

Memorandum

To: Mike Giampa, P.Eng (City of Ottawa, TES) Date: May 26, 2025
 Copy: Anthony Johnston (Brigil - Client) Project: 479044-01000
 From: Juan Lavin, P.Eng. / Austin Shih, P.Eng.
 Subject: **Petrie's Landing 1 – Towers 5a & 5b**
Addendum #3: May 2025

The following memorandum has been prepared in support of the Petrie's Landing I development located at the original address of 8900 Jeanne d'Arc Blvd and formerly subdivided address of 175 Inlet Pvt for Towers 5a and 5b (now 500 and 600 Inlet Pvt). A Transportation Impact Assessment (TIA) was prepared by Parsons in support of a zoning application for Towers 3 to 5, which was submitted on July 22, 2019 and was subsequently approved by Council. Following that submission, an Addendum #1 was prepared in June 2021 to reflect an increase to the unit count for Tower 4 from 198 to 242 units, which was subsequently approved. Since then, a second Addendum #2 was prepared in March 2024, proposing an additional 19 residential units and a reduction in residential parking rate from 1.2 to 1.1 parking spaces per unit, which was later approved. Tower 4 is currently under construction.

This memorandum, Addendum #3, is in support of a minor Site Plan refinement to Towers 5a and 5b. Overall, the building envelopes and height are proposed to remain the same as previously approved, but the density of the site has been increased by providing smaller units to increase the unit count per floor. A reduction of approximately 900 m² of commercial space is also proposed. A new moving truck area has been provided on the southeast quadrant of the site and the internal loop has been reduced to a single ramp into the underground parking garage, located at the same location of the previous underground parking garage ramp.

1.0 Background on Site Plan Changes

The changes to the approved site plan within this Addendum #3 are for Towers 5a and 5b; Towers 1-3 have already been built and Tower 4 is under construction. Overall, the site's traffic circulation, location, quantity and dimensions for ramps and drive aisles have all remained consistent to the formerly approved Site Plan; minor truck turning templates will be completed to ensure adequate circulation. **Table 1** below summarizes the new revised Site Plan statistics from May 2025 to the former approved Site Plan from the July 2019 TIA.

Table 1: Statistics Comparison – Approved 2019 vs Revised 2025 Site Plan

Criteria	Approved T5a	Proposed T5a	Approved T5b	Proposed T5b	Net Difference
Number of Storeys	32	32	22	22	0
Number of Units	286	371	196	236	+125 units
Commercial Space	1,500 m ²	0	0	611 m ²	- 889 m ²
Proposed Parking	270	294	216	168	- 24 spaces
Residential Parking Ratio	0.74/unit	0.59/unit	0.90/unit	0.51/unit	0.56/unit
Visitor Parking Ratio	0.2/unit	0.2/unit	0.2/unit	0.2/unit	0.2/unit

2.0 Existing Site Context

Figure 1 illustrates the existing site context and **Figure 2** illustrates the revised site plan. **Appendix A** provides a high-definition figure of the latest site plan. The site is located approximately 860m walk to the Trim LRT Station via existing infrastructure. The LRT is currently under construction and expected to be operational by sometime in 2025¹. The site proposes a new multi-use pathway (MUP) on the south side of the development, which would result in a walking distance

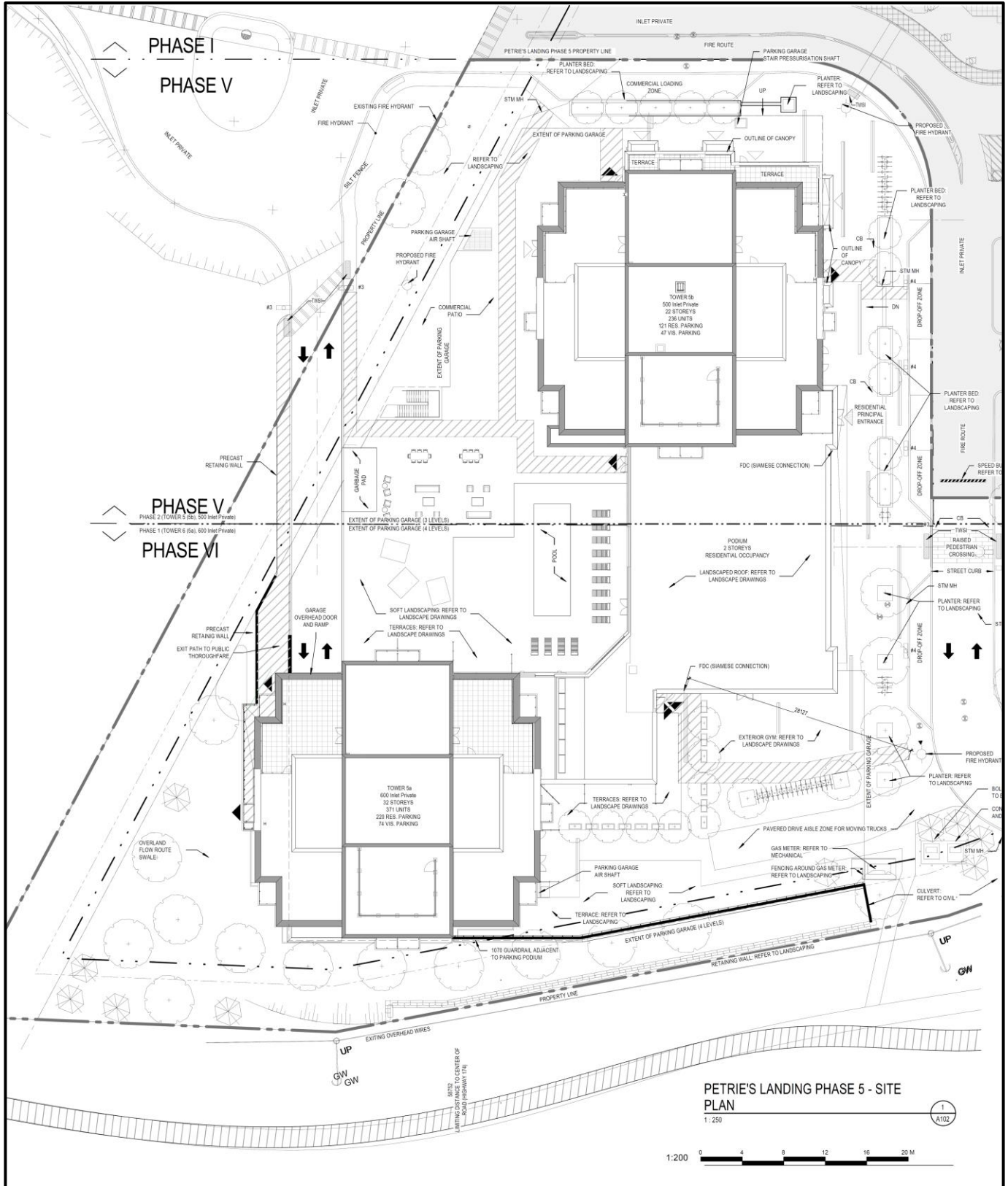
¹ <https://ottawacitizen.com/news/local-news/east-and-west-rail-extensions-behind-schedule-light-rail-subcommittee-hears>

of approximately 800m to the LRT Station. Additionally, it is understood that an active transportation bridge over H174 connecting the LRT Station to the north side of the highway will be constructed, which would effectively reduce the walking distance from the site to the LRT Station to within 600m, making the site a transit-oriented development (TOD) site. Note that this measurement was taken assuming that a direct connection from the bridge to the LRT Station will be provided. If the bridge does not provide a direct connection to the LRT Station, then the walking distance via this bridge could increase an additional 400m to a combined distance of approximately 1km. It is **highly** encouraged that the City provide a direct connection from this active transportation bridge to the future LRT Station. This would provide a grade separated crossing of the H174 for vulnerable users and reduce the walking distance to transit, making taking the LRT a more attractive mode of commuting for both this development and all other major developments proposed in the area.

