-**	**-**	**110**	**-**	**-15**	**-40**	**10**	**10**	**60**	**60**	**30**	**50**	**-**	**-**				
	BLOS	**-**	**-**	**B**	**-**	**F**	**F**	**F**	**F**	**D**	**D**	**E**	**D**	**-**	**-**				
		B				**-**				**D**				**A**					
	Target BLOS	**A**				**B**				**B**				**A**					
Transit	**TLOS Inputs**																		
	Transit Facility	**Mixed Traffic**				**Mixed Traffic**				**Mixed Traffic**				**Mixed**					
	Vehicles Travelling	**Southbound**	**Northbound**	**Westbound**	**Eastbound**	**Southbound**	**Northbound**	**Westbound**	**Eastbound**	**Southbound**	**Northbound**	**Westbound**	**Eastbound**	**Southbound**	**Northbound**				
	Average Transit Delay (if available)	56-80 sec	56-80 sec				36-55 sec		≤ 10 sec					36-55 sec	56-80 sec				
	Example Transit Priority Treatment	-	-				-		-					-	-				
	TLOS	**E**	**E**	**-**	**-**	**-**	**D**	**-**	**A**	**-**	**-**	**-**	**-**	**D**	**E**				
		E				**B**				**-**				**D**					
	Target TLOS	**E (D for frequent transit routes)**				**E (D for frequent transit routes)**				**E (D for frequent transit routes)**				**E (D for frequen**					
Auto	**AutoLOS Inputs**																		
	Overall Intersection Volume to Capacity Ratio	0.61 to 0.70				0.71 to 0.80				0 to 0.60				0.61 t					
	Individual Movements V/C Ratios and Queue Lengths	See Separate Traffic Operations Table				See Separate Traffic Operations Table				See Separate Traffic Operations Table				See Separate Traffi					
	AutoLOS	**B**				**C**				**A**				**E**					
	Target AutoLOS	**E**				**E**				**E**				**E**					

Multi-Modal Level of Service - Intersections Form

Project: Petrie Landing III
Consultant: Parsons
Date: Apr 23, 2026
Scenario: 478566

Intersection Name	**mitigation**			**Tenth Line/St. Joseph**			
OP Transect / Policy Area	**apid transit station**			**Mainstreet Corridor (outside a Hub)**			
Pedestrian	**PLOS Inputs**						
	Pedestrians Crossing the	**East Leg**	**West Leg**	**North Leg**	**South Leg**	**East Leg**	**West Leg**
	Number of Travel Lanes Crossed	8	No Crosswalk	7	7	7	7
	Median Refuge (≥2.7m)	Yes	-	No	No	No	No
	Crosswalk Treatment	Zebra Stripe Hi-Vis Markings	-	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings
	Signal Cycle Length (sec)	0.0			130.0		
	Effective Walk Time (sec)	7.0	-	7.0	7.0	34.0	7.0
	Conflict with Right-Turn Vehicles (For PLOS & BLOS)	**NBR**	**SBR**	**WBR**	**EBR**	**NBR**	**SBR**
	Right-Turn Geometry	Smart Channel w/ Raised Crossing	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel
	Right-Turn Signal Phasing	-	-	-	-	-	-
	Right-Turn Volume	> 150 to 300 veh/h	> 300 veh/h	> 300 veh/h	> 300 veh/h	≤ 150 veh/h	≤ 150 veh/h
	Right-Turn Effective Corner Radius	-	-	-	-	-	-
	Cross-street Posted Speed (km/h)	50 km/h		60 km/h		60 km/h	
	Conflict with Left-Turn Vehicles (For PLOS & BLOS)	**SBL**	**NBL**	**EBL**	**WBL**	**SBL**	**NBL**
	Left-Turn Signal Phasing	Fully Protected	Fully Protected	Fully Protected	Fully Protected	Fully Protected	Fully Protected
	Left-Turn Volume	-	-	-	-	-	-
	Left-Turn Opposing Lanes	-	-	-	-	-	-
	Score	**1.65**	**-**	**1.15**	**1.15**	**1.45**	**1.30**
	PLOS	**D**	**-**	**E**	**E**	**E**	**E**
	PLOS	**D**		**E**			
	Target PLOS	**A**		**B**			
Bicycle	**BLOS Inputs**						
	Cycling Route Classification	**n Bikeway**		**Cross-Town Bikeway**			
	Cyclists Crossing the	**East Leg**	**West Leg**	**North Leg**	**South Leg**	**East Leg**	**West Leg**
	Type of Cycling Facility Across Leg	Crossride		Crossride	Crossride	Crossride	Crossride
	Two-Way ADT (in Cyclist Travel Direction)	4,000		17,000		15,000	
	Floating Bike Lane or Right-Turn Lane Crossover Approaching the Crossing?	No		No	No	No	No
	Crossride Operation	Bidirectional		Unidirectional	Unidirectional	Unidirectional	Unidirectional
	Target Crossride Setback Met?	-	-	-	-	-	-
	Right-Turn Vehicle Volume from Adjacent Roadway > 100 veh/h?	-		-	-	-	-
	Cyclist Left-Turn Operation	**NBL**	**SBL**	**WBL**	**EBL**	**NBL**	**SBL**
	Cyclist Left-Turn Treatment Type	No Left-Turn		Protected Corner	Protected Corner	Protected Corner	Protected Corner
	Vehicle Lanes Crossed by Cyclists	-		-	-	-	-
	Score	**130**	**-**	**100**	**100**	**110**	**110**
	BLOS	**A**	**-**	**B**	**B**	**B**	**B**
	BLOS	**A**		**B**			
	Target BLOS	**A**		**B**			
Transit	**TLOS Inputs**						
	Transit Facility	**Traffic**		**Mixed Traffic**			
	Vehicles Travelling	**Westbound**	**Eastbound**	**Southbound**	**Northbound**	**Westbound**	**Eastbound**
	Average Transit Delay (if available)				36-55 sec		≤ 10 sec
	Example Transit Priority Treatment				-		-
	TLOS	**-**	**-**	**-**	**D**	**-**	**A**
	TLOS	**D**		**B**			
	Target TLOS	**t transit routes)**		**E (D for frequent transit routes)**			
Auto	**AutoLOS Inputs**						
	Overall Intersection Volume to Capacity Ratio	o 0.70		0.71 to 0.80			
	Individual Movements V/C Ratios and Queue Lengths	c Operations Table		See Separate Traffic Operations Table			
	AutoLOS	**E**		**C**			
	Target AutoLOS	**E**		**E**			

APPENDIX N

SYCNHRO 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	10	31	17
Future Volume (vph)	46	214	0	60	1000	41	300	55	44	10	31	17
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	11	34	19
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)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.5	41.2		12.1	41.2	41.2	12.2	42.4	42.4	11.9	17.4	17.4
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	69.4		10.5	70.1	70.1	14.4	28.2	28.2	6.4	13.0	13.0
Actuated g/C Ratio	0.07	0.53		0.08	0.54	0.54	0.11	0.22	0.22	0.05	0.10	0.10
v/c Ratio	0.42	0.13		0.49	0.42	0.05	0.63	0.16	0.11	0.13	0.19	0.05
Control Delay (s/veh)	67.4	19.8		68.6	22.1	0.1	60.4	39.2	0.5	62.0	53.9	0.3
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 (s/veh)	67.4	19.8		68.6	22.1	0.1	60.4	39.2	0.5	62.0	53.9	0.3
LOS	E	B		E	C	A	E	D	A	E	D	A
Approach Delay (s/veh)		28.2			23.9			50.9			39.4	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	12.7	16.4		16.7	63.4	0.0	29.3	12.3	0.0	2.8	8.4	0.0
Queue Length 95th (m)	25.5	33.1		30.9	103.5	0.0	38.7	23.3	0.0	9.0	16.6	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	1809		172	2646	923	1279	488	528	131	184	351
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	0.08	0.18	0.05

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: 0.63

Intersection Signal Delay (s/veh): 30.9	Intersection LOS: C
Intersection Capacity Utilization 55.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Trim & H174

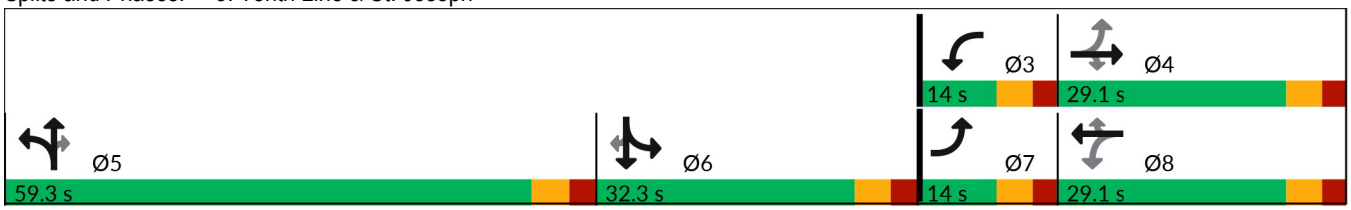
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	201	119	31	542	240	416	796	20	7	124	54
Future Volume (vph)	16	201	119	31	542	240	416	796	20	7	124	54
Satd. Flow (prot)	1695	3390	1517	1695	3390	1517	1543	3241	1517	1695	3390	1517
Flt Permitted	0.269			0.572			0.950	0.998		0.950		
Satd. Flow (perm)	478	3390	1496	1019	3390	1480	1543	3241	1517	1695	3390	1517
Satd. Flow (RTOR)			132			267			125			125
Lane Group Flow (vph)	18	223	132	34	602	267	416	930	22	8	138	60
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		5	5		6	6	
Permitted Phases	4		4	8		8			5			6
Detector Phase	7	4	4	3	8	8	5	5	5	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	22.0	22.0	22.0	10.0	10.0	10.0
Minimum Split (s)	11.0	29.1	29.1	11.0	29.1	29.1	32.3	32.3	32.3	32.3	32.3	32.3
Total Split (s)	14.0	29.1	29.1	14.0	29.1	29.1	59.3	59.3	59.3	32.3	32.3	32.3
Total Split (%)	10.4%	21.6%	21.6%	10.4%	21.6%	21.6%	44.0%	44.0%	44.0%	24.0%	24.0%	24.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.4	2.4	2.3	2.4	2.4	2.6	2.6	2.6	2.6	2.6	2.6
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	0.0
Total Lost Time (s)	6.0	6.1	6.1	6.0	6.1	6.1	6.3	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	None	None
Act Effct Green (s)	25.3	21.4	21.4	27.0	24.4	24.4	35.1	35.1	35.1	13.0	13.0	13.0
Actuated g/C Ratio	0.26	0.22	0.22	0.28	0.25	0.25	0.36	0.36	0.36	0.13	0.13	0.13
v/c Ratio	0.09	0.30	0.30	0.10	0.70	0.47	0.74	0.79	0.03	0.04	0.30	0.19
Control Delay (s/veh)	30.3	37.4	9.6	29.7	41.3	8.3	36.7	33.4	0.1	42.9	42.4	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.3	37.4	9.6	29.7	41.3	8.3	36.7	33.4	0.1	42.9	42.4	1.4
LOS	C	D	A	C	D	A	D	C	A	D	D	A
Approach Delay (s/veh)		27.3			31.1			33.8			30.5	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	2.1	18.1	0.0	4.1	45.0	0.0	62.0	71.1	0.0	1.2	11.1	0.0
Queue Length 95th (m)	9.8	40.7	17.6	15.4	#128.0	24.5	141.8	140.3	0.0	6.4	26.1	0.0
Internal Link Dist (m)		434.4			241.4			325.6			408.6	
Turn Bay Length (m)	100.0		140.0	65.0			160.0		50.0	110.0		70.0
Base Capacity (vph)	234	847	473	345	858	574	889	1868	927	479	958	518
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.26	0.28	0.10	0.70	0.47	0.47	0.50	0.02	0.02	0.14	0.12

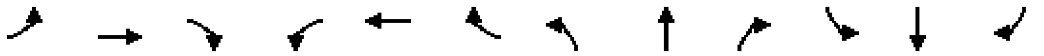
Intersection Summary
Cycle Length: 134.7
Actuated Cycle Length: 96.4
Natural Cycle: 105
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.79

Intersection Signal Delay (s/veh): 31.9	Intersection LOS: C
Intersection Capacity Utilization 73.6%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 5: Tenth Line & St. Joseph



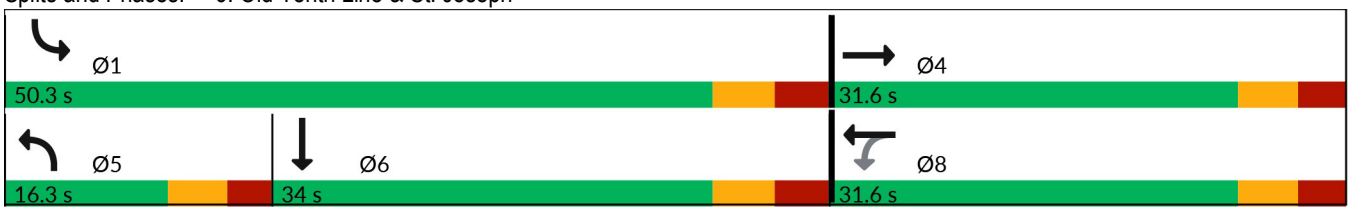


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	228	2	110	813	0	3	0	183	121	285	69
Future Volume (vph)	0	228	2	110	813	0	3	0	183	121	285	69
Satd. Flow (prot)	0	3387	0	1695	3390	0	1695	0	1517	3288	3390	1517
Flt Permitted				0.594			0.950			0.950		
Satd. Flow (perm)	0	3387	0	1060	3390	0	1695	0	1498	3288	3390	1517
Satd. Flow (RTOR)		1							225			225
Lane Group Flow (vph)	0	255	0	122	903	0	3	0	203	134	317	77
Turn Type		NA		Perm	NA		Prot		Free	Prot	NA	Free
Protected Phases		4			8		5			1	6	
Permitted Phases				8					Free			Free
Detector Phase		4		8	8		5			1	6	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		5.0			5.0	15.0	
Minimum Split (s)		25.6		25.6	25.6		11.3			12.0	30.0	
Total Split (s)		31.6		31.6	31.6		16.3			50.3	34.0	
Total Split (%)		38.6%		38.6%	38.6%		19.9%			61.4%	41.5%	
Yellow Time (s)		3.7		3.7	3.7		3.7			3.7	3.7	
All-Red Time (s)		2.9		2.9	2.9		2.6			3.3	3.3	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)		6.6		6.6	6.6		6.3			7.0	7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Recall Mode		None		None	None		None			Min	Min	
Act Effct Green (s)		20.0		20.0	20.0		5.8		52.6	18.5	16.7	52.6
Actuated g/C Ratio		0.38		0.38	0.38		0.11		1.00	0.35	0.32	1.00
v/c Ratio		0.20		0.30	0.70		0.02		0.14	0.12	0.29	0.05
Control Delay (s/veh)		12.4		15.6	18.3		26.7		0.2	12.0	15.8	0.1
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)		12.4		15.6	18.3		26.7		0.2	12.0	15.8	0.1
LOS		B		B	B		C		A	B	B	A
Approach Delay (s/veh)		12.4			18.0			0.6			12.6	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		6.8		6.6	30.9		0.3		0.0	4.1	10.6	0.0
Queue Length 95th (m)		21.3		25.8	80.5		2.8		0.0	9.1	27.2	0.0
Internal Link Dist (m)		241.4			372.8			239.6			226.3	
Turn Bay Length (m)				60.0					10.0	90.0		
Base Capacity (vph)		1669		522	1670		334		1498	2806	1804	1517
Starvation Cap Reductn		0		0	0		0		0	0	0	0
Spillback Cap Reductn		0		0	0		0		0	0	0	0
Storage Cap Reductn		0		0	0		0		0	0	0	0
Reduced v/c Ratio		0.15		0.23	0.54		0.01		0.14	0.05	0.18	0.05

Intersection Summary
Cycle Length: 81.9
Actuated Cycle Length: 52.6
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.70

Intersection Signal Delay (s/veh): 14.1 Intersection LOS: B
Intersection Capacity Utilization 47.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 6: Old Tenth Line & St. Joseph



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, s/veh	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, s/veh	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, s/veh	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, s/veh	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

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	143	115	35	146	91
Future Vol, veh/h	30	143	115	35	146	91
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	159	128	39	162	101
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	9.4	9.9	9.9
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	17%	0%	100%
Vol Right, %	0%	100%	83%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	146	91	173	115	35
LT Vol	146	0	0	115	0
Through Vol	0	0	30	0	35
RT Vol	0	91	143	0	0
Lane Flow Rate	162	101	192	128	39
Geometry Grp	5	5	3b	5	5
Degree of Util (X)	0.267	0.133	0.254	0.21	0.059
Departure Headway (Hd)	5.933	4.726	4.755	5.925	5.421
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	603	754	752	604	658
Service Time	3.692	2.484	2.806	3.681	3.177
HCM Lane V/C Ratio	0.269	0.134	0.255	0.212	0.059
HCM Control Delay, s/veh	10.9	8.2	9.4	10.3	8.5
HCM Lane LOS	B	A	A	B	A
HCM 95th-tile Q	1.1	0.5	1	0.8	0.2

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	44	67	54
Future Volume (vph)	38	1039	5	53	422	12	243	40	76	44	67	54
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	49	74	60
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)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.5	41.2		12.1	41.2	41.2	12.2	42.4	42.4	11.9	17.4	17.4
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	67.5		9.0	68.1	68.1	12.7	21.4	21.4	8.5	14.5	14.5
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	0.44	0.37	0.17
Control Delay (s/veh)	69.6	27.9		72.9	19.0	0.0	60.9	46.8	1.3	70.5	56.8	1.0
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 (s/veh)	69.6	27.9		72.9	19.0	0.0	60.9	46.8	1.3	70.5	56.8	1.0
LOS	E	C		E	B	A	E	D	A	E	E	A
Approach Delay (s/veh)		29.3			24.4			46.8			42.2	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	10.5	110.1		14.7	22.1	0.0	23.8	10.4	0.0	12.2	18.5	0.0
Queue Length 95th (m)	22.5	#196.1		29.3	40.0	0.0	32.6	18.0	0.0	25.3	28.8	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	1759		126	2551	898	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	0.37	0.25	0.14

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 (s/veh): 32.2	Intersection LOS: C
Intersection Capacity Utilization 64.3%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 1: Trim & H174

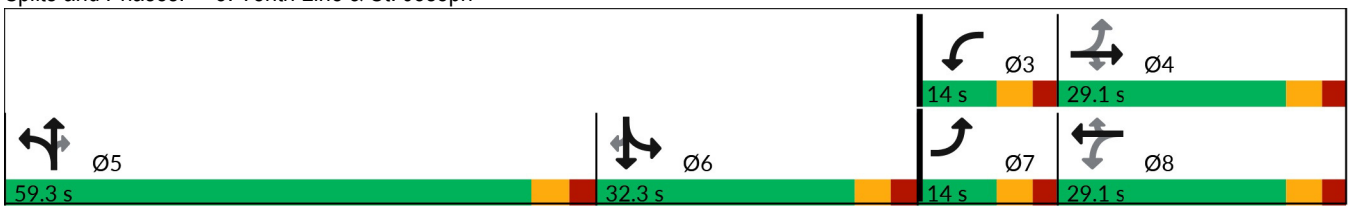
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	550	525	62	342	248	320	627	13	8	137	42
Future Volume (vph)	54	550	525	62	342	248	320	627	13	8	137	42
Satd. Flow (prot)	1695	3390	1517	1695	3390	1517	1543	3241	1517	1695	3390	1517
Flt Permitted	0.462			0.246			0.950	0.998		0.950		
Satd. Flow (perm)	818	3390	1496	439	3390	1475	1543	3241	1494	1693	3390	1517
Satd. Flow (RTOR)			583			276			125			125
Lane Group Flow (vph)	60	611	583	69	380	276	320	733	14	9	152	47
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		5	5		6	6	
Permitted Phases	4		4	8		8			5			6
Detector Phase	7	4	4	3	8	8	5	5	5	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	22.0	22.0	22.0	10.0	10.0	10.0
Minimum Split (s)	11.0	29.1	29.1	11.0	29.1	29.1	32.3	32.3	32.3	32.3	32.3	32.3
Total Split (s)	14.0	29.1	29.1	14.0	29.1	29.1	59.3	59.3	59.3	32.3	32.3	32.3
Total Split (%)	10.4%	21.6%	21.6%	10.4%	21.6%	21.6%	44.0%	44.0%	44.0%	24.0%	24.0%	24.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.4	2.4	2.3	2.4	2.4	2.6	2.6	2.6	2.6	2.6	2.6
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	0.0
Total Lost Time (s)	6.0	6.1	6.1	6.0	6.1	6.1	6.3	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	None	None
Act Effct Green (s)	29.6	23.7	23.7	29.7	23.7	23.7	29.5	29.5	29.5	12.9	12.9	12.9
Actuated g/C Ratio	0.31	0.25	0.25	0.31	0.25	0.25	0.31	0.31	0.31	0.13	0.13	0.13
v/c Ratio	0.19	0.73	0.72	0.30	0.45	0.48	0.68	0.74	0.03	0.04	0.33	0.15
Control Delay (s/veh)	25.6	41.8	9.3	27.5	35.9	8.0	38.1	35.4	0.1	39.5	41.4	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.6	41.8	9.3	27.5	35.9	8.0	38.1	35.4	0.1	39.5	41.4	1.0
LOS	C	D	A	C	D	A	D	D	A	D	D	A
Approach Delay (s/veh)		25.9			24.5			35.7			32.2	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	6.6	53.1	0.0	7.6	30.4	0.0	55.7	65.4	0.0	1.5	13.6	0.0
Queue Length 95th (m)	21.2	#116.4	37.5	23.8	61.8	23.9	104.7	105.3	0.0	6.4	26.0	0.0
Internal Link Dist (m)		434.4			241.4			325.6			408.6	
Turn Bay Length (m)	100.0		140.0	65.0			160.0		50.0	110.0		70.0
Base Capacity (vph)	330	837	808	245	838	572	878	1845	904	473	946	513
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.73	0.72	0.28	0.45	0.48	0.36	0.40	0.02	0.02	0.16	0.09