Figure 1: Petrie's Landing 1 - Towers 5a & 5b - Site Context



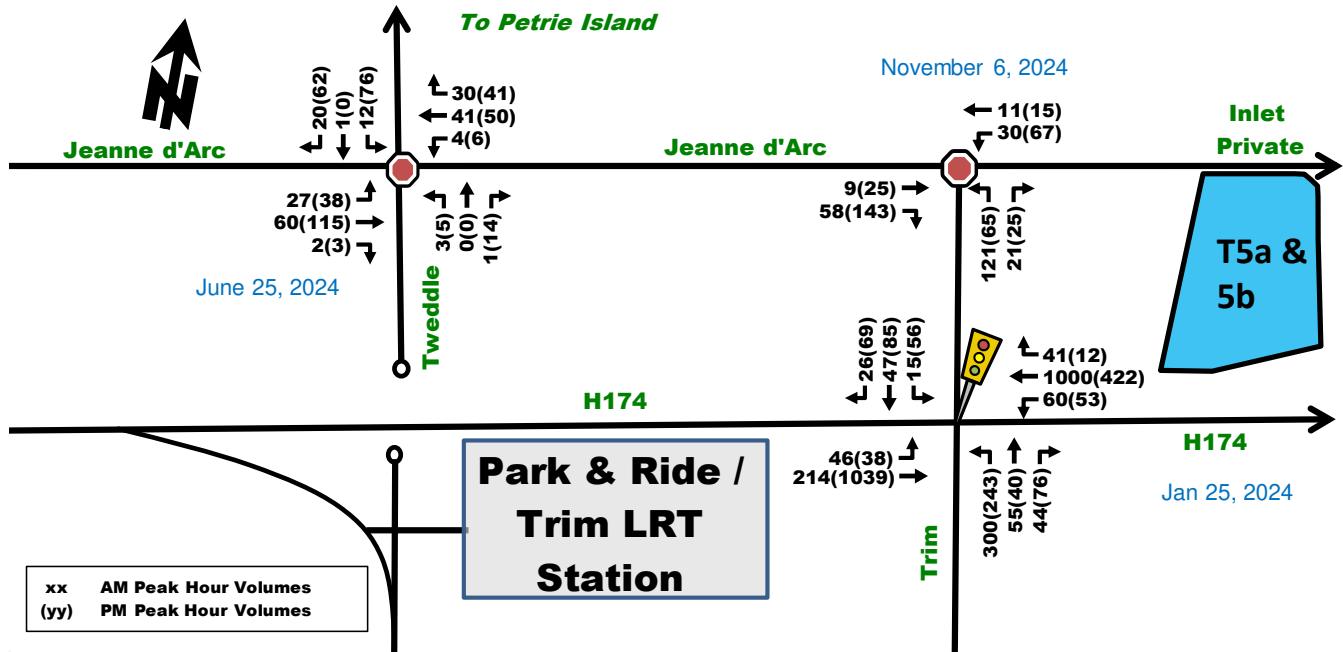
Figure 2: Revised Site Plan for Towers 5a & 5b – May 2025



3.0 Background Network Changes

The study area network has significantly changed since the approval of the original TIA from July 22, 2019. The Covid-19 Pandemic that occurred after the TIA was approved drastically changed commuting patterns, with many people opting to working in-person a few days a week, some adjusting their start and finish hours and others working remotely altogether. These changes in commuting patterns have been captured within the latest traffic counts conducted in 2024, with the latest counts illustrated in **Figure 3** and raw counts provided in **Appendix B**.

Figure 3: Existing Peak Hour Volumes (2024)



The intersection of Trim/H174 was shifted further east to accommodate room for the future Trim LRT Station which is set to become operational later this year. The new intersection consists of new lane arrangements including a new triple northbound left-turn and triple westbound through lanes which eventually merge into two westbound lanes.

Other area developments have also progressed further, notably Petrie's Landing III which proposes approximately 110,000 ft² of office, 165,000 ft² of retail and 3,177 residential units; 1015 Tweddle Rd which proposes 4 high-rise buildings consisting of 1,258 units and 27,000 ft² of commercial including restaurants and café; the remaining units by Cardinal Creek development; Petrie's Landing I Tower 4; and, Phoenix Homes which includes approximately 480 units. The background traffic volume increase forecasted by all these developments has been illustrated in **Figure 4**, based on TIA Reports for each of these developments.

A 0% annual background growth rate was considered, consistent with other TIA's. As per city comments, at the intersection of Trim/H174, a 5% of westbound through traffic was diverted westbound left to account for new trips using the park and ride facility plus LRT. These trips were also added to northbound right-turns in the afternoon as they return home from the park and ride facility to destinations to the east. Similarly, 5% of northbound left-turn traffic was reduced to account for traffic from the south using the park and ride facilities. The future background peak hour traffic volumes based on the layering of other area developments (assumed 2035 horizon year), park and ride adjustment and 0% annual back growth has been illustrated in **Figure 5**.

Figure 4: Increase in Background Volumes from Other Area Developments

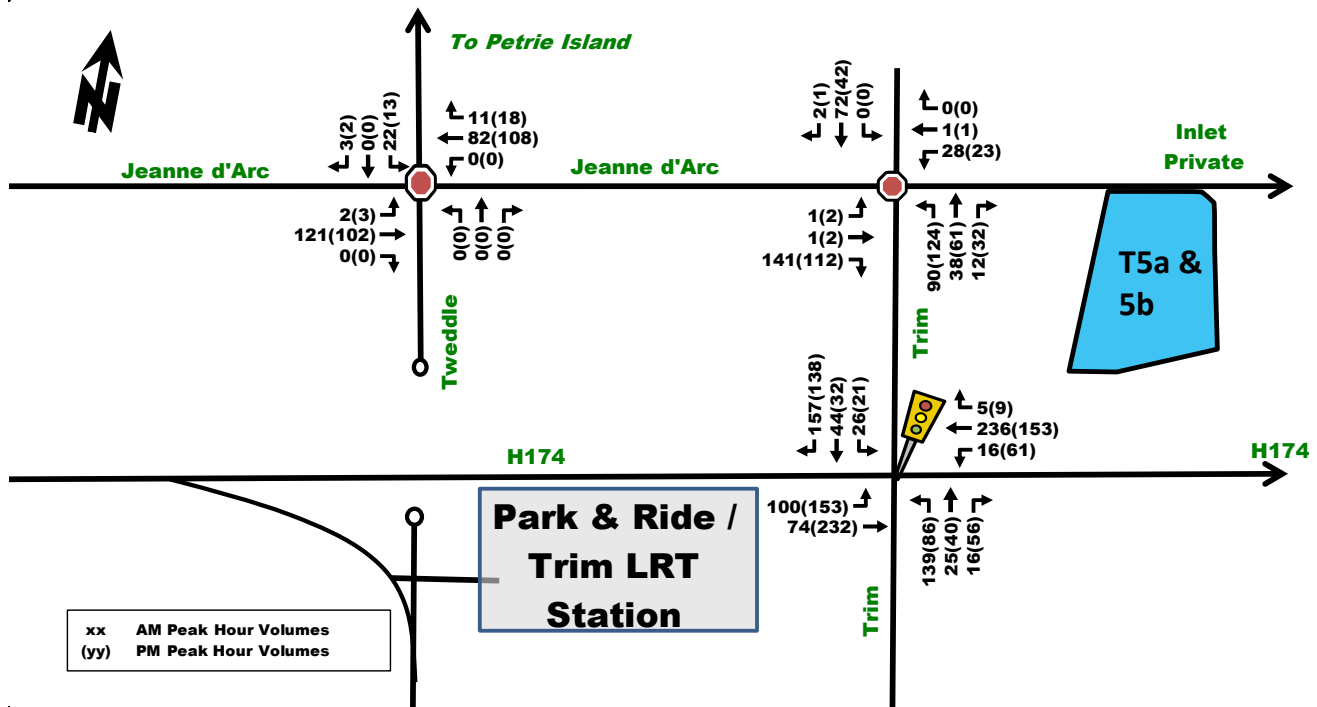
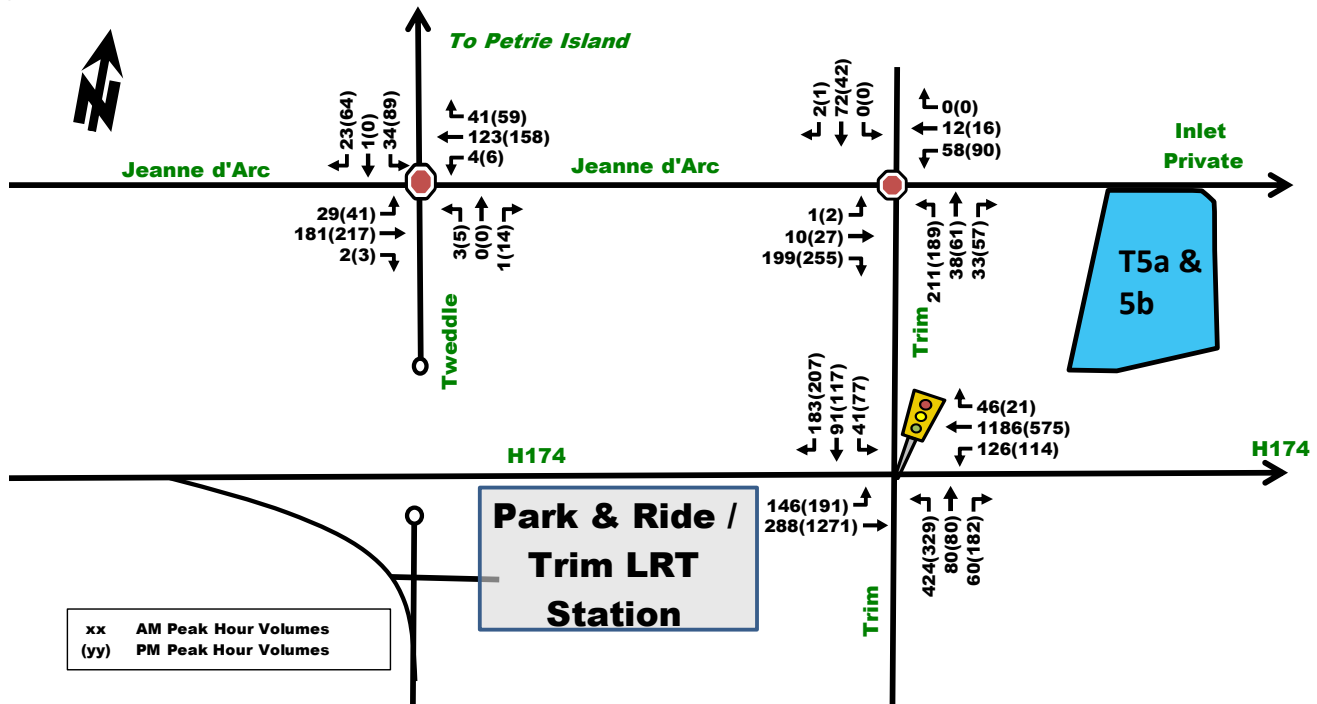