Intersection Summary
Cycle Length: 134.7
Actuated Cycle Length: 95.8
Natural Cycle: 105
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.74

Intersection Signal Delay (s/veh): 29.2	Intersection LOS: C
Intersection Capacity Utilization 68.2%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 5: Tenth Line & St. Joseph



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	571	3	178	552	0	2	0	223	195	606	136
Future Volume (vph)	0	571	3	178	552	0	2	0	223	195	606	136
Satd. Flow (prot)	0	3387	0	1695	3390	0	1695	0	1517	3288	3390	1517
Flt Permitted				0.368			0.950			0.950		
Satd. Flow (perm)	0	3387	0	657	3390	0	1695	0	1498	3288	3390	1517
Satd. Flow (RTOR)		1							257			257
Lane Group Flow (vph)	0	637	0	198	613	0	2	0	248	217	673	151
Turn Type		NA		Perm	NA		Prot		Free	Prot	NA	Free
Protected Phases		4			8		5			1	6	
Permitted Phases				8					Free			Free
Detector Phase		4		8	8		5			1	6	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		5.0			5.0	15.0	
Minimum Split (s)		25.6		25.6	25.6		11.3			12.0	30.0	
Total Split (s)		26.6		26.6	26.6		11.3			45.0	33.7	
Total Split (%)		37.2%		37.2%	37.2%		15.8%			62.8%	47.1%	
Yellow Time (s)		3.7		3.7	3.7		3.7			3.7	3.7	
All-Red Time (s)		2.9		2.9	2.9		2.6			3.3	3.3	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)		6.6		6.6	6.6		6.3			7.0	7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Recall Mode		None		None	None		None			Min	Min	
Act Effct Green (s)		20.4		20.4	20.4		5.1		53.3	19.0	17.3	53.3
Actuated g/C Ratio		0.38		0.38	0.38		0.10		1.00	0.36	0.32	1.00
v/c Ratio		0.49		0.79	0.47		0.01		0.17	0.18	0.61	0.10
Control Delay (s/veh)		15.6		43.9	15.4		26.5		0.2	11.5	18.2	0.1
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)		15.6		43.9	15.4		26.5		0.2	11.5	18.2	0.1
LOS		B		D	B		C		A	B	B	A
Approach Delay (s/veh)		15.6			22.4			0.4			14.2	
Approach LOS		B			C			A			B	
Queue Length 50th (m)		20.0		13.8	19.1		0.2		0.0	7.0	25.7	0.0
Queue Length 95th (m)		54.3		#64.9	52.1		2.1		0.0	11.8	51.5	0.0
Internal Link Dist (m)		241.4			372.8			239.6			226.3	
Turn Bay Length (m)				60.0					10.0	90.0		
Base Capacity (vph)		1296		251	1296		162		1498	2389	1731	1517
Starvation Cap Reductn		0		0	0		0		0	0	0	0
Spillback Cap Reductn		0		0	0		0		0	0	0	0
Storage Cap Reductn		0		0	0		0		0	0	0	0
Reduced v/c Ratio		0.49		0.79	0.47		0.01		0.17	0.09	0.39	0.10

Intersection Summary
Cycle Length: 71.6
Actuated Cycle Length: 53.3
Natural Cycle: 80
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.79

Intersection Signal Delay (s/veh): 15.7	Intersection LOS: B
Intersection Capacity Utilization 61.7%	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: 6: Old Tenth Line & St. Joseph

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, s/veh	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, s/veh	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	14	76	0	62
Future Vol, veh/h	38	115	3	6	50	41	5	0	14	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	16	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, s/veh	8.7	7.9	7.5	8.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	24%	6%	55%
Vol Thru, %	0%	74%	52%	0%
Vol Right, %	74%	2%	42%	45%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	156	97	138
LT Vol	5	38	6	76
Through Vol	0	115	50	0
RT Vol	14	3	41	62
Lane Flow Rate	21	173	108	153
Geometry Grp	1	1	1	1
Degree of Util (X)	0.026	0.216	0.128	0.189
Departure Headway (Hd)	4.361	4.487	4.287	4.435
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	821	801	836	811
Service Time	2.388	2.509	2.311	2.455
HCM Lane V/C Ratio	0.026	0.216	0.129	0.189
HCM Control Delay, s/veh	7.5	8.7	7.9	8.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.8	0.4	0.7

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

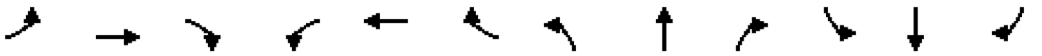
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	84	192	126	33	176	153
Future Vol, veh/h	84	192	126	33	176	153
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	213	140	37	196	170
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	12.3	10.8	11.1
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	30%	0%	100%
Vol Right, %	0%	100%	70%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	176	153	276	126	33
LT Vol	176	0	0	126	0
Through Vol	0	0	84	0	33
RT Vol	0	153	192	0	0
Lane Flow Rate	196	170	307	140	37
Geometry Grp	5	5	3b	5	5
Degree of Util (X)	0.346	0.244	0.445	0.251	0.061
Departure Headway (Hd)	6.372	5.161	5.221	6.457	5.95
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	565	697	693	557	603
Service Time	4.099	2.888	3.221	4.185	3.678
HCM Lane V/C Ratio	0.347	0.244	0.443	0.251	0.061
HCM Control Delay, s/veh	12.4	9.6	12.3	11.3	9.1
HCM Lane LOS	B	A	B	B	A
HCM 95th-tile Q	1.5	1	2.3	1	0.2

APPENDIX O

SYCNHRO ANALYSIS: BACKGROUND CONDITIONS



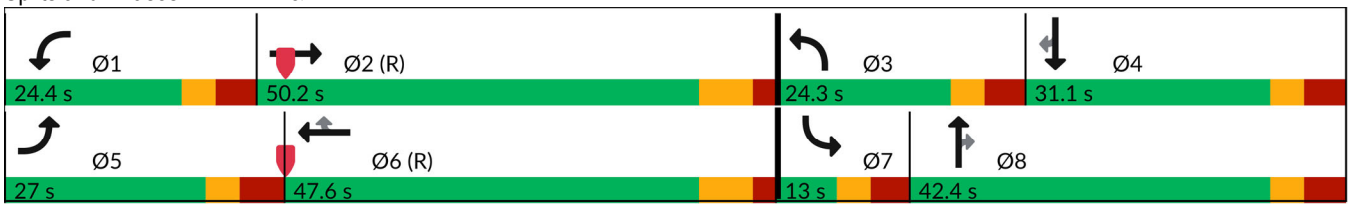
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	277	0	124	1151	50	418	86	58	31	97	249
Future Volume (vph)	152	277	0	124	1151	50	418	86	58	31	97	249
Satd. Flow (prot)	1695	3390	0	1695	4871	1517	4780	1784	1517	1695	1784	1517
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1695	3390	0	1695	4871	1517	4780	1784	1459	1662	1784	1517
Satd. Flow (RTOR)						215			153			249
Lane Group Flow (vph)	152	277	0	124	1151	50	418	86	58	31	97	249
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)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.5	41.2		12.1	41.2	41.2	12.2	42.4	42.4	11.9	17.4	17.4
Total Split (s)	27.0	50.2		24.4	47.6	47.6	24.3	42.4	42.4	13.0	31.1	31.1
Total Split (%)	20.8%	38.6%		18.8%	36.6%	36.6%	18.7%	32.6%	32.6%	10.0%	23.9%	23.9%
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)	16.1	56.8		14.1	54.4	54.4	16.0	28.7	28.7	7.0	14.2	14.2
Actuated g/C Ratio	0.12	0.44		0.11	0.42	0.42	0.12	0.22	0.22	0.05	0.11	0.11
v/c Ratio	0.72	0.19		0.67	0.56	0.07	0.71	0.22	0.13	0.34	0.50	0.64
Control Delay (s/veh)	73.8	24.9		73.4	31.8	0.2	61.9	43.3	0.6	69.7	62.2	13.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	73.8	24.9		73.4	31.8	0.2	61.9	43.3	0.6	69.7	62.2	13.9
LOS	E	C		E	C	A	E	D	A	E	E	B
Approach Delay (s/veh)		42.2			34.5			52.7			30.9	
Approach LOS		D			C			D			C	
Queue Length 50th (m)	37.8	22.3		30.8	80.6	0.0	36.8	19.6	0.0	7.8	24.2	0.0
Queue Length 95th (m)	59.7	38.4		50.5	114.7	0.0	48.2	30.6	0.0	18.4	38.2	22.9
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)	254	1481		225	2038	759	636	480	504	92	325	480
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	0.60	0.19		0.55	0.56	0.07	0.66	0.18	0.12	0.34	0.30	0.52

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: 0.72

Intersection Signal Delay (s/veh): 39.0	Intersection LOS: D
Intersection Capacity Utilization 72.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Trim & H174



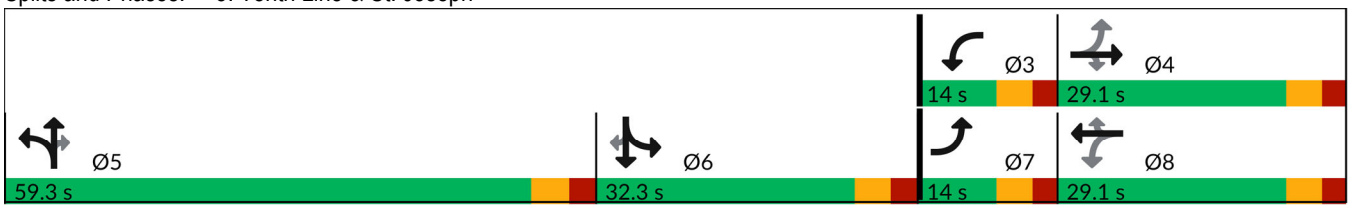
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	205	159	31	548	251	441	796	20	7	124	55
Future Volume (vph)	16	205	159	31	548	251	441	796	20	7	124	55
Satd. Flow (prot)	1695	3390	1517	1695	3390	1517	1543	3238	1517	1695	3390	1517
Flt Permitted	0.313			0.578			0.950	0.997		0.950		
Satd. Flow (perm)	556	3390	1496	1030	3390	1480	1543	3238	1517	1695	3390	1517
Satd. Flow (RTOR)			159			251			125			125
Lane Group Flow (vph)	16	205	159	31	548	251	397	840	20	7	124	55
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		5	5		6	6	
Permitted Phases	4		4	8		8			5			6
Detector Phase	7	4	4	3	8	8	5	5	5	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	22.0	22.0	22.0	10.0	10.0	10.0
Minimum Split (s)	11.0	29.1	29.1	11.0	29.1	29.1	32.3	32.3	32.3	32.3	32.3	32.3
Total Split (s)	14.0	29.1	29.1	14.0	29.1	29.1	59.3	59.3	59.3	32.3	32.3	32.3
Total Split (%)	10.4%	21.6%	21.6%	10.4%	21.6%	21.6%	44.0%	44.0%	44.0%	24.0%	24.0%	24.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.4	2.4	2.3	2.4	2.4	2.6	2.6	2.6	2.6	2.6	2.6
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	0.0
Total Lost Time (s)	6.0	6.1	6.1	6.0	6.1	6.1	6.3	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	None	None
Act Effct Green (s)	22.9	19.1	19.1	24.5	22.0	22.0	32.6	32.6	32.6	12.9	12.9	12.9
Actuated g/C Ratio	0.25	0.21	0.21	0.27	0.24	0.24	0.36	0.36	0.36	0.14	0.14	0.14
v/c Ratio	0.07	0.29	0.36	0.10	0.67	0.46	0.72	0.73	0.03	0.03	0.26	0.17
Control Delay (s/veh)	29.4	36.5	9.5	28.6	39.6	8.5	35.5	30.7	0.1	41.7	40.6	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	29.4	36.5	9.5	28.6	39.6	8.5	35.5	30.7	0.1	41.7	40.6	1.2
LOS	C	D	A	C	D	A	D	C	A	D	D	A
Approach Delay (s/veh)		24.9			29.8			31.7			29.0	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	1.7	15.3	0.0	3.4	37.0	0.0	56.9	60.3	0.0	1.0	9.2	0.0
Queue Length 95th (m)	8.9	37.8	18.9	14.1	#111.1	23.9	133.5	122.9	0.0	5.7	23.8	0.0
Internal Link Dist (m)		434.4			241.4			325.6			408.6	
Turn Bay Length (m)	100.0		140.0	65.0			160.0		50.0	110.0		70.0
Base Capacity (vph)	248	906	516	338	908	580	950	1995	982	512	1024	545
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.23	0.31	0.09	0.60	0.43	0.42	0.42	0.02	0.01	0.12	0.10

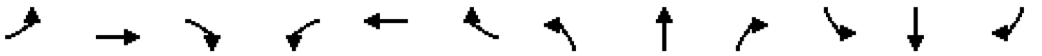
Intersection Summary
Cycle Length: 134.7
Actuated Cycle Length: 91.6
Natural Cycle: 105
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.73

Intersection Signal Delay (s/veh): 29.9	Intersection LOS: C
Intersection Capacity Utilization 74.2%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 5: Tenth Line & St. Joseph



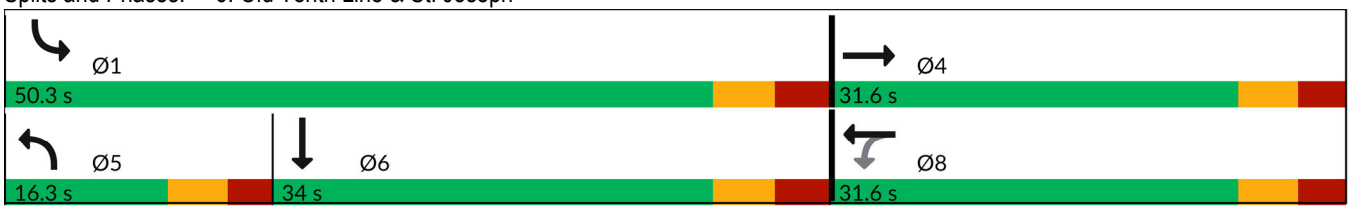


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	232	2	110	818	0	3	0	183	121	285	77
Future Volume (vph)	0	232	2	110	818	0	3	0	183	121	285	77
Satd. Flow (prot)	0	3387	0	1695	3390	0	1695	0	1517	3288	3390	1517
Flt Permitted				0.606			0.950			0.950		
Satd. Flow (perm)	0	3387	0	1081	3390	0	1695	0	1498	3288	3390	1517
Satd. Flow (RTOR)		1							225			225
Lane Group Flow (vph)	0	234	0	110	818	0	3	0	183	121	285	77
Turn Type		NA		Perm	NA		Prot		Free	Prot	NA	Free
Protected Phases		4			8		5			1	6	
Permitted Phases				8					Free			Free
Detector Phase		4		8	8		5			1	6	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		5.0			5.0	15.0	
Minimum Split (s)		25.6		25.6	25.6		11.3			12.0	30.0	
Total Split (s)		31.6		31.6	31.6		16.3			50.3	34.0	
Total Split (%)		38.6%		38.6%	38.6%		19.9%			61.4%	41.5%	
Yellow Time (s)		3.7		3.7	3.7		3.7			3.7	3.7	
All-Red Time (s)		2.9		2.9	2.9		2.6			3.3	3.3	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)		6.6		6.6	6.6		6.3			7.0	7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Recall Mode		None		None	None		None			Min	Min	
Act Effct Green (s)		17.8		17.8	17.8		5.9		50.5	18.5	16.8	50.5
Actuated g/C Ratio		0.35		0.35	0.35		0.12		1.00	0.37	0.33	1.00
v/c Ratio		0.20		0.29	0.69		0.02		0.12	0.10	0.25	0.05
Control Delay (s/veh)		12.8		15.7	18.2		26.0		0.2	11.1	14.7	0.1
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)		12.8		15.7	18.2		26.0		0.2	11.1	14.7	0.1
LOS		B		B	B		C		A	B	B	A
Approach Delay (s/veh)		12.8			17.9			0.6			11.5	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		6.3		5.8	27.0		0.3		0.0	3.4	8.7	0.0
Queue Length 95th (m)		19.7		23.3	70.9		2.8		0.0	8.4	24.7	0.0
Internal Link Dist (m)		241.4			372.8			239.6			226.3	
Turn Bay Length (m)				60.0					10.0	90.0		
Base Capacity (vph)		1755		559	1756		351		1498	2907	1897	1517
Starvation Cap Reductn		0		0	0		0		0	0	0	0
Spillback Cap Reductn		0		0	0		0		0	0	0	0
Storage Cap Reductn		0		0	0		0		0	0	0	0
Reduced v/c Ratio		0.13		0.20	0.47		0.01		0.12	0.04	0.15	0.05

Intersection Summary
Cycle Length: 81.9
Actuated Cycle Length: 50.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.69

Intersection Signal Delay (s/veh): 13.8 Intersection LOS: B
Intersection Capacity Utilization 47.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 6: Old Tenth Line & St. Joseph



Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	9	104	161	11	0	141	70	75	0	141	6
Future Vol, veh/h	4	9	104	161	11	0	141	70	75	0	141	6
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	4	9	104	161	11	0	141	70	75	0	141	6
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, s/veh	8.6	10.2	10.8	9.4
HCM LOS	A	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	49%	3%	94%	0%
Vol Thru, %	24%	8%	6%	96%
Vol Right, %	26%	89%	0%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	286	117	172	147
LT Vol	141	4	161	0
Through Vol	70	9	11	141
RT Vol	75	104	0	6
Lane Flow Rate	286	117	172	147
Geometry Grp	1	1	1	1
Degree of Util (X)	0.38	0.153	0.254	0.204
Departure Headway (Hd)	4.787	4.696	5.308	4.993
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	746	753	671	711
Service Time	2.86	2.787	3.393	3.079
HCM Lane V/C Ratio	0.383	0.155	0.256	0.207
HCM Control Delay, s/veh	10.8	8.6	10.2	9.4
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	1.8	0.5	1	0.8

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	68	2	4	47	50	3	0	1	54	1	26
Future Vol, veh/h	30	68	2	4	47	50	3	0	1	54	1	26
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	30	68	2	4	47	50	3	0	1	54	1	26
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, s/veh	7.8	7.4	7.5	7.8
HCM LOS	A	A	A	A

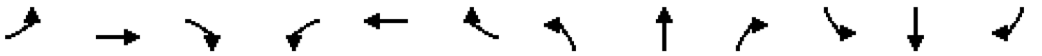
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	75%	30%	4%	67%
Vol Thru, %	0%	68%	47%	1%
Vol Right, %	25%	2%	50%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	100	101	81
LT Vol	3	30	4	54
Through Vol	0	68	47	1
RT Vol	1	2	50	26
Lane Flow Rate	4	100	101	81
Geometry Grp	1	1	1	1
Degree of Util (X)	0.005	0.117	0.109	0.095
Departure Headway (Hd)	4.458	4.209	3.87	4.224
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	808	844	915	836
Service Time	2.458	2.273	1.942	2.313
HCM Lane V/C Ratio	0.005	0.118	0.11	0.097
HCM Control Delay, s/veh	7.5	7.8	7.4	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.4	0.4	0.3

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	36	143	117	45	146	96
Future Vol, veh/h	36	143	117	45	146	96
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	143	117	45	146	96
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	9.2	9.6	9.5
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	20%	0%	100%
Vol Right, %	0%	100%	80%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	146	96	179	117	45
LT Vol	146	0	0	117	0
Through Vol	0	0	36	0	45
RT Vol	0	96	143	0	0
Lane Flow Rate	146	96	179	117	45
Geometry Grp	5	5	3b	5	5
Degree of Util (X)	0.239	0.125	0.234	0.19	0.067
Departure Headway (Hd)	5.883	4.676	4.701	5.846	5.342
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	609	763	761	612	668
Service Time	3.635	2.428	2.747	3.596	3.092
HCM Lane V/C Ratio	0.24	0.126	0.235	0.191	0.067
HCM Control Delay, s/veh	10.5	8.1	9.2	10	8.5
HCM Lane LOS	B	A	A	A	A
HCM 95th-tile Q	0.9	0.4	0.9	0.7	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	269	1236	5	105	552	31	326	107	174	59	113	219
Future Volume (vph)	269	1236	5	105	552	31	326	107	174	59	113	219
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	1459	1663	1784	1517
Satd. Flow (RTOR)						278			216			276
Lane Group Flow (vph)	269	1241	0	105	552	31	326	107	174	59	113	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)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.5	41.2		12.1	41.2	41.2	12.2	42.4	42.4	11.9	17.4	17.4
Total Split (s)	30.0	57.6		17.0	44.6	44.6	21.3	42.4	42.4	13.0	34.1	34.1
Total Split (%)	23.1%	44.3%		13.1%	34.3%	34.3%	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)	25.4	59.9		12.5	46.7	46.7	13.2	24.9	24.9	6.9	15.5	15.5
Actuated g/C Ratio	0.20	0.46		0.10	0.36	0.36	0.10	0.19	0.19	0.05	0.12	0.12
v/c Ratio	0.82	0.80		0.64	0.32	0.04	0.67	0.31	0.38	0.66	0.53	0.52
Control Delay (s/veh)	69.5	35.8		74.6	32.2	0.1	63.5	47.1	4.4	93.8	61.7	6.1
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 (s/veh)	69.5	35.8		74.6	32.2	0.1	63.5	47.1	4.4	93.8	61.7	6.1
LOS	E	D		E	C	A	E	D	A	F	E	A
Approach Delay (s/veh)		41.8			37.2			43.7			35.4	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	64.7	141.9		25.9	38.0	0.0	28.7	24.5	0.0	15.2	28.1	0.0
Queue Length 95th (m)	#118.9	#205.7		#58.8	52.9	0.0	39.2	37.0	8.3	#39.0	42.4	7.6
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)	335	1560		164	1748	722	518	480	550	89	366	530
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.80		0.64	0.32	0.04	0.63	0.22	0.32	0.66	0.31	0.41

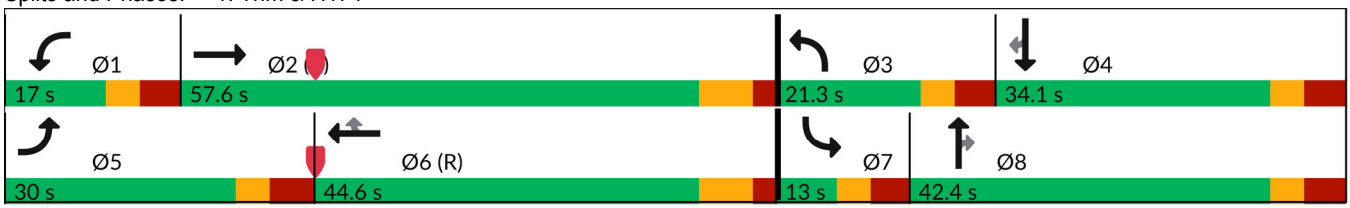
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 54.5 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

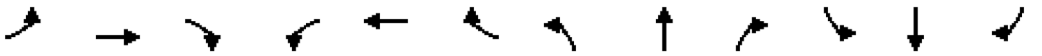
Maximum v/c Ratio: 0.82

Intersection Signal Delay (s/veh): 40.4	Intersection LOS: D
Intersection Capacity Utilization 81.4%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 1: Trim & H174





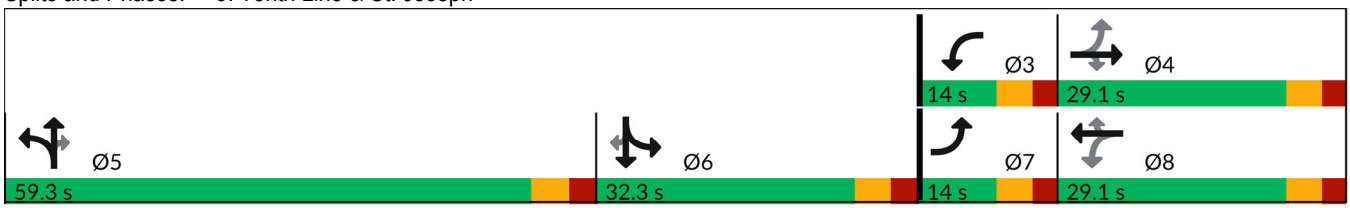
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	554	561	62	353	255	359	627	13	8	137	43
Future Volume (vph)	54	554	561	62	353	255	359	627	13	8	137	43
Satd. Flow (prot)	1695	3390	1517	1695	3390	1517	1543	3238	1517	1695	3390	1517
Flt Permitted	0.489			0.290			0.950	0.997		0.950		
Satd. Flow (perm)	865	3390	1496	517	3390	1475	1543	3238	1494	1693	3390	1517
Satd. Flow (RTOR)			561			255			125			125
Lane Group Flow (vph)	54	554	561	62	353	255	320	666	13	8	137	43
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		5	5		6	6	
Permitted Phases	4		4	8		8			5			6
Detector Phase	7	4	4	3	8	8	5	5	5	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	22.0	22.0	22.0	10.0	10.0	10.0
Minimum Split (s)	11.0	29.1	29.1	11.0	29.1	29.1	32.3	32.3	32.3	32.3	32.3	32.3
Total Split (s)	14.0	29.1	29.1	14.0	29.1	29.1	59.3	59.3	59.3	32.3	32.3	32.3
Total Split (%)	10.4%	21.6%	21.6%	10.4%	21.6%	21.6%	44.0%	44.0%	44.0%	24.0%	24.0%	24.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.4	2.4	2.3	2.4	2.4	2.6	2.6	2.6	2.6	2.6	2.6
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	0.0
Total Lost Time (s)	6.0	6.1	6.1	6.0	6.1	6.1	6.3	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	None	None
Act Effct Green (s)	27.9	22.1	22.1	28.0	22.2	22.2	28.3	28.3	28.3	12.8	12.8	12.8
Actuated g/C Ratio	0.30	0.24	0.24	0.30	0.24	0.24	0.30	0.30	0.30	0.14	0.14	0.14
v/c Ratio	0.17	0.69	0.72	0.25	0.44	0.47	0.68	0.68	0.02	0.03	0.29	0.14
Control Delay (s/veh)	24.8	39.9	9.4	26.1	35.1	8.1	38.4	33.4	0.1	39.0	40.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.8	39.9	9.4	26.1	35.1	8.1	38.4	33.4	0.1	39.0	40.2	0.9
LOS	C	D	A	C	D	A	D	C	A	D	D	A
Approach Delay (s/veh)		24.6			24.0			34.5			31.2	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	5.6	45.1	0.0	6.5	26.8	0.0	55.3	57.5	0.0	1.3	11.7	0.0
Queue Length 95th (m)	19.7	#100.0	36.6	22.1	57.5	22.6	104.7	94.0	0.0	6.0	23.7	0.0
Internal Link Dist (m)		434.4			241.4			325.6			408.6	
Turn Bay Length (m)	100.0		140.0	65.0			160.0		50.0	110.0		70.0
Base Capacity (vph)	338	871	801	263	872	569	914	1918	936	492	985	529
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.64	0.70	0.24	0.40	0.45	0.35	0.35	0.01	0.02	0.14	0.08

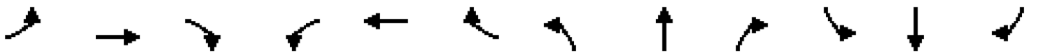
Intersection Summary
Cycle Length: 134.7
Actuated Cycle Length: 93
Natural Cycle: 105
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.72

Intersection Signal Delay (s/veh): 28.1	Intersection LOS: C
Intersection Capacity Utilization 69.0%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 5: Tenth Line & St. Joseph





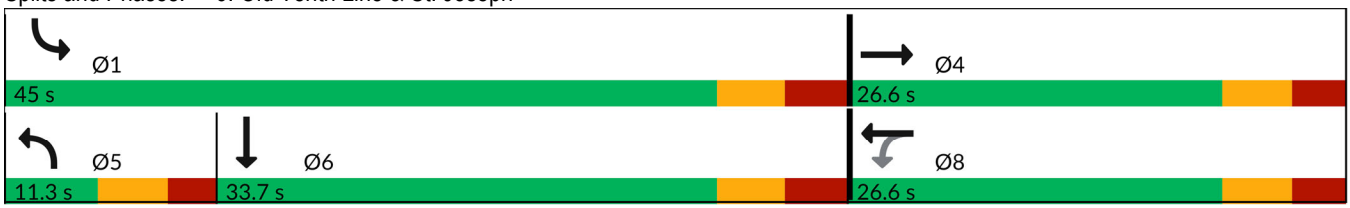
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	574	3	178	562	0	2	0	223	195	606	152
Future Volume (vph)	0	574	3	178	562	0	2	0	223	195	606	152
Satd. Flow (prot)	0	3387	0	1695	3390	0	1695	0	1517	3288	3390	1517
Flt Permitted				0.414			0.950			0.950		
Satd. Flow (perm)	0	3387	0	739	3390	0	1695	0	1498	3288	3390	1517
Satd. Flow (RTOR)		1							257			257
Lane Group Flow (vph)	0	577	0	178	562	0	2	0	223	195	606	152
Turn Type		NA		Perm	NA		Prot		Free	Prot	NA	Free
Protected Phases		4			8		5			1	6	
Permitted Phases				8					Free			Free
Detector Phase		4		8	8		5			1	6	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		5.0			5.0	15.0	
Minimum Split (s)		25.6		25.6	25.6		11.3			12.0	30.0	
Total Split (s)		26.6		26.6	26.6		11.3			45.0	33.7	
Total Split (%)		37.2%		37.2%	37.2%		15.8%			62.8%	47.1%	
Yellow Time (s)		3.7		3.7	3.7		3.7			3.7	3.7	
All-Red Time (s)		2.9		2.9	2.9		2.6			3.3	3.3	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)		6.6		6.6	6.6		6.3			7.0	7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Recall Mode		None		None	None		None			Min	Min	
Act Effct Green (s)		20.3		20.3	20.3		5.1		52.6	18.4	16.7	52.6
Actuated g/C Ratio		0.39		0.39	0.39		0.10		1.00	0.35	0.32	1.00
v/c Ratio		0.44		0.62	0.43		0.01		0.15	0.17	0.56	0.10
Control Delay (s/veh)		14.6		29.3	14.5		25.5		0.2	11.5	17.7	0.1
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)		14.6		29.3	14.5		25.5		0.2	11.5	17.7	0.1
LOS		B		C	B		C		A	B	B	A
Approach Delay (s/veh)		14.6			18.0			0.4			13.6	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		17.4		11.2	16.8		0.2		0.0	6.2	22.6	0.0
Queue Length 95th (m)		47.0		#52.7	45.6		2.1		0.0	10.8	46.1	0.0
Internal Link Dist (m)		241.4			372.8			239.6			226.3	
Turn Bay Length (m)				60.0					10.0	90.0		
Base Capacity (vph)		1310		286	1311		163		1498	2416	1750	1517
Starvation Cap Reductn		0		0	0		0		0	0	0	0
Spillback Cap Reductn		0		0	0		0		0	0	0	0
Storage Cap Reductn		0		0	0		0		0	0	0	0
Reduced v/c Ratio		0.44		0.62	0.43		0.01		0.15	0.08	0.35	0.10

Intersection Summary
Cycle Length: 71.6
Actuated Cycle Length: 52.6
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.62

Intersection Signal Delay (s/veh): 14.0	Intersection LOS: B
Intersection Capacity Utilization 61.8%	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: 6: Old Tenth Line & St. Joseph



Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	25	176	166	15	0	108	139	161	0	99	7
Future Vol, veh/h	8	25	176	166	15	0	108	139	161	0	99	7
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	8	25	176	166	15	0	108	139	161	0	99	7
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, s/veh	10.3	11.3	14.4	9.8
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	4%	92%	0%
Vol Thru, %	34%	12%	8%	93%
Vol Right, %	39%	84%	0%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	408	209	181	106
LT Vol	108	8	166	0
Through Vol	139	25	15	99
RT Vol	161	176	0	7
Lane Flow Rate	408	209	181	106
Geometry Grp	1	1	1	1
Degree of Util (X)	0.567	0.297	0.292	0.165
Departure Headway (Hd)	5.003	5.118	5.814	5.606
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	722	700	617	638
Service Time	3.036	3.162	3.86	3.654
HCM Lane V/C Ratio	0.565	0.299	0.293	0.166
HCM Control Delay, s/veh	14.4	10.3	11.3	9.8
HCM Lane LOS	B	B	B	A
HCM 95th-tile Q	3.6	1.2	1.2	0.6

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	44	122	3	6	59	82	5	0	14	105	0	66
Future Vol, veh/h	44	122	3	6	59	82	5	0	14	105	0	66
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	44	122	3	6	59	82	5	0	14	105	0	66
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, s/veh	8.9	8.2	7.6	8.8
HCM LOS	A	A	A	A

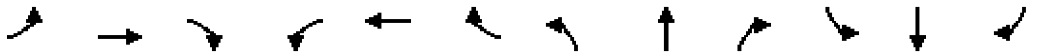
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	26%	4%	61%
Vol Thru, %	0%	72%	40%	0%
Vol Right, %	74%	2%	56%	39%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	169	147	171
LT Vol	5	44	6	105
Through Vol	0	122	59	0
RT Vol	14	3	82	66
Lane Flow Rate	19	169	147	171
Geometry Grp	1	1	1	1
Degree of Util (X)	0.024	0.215	0.173	0.216
Departure Headway (Hd)	4.465	4.579	4.248	4.557
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	800	784	844	788
Service Time	2.5	2.606	2.275	2.584
HCM Lane V/C Ratio	0.024	0.216	0.174	0.217
HCM Control Delay, s/veh	7.6	8.9	8.2	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.8	0.6	0.8

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	93	192	131	41	176	157
Future Vol, veh/h	93	192	131	41	176	157
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	192	131	41	176	157
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	11.4	10.4	10.5
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	33%	0%	100%
Vol Right, %	0%	100%	67%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	176	157	285	131	41
LT Vol	176	0	0	131	0
Through Vol	0	0	93	0	41
RT Vol	0	157	192	0	0
Lane Flow Rate	176	157	285	131	41
Geometry Grp	5	5	3b	5	5
Degree of Util (X)	0.303	0.217	0.398	0.226	0.065
Departure Headway (Hd)	6.19	4.981	5.028	6.221	5.715
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	576	713	710	572	620
Service Time	3.982	2.772	3.105	4.017	3.511
HCM Lane V/C Ratio	0.306	0.22	0.401	0.229	0.066
HCM Control Delay, s/veh	11.7	9.2	11.4	10.9	8.9
HCM Lane LOS	B	A	B	B	A
HCM 95th-tile Q	1.3	0.8	1.9	0.9	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	277	0	124	1151	48	418	77	58	26	79	185
Future Volume (vph)	123	277	0	124	1151	48	418	77	58	26	79	185
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)	123	277	0	124	1151	48	418	77	58	26	79	185
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)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.5	41.2		12.1	41.2	41.2	12.2	42.4	42.4	11.9	17.4	17.4
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)	18.0	56.4		14.3	52.3	52.3	16.7	28.3	28.3	7.5	13.6	13.6
Actuated g/C Ratio	0.14	0.43		0.11	0.40	0.40	0.13	0.22	0.22	0.06	0.10	0.10
v/c Ratio	0.52	0.19		0.67	0.59	0.06	0.68	0.20	0.13	0.27	0.42	0.52
Control Delay (s/veh)	61.7	25.3		72.6	32.5	0.2	59.7	43.3	0.6	64.7	60.0	8.8
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 (s/veh)	61.7	25.3		72.6	32.5	0.2	59.7	43.3	0.6	64.7	60.0	8.8
LOS	E	C		E	C	A	E	D	A	E	E	A
Approach Delay (s/veh)		36.5			35.1			51.2			27.7	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	29.5	22.1		30.7	81.3	0.0	36.7	17.5	0.0	6.5	19.7	0.0
Queue Length 95th (m)	#68.1	39.5		51.1	107.6	0.0	46.7	28.1	0.0	15.8	32.1	12.3
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)	235	1483		195	1977	745	1279	488	528	131	189	355
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	0.52	0.19		0.64	0.58	0.06	0.33	0.16	0.11	0.20	0.42	0.52

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: 0.68

Intersection Signal Delay (s/veh): 37.9	Intersection LOS: D
Intersection Capacity Utilization 64.1%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 1: Trim & H174

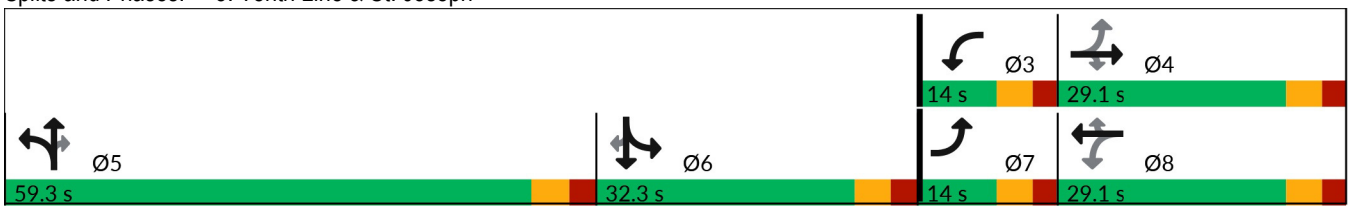
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	205	159	31	548	251	441	796	20	7	124	55
Future Volume (vph)	16	205	159	31	548	251	441	796	20	7	124	55
Satd. Flow (prot)	1695	3390	1517	1695	3390	1517	1543	3238	1517	1695	3390	1517
Flt Permitted	0.313			0.578			0.950	0.997		0.950		
Satd. Flow (perm)	556	3390	1496	1030	3390	1480	1543	3238	1517	1695	3390	1517
Satd. Flow (RTOR)			159			251			125			125
Lane Group Flow (vph)	16	205	159	31	548	251	397	840	20	7	124	55
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		5	5		6	6	
Permitted Phases	4		4	8		8			5			6
Detector Phase	7	4	4	3	8	8	5	5	5	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	22.0	22.0	22.0	10.0	10.0	10.0
Minimum Split (s)	11.0	29.1	29.1	11.0	29.1	29.1	32.3	32.3	32.3	32.3	32.3	32.3
Total Split (s)	14.0	29.1	29.1	14.0	29.1	29.1	59.3	59.3	59.3	32.3	32.3	32.3
Total Split (%)	10.4%	21.6%	21.6%	10.4%	21.6%	21.6%	44.0%	44.0%	44.0%	24.0%	24.0%	24.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.4	2.4	2.3	2.4	2.4	2.6	2.6	2.6	2.6	2.6	2.6
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	0.0
Total Lost Time (s)	6.0	6.1	6.1	6.0	6.1	6.1	6.3	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	None	None
Act Effct Green (s)	22.9	19.1	19.1	24.5	22.0	22.0	32.6	32.6	32.6	12.9	12.9	12.9
Actuated g/C Ratio	0.25	0.21	0.21	0.27	0.24	0.24	0.36	0.36	0.36	0.14	0.14	0.14
v/c Ratio	0.07	0.29	0.36	0.10	0.67	0.46	0.72	0.73	0.03	0.03	0.26	0.17
Control Delay (s/veh)	29.4	36.5	9.5	28.6	39.6	8.5	35.5	30.7	0.1	41.7	40.6	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	29.4	36.5	9.5	28.6	39.6	8.5	35.5	30.7	0.1	41.7	40.6	1.2
LOS	C	D	A	C	D	A	D	C	A	D	D	A
Approach Delay (s/veh)		24.9			29.8			31.7			29.0	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	1.7	15.3	0.0	3.4	37.0	0.0	56.9	60.3	0.0	1.0	9.2	0.0
Queue Length 95th (m)	8.9	37.8	18.9	14.1	#111.1	23.9	133.5	122.9	0.0	5.7	23.8	0.0
Internal Link Dist (m)		434.4			241.4			325.6			408.6	
Turn Bay Length (m)	100.0		140.0	65.0			160.0		50.0	110.0		70.0
Base Capacity (vph)	248	906	516	338	908	580	950	1995	982	512	1024	545
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.23	0.31	0.09	0.60	0.43	0.42	0.42	0.02	0.01	0.12	0.10

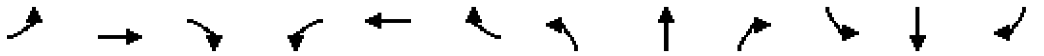
Intersection Summary
Cycle Length: 134.7
Actuated Cycle Length: 91.6
Natural Cycle: 105
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.73

Intersection Signal Delay (s/veh): 29.9	Intersection LOS: C
Intersection Capacity Utilization 74.2%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 5: Tenth Line & St. Joseph



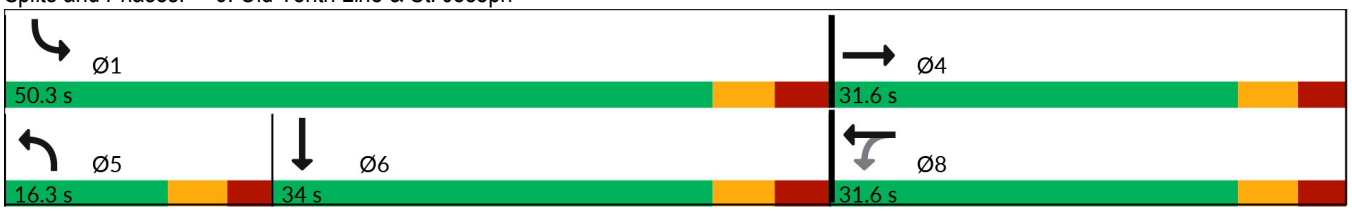


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	232	2	110	818	0	3	0	183	121	285	77
Future Volume (vph)	0	232	2	110	818	0	3	0	183	121	285	77
Satd. Flow (prot)	0	3387	0	1695	3390	0	1695	0	1517	3288	3390	1517
Flt Permitted				0.606			0.950			0.950		
Satd. Flow (perm)	0	3387	0	1081	3390	0	1695	0	1498	3288	3390	1517
Satd. Flow (RTOR)		1							225			225
Lane Group Flow (vph)	0	234	0	110	818	0	3	0	183	121	285	77
Turn Type		NA		Perm	NA		Prot		Free	Prot	NA	Free
Protected Phases		4			8		5			1	6	
Permitted Phases				8					Free			Free
Detector Phase		4		8	8		5			1	6	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		5.0			5.0	15.0	
Minimum Split (s)		25.6		25.6	25.6		11.3			12.0	30.0	
Total Split (s)		31.6		31.6	31.6		16.3			50.3	34.0	
Total Split (%)		38.6%		38.6%	38.6%		19.9%			61.4%	41.5%	
Yellow Time (s)		3.7		3.7	3.7		3.7			3.7	3.7	
All-Red Time (s)		2.9		2.9	2.9		2.6			3.3	3.3	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)		6.6		6.6	6.6		6.3			7.0	7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Recall Mode		None		None	None		None			Min	Min	
Act Effct Green (s)		17.8		17.8	17.8		5.9		50.5	18.5	16.8	50.5
Actuated g/C Ratio		0.35		0.35	0.35		0.12		1.00	0.37	0.33	1.00
v/c Ratio		0.20		0.29	0.69		0.02		0.12	0.10	0.25	0.05
Control Delay (s/veh)		12.8		15.7	18.2		26.0		0.2	11.1	14.7	0.1
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)		12.8		15.7	18.2		26.0		0.2	11.1	14.7	0.1
LOS		B		B	B		C		A	B	B	A
Approach Delay (s/veh)		12.8			17.9			0.6			11.5	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		6.3		5.8	27.0		0.3		0.0	3.4	8.7	0.0
Queue Length 95th (m)		19.7		23.3	70.9		2.8		0.0	8.4	24.7	0.0
Internal Link Dist (m)		241.4			372.8			239.6			226.3	
Turn Bay Length (m)				60.0					10.0	90.0		
Base Capacity (vph)		1755		559	1756		351		1498	2907	1897	1517
Starvation Cap Reductn		0		0	0		0		0	0	0	0
Spillback Cap Reductn		0		0	0		0		0	0	0	0
Storage Cap Reductn		0		0	0		0		0	0	0	0
Reduced v/c Ratio		0.13		0.20	0.47		0.01		0.12	0.04	0.15	0.05