Figure 5: Background Peak Hour Volumes (~2035)



4.0 Net Trip Generation Increase

Consistent to the original 2019 TIA, the commercial land-use is forecasted to cater to local residents only and will not generate any new vehicle trips. Therefore, the increase in trips generated by the site can be calculated using the City's revised 2020 TRANS Trip Generation Manual and the proposed total number of units for Towers 5a and 5b. These rates have been summarized in Table 2.

Table 2: 2020 TRANS Residential Trip Generation Rates

Land Use	Data Source	Units	Trip Rates	
			AM Peak	PM Peak
High Rise Condos	TRANS 2020	607 units	T = 0.80(du)	T = 0.90(du)

Note: T = Average Vehicle Trip Ends; du = dwelling units

Using the TRANS Trip Generation rates, the total amount of person trips generated by the proposed residential increase in units was calculated. The results are summarized in **Table 3**.

Table 3: Projected Residential Peak Period Person Trip Generation - TRANS Model

Land Use	Dwelling Units	AM Peak Period Person Trips	PM Peak Period Person Trips
High Rise Condos	607 units	486	546

The projected site peak period person trips were then divided based on the mode shares for Orléans according to TRANS 2020 table 5, as summarized in **Table 4**.

Table 4: 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%	263	61%	331
Auto Passenger	7%	35	12%	69
Transit	29%	139	21%	115
Cycling	0%	0	0%	0
Walking	10%	49	6%	32
Total Person Trips	100%	486	100%	546

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

Table 5: Peak Period to Peak Hour Conversion Factor (2020 TRANS Manual)

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

Using the peak period to peak hour conversion rates from **Table 5**, the derived peak period trips by mode shares from **Table 4**, 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 6**.

Table 6: 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%	39	87	126	61%	84	61	145
Auto Passenger	7%	5	11	17	12%	18	13	30
Transit	29%	24	53	77	21%	31	23	54
Cycling	0%	0	0	0	0%	0	0	0
Walking	10%	9	20	28	6%	10	7	17
Total Person Trips	100%	77	171	248	100%	143	103	246

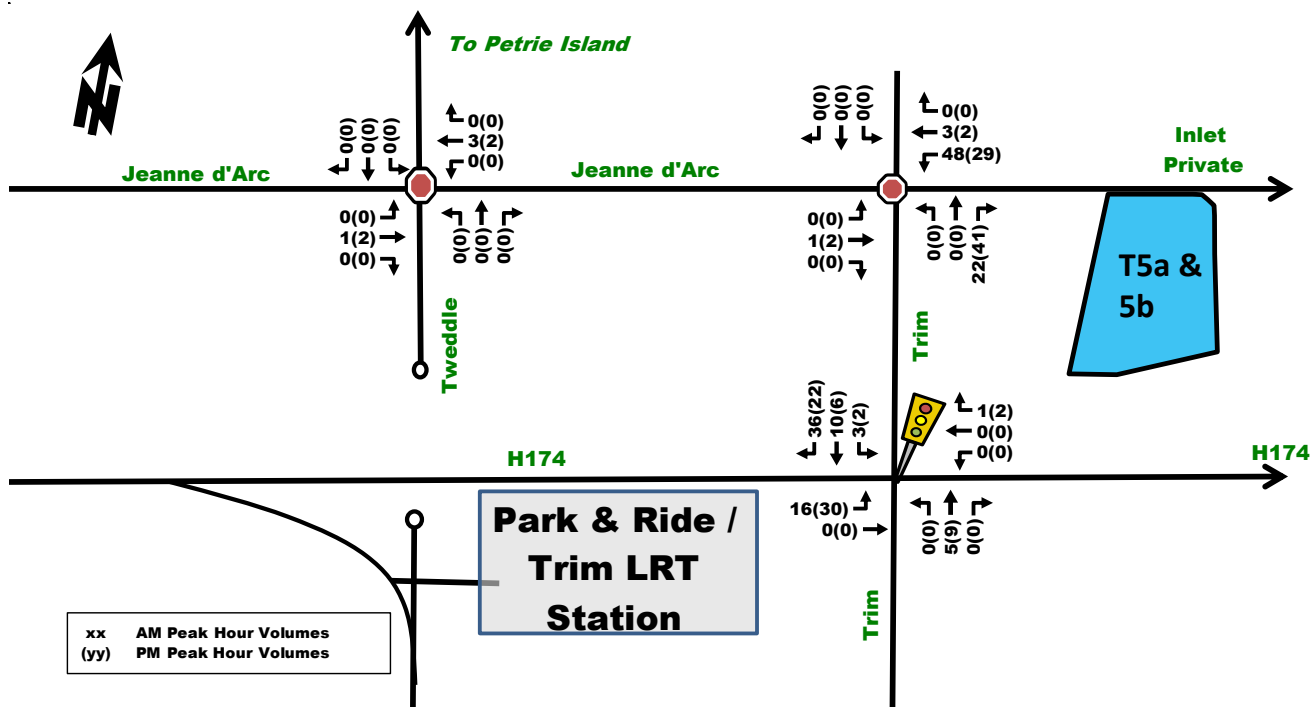
Consistent to the July 2019 TIA, a reduction in vehicle mode share and increase in transit trips is appropriate given the site's proximity to high quality LRT compared to the rest of Orleans. A slight increase in non-motorized trips is proposed compared to the previous TIA as the area has been growing with the inclusion of commercial and office space nearby, as well as an increase in general active transportation facilities and trips since 2019. **Table 7** summarizes the forecasted trips based on the proposed mode shares.

Table 7: Residential Peak Hour Trips Generated using Proposed Mode Shares

Travel Mode	Mode Share	AM Peak Hour (Trips/h)			PM Peak Hour (Trips/h)		
		In	Out	Total	In	Out	Total
Auto Driver	30%	23	51	74	43	31	74
Auto Passenger	10%	8	17	25	14	10	25
Transit	50%	38	85	124	71	52	123
Cycling	5%	4	9	12	7	5	12
Walking	5%	4	9	12	7	5	12
Total Person Trips	100%	77	171	248	143	103	246

Using the trips generated as shown in **Table 7**, and trip distribution based on a blend of the former TIA and existing trip distribution patterns at study area intersections, then the vehicle trips can be assigned to the network as shown in **Figure 6**.