Intersection Summary
Cycle Length: 81.9
Actuated Cycle Length: 50.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.69

Intersection Signal Delay (s/veh): 13.8	Intersection LOS: B
Intersection Capacity Utilization 47.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Old Tenth Line & St. Joseph



Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	9	216	161	11	0	227	40	75	0	74	4
Future Vol, veh/h	3	9	216	161	11	0	227	40	75	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	9	216	161	11	0	227	40	75	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, s/veh	9.9	10.7	12.9	9.3
HCM LOS	A	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	66%	1%	94%	0%
Vol Thru, %	12%	4%	6%	95%
Vol Right, %	22%	95%	0%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	342	228	172	78
LT Vol	227	3	161	0
Through Vol	40	9	11	74
RT Vol	75	216	0	4
Lane Flow Rate	342	228	172	78
Geometry Grp	1	1	1	1
Degree of Util (X)	0.485	0.303	0.267	0.119
Departure Headway (Hd)	5.107	4.782	5.585	5.489
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	705	752	643	653
Service Time	3.135	2.812	3.617	3.527
HCM Lane V/C Ratio	0.485	0.303	0.267	0.119
HCM Control Delay, s/veh	12.9	9.9	10.7	9.3
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	2.7	1.3	1.1	0.4

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	199	2	4	140	41	3	0	1	34	1	23
Future Vol, veh/h	29	199	2	4	140	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	199	2	4	140	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, s/veh	8.9	8.3	8	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	75%	13%	2%	59%
Vol Thru, %	0%	87%	76%	2%
Vol Right, %	25%	1%	22%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	230	185	58
LT Vol	3	29	4	34
Through Vol	0	199	140	1
RT Vol	1	2	41	23
Lane Flow Rate	4	230	185	58
Geometry Grp	1	1	1	1
Degree of Util (X)	0.005	0.269	0.215	0.076
Departure Headway (Hd)	4.914	4.204	4.191	4.718
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	731	842	860	763
Service Time	2.927	2.299	2.197	2.727
HCM Lane V/C Ratio	0.005	0.273	0.215	0.076
HCM Control Delay, s/veh	8	8.9	8.3	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	1.1	0.8	0.2

Intersection	
Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	34	143	363	40	146	273
Future Vol, veh/h	34	143	363	40	146	273
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	143	363	40	146	273
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	10.9	19.5	12.2
HCM LOS	B	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	19%	0%	100%
Vol Right, %	0%	100%	81%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	146	273	177	363	40
LT Vol	146	0	0	363	0
Through Vol	0	0	34	0	40
RT Vol	0	273	143	0	0
Lane Flow Rate	146	273	177	363	40
Geometry Grp	5	5	3b	5	5
Degree of Util (X)	0.274	0.42	0.279	0.654	0.066
Departure Headway (Hd)	6.758	5.544	5.68	6.486	5.979
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	531	650	632	559	600
Service Time	4.499	3.283	3.72	4.218	3.712
HCM Lane V/C Ratio	0.275	0.42	0.28	0.649	0.067
HCM Control Delay, s/veh	12	12.3	10.9	20.7	9.1
HCM Lane LOS	B	B	B	C	A
HCM 95th-tile Q	1.1	2.1	1.1	4.7	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	1236	5	105	552	26	326	86	174	55	99	168
Future Volume (vph)	198	1236	5	105	552	26	326	86	174	55	99	168
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			174			217
Lane Group Flow (vph)	198	1241	0	105	552	26	326	86	174	55	99	168
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)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.5	41.2		12.1	41.2	41.2	12.2	42.4	42.4	11.9	17.4	17.4
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)	24.7	58.8		13.1	46.8	46.8	14.2	23.3	23.3	8.7	15.0	15.0
Actuated g/C Ratio	0.19	0.45		0.10	0.36	0.36	0.11	0.18	0.18	0.07	0.12	0.12
v/c Ratio	0.61	0.81		0.62	0.31	0.04	0.63	0.27	0.42	0.49	0.48	0.46
Control Delay (s/veh)	58.3	37.2		71.7	30.7	0.1	60.7	47.7	8.9	72.4	60.1	6.0
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 (s/veh)	58.3	37.2		71.7	30.7	0.1	60.7	47.7	8.9	72.4	60.1	6.0
LOS	E	D		E	C	A	E	D	A	E	E	A
Approach Delay (s/veh)		40.1			35.8			43.4			33.9	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	45.8	141.1		25.7	37.1	0.0	28.7	20.4	0.0	13.7	24.7	0.0
Queue Length 95th (m)	#121.7	#218.8		#60.2	47.1	0.0	38.0	30.6	16.9	27.5	37.6	7.3
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)	322	1533		170	1753	685	948	488	541	131	290	429
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	0.61	0.81		0.62	0.31	0.04	0.34	0.18	0.32	0.42	0.34	0.39

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: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay (s/veh): 39.1	Intersection LOS: D
Intersection Capacity Utilization 73.7%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 1: Trim & H174

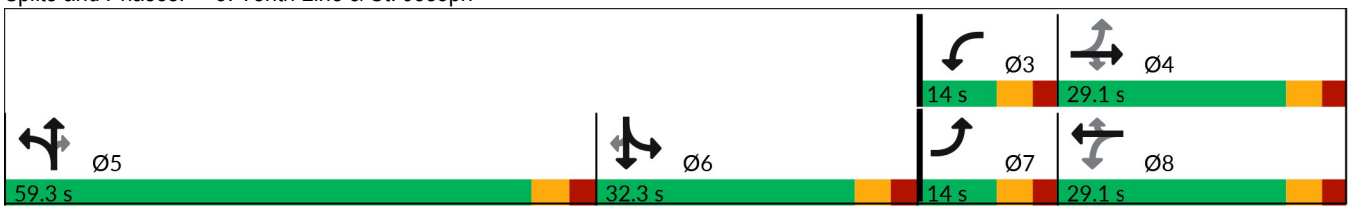
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	554	561	62	353	255	359	627	13	8	137	43
Future Volume (vph)	54	554	561	62	353	255	359	627	13	8	137	43
Satd. Flow (prot)	1695	3390	1517	1695	3390	1517	1543	3238	1517	1695	3390	1517
Flt Permitted	0.489			0.290			0.950	0.997		0.950		
Satd. Flow (perm)	865	3390	1496	517	3390	1475	1543	3238	1494	1693	3390	1517
Satd. Flow (RTOR)			561			255			125			125
Lane Group Flow (vph)	54	554	561	62	353	255	320	666	13	8	137	43
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		5	5		6	6	
Permitted Phases	4		4	8		8			5			6
Detector Phase	7	4	4	3	8	8	5	5	5	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	22.0	22.0	22.0	10.0	10.0	10.0
Minimum Split (s)	11.0	29.1	29.1	11.0	29.1	29.1	32.3	32.3	32.3	32.3	32.3	32.3
Total Split (s)	14.0	29.1	29.1	14.0	29.1	29.1	59.3	59.3	59.3	32.3	32.3	32.3
Total Split (%)	10.4%	21.6%	21.6%	10.4%	21.6%	21.6%	44.0%	44.0%	44.0%	24.0%	24.0%	24.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.4	2.4	2.3	2.4	2.4	2.6	2.6	2.6	2.6	2.6	2.6
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	0.0
Total Lost Time (s)	6.0	6.1	6.1	6.0	6.1	6.1	6.3	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	None	None
Act Effct Green (s)	27.9	22.1	22.1	28.0	22.2	22.2	28.3	28.3	28.3	12.8	12.8	12.8
Actuated g/C Ratio	0.30	0.24	0.24	0.30	0.24	0.24	0.30	0.30	0.30	0.14	0.14	0.14
v/c Ratio	0.17	0.69	0.72	0.25	0.44	0.47	0.68	0.68	0.02	0.03	0.29	0.14
Control Delay (s/veh)	24.8	39.9	9.4	26.1	35.1	8.1	38.4	33.4	0.1	39.0	40.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.8	39.9	9.4	26.1	35.1	8.1	38.4	33.4	0.1	39.0	40.2	0.9
LOS	C	D	A	C	D	A	D	C	A	D	D	A
Approach Delay (s/veh)		24.6			24.0			34.5			31.2	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	5.6	45.1	0.0	6.5	26.8	0.0	55.3	57.5	0.0	1.3	11.7	0.0
Queue Length 95th (m)	19.7	#100.0	36.6	22.1	57.5	22.6	104.7	94.0	0.0	6.0	23.7	0.0
Internal Link Dist (m)		434.4			241.4			325.6			408.6	
Turn Bay Length (m)	100.0		140.0	65.0			160.0		50.0	110.0		70.0
Base Capacity (vph)	338	871	801	263	872	569	914	1918	936	492	985	529
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.64	0.70	0.24	0.40	0.45	0.35	0.35	0.01	0.02	0.14	0.08

Intersection Summary
Cycle Length: 134.7
Actuated Cycle Length: 93
Natural Cycle: 105
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.72

Intersection Signal Delay (s/veh): 28.1	Intersection LOS: C
Intersection Capacity Utilization 69.0%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 5: Tenth Line & St. Joseph



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	574	3	178	562	0	2	0	223	195	606	152
Future Volume (vph)	0	574	3	178	562	0	2	0	223	195	606	152
Satd. Flow (prot)	0	3387	0	1695	3390	0	1695	0	1517	3288	3390	1517
Flt Permitted				0.414			0.950			0.950		
Satd. Flow (perm)	0	3387	0	739	3390	0	1695	0	1498	3288	3390	1517
Satd. Flow (RTOR)		1							257			257
Lane Group Flow (vph)	0	577	0	178	562	0	2	0	223	195	606	152
Turn Type		NA		Perm	NA		Prot		Free	Prot	NA	Free
Protected Phases		4			8		5			1	6	
Permitted Phases				8					Free			Free
Detector Phase		4		8	8		5			1	6	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		5.0			5.0	15.0	
Minimum Split (s)		25.6		25.6	25.6		11.3			12.0	30.0	
Total Split (s)		26.6		26.6	26.6		11.3			45.0	33.7	
Total Split (%)		37.2%		37.2%	37.2%		15.8%			62.8%	47.1%	
Yellow Time (s)		3.7		3.7	3.7		3.7			3.7	3.7	
All-Red Time (s)		2.9		2.9	2.9		2.6			3.3	3.3	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)		6.6		6.6	6.6		6.3			7.0	7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Recall Mode		None		None	None		None			Min	Min	
Act Effct Green (s)		20.3		20.3	20.3		5.1		52.6	18.4	16.7	52.6
Actuated g/C Ratio		0.39		0.39	0.39		0.10		1.00	0.35	0.32	1.00
v/c Ratio		0.44		0.62	0.43		0.01		0.15	0.17	0.56	0.10
Control Delay (s/veh)		14.6		29.3	14.5		25.5		0.2	11.5	17.7	0.1
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)		14.6		29.3	14.5		25.5		0.2	11.5	17.7	0.1
LOS		B		C	B		C		A	B	B	A
Approach Delay (s/veh)		14.6			18.0			0.4			13.6	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		17.4		11.2	16.8		0.2		0.0	6.2	22.6	0.0
Queue Length 95th (m)		47.0		#52.7	45.6		2.1		0.0	10.8	46.1	0.0
Internal Link Dist (m)		241.4			372.8			239.6			226.3	
Turn Bay Length (m)				60.0					10.0	90.0		
Base Capacity (vph)		1310		286	1311		163		1498	2416	1750	1517
Starvation Cap Reductn		0		0	0		0		0	0	0	0
Spillback Cap Reductn		0		0	0		0		0	0	0	0
Storage Cap Reductn		0		0	0		0		0	0	0	0
Reduced v/c Ratio		0.44		0.62	0.43		0.01		0.15	0.08	0.35	0.10

Intersection Summary
Cycle Length: 71.6
Actuated Cycle Length: 52.6
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.62

Intersection Signal Delay (s/veh): 14.0	Intersection LOS: B
Intersection Capacity Utilization 61.8%	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: 6: Old Tenth Line & St. Joseph

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	25	156	166	15	0	85	65	161	0	46	5
Future Vol, veh/h	6	25	156	166	15	0	85	65	161	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	25	156	166	15	0	85	65	161	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, s/veh	9	10.1	10.8	8.7
HCM LOS	A	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	3%	92%	0%
Vol Thru, %	21%	13%	8%	90%
Vol Right, %	52%	83%	0%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	311	187	181	51
LT Vol	85	6	166	0
Through Vol	65	25	15	46
RT Vol	161	156	0	5
Lane Flow Rate	311	187	181	51
Geometry Grp	1	1	1	1
Degree of Util (X)	0.4	0.236	0.261	0.073
Departure Headway (Hd)	4.626	4.545	5.2	5.159
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	771	782	684	686
Service Time	2.688	2.62	3.279	3.25
HCM Lane V/C Ratio	0.403	0.239	0.265	0.074
HCM Control Delay, s/veh	10.8	9	10.1	8.7
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	1.9	0.9	1	0.2

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	41	120	3	6	57	59	5	0	14	89	0	64
Future Vol, veh/h	41	120	3	6	57	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	120	3	6	57	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, s/veh	8.7	8	7.5	8.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	25%	5%	58%
Vol Thru, %	0%	73%	47%	0%
Vol Right, %	74%	2%	48%	42%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	164	122	153
LT Vol	5	41	6	89
Through Vol	0	120	57	0
RT Vol	14	3	59	64
Lane Flow Rate	19	164	122	153
Geometry Grp	1	1	1	1
Degree of Util (X)	0.023	0.205	0.144	0.19
Departure Headway (Hd)	4.367	4.5	4.236	4.462
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	819	799	848	805
Service Time	2.398	2.522	2.257	2.486
HCM Lane V/C Ratio	0.023	0.205	0.144	0.19
HCM Control Delay, s/veh	7.5	8.7	8	8.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.8	0.5	0.7

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	88	192	131	37	176	157
Future Vol, veh/h	88	192	131	37	176	157
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	88	192	131	37	176	157
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	11.3	10.4	10.4
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	31%	0%	100%
Vol Right, %	0%	100%	69%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	176	157	280	131	37
LT Vol	176	0	0	131	0
Through Vol	0	0	88	0	37
RT Vol	0	157	192	0	0
Lane Flow Rate	176	157	280	131	37
Geometry Grp	5	5	3b	5	5
Degree of Util (X)	0.302	0.216	0.39	0.226	0.059
Departure Headway (Hd)	6.169	4.96	5.014	6.213	5.708
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	577	716	711	572	621
Service Time	3.959	2.749	3.09	4.006	3.5
HCM Lane V/C Ratio	0.305	0.219	0.394	0.229	0.06
HCM Control Delay, s/veh	11.6	9.1	11.3	10.8	8.9
HCM Lane LOS	B	A	B	B	A
HCM 95th-tile Q	1.3	0.8	1.9	0.9	0.2

APPENDIX P

SYCNHRO ANALYSIS: FUTURE BUILDOUT CONDITIONS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	277	0	124	1151	63	418	92	58	50	103	303
Future Volume (vph)	199	277	0	124	1151	63	418	92	58	50	103	303
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)	1689	3390	0	1254	4871	1458	4780	1784	1151	1363	1784	1517
Satd. Flow (RTOR)						215			153			295
Lane Group Flow (vph)	199	277	0	124	1151	63	418	92	58	50	103	303
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)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.5	41.2		12.1	41.2	41.2	12.2	42.4	42.4	11.9	17.4	17.4
Total Split (s)	29.0	49.2		24.4	44.6	44.6	24.3	42.4	42.4	14.0	32.1	32.1
Total Split (%)	22.3%	37.8%		18.8%	34.3%	34.3%	18.7%	32.6%	32.6%	10.8%	24.7%	24.7%
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)	19.4	56.6		14.1	50.9	50.9	15.8	25.8	25.8	7.4	14.6	14.6
Actuated g/C Ratio	0.15	0.44		0.11	0.39	0.39	0.12	0.20	0.20	0.06	0.11	0.11
v/c Ratio	0.79	0.19		0.67	0.60	0.09	0.72	0.26	0.17	0.52	0.52	0.70
Control Delay (s/veh)	74.6	25.1		73.4	34.9	0.3	62.5	45.6	1.0	78.6	62.2	15.3
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 (s/veh)	74.6	25.1		73.4	34.9	0.3	62.5	45.6	1.0	78.6	62.2	15.3
LOS	E	C		E	C	A	E	D	A	E	E	B
Approach Delay (s/veh)		45.8			36.8			53.5			32.8	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	49.2	22.5		30.8	85.5	0.0	36.8	21.2	0.0	12.5	25.7	1.9
Queue Length 95th (m)	#79.2	38.8		50.5	118.8	0.0	48.2	32.6	0.0	#28.6	39.9	27.6
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)	285	1475		225	1907	701	628	480	421	100	338	527
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	0.70	0.19		0.55	0.60	0.09	0.67	0.19	0.14	0.50	0.30	0.57

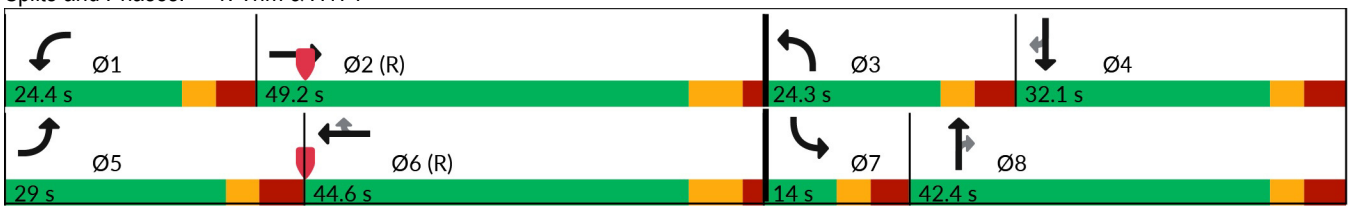
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 54.5 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay (s/veh): 41.0	Intersection LOS: D
Intersection Capacity Utilization 87.5%	ICU Level of Service E
Analysis Period (min) 15	

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

Splits and Phases: 1: Trim & H174



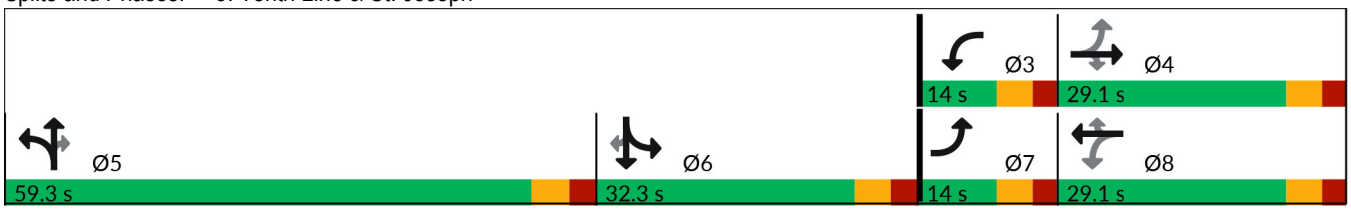
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	205	159	31	548	388	441	842	20	7	195	79
Future Volume (vph)	31	205	159	31	548	388	441	842	20	7	195	79
Satd. Flow (prot)	1695	3390	1517	1695	3390	1517	1543	3241	1517	1695	3390	1517
Flt Permitted	0.269			0.623			0.950	0.998		0.950		
Satd. Flow (perm)	477	3390	1476	1104	3390	1463	1533	3240	1483	1691	3390	1478
Satd. Flow (RTOR)			159			388			125			125
Lane Group Flow (vph)	31	205	159	31	548	388	397	886	20	7	195	79
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		5	5		6	6	
Permitted Phases	4		4	8		8			5			6
Detector Phase	7	4	4	3	8	8	5	5	5	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	22.0	22.0	22.0	10.0	10.0	10.0
Minimum Split (s)	11.0	29.1	29.1	11.0	29.1	29.1	32.3	32.3	32.3	32.3	32.3	32.3
Total Split (s)	14.0	29.1	29.1	14.0	29.1	29.1	59.3	59.3	59.3	32.3	32.3	32.3
Total Split (%)	10.4%	21.6%	21.6%	10.4%	21.6%	21.6%	44.0%	44.0%	44.0%	24.0%	24.0%	24.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.4	2.4	2.3	2.4	2.4	2.6	2.6	2.6	2.6	2.6	2.6
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	0.0
Total Lost Time (s)	6.0	6.1	6.1	6.0	6.1	6.1	6.3	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	None	None
Act Effct Green (s)	26.2	22.1	22.1	25.9	22.0	22.0	35.2	35.2	35.2	13.8	13.8	13.8
Actuated g/C Ratio	0.27	0.23	0.23	0.26	0.22	0.22	0.36	0.36	0.36	0.14	0.14	0.14
v/c Ratio	0.14	0.27	0.35	0.09	0.72	0.62	0.72	0.76	0.03	0.03	0.41	0.25
Control Delay (s/veh)	30.5	37.2	9.4	29.7	44.6	9.3	36.8	33.4	0.1	43.6	44.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.5	37.2	9.4	29.7	44.6	9.3	36.8	33.4	0.1	43.6	44.4	3.5
LOS	C	D	A	C	D	A	D	C	A	D	D	A
Approach Delay (s/veh)		25.5			30.0			34.0			32.9	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	4.0	17.5	0.0	4.0	52.7	0.0	74.6	85.0	0.0	1.3	19.3	0.0
Queue Length 95th (m)	14.1	37.8	18.9	14.1	#111.1	30.5	133.5	131.7	0.0	5.7	35.2	3.3
Internal Link Dist (m)		434.4			241.4			325.6			408.6	
Turn Bay Length (m)	100.0		140.0	65.0			160.0		50.0	110.0		70.0
Base Capacity (vph)	234	852	490	347	848	656	889	1868	908	479	958	507
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.24	0.32	0.09	0.65	0.59	0.45	0.47	0.02	0.01	0.20	0.16