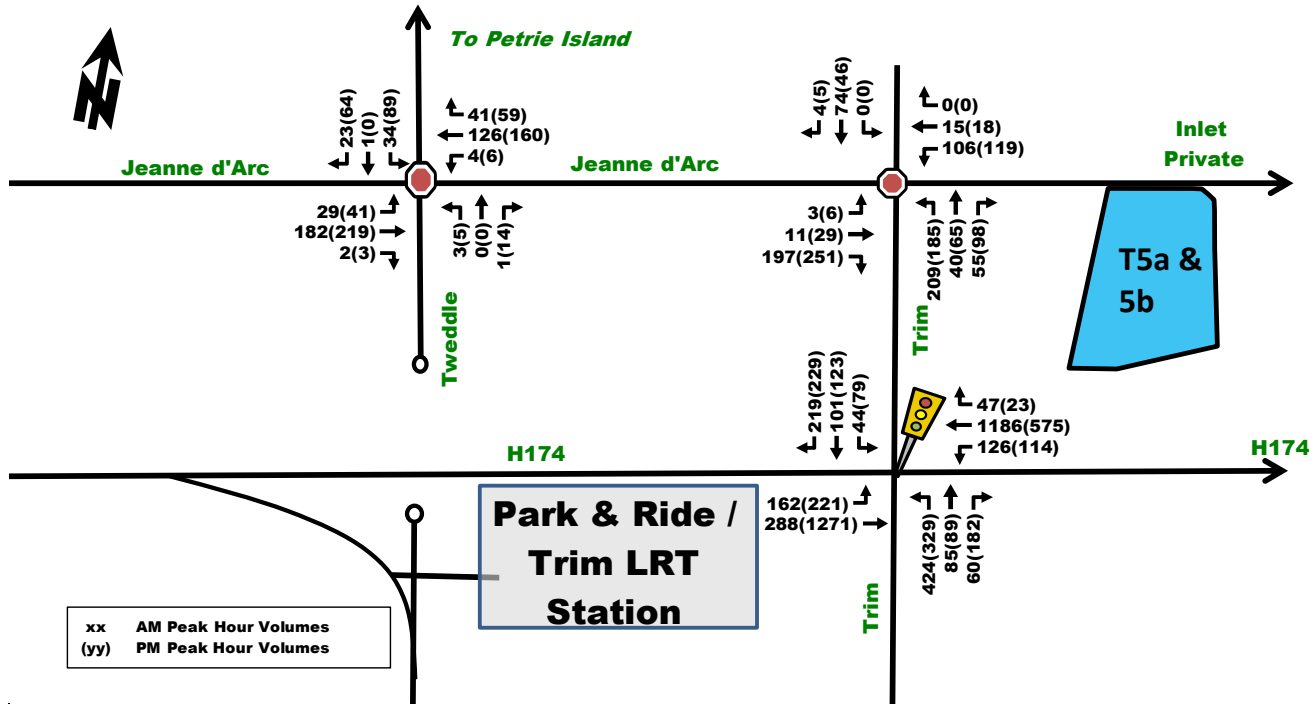
Figure 6: Future Site Generated Trips T5a and T5b



5.0 Network Performance

The site generated traffic as shown in **Figure 6** was layered on to background volumes which include existing peak hour volumes, the addition of other area developments and minor adjustments to account for diverted trips formerly using H174 to get downtown for trips headed to the park and ride and Trim LRT Station (as per city comments). The resultant future combined volumes at full buildout of other area developments (assumed 2035) has been illustrated in **Figure 7**.

Figure 7: Future Combined Peak Hour Traffic Volumes (~2035)



5.1 Existing Conditions

The following **Table 8** provides a summary of the existing traffic operations at the study area intersection based on volumes from **Figure 3** and Synchro (V11) traffic analysis software. The subject intersections were assessed in terms of the volume-to-capacity (v/c) ratio and the corresponding Level of Service (LoS) for the critical movement(s). The Synchro model outputs of existing conditions are provided within **Appendix C**.

Table 8: Existing Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Trim/H174 (S)	B(B)	0.63(0.66)	NBL(EBT)	31.2(32.8)	A(B)	0.42(0.63)
Trim/Jeanne d'Arc (U)	A(A)	8(8)	NB(NB)	8(8)	A(A)	-
Tweddle/Jeanne d'Arc (U)	A(A)	8(9)	EB(EB)	8(8)	A(A)	-

Note: Analysis of signalized intersections assumes a PHF of 0.90 and a saturation flow rate of 1800 veh/h/lane. (S) = Signalized intersection, (U) = unsignalized stop controlled intersection.

As shown in **Table 8**, all the intersections within the subject area are currently operating 'as a whole' at good LoS 'B' or better during the AM and PM peak hours with 'critical movements' at study area intersections currently operating at a good LoS 'B' or better during both peak hours.

5.2 Background Conditions

As discussed in **Section 3**, a 0% annual growth factor plus layering of other area developments was used to develop the background traffic volumes. **Figure 5** shows the projected background volumes in the network considering approved and proposed developments within the area. The projected operational results are shown in **Table 9**. The detailed Synchro results can be found in **Appendix D**.

Table 9: Future 2035 Background Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Trim/H174 (S)	D(D)	0.85(0.90)	WBL(EBT)	42.7(46.0)	A(D)	0.53(0.86)
Trim/Jeanne d’Arc (U)	B(B)	11(12)	NB(NB)	10(10)	B(B)	-
Tweddle/Jeanne d’Arc (U)	A(B)	9(10)	EB(EB)	8(10)	A(B)	-

Note: Analysis of signalized intersections assumes a PHF of 1.00 and a saturation flow rate of 1800 veh/h/lane. (S) = Signalized intersection, (U) = unsignalized stop controlled intersection.

As seen in **Table 9**, most intersections will operate similarly to existing or slightly worse given the increase in background vehicle volumes. All intersections continue to operate overall at good LoS ‘D’ or better and with critical movements of ‘D’ or better.

5.3 Future Conditions at Full-Buildout

The future full-buildout volumes as illustrated in **Figure 7**, which were used to determine the projected intersection performance on study area intersections as summarized in **Table 10**, with detailed Synchro results provided in **Appendix E**.

Table 10: Full-Buildout 2035 Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Trim/H174 (S)	D(D)	0.86(0.90)	WBL(EBT)	43.3(46.5)	A(D)	0.53(0.86)
Trim/Jeanne d’Arc (U)	B(B)	11(13)	NB(NB)	10(11)	B(B)	-
Tweddle/Jeanne d’Arc (U)	A(B)	9(10)	EB(WB)	8(10)	A(B)	-
Tweddle/Access (U)	A(B)	9(10)	WB(WB)	2(1)	A(A)	-

Note: Analysis of signalized intersections assumes a PHF of 1.00 and a saturation flow rate of 1800 veh/h/lane. (S) = Signalized intersection, (U) = unsignalized stop controlled intersection.

As shown in **Table 10**, all intersections will continue to operate at good LoS ‘D’ or better and with critical movements of good ‘D’ or better. Overall, in terms of intersection capacity, all intersections are anticipated to operate within city standards. The section below will analyze queuing implications, if any.

1.1.1 Queuing Analysis

The following **Table 11** summarizes queuing results based on Synchro and SimTraffic software for various intersection locations were deemed sensitive or at risk of queue spillback on to downstream intersection using the full buildout 2035 traffic volumes. SimTraffic prints out have been provided in **Appendix F**.

Table 11: Queuing Analysis at Sensitive Locations – 2035 Full Buildout

Movement & Location	Storage Length + Taper	Queue AM (PM) (in meters)			
		Synchro ¹		SimTraffic	
		50 th Percentile	95 th Percentile	50 th Percentile	95 th Percentile
EBL Trim/H174	160 + 45 m	40 (55)	61 (80)	35 (56)	59 (110)
EBT Trim/H174	650 m	25 (168)	35 (#216)	24 (135)	40 (192)
EB Trim/Jeanne d’Arc	160 m	-	-	15 (18)	25 (34)
NB Trim/Jeanne d’Arc	150 m	-	-	28 (35)	52 (61)

1. Synchro queues were only used for signalized intersections. # = 95th percentile volume exceeds capacity, queue may be longer.

As seen in **Table 11**, all queues are within their storage capacity with a good margin of space remaining between its upstream intersection or its auxiliary lane storage. At rare times during the PM peak hours, the eastbound through movement at Trim/H174 may exceed the storage lane length for the eastbound left-turn and create a momentary

blockage to that auxiliary lane; however, the extended taper may provide an avenue to that lane, or in worst case scenario, those turning eastbound left would have to wait for the eastbound through traffic to advance to be able to enter the auxiliary left-turn lane.

A further sensitivity scenario was completed to determine how much additional traffic could be added before queues begin to approach capacity. For this test, a 25% increase in total all movement volumes at Trim/Jeanne d’Arc were performed and a 25% increase in total eastbound left-turning volumes at Trim/H174 intersection. Only the PM peak hour was analyzed as it is more critical than the AM peak hour. The resultant queues have been summarized in **Table 12**.

Table 12: Queueing Analysis Sensitivity – 25% Increase in Volumes

Movement & Location	Storage Length + Taper	Queue PM Only (in meters)	
		Synchro ¹	SimTraffic
		95 th Percentile	95 th Percentile
EBL Trim/H174	160 + 45 m	#113	145
EB Trim/Jeanne d’Arc	160 m	-	53
NB Trim/Jeanne d’Arc	150 m	-	81

1. Synchro queues were only used for signalized intersections. # = 95th percentile volume exceeds capacity, queue may be longer.

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

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

6.0 Context and Suitability

The revised Site Plan proposes an increase in residential units by 125 units, from 482 to 607 total units. According to the Official Plan, the site is located within the “Suburban” Transect and located within 600-860m walking distance to currently under construction Trim LRT Station which will provide high quality rapid transit connectivity.