Intersection Summary
Cycle Length: 134.7
Actuated Cycle Length: 97.9
Natural Cycle: 105
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.76

Intersection Signal Delay (s/veh): 31.4	Intersection LOS: C
Intersection Capacity Utilization 77.4%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 5: Tenth Line & St. Joseph

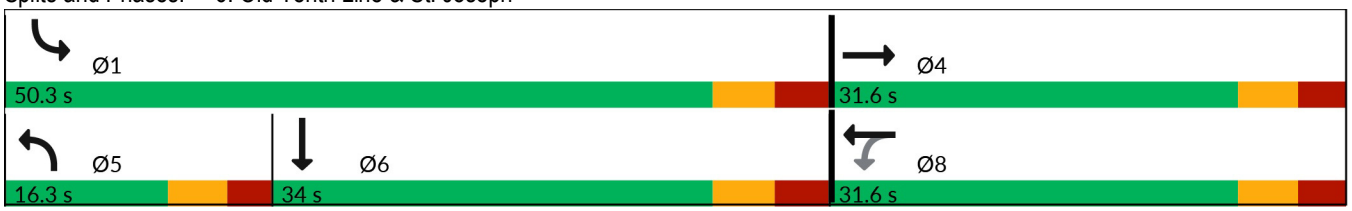


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	232	2	110	818	0	3	0	183	121	285	214
Future Volume (vph)	0	232	2	110	818	0	3	0	183	121	285	214
Satd. Flow (prot)	0	3386	0	1695	3390	0	1695	0	1517	3288	3390	1517
Flt Permitted				0.606			0.950			0.950		
Satd. Flow (perm)	0	3386	0	1076	3390	0	1689	0	1495	3288	3390	1517
Satd. Flow (RTOR)		1							225			225
Lane Group Flow (vph)	0	234	0	110	818	0	3	0	183	121	285	214
Turn Type		NA		Perm	NA		Prot		Free	Prot	NA	Free
Protected Phases		4			8		5			1	6	
Permitted Phases				8					Free			Free
Detector Phase		4		8	8		5			1	6	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		5.0			5.0	15.0	
Minimum Split (s)		25.6		25.6	25.6		11.3			12.0	30.0	
Total Split (s)		31.6		31.6	31.6		16.3			50.3	34.0	
Total Split (%)		38.6%		38.6%	38.6%		19.9%			61.4%	41.5%	
Yellow Time (s)		3.7		3.7	3.7		3.7			3.7	3.7	
All-Red Time (s)		2.9		2.9	2.9		2.6			3.3	3.3	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)		6.6		6.6	6.6		6.3			7.0	7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Recall Mode		None		None	None		None			Min	Min	
Act Effct Green (s)		17.8		17.8	17.8		5.9		50.5	18.5	16.8	50.5
Actuated g/C Ratio		0.35		0.35	0.35		0.12		1.00	0.37	0.33	1.00
v/c Ratio		0.20		0.29	0.69		0.02		0.12	0.10	0.25	0.14
Control Delay (s/veh)		12.8		15.8	18.2		26.0		0.2	11.1	14.7	0.2
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)		12.8		15.8	18.2		26.0		0.2	11.1	14.7	0.2
LOS		B		B	B		C		A	B	B	A
Approach Delay (s/veh)		12.8			17.9			0.6			9.0	
Approach LOS		B			B			A			A	
Queue Length 50th (m)		6.3		5.8	27.0		0.3		0.0	3.4	8.7	0.0
Queue Length 95th (m)		19.7		23.3	70.9		2.8		0.0	8.4	24.7	0.0
Internal Link Dist (m)		241.4			372.8			239.6			226.3	
Turn Bay Length (m)				60.0					10.0	90.0		
Base Capacity (vph)		1754		557	1756		351		1495	2907	1897	1517
Starvation Cap Reductn		0		0	0		0		0	0	0	0
Spillback Cap Reductn		0		0	0		0		0	0	0	0
Storage Cap Reductn		0		0	0		0		0	0	0	0
Reduced v/c Ratio		0.13		0.20	0.47		0.01		0.12	0.04	0.15	0.14

Intersection Summary
Cycle Length: 81.9
Actuated Cycle Length: 50.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.69

Intersection Signal Delay (s/veh): 12.9	Intersection LOS: B
Intersection Capacity Utilization 47.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Old Tenth Line & St. Joseph



Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	298	81	20	423	91	30
Future Vol, veh/h	298	81	20	423	91	30
Conflicting Peds, #/hr	0	15	15	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	298	81	20	423	91	30

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	394	0	822	359
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	468	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1165	-	344	686
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	630	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1148	-	330	673
Mov Cap-2 Maneuver	-	-	-	-	330	-
Stage 1	-	-	-	-	701	-
Stage 2	-	-	-	-	613	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.37	18.96
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	378	-	-	81	-
HCM Lane V/C Ratio	0.32	-	-	0.017	-
HCM Ctrl Dly (s/v)	19	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	6.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	207	121	40	261	182	61
Future Vol, veh/h	207	121	40	261	182	61
Conflicting Peds, #/hr	0	25	25	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	207	121	40	261	182	61

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	353	0	644	303
Stage 1	-	-	-	-	293	-
Stage 2	-	-	-	-	351	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1206	-	438	737
Stage 1	-	-	-	-	757	-
Stage 2	-	-	-	-	713	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1178	-	407	714
Mov Cap-2 Maneuver	-	-	-	-	407	-
Stage 1	-	-	-	-	740	-
Stage 2	-	-	-	-	678	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.08	21.55
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	456	-	-	239	-
HCM Lane V/C Ratio	0.533	-	-	0.034	-
HCM Ctrl Dly (s/v)	21.6	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	3.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	7.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	207	61	81	180	122	122
Future Vol, veh/h	207	61	81	180	122	122
Conflicting Peds, #/hr	0	60	60	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	207	61	81	180	122	122

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	328	0	650	308
Stage 1	-	-	-	-	298	-
Stage 2	-	-	-	-	352	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1232	-	434	732
Stage 1	-	-	-	-	754	-
Stage 2	-	-	-	-	712	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1163	-	375	685
Mov Cap-2 Maneuver	-	-	-	-	375	-
Stage 1	-	-	-	-	712	-
Stage 2	-	-	-	-	651	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	2.58	19.72
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	485	-	-	559	-
HCM Lane V/C Ratio	0.504	-	-	0.07	-
HCM Ctrl Dly (s/v)	19.7	-	-	8.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.8	-	-	0.2	-

Intersection	
Intersection Delay, s/veh	15.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	9	317	161	11	0	282	70	75	0	141	6
Future Vol, veh/h	4	9	317	161	11	0	282	70	75	0	141	6
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	4	9	317	161	11	0	282	70	75	0	141	6
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, s/veh	13.9	12.5	19.9	11.5
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	66%	1%	94%	0%
Vol Thru, %	16%	3%	6%	96%
Vol Right, %	18%	96%	0%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	427	330	172	147
LT Vol	282	4	161	0
Through Vol	70	9	11	141
RT Vol	75	317	0	6
Lane Flow Rate	427	330	172	147
Geometry Grp	1	1	1	1
Degree of Util (X)	0.674	0.503	0.311	0.256
Departure Headway (Hd)	5.792	5.49	6.515	6.268
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	628	660	554	573
Service Time	3.792	3.49	4.536	4.299
HCM Lane V/C Ratio	0.68	0.5	0.31	0.257
HCM Control Delay, s/veh	19.9	13.9	12.5	11.5
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	5.2	2.8	1.3	1

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	30	281	2	4	188	50	3	0	1	54	1	26
Future Vol, veh/h	30	281	2	4	188	50	3	0	1	54	1	26
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	30	281	2	4	188	50	3	0	1	54	1	26
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, s/veh	10.2	9.2	8.4	8.8
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	75%	10%	2%	67%
Vol Thru, %	0%	90%	78%	1%
Vol Right, %	25%	1%	21%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	313	242	81
LT Vol	3	30	4	54
Through Vol	0	281	188	1
RT Vol	1	2	50	26
Lane Flow Rate	4	313	242	81
Geometry Grp	1	1	1	1
Degree of Util (X)	0.006	0.384	0.293	0.115
Departure Headway (Hd)	5.275	4.419	4.362	5.09
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	676	814	823	703
Service Time	3.326	2.446	2.39	3.131
HCM Lane V/C Ratio	0.006	0.385	0.294	0.115
HCM Control Delay, s/veh	8.4	10.2	9.2	8.8
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0	1.8	1.2	0.4

Intersection	
Intersection Delay, s/veh	33.3
Intersection LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	36	143	512	45	146	359
Future Vol, veh/h	36	143	512	45	146	359
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	143	512	45	146	359
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	12.3	55.1	16.6
HCM LOS	B	F	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	20%	0%	100%
Vol Right, %	0%	100%	80%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	146	359	179	512	45
LT Vol	146	0	0	512	0
Through Vol	0	0	36	0	45
RT Vol	0	359	143	0	0
Lane Flow Rate	146	359	179	512	45
Geometry Grp	5	5	3b	5	5
Degree of Util (X)	0.297	0.608	0.314	0.974	0.079
Departure Headway (Hd)	7.317	6.097	6.321	6.849	6.342
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	489	589	566	527	563
Service Time	5.094	3.873	4.401	4.611	4.103
HCM Lane V/C Ratio	0.299	0.61	0.316	0.972	0.08
HCM Control Delay, s/veh	13.2	18	12.3	59.1	9.7
HCM Lane LOS	B	C	B	F	A
HCM 95th-tile Q	1.2	4.1	1.3	13	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	316	1236	5	105	552	50	326	110	174	76	120	274
Future Volume (vph)	316	1236	5	105	552	50	326	110	174	76	120	274
Satd. Flow (prot)	1695	3381	0	1695	4871	1517	4780	1784	1517	1695	1784	1517
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1680	3381	0	1579	4871	1458	4780	1784	1155	1371	1784	1517
Satd. Flow (RTOR)						278			216			276
Lane Group Flow (vph)	316	1241	0	105	552	50	326	110	174	76	120	274
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)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.5	41.2		12.1	41.2	41.2	12.2	42.4	42.4	11.9	17.4	17.4
Total Split (s)	32.7	57.7		16.2	41.2	41.2	21.3	42.4	42.4	13.7	34.8	34.8
Total Split (%)	25.2%	44.4%		12.5%	31.7%	31.7%	16.4%	32.6%	32.6%	10.5%	26.8%	26.8%
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)	29.6	59.1		12.9	42.0	42.0	13.2	21.6	21.6	7.8	15.9	15.9
Actuated g/C Ratio	0.23	0.45		0.10	0.32	0.32	0.10	0.17	0.17	0.06	0.12	0.12
v/c Ratio	0.82	0.81		0.63	0.35	0.08	0.67	0.37	0.47	0.75	0.55	0.64
Control Delay (s/veh)	65.4	36.9		72.9	35.8	0.2	63.5	49.4	6.2	100.6	61.8	12.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.4	36.9		72.9	35.8	0.2	63.5	49.4	6.2	100.6	61.8	12.4
LOS	E	D		E	D	A	E	D	A	F	E	B
Approach Delay (s/veh)		42.7			38.8			44.6			39.3	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	75.1	144.3		25.7	40.3	0.0	28.7	25.3	0.0	19.7	29.9	0.0
Queue Length 95th (m)	#137.7	#205.6		#61.6	54.9	0.0	39.2	37.9	8.4	#48.8	44.4	22.2
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)	385	1537		167	1573	659	518	480	468	101	376	537
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.81		0.63	0.35	0.08	0.63	0.23	0.37	0.75	0.32	0.51

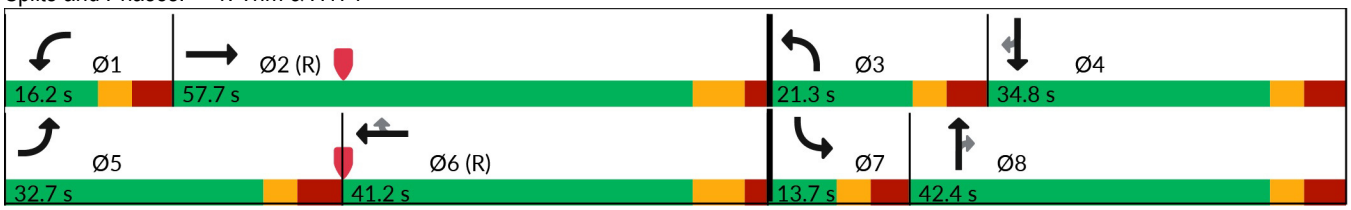
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 54.5 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay (s/veh): 41.7	Intersection LOS: D
Intersection Capacity Utilization 94.4%	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: 1: Trim & H174



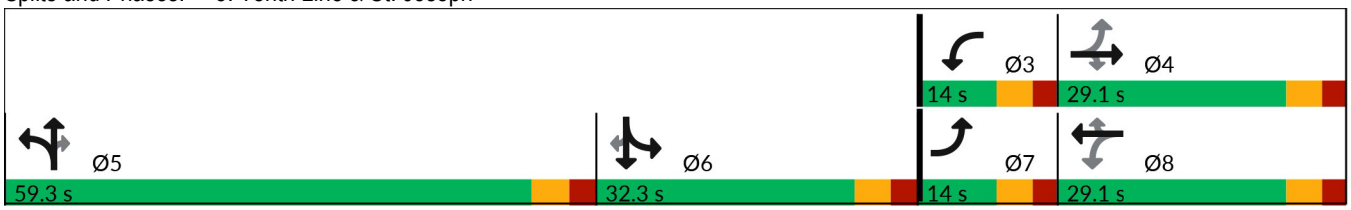
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	554	561	62	353	468	359	698	13	8	201	64
Future Volume (vph)	78	554	561	62	353	468	359	698	13	8	201	64
Satd. Flow (prot)	1695	3390	1517	1695	3390	1517	1543	3241	1517	1695	3390	1517
Flt Permitted	0.476			0.284			0.950	0.998		0.950		
Satd. Flow (perm)	838	3390	1476	505	3390	1450	1533	3240	1483	1690	3390	1478
Satd. Flow (RTOR)			561			437			125			125
Lane Group Flow (vph)	78	554	561	62	353	468	323	734	13	8	201	64
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		5	5		6	6	
Permitted Phases	4		4	8		8			5			6
Detector Phase	7	4	4	3	8	8	5	5	5	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	22.0	22.0	22.0	10.0	10.0	10.0
Minimum Split (s)	11.0	29.1	29.1	11.0	29.1	29.1	32.3	32.3	32.3	32.3	32.3	32.3
Total Split (s)	14.0	29.1	29.1	14.0	29.1	29.1	59.3	59.3	59.3	32.3	32.3	32.3
Total Split (%)	10.4%	21.6%	21.6%	10.4%	21.6%	21.6%	44.0%	44.0%	44.0%	24.0%	24.0%	24.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.4	2.4	2.3	2.4	2.4	2.6	2.6	2.6	2.6	2.6	2.6
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	0.0
Total Lost Time (s)	6.0	6.1	6.1	6.0	6.1	6.1	6.3	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	None	None
Act Effct Green (s)	28.3	22.3	22.3	27.9	22.0	22.0	30.0	30.0	30.0	13.6	13.6	13.6
Actuated g/C Ratio	0.30	0.23	0.23	0.29	0.23	0.23	0.31	0.31	0.31	0.14	0.14	0.14
v/c Ratio	0.25	0.70	0.72	0.26	0.45	0.70	0.67	0.72	0.02	0.03	0.42	0.20
Control Delay (s/veh)	26.8	41.7	9.8	27.5	36.7	11.8	37.8	34.8	0.1	39.4	42.2	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.8	41.7	9.8	27.5	36.7	11.8	37.8	34.8	0.1	39.4	42.2	1.4
LOS	C	D	A	C	D	B	D	C	A	D	D	A
Approach Delay (s/veh)		25.7			22.8			35.3			32.6	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	8.9	48.1	0.0	7.0	28.8	4.4	57.2	66.5	0.0	1.3	18.3	0.0
Queue Length 95th (m)	26.4	#100.6	37.1	22.2	57.7	44.2	106.0	105.4	0.0	6.0	33.1	0.0
Internal Link Dist (m)		434.4			241.4			325.6			408.6	
Turn Bay Length (m)	100.0		140.0	65.0			160.0		50.0	110.0		70.0
Base Capacity (vph)	324	849	790	252	849	690	890	1870	908	479	959	508
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.65	0.71	0.25	0.42	0.68	0.36	0.39	0.01	0.02	0.21	0.13

Intersection Summary
Cycle Length: 134.7
Actuated Cycle Length: 95.5
Natural Cycle: 105
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.72

Intersection Signal Delay (s/veh): 28.5	Intersection LOS: C
Intersection Capacity Utilization 73.0%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 5: Tenth Line & St. Joseph



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	574	3	178	562	0	2	0	223	195	606	365
Future Volume (vph)	0	574	3	178	562	0	2	0	223	195	606	365
Satd. Flow (prot)	0	3386	0	1695	3390	0	1695	0	1517	3288	3390	1517
Flt Permitted				0.414			0.950			0.950		
Satd. Flow (perm)	0	3386	0	737	3390	0	1692	0	1495	3288	3390	1517
Satd. Flow (RTOR)		1							257			365
Lane Group Flow (vph)	0	577	0	178	562	0	2	0	223	195	606	365
Turn Type		NA		Perm	NA		Prot		Free	Prot	NA	Free
Protected Phases		4			8		5			1	6	
Permitted Phases				8					Free			Free
Detector Phase		4		8	8		5			1	6	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		5.0			5.0	15.0	
Minimum Split (s)		25.6		25.6	25.6		11.3			12.0	30.0	
Total Split (s)		26.6		26.6	26.6		11.3			45.0	33.7	
Total Split (%)		37.2%		37.2%	37.2%		15.8%			62.8%	47.1%	
Yellow Time (s)		3.7		3.7	3.7		3.7			3.7	3.7	
All-Red Time (s)		2.9		2.9	2.9		2.6			3.3	3.3	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)		6.6		6.6	6.6		6.3			7.0	7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Recall Mode		None		None	None		None			Min	Min	
Act Effct Green (s)		20.3		20.3	20.3		5.1		52.6	18.4	16.7	52.6
Actuated g/C Ratio		0.39		0.39	0.39		0.10		1.00	0.35	0.32	1.00
v/c Ratio		0.44		0.62	0.43		0.01		0.15	0.17	0.56	0.24
Control Delay (s/veh)		14.6		29.4	14.5		25.5		0.2	11.5	17.7	0.4
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)		14.6		29.4	14.5		25.5		0.2	11.5	17.7	0.4
LOS		B		C	B		C		A	B	B	A
Approach Delay (s/veh)		14.6			18.1			0.4			11.2	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		17.4		11.2	16.8		0.2		0.0	6.2	22.6	0.0
Queue Length 95th (m)		47.0		#52.8	45.6		2.1		0.0	10.8	46.1	0.0
Internal Link Dist (m)		241.4			372.8			239.6			226.3	
Turn Bay Length (m)				60.0					10.0	90.0		
Base Capacity (vph)		1310		285	1311		163		1495	2416	1750	1517
Starvation Cap Reductn		0		0	0		0		0	0	0	0
Spillback Cap Reductn		0		0	0		0		0	0	0	0
Storage Cap Reductn		0		0	0		0		0	0	0	0
Reduced v/c Ratio		0.44		0.62	0.43		0.01		0.15	0.08	0.35	0.24

Intersection Summary
Cycle Length: 71.6
Actuated Cycle Length: 52.6
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.62

Intersection Signal Delay (s/veh): 12.9	Intersection LOS: B
Intersection Capacity Utilization 61.8%	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: 6: Old Tenth Line & St. Joseph

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	454	109	27	406	77	26
Future Vol, veh/h	454	109	27	406	77	26
Conflicting Peds, #/hr	0	15	15	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	454	109	27	406	77	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	578	0	989	529
Stage 1	-	-	-	-	524	-
Stage 2	-	-	-	-	465	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	996	-	274	550
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	632	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	982	-	259	540
Mov Cap-2 Maneuver	-	-	-	-	259	-
Stage 1	-	-	-	-	586	-
Stage 2	-	-	-	-	607	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.55	23.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	298	-	-	112	-
HCM Lane V/C Ratio	0.345	-	-	0.027	-
HCM Ctrl Dly (s/v)	23.3	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	300	180	54	280	153	68
Future Vol, veh/h	300	180	54	280	153	68
Conflicting Peds, #/hr	0	35	35	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	300	180	54	280	153	68

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	515	0	823	435
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	398	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1051	-	343	621
Stage 1	-	-	-	-	659	-
Stage 2	-	-	-	-	678	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1017	-	308	595
Mov Cap-2 Maneuver	-	-	-	-	308	-
Stage 1	-	-	-	-	638	-
Stage 2	-	-	-	-	630	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.41	29.33
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	362	-	-	291	-
HCM Lane V/C Ratio	0.61	-	-	0.053	-
HCM Ctrl Dly (s/v)	29.3	-	-	8.7	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	3.9	-	-	0.2	-

Intersection	
Int Delay, s/veh	8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	287	81	121	220	114	102
Future Vol, veh/h	287	81	121	220	114	102
Conflicting Peds, #/hr	0	65	65	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	287	81	121	220	114	102

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	433	0	865	403
Stage 1	-	-	-	-	393	-
Stage 2	-	-	-	-	472	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1127	-	324	648
Stage 1	-	-	-	-	682	-
Stage 2	-	-	-	-	628	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1059	-	263	603
Mov Cap-2 Maneuver	-	-	-	-	263	-
Stage 1	-	-	-	-	641	-
Stage 2	-	-	-	-	541	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	3.14	29.19
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	358	-	-	639	-
HCM Lane V/C Ratio	0.603	-	-	0.114	-
HCM Ctrl Dly (s/v)	29.2	-	-	8.8	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	3.8	-	-	0.4	-

Intersection	
Intersection Delay, s/veh	36.9
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	25	355	166	15	0	298	139	161	0	99	7
Future Vol, veh/h	8	25	355	166	15	0	298	139	161	0	99	7
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	8	25	355	166	15	0	298	139	161	0	99	7
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, s/veh	20.1	14.5	58.9	12.1
HCM LOS	C	B	F	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	2%	92%	0%
Vol Thru, %	23%	6%	8%	93%
Vol Right, %	27%	91%	0%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	598	388	181	106
LT Vol	298	8	166	0
Through Vol	139	25	15	99
RT Vol	161	355	0	7
Lane Flow Rate	598	388	181	106
Geometry Grp	1	1	1	1
Degree of Util (X)	0.991	0.656	0.366	0.21
Departure Headway (Hd)	5.968	6.089	7.271	7.129
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	604	590	492	499
Service Time	4.026	4.156	5.355	5.227
HCM Lane V/C Ratio	0.99	0.658	0.368	0.212
HCM Control Delay, s/veh	58.9	20.1	14.5	12.1
HCM Lane LOS	F	C	B	B
HCM 95th-tile Q	14.6	4.8	1.7	0.8

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	44	301	3	6	249	82	5	0	14	105	0	66
Future Vol, veh/h	44	301	3	6	249	82	5	0	14	105	0	66
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	44	301	3	6	249	82	5	0	14	105	0	66
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, s/veh	12.2	11.6	8.7	10.5
HCM LOS	B	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	13%	2%	61%
Vol Thru, %	0%	86%	74%	0%
Vol Right, %	74%	1%	24%	39%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	348	337	171
LT Vol	5	44	6	105
Through Vol	0	301	249	0
RT Vol	14	3	82	66
Lane Flow Rate	19	348	337	171
Geometry Grp	1	1	1	1
Degree of Util (X)	0.029	0.469	0.442	0.262
Departure Headway (Hd)	5.548	4.856	4.719	5.508
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	648	734	755	657
Service Time	3.555	2.947	2.809	3.508
HCM Lane V/C Ratio	0.029	0.474	0.446	0.26
HCM Control Delay, s/veh	8.7	12.2	11.6	10.5
HCM Lane LOS	A	B	B	B
HCM 95th-tile Q	0.1	2.5	2.3	1

Intersection	
Intersection Delay, s/veh	42.6
Intersection LOS	E

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	93	192	463	41	176	510
Future Vol, veh/h	93	192	463	41	176	510
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	192	463	41	176	510
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	18.4	63.1	37.7
HCM LOS	C	F	E

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	33%	0%	100%
Vol Right, %	0%	100%	67%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	176	510	285	463	41
LT Vol	176	0	0	463	0
Through Vol	0	0	93	0	41
RT Vol	0	510	192	0	0
Lane Flow Rate	176	510	285	463	41
Geometry Grp	5	5	3b	5	5
Degree of Util (X)	0.376	0.917	0.554	0.993	0.082
Departure Headway (Hd)	7.699	6.473	7	7.719	7.207
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	468	561	516	472	497
Service Time	5.434	4.207	5.041	5.46	4.947
HCM Lane V/C Ratio	0.376	0.909	0.552	0.981	0.082
HCM Control Delay, s/veh	15	45.6	18.4	67.8	10.6
HCM Lane LOS	B	E	C	F	B
HCM 95th-tile Q	1.7	11.2	3.3	12.9	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	405	1236	5	105	552	58	326	134	174	85	139	347
Future Volume (vph)	405	1236	5	105	552	58	326	134	174	85	139	347
Satd. Flow (prot)	3288	3387	0	1695	4871	1517	4780	1784	1517	1695	1784	1517
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3288	3387	0	1695	4871	1517	4780	1784	1155	1381	1784	1517
Satd. Flow (RTOR)						278			216			319
Lane Group Flow (vph)	405	1241	0	105	552	58	326	134	174	85	139	347
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5 9	2		1	6		3	8		7	4	
Permitted Phases						6			8			4
Detector Phase	5 9	2		1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)		10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)		41.2		12.1	41.2	41.2	12.2	42.4	42.4	11.9	17.4	17.4
Total Split (s)		57.4		16.2	43.1	43.1	21.3	42.4	42.4	14.0	35.1	35.1
Total Split (%)		44.2%		12.5%	33.2%	33.2%	16.4%	32.6%	32.6%	10.8%	27.0%	27.0%
Yellow Time (s)		5.1		3.3	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)		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
Total Lost Time (s)		7.2		7.1	7.2	7.2	7.2	7.4	7.4	6.9	7.4	7.4
Lead/Lag		Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		C-Min		None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	37.0	58.2		12.9	37.2	37.2	13.2	22.2	22.2	8.1	16.8	16.8
Actuated g/C Ratio	0.28	0.45		0.10	0.29	0.29	0.10	0.17	0.17	0.06	0.13	0.13
v/c Ratio	0.43	0.82		0.63	0.40	0.09	0.67	0.44	0.46	0.82	0.60	0.73
Control Delay (s/veh)	20.9	38.0		72.9	40.4	0.3	63.5	50.7	6.0	108.4	63.3	17.0
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 (s/veh)	20.9	38.0		72.9	40.4	0.3	63.5	50.7	6.0	108.4	63.3	17.0
LOS	C	D		E	D	A	E	D	A	F	E	B
Approach Delay (s/veh)		33.8			41.9			45.1			41.8	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	20.1	147.0		25.7	43.1	0.0	28.7	31.0	0.0	22.1	34.6	6.6
Queue Length 95th (m)	35.3	#206.4		#61.6	60.4	0.0	39.2	45.0	8.4	#54.7	50.2	34.4
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)	1034	1516		167	1505	661	518	480	468	104	380	574
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	0.39	0.82		0.63	0.37	0.09	0.63	0.28	0.37	0.82	0.37	0.60

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated

Lane Group	Ø5	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	5	9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	7.0	12.5
Total Split (s)	18.0	12.5
Total Split (%)	14%	10%
Yellow Time (s)	2.0	3.3
All-Red Time (s)	0.0	4.2
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay (s/veh)		
Queue Delay		
Total Delay (s/veh)		
LOS		
Approach Delay (s/veh)		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

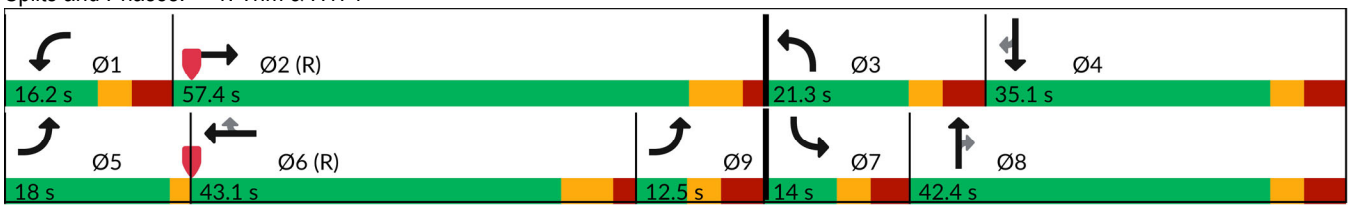
Intersection Summary

Maximum v/c Ratio: 0.82

Intersection Signal Delay (s/veh): 38.7	Intersection LOS: D
Intersection Capacity Utilization 100.3%	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: 1: Trim & H174



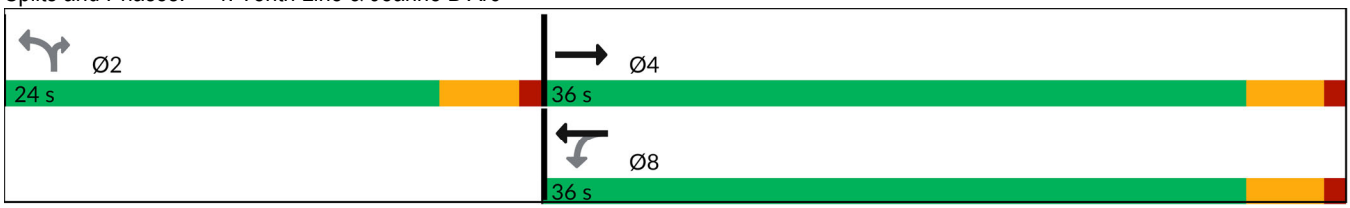
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	93	192	463	41	176	510
Future Volume (vph)	93	192	463	41	176	510
Satd. Flow (prot)	1599	0	1695	1784	1695	1517
Flt Permitted			0.585		0.950	
Satd. Flow (perm)	1599	0	1040	1784	1681	1445
Satd. Flow (RTOR)	192					510
Lane Group Flow (vph)	285	0	463	41	176	510
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases			8		2	2
Detector Phase	4		8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	36.0		36.0	36.0	24.0	24.0
Total Split (%)	60.0%		60.0%	60.0%	40.0%	40.0%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		None	None	Min	Min
Act Effct Green (s)	26.1		26.1	26.1	11.3	11.3
Actuated g/C Ratio	0.56		0.56	0.56	0.24	0.24
v/c Ratio	0.29		0.80	0.04	0.44	0.69
Control Delay (s/veh)	3.3		23.2	5.8	19.9	7.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	3.3		23.2	5.8	19.9	7.6
LOS	A		C	A	B	A
Approach Delay (s/veh)	3.3			21.8	10.8	
Approach LOS	A			C	B	
Queue Length 50th (m)	2.8		23.8	1.2	13.7	0.0
Queue Length 95th (m)	14.6		#92.3	5.6	27.8	17.7
Internal Link Dist (m)	170.8			747.3	288.8	
Turn Bay Length (m)			145.0			
Base Capacity (vph)	1185		734	1259	737	920
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.24		0.63	0.03	0.24	0.55

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 46.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80

Intersection Signal Delay (s/veh): 13.1	Intersection LOS: B
Intersection Capacity Utilization 67.9%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 4: Tenth Line & Jeanne D'Arc

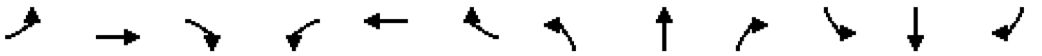


Intersection	
Intersection Delay, s/veh	15.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	25	355	166	15	0	298	139	161	0	99	7
Future Vol, veh/h	8	25	355	166	15	0	298	139	161	0	99	7
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	8	25	355	166	15	0	298	139	161	0	99	7
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay, s/veh	16.9	13.3	16.8	11.6
HCM LOS	C	B	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	2%	92%	0%
Vol Thru, %	0%	46%	6%	8%	93%
Vol Right, %	0%	54%	91%	0%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	298	300	388	181	106
LT Vol	298	0	8	166	0
Through Vol	0	139	25	15	99
RT Vol	0	161	355	0	7
Lane Flow Rate	298	300	388	181	106
Geometry Grp	5	5	2	2	4a
Degree of Util (X)	0.573	0.503	0.602	0.342	0.201
Departure Headway (Hd)	6.925	6.034	5.588	6.797	6.839
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	519	591	640	532	527
Service Time	4.716	3.824	3.681	4.797	4.853
HCM Lane V/C Ratio	0.574	0.508	0.606	0.34	0.201
HCM Control Delay, s/veh	18.7	14.9	16.9	13.3	11.6
HCM Lane LOS	C	B	C	B	B
HCM 95th-tile Q	3.6	2.8	4	1.5	0.7



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	277	0	124	1151	62	418	91	58	45	98	280
Future Volume (vph)	191	277	0	124	1151	62	418	91	58	45	98	280
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	1441	1662	1784	1517
Satd. Flow (RTOR)						215			153			280
Lane Group Flow (vph)	191	277	0	124	1151	62	418	91	58	45	98	280
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)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.5	41.2		12.1	41.2	41.2	12.2	42.4	42.4	11.9	17.4	17.4
Total Split (s)	28.0	49.2		24.4	45.6	45.6	24.3	42.4	42.4	14.0	32.1	32.1
Total Split (%)	21.5%	37.8%		18.8%	35.1%	35.1%	18.7%	32.6%	32.6%	10.8%	24.7%	24.7%
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)	18.8	56.8		14.1	51.7	51.7	15.8	25.8	25.8	7.2	14.4	14.4
Actuated g/C Ratio	0.14	0.44		0.11	0.40	0.40	0.12	0.20	0.20	0.06	0.11	0.11
v/c Ratio	0.78	0.19		0.67	0.59	0.08	0.72	0.26	0.14	0.48	0.50	0.67
Control Delay (s/veh)	75.0	25.0		73.4	34.1	0.2	62.5	45.5	0.7	77.0	61.7	13.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	75.0	25.0		73.4	34.1	0.2	62.5	45.5	0.7	77.0	61.7	13.9
LOS	E	C		E	C	A	E	D	A	E	E	B
Approach Delay (s/veh)		45.4			36.2			53.5			31.7	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	47.2	22.4		30.8	84.5	0.0	36.8	20.9	0.0	11.3	24.4	0.0
Queue Length 95th (m)	#77.9	38.8		50.5	117.4	0.0	48.2	32.3	0.0	#24.4	38.4	24.2
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)	273	1480		225	1938	732	628	480	499	97	338	515
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	0.70	0.19		0.55	0.59	0.08	0.67	0.19	0.12	0.46	0.29	0.54

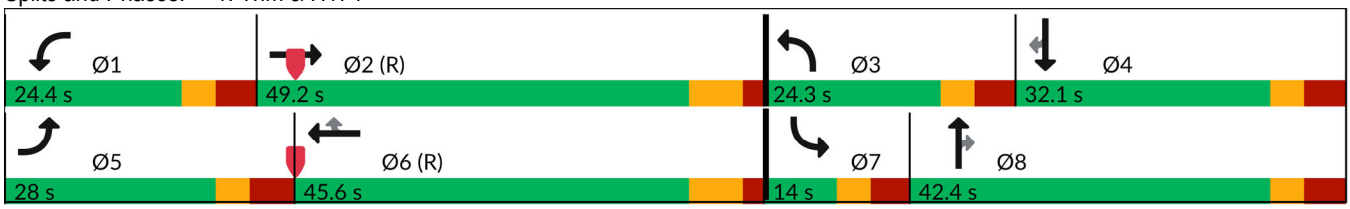
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 54.5 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay (s/veh): 40.6	Intersection LOS: D
Intersection Capacity Utilization 74.7%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 1: Trim & H174



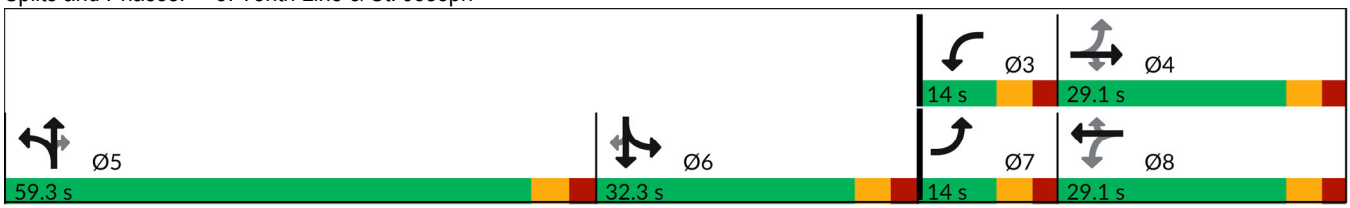
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	205	159	31	548	373	441	837	20	7	181	74
Future Volume (vph)	30	205	159	31	548	373	441	837	20	7	181	74
Satd. Flow (prot)	1695	3390	1517	1695	3390	1517	1543	3241	1517	1695	3390	1517
Flt Permitted	0.271			0.623			0.950	0.998		0.950		
Satd. Flow (perm)	481	3390	1476	1104	3390	1463	1533	3240	1483	1691	3390	1478
Satd. Flow (RTOR)			159			373			125			125
Lane Group Flow (vph)	30	205	159	31	548	373	397	881	20	7	181	74
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		5	5		6	6	
Permitted Phases	4		4	8		8			5			6
Detector Phase	7	4	4	3	8	8	5	5	5	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	22.0	22.0	22.0	10.0	10.0	10.0
Minimum Split (s)	11.0	29.1	29.1	11.0	29.1	29.1	32.3	32.3	32.3	32.3	32.3	32.3
Total Split (s)	14.0	29.1	29.1	14.0	29.1	29.1	59.3	59.3	59.3	32.3	32.3	32.3
Total Split (%)	10.4%	21.6%	21.6%	10.4%	21.6%	21.6%	44.0%	44.0%	44.0%	24.0%	24.0%	24.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.4	2.4	2.3	2.4	2.4	2.6	2.6	2.6	2.6	2.6	2.6
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	0.0
Total Lost Time (s)	6.0	6.1	6.1	6.0	6.1	6.1	6.3	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	None	None
Act Effct Green (s)	26.1	22.1	22.1	25.9	22.0	22.0	34.9	34.9	34.9	13.6	13.6	13.6
Actuated g/C Ratio	0.27	0.23	0.23	0.27	0.23	0.23	0.36	0.36	0.36	0.14	0.14	0.14
v/c Ratio	0.14	0.27	0.35	0.09	0.72	0.60	0.72	0.76	0.03	0.03	0.38	0.24
Control Delay (s/veh)	30.2	36.9	9.3	29.5	44.2	9.2	36.8	33.3	0.1	43.6	44.0	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	0.0
Total Delay (s/veh)	30.2	36.9	9.3	29.5	44.2	9.2	36.8	33.3	0.1	43.6	44.0	2.5
LOS	C	D	A	C	D	A	D	C	A	D	D	A
Approach Delay (s/veh)		25.3			30.0			33.9			32.3	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	3.8	17.3	0.0	3.9	52.1	0.0	74.0	83.6	0.0	1.2	17.7	0.0
Queue Length 95th (m)	13.9	37.8	18.9	14.1	#111.1	29.7	133.5	130.8	0.0	5.7	32.9	1.5
Internal Link Dist (m)		434.4			241.4			325.6			408.6	
Turn Bay Length (m)	100.0		140.0	65.0			160.0		50.0	110.0		70.0
Base Capacity (vph)	236	856	491	348	852	647	894	1878	911	481	963	509
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.24	0.32	0.09	0.64	0.58	0.44	0.47	0.02	0.01	0.19	0.15

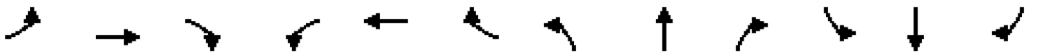
Intersection Summary
Cycle Length: 134.7
Actuated Cycle Length: 97.4
Natural Cycle: 105
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.76

Intersection Signal Delay (s/veh): 31.3	Intersection LOS: C
Intersection Capacity Utilization 77.3%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 5: Tenth Line & St. Joseph



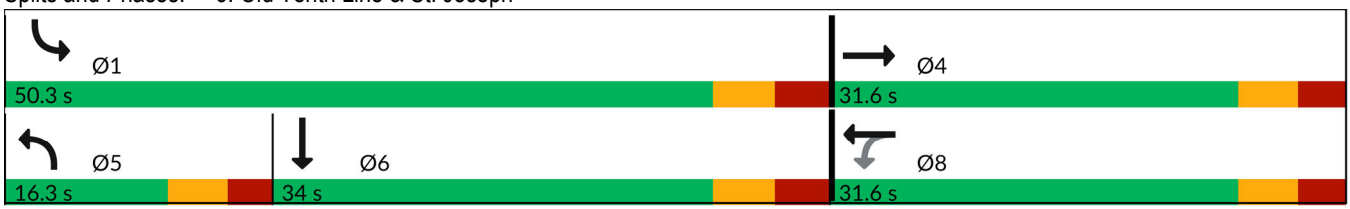


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	232	2	110	818	0	3	0	183	121	285	199
Future Volume (vph)	0	232	2	110	818	0	3	0	183	121	285	199
Satd. Flow (prot)	0	3386	0	1695	3390	0	1695	0	1517	3288	3390	1517
Flt Permitted				0.606			0.950			0.950		
Satd. Flow (perm)	0	3386	0	1076	3390	0	1689	0	1495	3288	3390	1517
Satd. Flow (RTOR)		1							225			225
Lane Group Flow (vph)	0	234	0	110	818	0	3	0	183	121	285	199
Turn Type		NA		Perm	NA		Prot		Free	Prot	NA	Free
Protected Phases		4			8		5			1	6	
Permitted Phases				8					Free			Free
Detector Phase		4		8	8		5			1	6	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		5.0			5.0	15.0	
Minimum Split (s)		25.6		25.6	25.6		11.3			12.0	30.0	
Total Split (s)		31.6		31.6	31.6		16.3			50.3	34.0	
Total Split (%)		38.6%		38.6%	38.6%		19.9%			61.4%	41.5%	
Yellow Time (s)		3.7		3.7	3.7		3.7			3.7	3.7	
All-Red Time (s)		2.9		2.9	2.9		2.6			3.3	3.3	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)		6.6		6.6	6.6		6.3			7.0	7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Recall Mode		None		None	None		None			Min	Min	
Act Effct Green (s)		17.8		17.8	17.8		5.9		50.5	18.5	16.8	50.5
Actuated g/C Ratio		0.35		0.35	0.35		0.12		1.00	0.37	0.33	1.00
v/c Ratio		0.20		0.29	0.69		0.02		0.12	0.10	0.25	0.13
Control Delay (s/veh)		12.8		15.8	18.2		26.0		0.2	11.1	14.7	0.2
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)		12.8		15.8	18.2		26.0		0.2	11.1	14.7	0.2
LOS		B		B	B		C		A	B	B	A
Approach Delay (s/veh)		12.8			17.9			0.6			9.2	
Approach LOS		B			B			A			A	
Queue Length 50th (m)		6.3		5.8	27.0		0.3		0.0	3.4	8.7	0.0
Queue Length 95th (m)		19.7		23.3	70.9		2.8		0.0	8.4	24.7	0.0
Internal Link Dist (m)		241.4			372.8			239.6			226.3	
Turn Bay Length (m)				60.0					10.0	90.0		
Base Capacity (vph)		1754		557	1756		351		1495	2907	1897	1517
Starvation Cap Reductn		0		0	0		0		0	0	0	0
Spillback Cap Reductn		0		0	0		0		0	0	0	0
Storage Cap Reductn		0		0	0		0		0	0	0	0
Reduced v/c Ratio		0.13		0.20	0.47		0.01		0.12	0.04	0.15	0.13