The Orleans Corridor Secondary Plan (OCSP) which has the intention of providing more specific direction and guidance beyond the recently approved Official Plan for Ottawa identifies the site to be located within a “Station Periphery” area within Schedule A and suggests a maximum building height of 32-storées for this site within Schedule B (both schedules have been provided in **Appendix G**). In general, the OCSP recommends intensification for areas within 800m from transit stations to leverage the LRT, create transit-oriented developments and guide the creation of 15-minute neighbourhoods².

The city’s Transportation Master Plan Update (TMP) is still being developed and expected to be completed by 2025. Part 1 has been approved, which identifies new policies and guiding principles. The proposed site, as mentioned earlier is located within the area of influence of future Trim LRT Station which is under construction and existing frequent route #39, and is located adjacent to major NCC pathways and Crosstown Bikeway corridor as shown in **Figure 8**, making the site well located in terms of mobility by various modes of transportation.

² Orleans Corridor Secondary Plan, Section 5.2, pg. 27

Figure 8: New TMP – Crosstown Bikeway Network (March 1, 2023)



The Annex B of the TMP Guiding Principles³ “encourages transit-oriented development and support intensification where transit, walking and cycling can be made most attractive”. The site is located in an area that already has a high quality of biking facilities and rapid transit nearby. Additionally, Policy 5-3 states “The Official Plan encourages higher density and mixed-use development around rapid transit stations, including in Hubs, Protected Major Transit Station Areas (PMTSAs), and along major transit corridors”. Schedule C1 of the Official Plan suggests that this site is within the Trim Station Protected Major Transit Station Area (PMTSA), as shown in **Appendix G**.

Lastly, from a transportation perspective, a net increase in 125 units would result in approximately 15 new vehicle trips two-way during the morning and afternoon peak hours, which equates to one vehicle every 4 minutes. The traffic impacts to the adjacent intersections and surrounding transportation network are considered minimal.

The Official Plan, Orleans Corridor Secondary Plan and the Transportation Master Plan Update support an increase in unit counts as part of intensification given the site’s location near to rapid transit and cycling facilities. The proposed unit count increase would have a negligible traffic impact to the surrounding transportation network.

7.0 Proposed Parking Rates

According to the City of Ottawa Parking By-Law, Part 4 Sections 100-114, the proposed development is located in Area C in Schedule 1. As discussed in **Section 2** and shown in **Figure 1**, the site currently exceeds 800m walk to the major Trim LRT Station today, but may be reduced to within 600m walk in the future should a direct connection to the LRT Station be provided via the pedestrian bridge over H174 and the proposed MUP be built. These improvements in connection to the LRT Station would result in this development being within Area X based on Section 101, 5b of the bylaw. Lastly, based on the Official Plan, since this development is within the Trim Station Protected Major Transit Station Area (PMTSA), then an argument exists that the development could be within Area Z within Schedule 1.

Based on Area C (existing conditions), a rate of 1.2 parking spaces per unit would be required for residents and 0.2 parking spaces per unit for visitors, plus 3.4 spaces per 100 m² of commercial uses.

Based on Area X (likely future conditions if the active transportation bridge over H174 is built with a direct connection to the LRT Station is provided), a rate of 0.5 parking spaces per unit excluding the first 12 units would be required for

³ [New TMP Guiding Principles](#), Pg56 and Annex B page 2.

residents and 0.1 parking spaces per unit excluding the first 12 units for visitors, plus 1.25 spaces per 100 m² of commercial uses.

Based on Area Z (justifiable based on the Official Plan PMTSA), no off-street parking would be required for residents nor commercial uses and a rate of 0.1 parking spaces per unit minus the first 12 units for visitors would be required, for a maximum of 30 visitor spaces per building. A maximum parking rate of 1.75 combined uses per unit is allowed.

As described above, there is a big variance in minimum parking rates required between the existing Area C, likely Area X or potential Area Z future denomination. Based on Area C, the site would require 864 parking spaces (725 residential, 121 visitor and 18 commercial spaces), Area X would require 362 parking spaces (296 residential, 59 visitor and 7 commercial spaces), while Area Z would require a minimum of 53 parking spaces (0 residential, 53 visitor and 0 commercial spaces) and a maximum of 1,057 parking spaces.

As shown in **Table 1** previously, the revised Site Plan is proposing a total of 462 combined parking spaces for all users (residents, visitors and commercial visitors). This equates to an approximate rate of 0.76 combined parking spaces per unit which is a rate between the rates proposed for Area C and Area X.

The site is located within a Protected Major Transit Station Area (PMTSA) within the Official Plan (OP) and “Station Periphery” within the Orleans Corridor Secondary Plan (OCSP). The Orleans Corridor Secondary Plan, Part 4.11 states “There shall be no minimum vehicular parking space rate requirements for development within the Secondary Plan Boundary identified on Schedule A – Designation Plan, with the exception of required visitor and accessible parking. This site is located within the boundaries on Schedule A. The Official Plan Section 4.6.1 states “minimum and maximum parking requirements shall be reduced to reflect downtown urban conditions and ratios that support high transit use.” The site’s relative proximity to the Confederation Line supports the aim to reduce the residential occupant parking ratio.

The site is located near high quality biking trails such as the NCC pathways (Ottawa River Pathway), multi-use pathways (MUP) on Trim Rd and future cycle tracks on St. Joseph Blvd. The site context offers the opportunity to promote sustainable modes of transportation and a reduced reliance on vehicles, which justifies the reduced proposed residential occupant vehicle parking rates.

Finally, **Theme 8** of the new TMP Part 1 also touches on intensification and reduced vehicle dependency:

“Finally, the City will pursue supportive land use development near and at transit stations and along frequent transit routes to further build ridership demand through the policies of the Official Plan as well as Policy 5-3 above. There are strong links between intensification, transit service improvements, and the evolution towards 15-minute neighbourhoods; as more households are added along major transit corridors, transit frequencies can increase, and it becomes more attractive to live car-free or car-light “.

Based on the preceding summary, the proponent intends to provide 121 visitor parking (meeting Area C visitor parking requirements of 0.2 spaces per unit) and reducing residential parking supply to 341 spaces or approximately a rate of 0.56 parking spaces per unit for residential uses. Commercial parking is proposed blended in with visitor parking as they would likely use the spaces at different times of the day. The reduction in residential parking is fitting of the site context and is not only justified but encouraged to promote use of alternate modes of transportation and leverage the nearby LRT.

The site proposes approximately 340 bike parking spaces, resulting in a ratio of 0.56 bike parking spaces per unit. Secure bike parking is proposed on the 1st of 4 underground parking levels and generally located near elevators. A total of 18 surface bike visitor parking racks are proposed on the south and east sides of the development.

Current city policies, including the Official Plan, Orleans Corridor Secondary Plan and the Transportation Master Plan Update: Part 1 support the proposed parking reduction.

8.0 Circulation

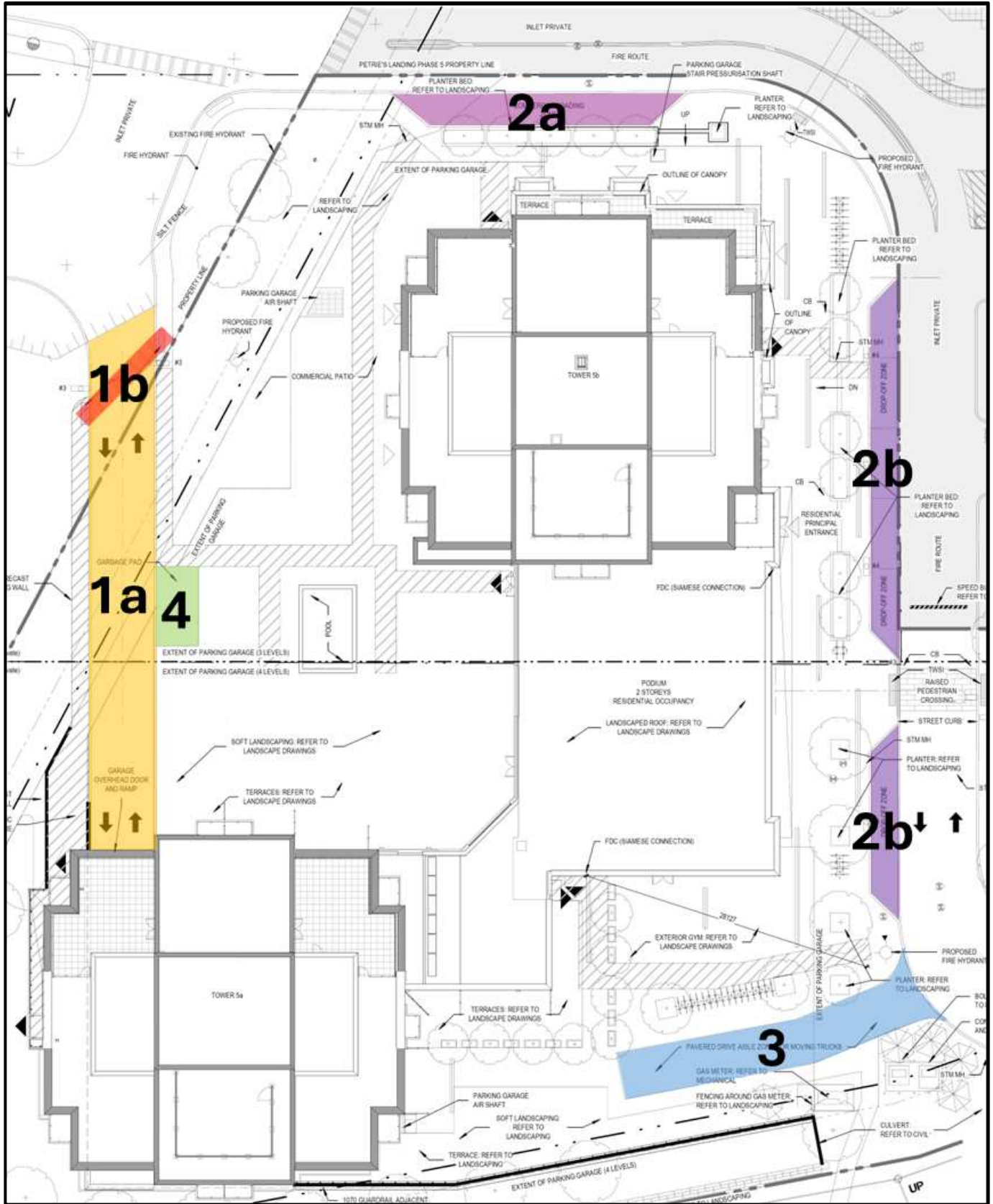
The site proposes active transportation facilities which bound the entire envelope of the building, allowing pedestrian circulation throughout. A pathway connection is proposed to the proposed multi-use pathway which would extend the entirety of the site, located along the southern property line near H174. This MUP is understood to extend from Tower 4 to Trim Rd, where it would connect to existing MUP facilities.

The latest site plan proposes minor changes to vehicle circulation, as shown in **Figure 9** and summarized below:

1. The ramp access was formerly proposed as a drop off loop with a ramp extending from the southern edge of the loop. The latest site plan removed this drop off loop and proposes a straight ramp directly from Inlet Pvt, shown as #1a on figure below. The removal of the loop creates additional space for landscaping, commercial patio and amenities within the site (non-motorized space). A new crosswalk is proposed on the northern end of the ramp which provides connectivity to the side door located on Tower 5a, shown as #1b.
2. A series of laybys are proposed on Inlet Pvt including a new 3.0m wide commercial loading zone just north of Tower 5b (shown as #2a) and two 2.5m wide drop-off zones just east of the towers (shown as #2b). Note that both towers are connected by a shared podium which has entrances located near to the layby zones.
3. A new 4.5m wide moving truck drive aisle located equidistance from both towers, located on the southeast quadrant of the study area is proposed, as shown as #3.
4. Garbage pick-up is proposed using a private contractor. A garbage pad is proposed at location #4.

The 6.0m wide garage ramp serving the underground parking lot is predominantly flat from Inlet Pvt until approximately parallel to Tower 5a (approximately 50m in from Inlet Pvt), where the ramp begins to slope down with grade transitions and reaches a maximum of 15%. The sloped parts of the ramp occur indoors only. The drive aisles vary between 6.4 and 6.6m wide. Vehicle turning templates have been provided in **Appendix H**.

Figure 9: Vehicle Access, Loading and Operations



9.0 Summary and Conclusions

This Addendum #3 has been prepared in support of an increase in residential unit count to 607 dwelling units (+125 units) and a reduction in residential vehicle parking rate from 1.2 to 0.56 spaces per unit similar to Area X parking for residents and 0.2 spaces per unit for visitors.

The site circulation and access propose minor changes which are anticipated to operate as designed. Policies from the Official Plan, Orleans Corridor Secondary Plan and Transportation Master Plan update demonstrate that the proposed site plan changes align with the guiding principles set by the City of Ottawa for new developments in this area. Given the high-quality cycling facilities, rapid transit LRT Station near to the site and the general site context, there is sufficient support and justification to accommodate the proposed residential unit count increase and reduced vehicle parking rate.

The proposed Petrie's Landing I Towers 5a & 5b site is not anticipated to have an undue effect on the surrounding transportation network and is expected to have minimal impacts compared to the previously approved development. The proposed amendments to the Site Plan are therefore considered adequate from a transportation perspective.

Prepared By:



Juan Lavin, P. Eng.
Transportation Engineer

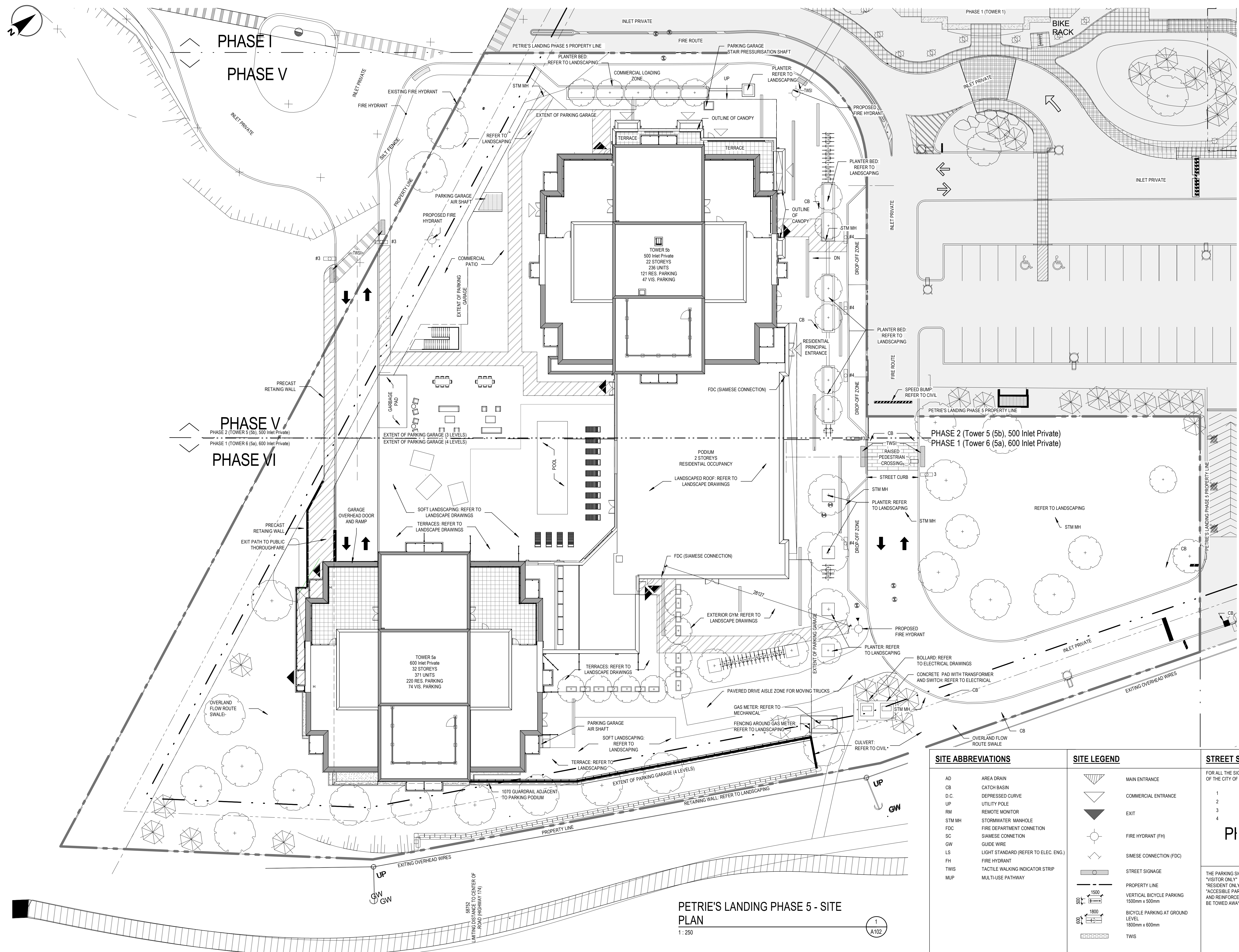
Reviewed By:



Austin Shih, P.Eng.
Senior Transportation Engineer

APPENDIX A

Site Plan Update



PETRIE'S LANDING PHASE 5 - SITE PLAN
1:250



SITE ABBREVIATIONS		SITE LEGEND		STREET SIGNS	
AD	AREA DRAIN	▲	MAIN ENTRANCE	1	STOP SIGN
CB	CATCH BASIN	▼	COMMERCIAL ENTRANCE	2	FIRE ROUTE SIGN
D.C.	DEPRESSED CURVE	◀	EXIT	3	PRIORITY TO PEDESTRIAN SIGN
UP	UTILITY POLE	○	FIRE HYDRANT (FH)	4	DROP OFF ZONE ONLY SIGN
RM	REMOTE MONITOR	○	SIMASE CONNECTION (FDC)	PI THE PARKING SIGNS WILL BE LABELED AS: "VISITOR ONLY" "RESIDENT ONLY" "ACCESSIBLE PARKING" AND REINFORCED "UNAUTHORIZED VEHICLES WILL BE TOWED AWAY"	
STM MH	STORMWATER MANHOLE	○	STREET SIGNAGE		
FDC	FIRE DEPARTMENT CONNECTION	—	PROPERTY LINE		
SC	SIMASE CONNECTION	—	VERTICAL BICYCLE PARKING 1500mm x 500mm		
GW	GUIDE WIRE	—	BICYCLE PARKING AT GROUND LEVEL 1800mm x 600mm		
LS	LIGHT STANDARD (REFER TO ELEC. ENG.)	—	TWIS		
FH	FIRE HYDRANT	—			
TWIS	TACTILE WALKING INDICATOR STRIP	—			
MUP	MULTI-USE PATHWAY	—			

GENERAL NOTES:
REFER TO CIVIL AND LANDSCAPING FOR SITE COORDINATION.
REFER TO CIVIL FOR STREET CURB AND SURFACE SLOPE DETAILS.
PRECAST RETAINING WALL TO BE ENGINEERED AND SUPPLIED BY OTHERS.

GENERAL NOTES / Notes Générales

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- The architect must be notified of all errors, omissions and discrepancies between these documents and those of the other professionals. / Veuillez aviser l'architecte de toutes dimensions, erreurs et/ou divergences entre ces documents et ceux des autres professionnels.
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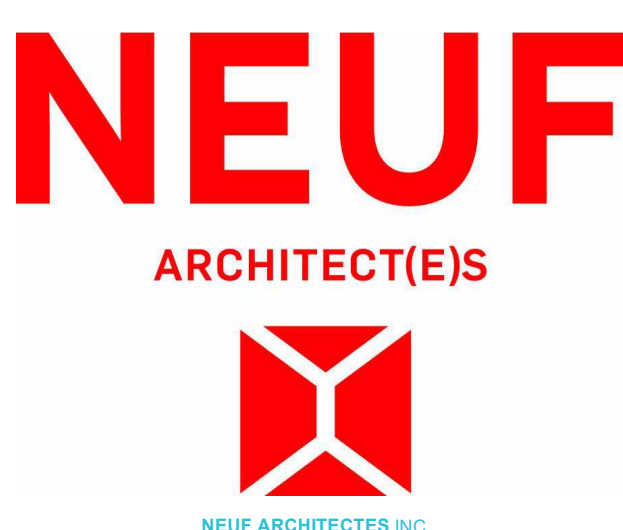
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SCEAU / Seal



CLIENT / Client
PETRIE'S LANDING I - TOWER 5/6
8910 & 8920 JEANNE-D'ARC BLVD ORLEANS, ON

NO. REVISION DATE (aa-mm-ii)

B	ISSUED FOR SPA REV5	2019-09-04
C	ISSUED FOR 30%	2021-10-29
D	ISSUED FOR SPA REV6	2021-11-02
E	ISSUED FOR CITY COMMENTS REV6	2021-12-10
F	ISSUED FOR 60%	2021-12-16
G	RE-ISSUED FOR SPA REV6	2022-02-28
H	ISSUED FOR 80% REVIEW	2022-03-21
I	ISSUED FOR PERMIT	2022-07-15
J	ISSUED FOR TENDER	2022-12-02
K	RE-ISSUED FOR TENDER	2023-03-10
L	ISSUED FOR 60% COORD.	2024-03-22
M	ISSUED FOR 80% COORD.	2024-04-19
N	ISSUED FOR INTERNAL AUDIT A3.2	2024-04-30
O	ISSUED FOR 95% TENDER	2024-05-31
P	ISSUED FOR 95% TENDER R1	2024-07-05
Q	ISSUED FOR COORDINATION	2025-05-02

DESSIN PAR Drawn by **AJ** VERIFIE PAR Checked by **MU**
DATE (aa-mm-ii) 10/29/21 ECHELLE Scale As indicated
TITRE DU DESSIN Drawing Title

PTL PHASE 5 SITE PLAN

REVISION Revision NO. DESSIN Dwg Number **Q A102**

APPENDIX B

Updated Traffic Counts (2024)