Intersection Summary
Cycle Length: 81.9
Actuated Cycle Length: 50.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.69

Intersection Signal Delay (s/veh): 13.0 Intersection LOS: B
Intersection Capacity Utilization 47.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 6: Old Tenth Line & St. Joseph



Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	360	69	17	317	51	17
Future Vol, veh/h	360	69	17	317	51	17
Conflicting Peds, #/hr	0	15	15	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	360	69	17	317	51	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	444	0	766	415
Stage 1	-	-	-	-	410	-
Stage 2	-	-	-	-	356	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1116	-	371	638
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	709	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1101	-	357	626
Mov Cap-2 Maneuver	-	-	-	-	357	-
Stage 1	-	-	-	-	661	-
Stage 2	-	-	-	-	692	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.42	15.82
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	400	-	-	92	-
HCM Lane V/C Ratio	0.17	-	-	0.015	-
HCM Ctrl Dly (s/v)	15.8	-	-	8.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	260	118	35	232	102	48
Future Vol, veh/h	260	118	35	232	102	48
Conflicting Peds, #/hr	0	35	35	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	260	118	35	232	102	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	413	0	666	364
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	312	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1146	-	425	681
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	742	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1109	-	392	653
Mov Cap-2 Maneuver	-	-	-	-	392	-
Stage 1	-	-	-	-	687	-
Stage 2	-	-	-	-	709	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.09	16.96
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	450	-	-	236	-
HCM Lane V/C Ratio	0.334	-	-	0.032	-
HCM Ctrl Dly (s/v)	17	-	-	8.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	256	52	78	190	77	68
Future Vol, veh/h	256	52	78	190	77	68
Conflicting Peds, #/hr	0	65	65	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	256	52	78	190	77	68

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	373	0	703	357
Stage 1	-	-	-	-	347	-
Stage 2	-	-	-	-	356	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1185	-	404	687
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	709	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1114	-	347	640
Mov Cap-2 Maneuver	-	-	-	-	347	-
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	647	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	2.47	17.09
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	442	-	-	524	-
HCM Lane V/C Ratio	0.328	-	-	0.07	-
HCM Ctrl Dly (s/v)	17.1	-	-	8.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.2	-

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	9	197	161	11	0	209	40	75	0	74	4
Future Vol, veh/h	3	9	197	161	11	0	209	40	75	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	9	197	161	11	0	209	40	75	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, s/veh	9.4	10.4	12	9.1
HCM LOS	A	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	65%	1%	94%	0%
Vol Thru, %	12%	4%	6%	95%
Vol Right, %	23%	94%	0%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	324	209	172	78
LT Vol	209	3	161	0
Through Vol	40	9	11	74
RT Vol	75	197	0	4
Lane Flow Rate	324	209	172	78
Geometry Grp	1	1	1	1
Degree of Util (X)	0.445	0.268	0.262	0.117
Departure Headway (Hd)	5.047	4.726	5.492	5.387
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	719	765	659	668
Service Time	3.047	2.726	3.492	3.397
HCM Lane V/C Ratio	0.451	0.273	0.261	0.117
HCM Control Delay, s/veh	12	9.4	10.4	9.1
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	2.3	1.1	1	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	180	2	4	122	41	3	0	1	34	1	23
Future Vol, veh/h	29	180	2	4	122	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	180	2	4	122	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, s/veh	8.7	8.1	7.9	8
HCM LOS	A	A	A	A

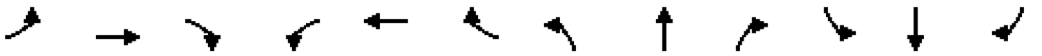
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	75%	14%	2%	59%
Vol Thru, %	0%	85%	73%	2%
Vol Right, %	25%	1%	25%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	211	167	58
LT Vol	3	29	4	34
Through Vol	0	180	122	1
RT Vol	1	2	41	23
Lane Flow Rate	4	211	167	58
Geometry Grp	1	1	1	1
Degree of Util (X)	0.005	0.246	0.188	0.075
Departure Headway (Hd)	4.83	4.192	4.062	4.637
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	745	846	868	777
Service Time	2.833	2.276	2.161	2.637
HCM Lane V/C Ratio	0.005	0.249	0.192	0.075
HCM Control Delay, s/veh	7.9	8.7	8.1	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	1	0.7	0.2

Intersection	
Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	34	143	328	40	146	239
Future Vol, veh/h	34	143	328	40	146	239
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	143	328	40	146	239
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	10.6	16.7	11.4
HCM LOS	B	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	19%	0%	100%
Vol Right, %	0%	100%	81%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	146	239	177	328	40
LT Vol	146	0	0	328	0
Through Vol	0	0	34	0	40
RT Vol	0	239	143	0	0
Lane Flow Rate	146	239	177	328	40
Geometry Grp	5	5	3b	5	5
Degree of Util (X)	0.269	0.359	0.271	0.58	0.065
Departure Headway (Hd)	6.628	5.414	5.506	6.369	5.863
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	543	664	653	567	612
Service Time	4.36	3.146	3.538	4.096	3.59
HCM Lane V/C Ratio	0.269	0.36	0.271	0.578	0.065
HCM Control Delay, s/veh	11.8	11.2	10.6	17.6	9
HCM Lane LOS	B	B	B	C	A
HCM 95th-tile Q	1.1	1.6	1.1	3.7	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	284	1236	5	105	552	43	326	103	174	72	116	253
Future Volume (vph)	284	1236	5	105	552	43	326	103	174	72	116	253
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	1447	1662	1784	1517
Satd. Flow (RTOR)						278			216			276
Lane Group Flow (vph)	284	1241	0	105	552	43	326	103	174	72	116	253
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)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.5	41.2		12.1	41.2	41.2	12.2	42.4	42.4	11.9	17.4	17.4
Total Split (s)	30.0	58.2		16.2	44.4	44.4	21.3	42.4	42.4	13.2	34.3	34.3
Total Split (%)	23.1%	44.8%		12.5%	34.2%	34.2%	16.4%	32.6%	32.6%	10.2%	26.4%	26.4%
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)	27.3	59.4		12.9	44.5	44.5	13.2	21.5	21.5	7.6	15.6	15.6
Actuated g/C Ratio	0.21	0.46		0.10	0.34	0.34	0.10	0.17	0.17	0.06	0.12	0.12
v/c Ratio	0.80	0.80		0.63	0.33	0.06	0.67	0.35	0.42	0.73	0.54	0.60
Control Delay (s/veh)	65.8	36.4		72.9	33.6	0.2	63.5	48.9	5.0	97.4	61.8	9.8
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 (s/veh)	65.8	36.4		72.9	33.6	0.2	63.5	48.9	5.0	97.4	61.8	9.8
LOS	E	D		E	C	A	E	D	A	F	E	A
Approach Delay (s/veh)		41.9			37.4			44.1			37.8	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	67.7	143.4		25.7	39.1	0.0	28.7	23.6	0.0	18.7	28.9	0.0
Queue Length 95th (m)	#127.9	#203.5		#61.6	53.0	0.0	39.2	35.8	8.3	#47.9	43.1	16.4
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)	356	1547		167	1668	702	518	480	547	99	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	0.80	0.80		0.63	0.33	0.06	0.63	0.21	0.32	0.73	0.31	0.48

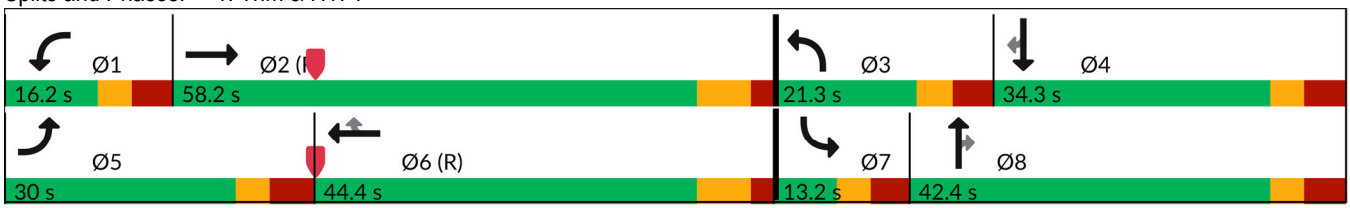
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 54.5 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

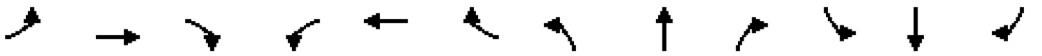
Maximum v/c Ratio: 0.80

Intersection Signal Delay (s/veh): 40.8	Intersection LOS: D
Intersection Capacity Utilization 81.4%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 1: Trim & H174





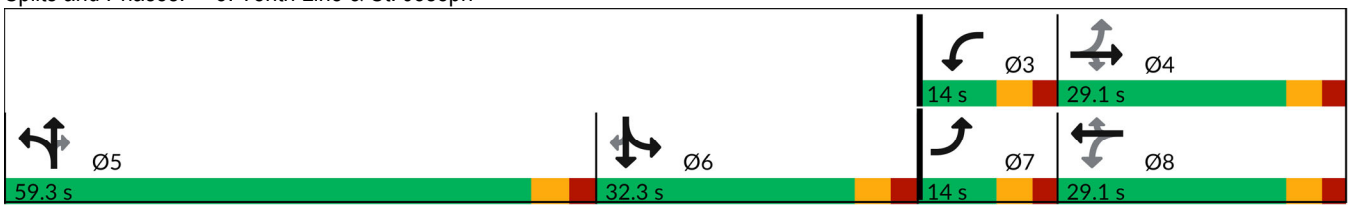
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	554	561	62	353	410	359	679	13	8	188	60
Future Volume (vph)	71	554	561	62	353	410	359	679	13	8	188	60
Satd. Flow (prot)	1695	3390	1517	1695	3390	1517	1543	3238	1517	1695	3390	1517
Flt Permitted	0.478			0.286			0.950	0.997		0.950		
Satd. Flow (perm)	841	3390	1476	509	3390	1450	1533	3237	1483	1690	3390	1478
Satd. Flow (RTOR)			561			410			125			125
Lane Group Flow (vph)	71	554	561	62	353	410	323	715	13	8	188	60
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	7	4		3	8		5	5		6	6	
Permitted Phases	4		4	8		8			5			6
Detector Phase	7	4	4	3	8	8	5	5	5	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	22.0	22.0	22.0	10.0	10.0	10.0
Minimum Split (s)	11.0	29.1	29.1	11.0	29.1	29.1	32.3	32.3	32.3	32.3	32.3	32.3
Total Split (s)	14.0	29.1	29.1	14.0	29.1	29.1	59.3	59.3	59.3	32.3	32.3	32.3
Total Split (%)	10.4%	21.6%	21.6%	10.4%	21.6%	21.6%	44.0%	44.0%	44.0%	24.0%	24.0%	24.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.4	2.4	2.3	2.4	2.4	2.6	2.6	2.6	2.6	2.6	2.6
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	0.0
Total Lost Time (s)	6.0	6.1	6.1	6.0	6.1	6.1	6.3	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	Min	None	None	None
Act Effct Green (s)	28.2	22.2	22.2	27.9	22.1	22.1	29.5	29.5	29.5	13.4	13.4	13.4
Actuated g/C Ratio	0.30	0.23	0.23	0.29	0.23	0.23	0.31	0.31	0.31	0.14	0.14	0.14
v/c Ratio	0.22	0.70	0.72	0.26	0.45	0.63	0.67	0.71	0.02	0.03	0.39	0.19
Control Delay (s/veh)	26.2	41.2	9.7	27.1	36.2	8.9	38.1	34.4	0.1	39.3	41.7	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	0.0
Total Delay (s/veh)	26.2	41.2	9.7	27.1	36.2	8.9	38.1	34.4	0.1	39.3	41.7	1.3
LOS	C	D	A	C	D	A	D	C	A	D	D	A
Approach Delay (s/veh)		25.4			22.0			35.1			32.2	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	7.9	47.3	0.0	6.9	28.3	0.0	56.8	63.9	0.0	1.3	16.9	0.0
Queue Length 95th (m)	24.6	#100.6	37.1	22.2	57.7	30.3	106.0	102.1	0.0	6.0	31.3	0.0
Internal Link Dist (m)		434.4			241.4			325.6			408.6	
Turn Bay Length (m)	100.0		140.0	65.0			160.0		50.0	110.0		70.0
Base Capacity (vph)	326	855	791	255	855	672	896	1881	914	483	966	510
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.65	0.71	0.24	0.41	0.61	0.36	0.38	0.01	0.02	0.19	0.12

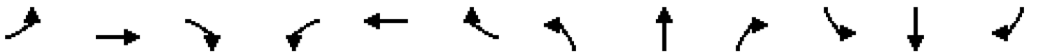
Intersection Summary
Cycle Length: 134.7
Actuated Cycle Length: 94.8
Natural Cycle: 105
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.72

Intersection Signal Delay (s/veh): 28.2	Intersection LOS: C
Intersection Capacity Utilization 72.5%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 5: Tenth Line & St. Joseph



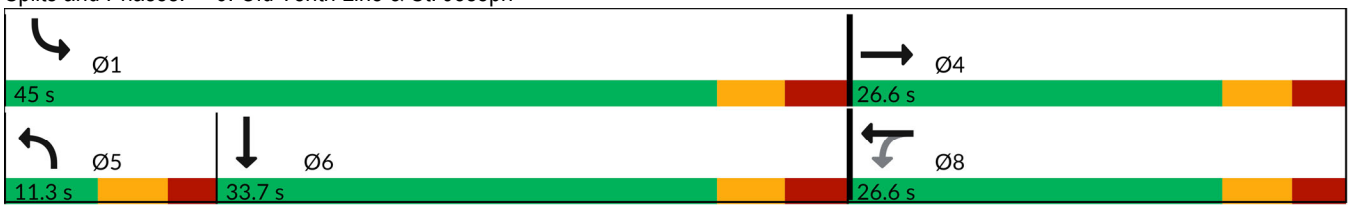


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	574	3	178	562	0	2	0	223	195	606	307
Future Volume (vph)	0	574	3	178	562	0	2	0	223	195	606	307
Satd. Flow (prot)	0	3386	0	1695	3390	0	1695	0	1517	3288	3390	1517
Flt Permitted				0.414			0.950			0.950		
Satd. Flow (perm)	0	3386	0	737	3390	0	1692	0	1495	3288	3390	1517
Satd. Flow (RTOR)		1							257			307
Lane Group Flow (vph)	0	577	0	178	562	0	2	0	223	195	606	307
Turn Type		NA		Perm	NA		Prot		Free	Prot	NA	Free
Protected Phases		4			8		5			1	6	
Permitted Phases				8					Free			Free
Detector Phase		4		8	8		5			1	6	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		5.0			5.0	15.0	
Minimum Split (s)		25.6		25.6	25.6		11.3			12.0	30.0	
Total Split (s)		26.6		26.6	26.6		11.3			45.0	33.7	
Total Split (%)		37.2%		37.2%	37.2%		15.8%			62.8%	47.1%	
Yellow Time (s)		3.7		3.7	3.7		3.7			3.7	3.7	
All-Red Time (s)		2.9		2.9	2.9		2.6			3.3	3.3	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)		6.6		6.6	6.6		6.3			7.0	7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Recall Mode		None		None	None		None			Min	Min	
Act Effct Green (s)		20.3		20.3	20.3		5.1		52.6	18.4	16.7	52.6
Actuated g/C Ratio		0.39		0.39	0.39		0.10		1.00	0.35	0.32	1.00
v/c Ratio		0.44		0.62	0.43		0.01		0.15	0.17	0.56	0.20
Control Delay (s/veh)		14.6		29.4	14.5		25.5		0.2	11.5	17.7	0.3
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)		14.6		29.4	14.5		25.5		0.2	11.5	17.7	0.3
LOS		B		C	B		C		A	B	B	A
Approach Delay (s/veh)		14.6			18.1			0.4			11.8	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		17.4		11.2	16.8		0.2		0.0	6.2	22.6	0.0
Queue Length 95th (m)		47.0		#52.8	45.6		2.1		0.0	10.8	46.1	0.0
Internal Link Dist (m)		241.4			372.8			239.6			226.3	
Turn Bay Length (m)				60.0					10.0	90.0		
Base Capacity (vph)		1310		285	1311		163		1495	2416	1750	1517
Starvation Cap Reductn		0		0	0		0		0	0	0	0
Spillback Cap Reductn		0		0	0		0		0	0	0	0
Storage Cap Reductn		0		0	0		0		0	0	0	0
Reduced v/c Ratio		0.44		0.62	0.43		0.01		0.15	0.08	0.35	0.20

Intersection Summary
Cycle Length: 71.6
Actuated Cycle Length: 52.6
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.62

Intersection Signal Delay (s/veh): 13.2 Intersection LOS: B
Intersection Capacity Utilization 61.8% 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: 6: Old Tenth Line & St. Joseph



Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	360	69	17	317	51	17
Future Vol, veh/h	360	69	17	317	51	17
Conflicting Peds, #/hr	0	15	15	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	360	69	17	317	51	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	444	0	766	415
Stage 1	-	-	-	-	410	-
Stage 2	-	-	-	-	356	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1116	-	371	638
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	709	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1101	-	357	626
Mov Cap-2 Maneuver	-	-	-	-	357	-
Stage 1	-	-	-	-	661	-
Stage 2	-	-	-	-	692	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.42	15.82
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	400	-	-	92	-
HCM Lane V/C Ratio	0.17	-	-	0.015	-
HCM Ctrl Dly (s/v)	15.8	-	-	8.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	260	118	35	232	102	48
Future Vol, veh/h	260	118	35	232	102	48
Conflicting Peds, #/hr	0	35	35	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	260	118	35	232	102	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	413	0	666	364
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	312	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1146	-	425	681
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	742	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1109	-	392	653
Mov Cap-2 Maneuver	-	-	-	-	392	-
Stage 1	-	-	-	-	687	-
Stage 2	-	-	-	-	709	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.09	16.96
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	450	-	-	236	-
HCM Lane V/C Ratio	0.334	-	-	0.032	-
HCM Ctrl Dly (s/v)	17	-	-	8.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	256	52	78	190	77	68
Future Vol, veh/h	256	52	78	190	77	68
Conflicting Peds, #/hr	0	65	65	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	256	52	78	190	77	68

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	373	0	703	357
Stage 1	-	-	-	-	347	-
Stage 2	-	-	-	-	356	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1185	-	404	687
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	709	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1114	-	347	640
Mov Cap-2 Maneuver	-	-	-	-	347	-
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	647	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	2.47	17.09
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	442	-	-	524	-
HCM Lane V/C Ratio	0.328	-	-	0.07	-
HCM Ctrl Dly (s/v)	17.1	-	-	8.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.2	-

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	25	275	166	15	0	206	65	161	0	46	5
Future Vol, veh/h	6	25	275	166	15	0	206	65	161	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	25	275	166	15	0	206	65	161	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, s/veh	11.9	11.5	16.6	9.6
HCM LOS	B	B	C	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	48%	2%	92%	0%
Vol Thru, %	15%	8%	8%	90%
Vol Right, %	37%	90%	0%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	432	306	181	51
LT Vol	206	6	166	0
Through Vol	65	25	15	46
RT Vol	161	275	0	5
Lane Flow Rate	432	306	181	51
Geometry Grp	1	1	1	1
Degree of Util (X)	0.625	0.429	0.298	0.084
Departure Headway (Hd)	5.209	5.05	5.93	5.941
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	691	710	605	600
Service Time	3.248	3.099	3.986	4.007
HCM Lane V/C Ratio	0.625	0.431	0.299	0.085
HCM Control Delay, s/veh	16.6	11.9	11.5	9.6
HCM Lane LOS	C	B	B	A
HCM 95th-tile Q	4.4	2.2	1.2	0.3

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	41	239	3	6	178	59	5	0	14	89	0	64
Future Vol, veh/h	41	239	3	6	178	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	239	3	6	178	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, s/veh	10.4	9.6	8.2	9.4
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	14%	2%	58%
Vol Thru, %	0%	84%	73%	0%
Vol Right, %	74%	1%	24%	42%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	283	243	153
LT Vol	5	41	6	89
Through Vol	0	239	178	0
RT Vol	14	3	59	64
Lane Flow Rate	19	283	243	153
Geometry Grp	1	1	1	1
Degree of Util (X)	0.026	0.367	0.307	0.213
Departure Headway (Hd)	4.968	4.665	4.555	5.013
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	714	770	785	711
Service Time	3.046	2.711	2.603	3.074
HCM Lane V/C Ratio	0.027	0.368	0.31	0.215
HCM Control Delay, s/veh	8.2	10.4	9.6	9.4
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.1	1.7	1.3	0.8

Intersection	
Intersection Delay, s/veh	18.2
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	88	192	352	37	176	381
Future Vol, veh/h	88	192	352	37	176	381
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	88	192	352	37	176	381
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	14.9	23.1	16.5
HCM LOS	B	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	31%	0%	100%
Vol Right, %	0%	100%	69%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	176	381	280	352	37
LT Vol	176	0	0	352	0
Through Vol	0	0	88	0	37
RT Vol	0	381	192	0	0
Lane Flow Rate	176	381	280	352	37
Geometry Grp	5	5	3b	5	5
Degree of Util (X)	0.347	0.622	0.48	0.693	0.068
Departure Headway (Hd)	7.094	5.874	6.165	7.092	6.583
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	505	613	582	507	542
Service Time	4.862	3.642	4.234	4.86	4.351
HCM Lane V/C Ratio	0.349	0.622	0.481	0.694	0.068
HCM Control Delay, s/veh	13.6	17.9	14.9	24.5	9.8
HCM Lane LOS	B	C	B	C	A
HCM 95th-tile Q	1.5	4.3	2.6	5.3	0.2

APPENDIX Q

SIMTRAFFIC QUEUEING ANALYSIS

Intersection: 1: 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)	86.0	42.5	45.8	57.7	108.2	107.7	107.5	50.1	73.3	81.9	42.1	18.3
Average Queue (m)	44.0	21.0	22.9	29.0	73.7	72.2	62.0	13.0	43.8	52.5	16.8	0.6
95th Queue (m)	74.1	34.9	39.0	50.7	100.5	98.6	91.6	42.6	64.7	73.8	34.8	9.3
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)	175.0			150.0				200.0	200.0			40.0
Storage Blk Time (%)							0				1	0
Queuing Penalty (veh)							0				0	0

Intersection: 1: Trim & H174

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	31.0	58.4	46.5
Average Queue (m)	10.2	19.8	5.3
95th Queue (m)	22.7	41.7	28.9
Link Distance (m)		179.2	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	150.0		40.0
Storage Blk Time (%)		1	1
Queuing Penalty (veh)		3	1

Intersection: 2: Trim & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	50.2	35.8	84.7	21.6
Average Queue (m)	18.7	16.2	37.9	9.6
95th Queue (m)	38.6	28.5	71.0	16.9
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: 3: Tweddle & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	25.6	20.6	9.1	16.9
Average Queue (m)	14.1	11.4	0.7	8.7
95th Queue (m)	22.1	17.3	4.8	14.8
Link Distance (m)	457.7	185.0	165.8	181.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Tenth Line & Jeanne D'Arc

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (m)	24.9	48.4	16.4	19.4	26.6
Average Queue (m)	12.9	23.7	7.5	9.2	11.6
95th Queue (m)	20.4	39.3	15.8	15.3	20.3
Link Distance (m)	181.9		760.2		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)		145.0			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Tenth Line & St. Joseph

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	T	L	T	T	L	LT	T	R	L	T
Maximum Queue (m)	18.9	40.9	36.8	33.8	78.6	81.4	109.9	124.5	105.8	41.6	10.6	50.2
Average Queue (m)	6.2	20.7	14.3	8.2	45.0	49.7	60.8	83.6	69.8	2.9	1.6	29.0
95th Queue (m)	16.2	33.4	29.6	24.6	71.9	75.5	98.4	113.4	100.2	23.1	6.9	45.8
Link Distance (m)		446.7	446.7		230.4	230.4		337.3	337.3			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	100.0			65.0			160.0			50.0	110.0	
Storage Blk Time (%)					2				16	0		
Queuing Penalty (veh)					1				3	0		

Intersection: 5: Tenth Line & St. Joseph

Movement	SB
Directions Served	T
Maximum Queue (m)	42.3
Average Queue (m)	17.3
95th Queue (m)	36.9
Link Distance (m)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Old Tenth Line & St. Joseph

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	TR	L	T	T	L	R	L	L	T	T	R
Maximum Queue (m)	31.4	40.0	27.8	50.8	59.8	5.3	16.8	12.4	25.3	33.2	25.1	4.8
Average Queue (m)	10.1	11.9	11.9	27.2	34.1	0.3	2.1	1.7	11.5	16.0	7.0	0.2
95th Queue (m)	24.6	30.3	23.8	42.8	52.6	5.2	10.2	7.7	21.4	28.3	17.2	3.4
Link Distance (m)	230.4	230.4		388.9	388.9	242.0				237.7	237.7	237.7
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)			60.0				10.0	90.0	90.0			
Storage Blk Time (%)				0			0					
Queuing Penalty (veh)				0			0					

Intersection: 7: Tenth Line & H174 WB on-off

Movement	SB
Directions Served	R
Maximum Queue (m)	4.5
Average Queue (m)	0.1
95th Queue (m)	3.2
Link Distance (m)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	50.0
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: West Access & Jeanne D'Arc

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	8.8	14.4	20.7
Average Queue (m)	0.4	1.4	9.8
95th Queue (m)	5.1	7.7	16.1
Link Distance (m)	409.3	135.3	85.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Center Access & Jeanne D'Arc

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	13.1	18.8	28.7
Average Queue (m)	0.9	3.2	12.3
95th Queue (m)	6.6	12.2	22.5
Link Distance (m)	135.3	119.9	103.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: West Access & Jeanne D'Arc

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	9.8	18.7	28.8
Average Queue (m)	0.6	4.5	12.8
95th Queue (m)	4.8	13.9	22.0
Link Distance (m)	119.9	457.7	99.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 8

Intersection: 1: 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)	129.4	164.7	166.9	57.7	64.6	58.8	52.7	42.9	61.2	68.3	53.9	47.0
Average Queue (m)	67.8	103.5	107.3	24.2	40.9	39.1	20.8	6.1	36.4	45.4	20.8	4.5
95th Queue (m)	108.6	151.6	156.2	45.2	57.5	56.0	47.4	28.3	57.9	63.2	42.0	26.7
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)	175.0			150.0				200.0	200.0			40.0
Storage Blk Time (%)		0									2	0
Queuing Penalty (veh)		0									3	0

Intersection: 1: Trim & H174

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	44.3	54.8	28.5
Average Queue (m)	17.1	24.4	3.3
95th Queue (m)	32.7	43.8	22.8
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)		6	0

Intersection: 2: Trim & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	46.3	33.0	108.9	16.8
Average Queue (m)	21.8	15.7	49.2	7.0
95th Queue (m)	38.1	26.5	83.7	14.0
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: 3: Tweddle & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	34.0	29.0	9.2	25.7
Average Queue (m)	17.7	13.7	4.1	12.6
95th Queue (m)	27.9	22.6	11.3	20.6
Link Distance (m)	457.7	185.0	165.8	181.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Tenth Line & Jeanne D'Arc

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (m)	28.9	45.1	17.1	25.1	41.1
Average Queue (m)	17.4	22.9	6.9	10.8	16.5
95th Queue (m)	26.5	35.0	14.8	18.8	29.2
Link Distance (m)	181.9		760.2		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)		145.0			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Tenth Line & St. Joseph

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	L	T	T	R	L	LT	T	R	L
Maximum Queue (m)	31.0	80.1	73.6	29.4	50.9	54.0	18.3	92.2	106.7	98.7	46.0	10.7
Average Queue (m)	14.5	49.4	46.7	11.3	25.8	30.7	0.8	53.4	75.2	62.9	2.7	2.1
95th Queue (m)	26.7	71.8	69.9	23.1	43.4	48.1	11.8	84.7	101.3	90.1	22.7	7.9
Link Distance (m)		446.7	446.7		230.4	230.4	230.4		337.3	337.3		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	100.0			65.0				160.0			50.0	110.0
Storage Blk Time (%)		0								13	0	
Queuing Penalty (veh)		0								2	0	

Intersection: 5: Tenth Line & St. Joseph

Movement	SB	SB
Directions Served	T	T
Maximum Queue (m)	51.3	42.8
Average Queue (m)	28.2	12.6
95th Queue (m)	44.6	34.1
Link Distance (m)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Old Tenth Line & St. Joseph

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB	SB
Directions Served	T	TR	L	T	T	L	R	L	L	T	T
Maximum Queue (m)	73.4	77.6	57.0	46.8	53.8	15.9	18.4	20.5	38.7	43.5	40.1
Average Queue (m)	35.0	38.7	26.6	19.1	29.3	0.5	5.8	3.3	16.7	25.7	18.2
95th Queue (m)	68.5	75.0	47.8	35.5	46.8	6.6	16.3	12.4	30.5	38.7	32.8
Link Distance (m)	230.4	230.4		388.9	388.9	242.0				237.7	237.7
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (m)			60.0				10.0	90.0	90.0		
Storage Blk Time (%)			0	0			2				
Queuing Penalty (veh)			0	0			0				

Intersection: 7: Tenth Line & H174 WB on-off

Movement	
Directions Served	
Maximum Queue (m)	
Average Queue (m)	
95th Queue (m)	
Link Distance (m)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: West Access & Jeanne D'Arc

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	11.3	25.5	18.4
Average Queue (m)	0.7	2.8	8.7
95th Queue (m)	5.2	12.9	16.4
Link Distance (m)	409.3	135.3	85.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Center Access & Jeanne D'Arc

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	16.7	21.1	25.9
Average Queue (m)	1.7	4.8	12.0
95th Queue (m)	8.7	15.5	20.9
Link Distance (m)	135.3	119.9	103.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: West Access & Jeanne D'Arc

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	13.9	22.3	30.4
Average Queue (m)	0.7	6.9	13.4
95th Queue (m)	6.4	17.5	24.3
Link Distance (m)	119.9	457.7	99.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 11

Intersection: 1: 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)	105.0	39.5	40.3	61.5	113.7	113.0	98.9	55.2	76.1	87.0	40.9	8.9
Average Queue (m)	58.7	20.7	22.5	27.7	79.4	77.9	68.0	20.4	45.5	53.3	16.7	0.3
95th Queue (m)	96.3	35.2	38.8	50.4	106.9	105.5	95.9	55.0	68.9	74.7	32.6	6.3
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)	175.0			150.0				200.0	200.0			40.0
Storage Blk Time (%)											0	0
Queuing Penalty (veh)											0	0

Intersection: 1: Trim & H174

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	31.8	89.8	47.5
Average Queue (m)	13.6	33.7	16.9
95th Queue (m)	26.3	68.4	53.3
Link Distance (m)		179.2	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	150.0		40.0
Storage Blk Time (%)		4	2
Queuing Penalty (veh)		18	4

Intersection: 2: Trim & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	107.8	53.1	121.8	36.8
Average Queue (m)	38.9	19.0	51.6	16.3
95th Queue (m)	79.3	43.0	92.8	29.7
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: 3: Tweddle & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	34.4	22.2	9.2	19.4
Average Queue (m)	16.8	12.0	1.5	9.6
95th Queue (m)	25.9	19.0	7.1	15.9
Link Distance (m)	457.7	185.0	165.8	181.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Tenth Line & Jeanne D'Arc

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (m)	26.7	68.6	15.1	20.5	29.9
Average Queue (m)	13.5	31.8	7.6	9.8	15.5
95th Queue (m)	21.5	52.8	15.0	17.2	24.0
Link Distance (m)	181.9		760.2		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)		145.0			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Tenth Line & St. Joseph

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	L	T	T	R	L	LT	T	R	L
Maximum Queue (m)	21.7	41.4	36.8	20.6	92.4	96.0	43.4	118.7	133.4	121.2	57.2	10.6
Average Queue (m)	8.1	21.5	13.4	5.9	50.9	54.6	1.5	67.6	91.2	80.5	6.0	1.0
95th Queue (m)	18.1	35.1	28.8	15.7	81.5	86.2	26.1	107.6	122.7	114.0	34.7	5.7
Link Distance (m)		446.7	446.7		230.4	230.4	230.4		337.3	337.3		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	100.0			65.0				160.0			50.0	110.0
Storage Blk Time (%)					4					22	0	
Queuing Penalty (veh)					1					4	0	

Intersection: 5: Tenth Line & St. Joseph

Movement	SB	SB
Directions Served	T	T
Maximum Queue (m)	53.0	45.8
Average Queue (m)	31.2	21.5
95th Queue (m)	46.7	42.4
Link Distance (m)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Old Tenth Line & St. Joseph

Movement	EB	EB	WB	WB	WB	NB	SB	SB	SB	SB
Directions Served	T	TR	L	T	T	R	L	L	T	T
Maximum Queue (m)	30.4	36.6	35.4	53.4	69.0	14.4	9.9	23.8	34.2	20.4
Average Queue (m)	10.4	13.7	12.8	28.0	36.7	2.8	1.7	11.0	16.6	6.3
95th Queue (m)	24.5	30.4	26.2	46.3	57.9	11.1	7.4	21.1	29.6	14.4
Link Distance (m)	230.4	230.4		388.9	388.9				237.7	237.7
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)			60.0			10.0	90.0	90.0		
Storage Blk Time (%)				0		0				
Queuing Penalty (veh)				0		0				

Intersection: 7: Tenth Line & H174 WB on-off

Movement	SB
Directions Served	R
Maximum Queue (m)	4.1
Average Queue (m)	0.1
95th Queue (m)	2.9
Link Distance (m)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	50.0
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: West Access & Jeanne D'Arc

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	11.1	23.6	29.5
Average Queue (m)	0.5	3.2	13.2
95th Queue (m)	5.1	13.6	22.5
Link Distance (m)	409.3	135.3	85.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Center Access & Jeanne D'Arc

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	17.7	23.2	46.5
Average Queue (m)	1.8	5.3	20.0
95th Queue (m)	10.3	15.9	35.8
Link Distance (m)	135.3	119.9	103.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: West Access & Jeanne D'Arc

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	11.6	22.4	37.2
Average Queue (m)	0.6	6.8	18.6
95th Queue (m)	5.1	17.8	31.3
Link Distance (m)	119.9	457.7	99.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 28

Intersection: 1: 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)	182.5	710.8	710.4	64.7	70.5	67.0	53.0	46.2	57.5	65.7	52.7	47.3
Average Queue (m)	180.7	507.3	500.5	30.9	45.4	43.2	26.3	7.1	36.4	44.4	22.9	4.9
95th Queue (m)	194.1	828.6	821.8	60.2	61.4	60.8	52.2	31.2	56.3	62.0	43.8	28.1
Link Distance (m)		697.7	697.7		488.1	488.1	488.1			360.3	360.3	
Upstream Blk Time (%)		31	24									
Queuing Penalty (veh)		0	0									
Storage Bay Dist (m)	175.0			150.0				200.0	200.0			40.0
Storage Blk Time (%)	69	22									1	0
Queuing Penalty (veh)	425	90									2	0

Intersection: 1: Trim & H174

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	69.5	101.0	47.5
Average Queue (m)	34.4	30.2	11.0
95th Queue (m)	80.2	67.0	43.5
Link Distance (m)		179.2	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	150.0		40.0
Storage Blk Time (%)		5	0
Queuing Penalty (veh)		20	1

Intersection: 2: Trim & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	89.2	33.1	112.8	27.8
Average Queue (m)	35.3	17.2	60.4	12.4
95th Queue (m)	71.9	28.1	93.6	22.3
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: 3: Tweddle & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	35.6	28.6	12.1	24.4
Average Queue (m)	18.0	15.3	4.7	12.7
95th Queue (m)	28.0	24.7	12.2	20.2
Link Distance (m)	457.7	185.0	165.8	181.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Tenth Line & Jeanne D'Arc

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (m)	35.0	47.7	14.7	40.4	80.2
Average Queue (m)	18.3	26.8	7.6	15.6	33.4
95th Queue (m)	29.3	41.1	14.1	48.4	85.6
Link Distance (m)	181.9		760.2		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)		145.0			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Tenth Line & St. Joseph

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	L	T	T	R	L	LT	T	R	L
Maximum Queue (m)	50.3	86.2	82.8	29.6	58.4	93.5	57.7	107.3	125.7	111.4	56.8	11.8
Average Queue (m)	15.7	51.3	48.9	12.1	29.1	33.8	1.9	58.4	81.7	67.8	3.0	2.5
95th Queue (m)	34.2	75.3	75.6	25.4	49.7	66.5	33.3	97.9	113.5	98.3	23.9	8.7
Link Distance (m)		446.7	446.7		230.4	230.4	230.4		337.3	337.3		
Upstream Blk Time (%)						0	0					
Queuing Penalty (veh)						0	0					
Storage Bay Dist (m)	100.0			65.0				160.0			50.0	110.0
Storage Blk Time (%)		0			0					17	0	
Queuing Penalty (veh)		0			0					2	0	

Intersection: 5: Tenth Line & St. Joseph

Movement	SB	SB
Directions Served	T	T
Maximum Queue (m)	54.8	49.3
Average Queue (m)	32.8	20.4
95th Queue (m)	49.3	43.5
Link Distance (m)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Old Tenth Line & St. Joseph

Movement	EB	EB	WB	WB	WB	NB	SB	SB	SB	SB	SB
Directions Served	T	TR	L	T	T	R	L	L	T	T	R
Maximum Queue (m)	106.3	107.2	57.5	55.9	70.2	17.2	19.9	35.2	45.8	44.1	18.8
Average Queue (m)	37.5	41.8	27.0	18.7	31.7	6.4	3.4	16.3	26.5	20.7	0.7
95th Queue (m)	81.0	84.3	48.9	38.3	53.9	16.8	12.9	28.5	42.3	38.3	13.5
Link Distance (m)	230.4	230.4		388.9	388.9				237.7	237.7	237.7
Upstream Blk Time (%)		0									
Queuing Penalty (veh)		0									
Storage Bay Dist (m)			60.0			10.0	90.0	90.0			
Storage Blk Time (%)			1			2					
Queuing Penalty (veh)			2			0					

Intersection: 7: Tenth Line & H174 WB on-off

Movement	
Directions Served	
Maximum Queue (m)	
Average Queue (m)	
95th Queue (m)	
Link Distance (m)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: West Access & Jeanne D'Arc

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	16.7	22.6	29.4
Average Queue (m)	1.4	3.7	12.6
95th Queue (m)	9.3	14.4	22.3
Link Distance (m)	409.3	135.3	85.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Center Access & Jeanne D'Arc

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	24.8	26.0	42.3
Average Queue (m)	2.9	8.3	18.9
95th Queue (m)	13.4	20.8	34.7
Link Distance (m)	135.3	119.9	103.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: West Access & Jeanne D'Arc

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	18.4	31.1	46.9
Average Queue (m)	1.6	11.3	20.3
95th Queue (m)	9.0	24.7	35.6
Link Distance (m)	119.9	457.7	99.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 544

Intersection: 1: 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)	182.5	340.5	338.4	58.6	72.2	65.3	53.1	43.7	57.9	66.6	64.9	46.9
Average Queue (m)	137.7	194.7	194.1	30.9	48.4	45.3	29.3	7.3	37.8	46.7	24.1	6.0
95th Queue (m)	224.7	338.7	330.3	54.6	64.8	62.0	55.1	31.5	59.4	64.0	47.6	31.2
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)	175.0			150.0				200.0	200.0			40.0
Storage Blk Time (%)	6	19									2	0
Queuing Penalty (veh)	40	76									3	0

Intersection: 1: Trim & H174

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	52.0	92.1	47.4
Average Queue (m)	24.2	29.8	6.5
95th Queue (m)	46.8	60.2	33.3
Link Distance (m)		179.2	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	150.0		40.0
Storage Blk Time (%)		3	0
Queuing Penalty (veh)		12	0

Intersection: 2: Trim & Jeanne D'Arc

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	92.1	39.0	158.6	26.5
Average Queue (m)	33.4	18.3	70.4	12.7
95th Queue (m)	78.2	31.4	129.2	21.6
Link Distance (m)	185.0	134.8	179.2	79.2
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1: Trim & H174

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	TR	L	T	T	T	L	L	L	T
Maximum Queue (m)	56.5	171.0	208.5	208.3	64.5	70.3	67.6	61.7	47.2	62.3	74.6	65.0
Average Queue (m)	29.2	39.9	126.0	129.2	30.2	46.5	44.5	30.8	6.9	37.2	46.3	26.4
95th Queue (m)	48.8	107.6	193.2	195.2	56.2	64.6	63.9	58.1	30.7	58.7	64.7	50.5
Link Distance (m)			697.6	697.6		484.0	484.0	484.0			358.5	358.5
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	175.0	175.0			150.0				200.0	200.0		
Storage Blk Time (%)		0	2									3
Queuing Penalty (veh)		0	7									5

Intersection: 1: Trim & H174

Movement	NB	SB	SB	SB
Directions Served	R	L	T	R
Maximum Queue (m)	37.5	44.2	79.5	38.0
Average Queue (m)	5.1	21.4	28.4	6.3
95th Queue (m)	28.8	39.3	60.1	32.7
Link Distance (m)			176.4	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	40.0	150.0		40.0
Storage Blk Time (%)	0		4	0
Queuing Penalty (veh)	0		16	0

Intersection: 2: Trim & Jeanne D'Arc

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (m)	84.7	31.5	64.0	64.2	25.5
Average Queue (m)	37.3	17.0	27.9	25.9	11.2
95th Queue (m)	70.8	27.9	50.8	47.7	19.4
Link Distance (m)	183.2	133.0	176.4	176.4	79.3
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Tenth Line & Jeanne D'Arc

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (m)	37.1	89.1	28.8	37.4	69.4
Average Queue (m)	18.3	48.1	5.5	17.1	27.5
95th Queue (m)	29.4	76.6	20.4	30.2	50.2
Link Distance (m)	181.9		760.2		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)		145.0			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 28