Turning Movement Count - Study Results REGIONAL RD 174 @ TRIM RD REALIGNMENT

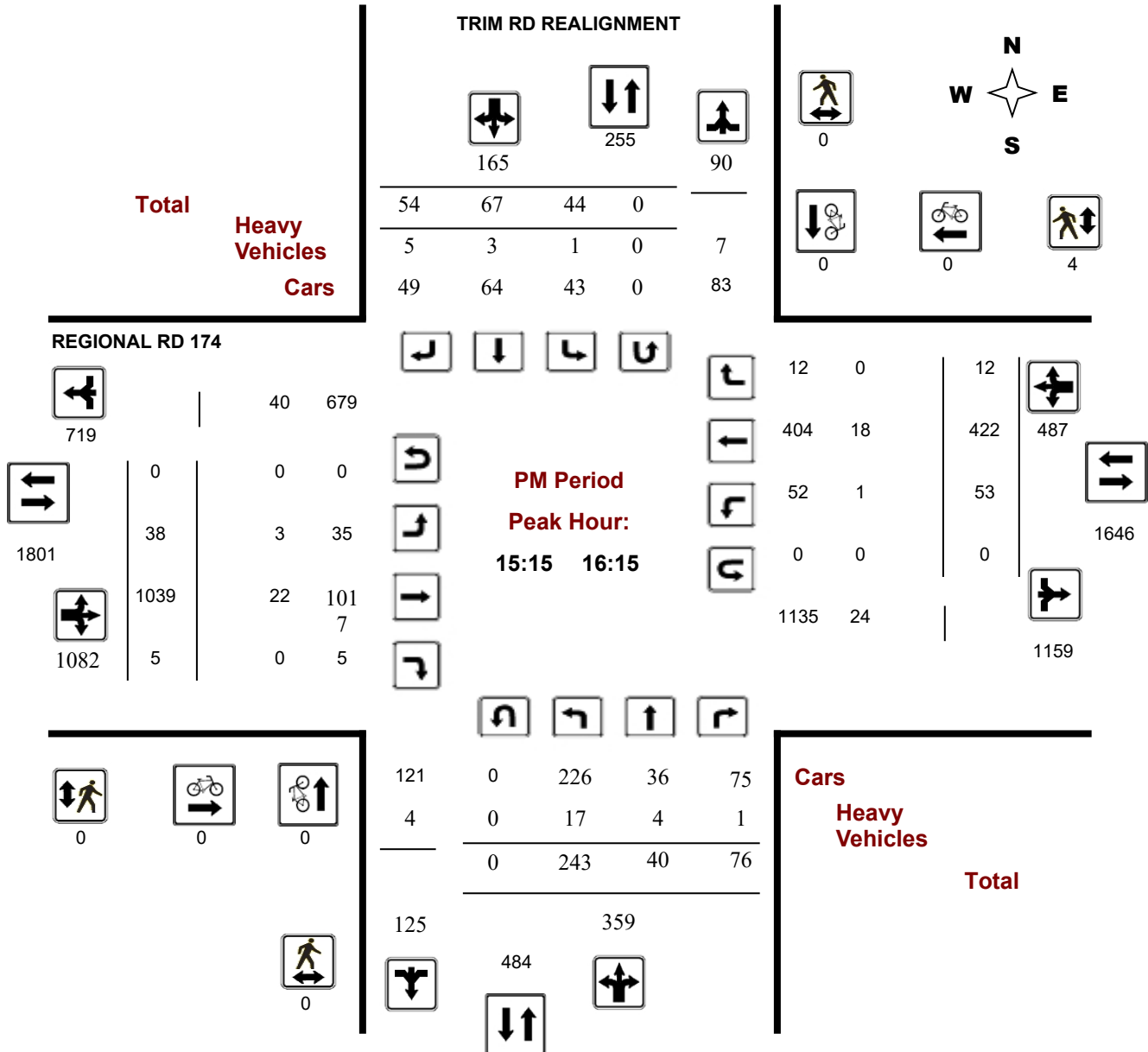
Survey Date: Thursday, January 25, 2024

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

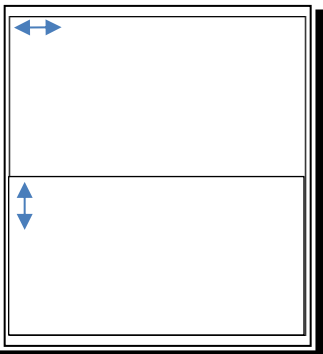
Chkd by: _____ Date: _____

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

N



Pedestrians

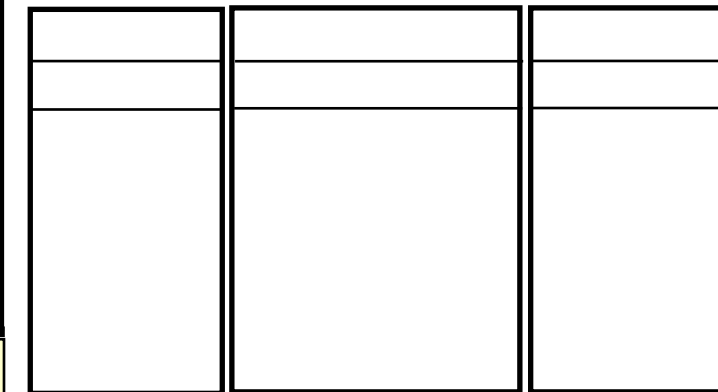
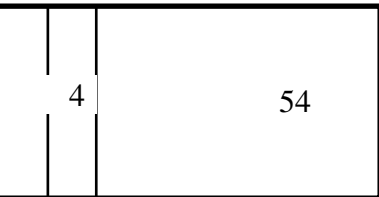
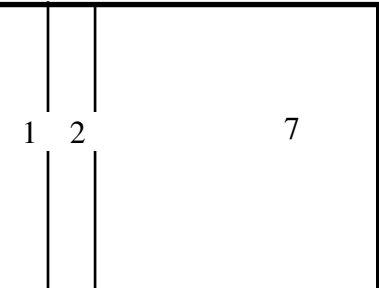


Street Name:
Jeanne d'Arc Blvd

Pass. Vehicles HV Bikes

Street Name:

Bikes HV Pass. Vehicles



R
L

S

L

R

S

S

L

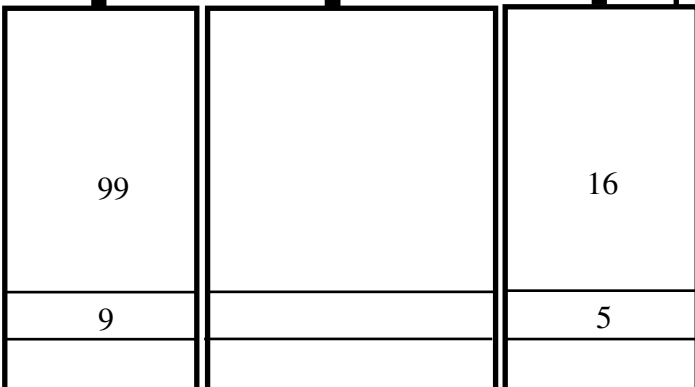
S

L

R

Street Name:
Trim Rd

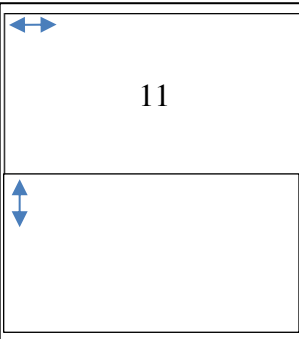
Pass. Vehicles HV Bikes



Pass. Vehicles HV Bikes

Street Name:
Inlet Pvt

Pedestrians



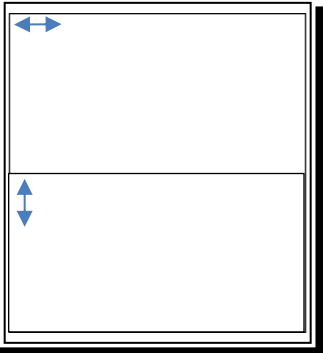
DIRECTIONAL TRAFFIC FLOW

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

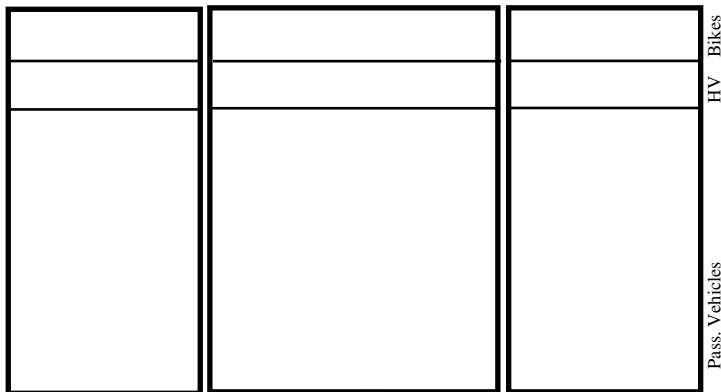
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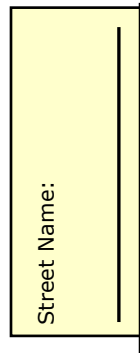
Pedestrians



Street Name:
Jeanne d'Arc Blvd

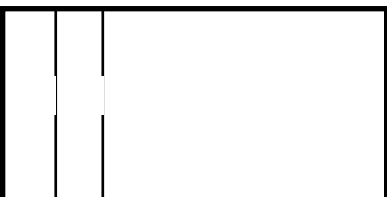


Pass. Vehicles HV Bikes

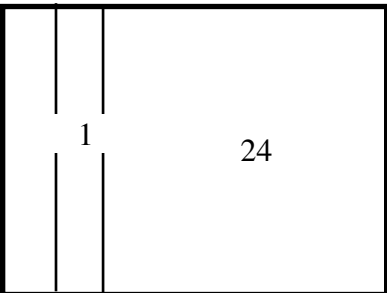


Street Name:

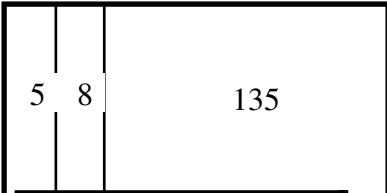
Bikes HV Pass. Vehicles



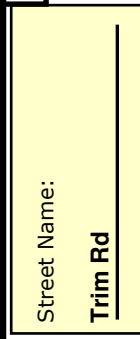
R
L



S

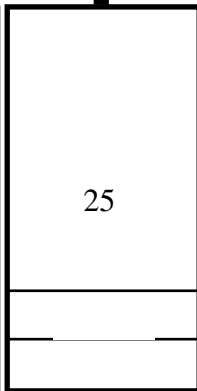
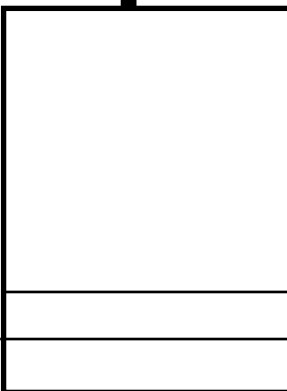
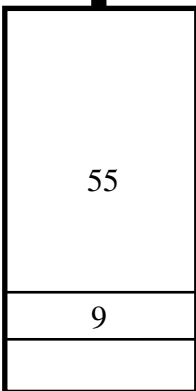


R



Street Name:
Trim Rd

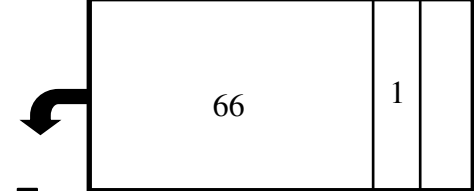
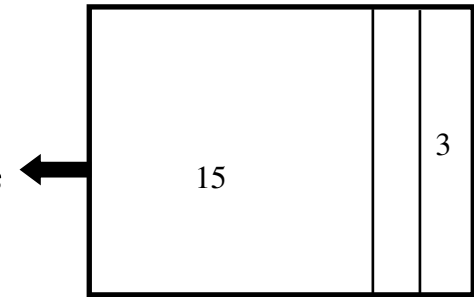
Pass. Vehicles HV Bikes



R

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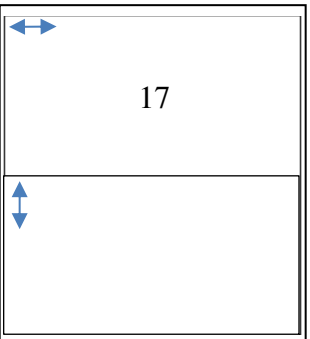


Pass. Vehicles

HV Bikes

Street Name:
Inlet Pvt

Pedestrians



Turning Movement Count - Study Results TWEDDLE RD & JEANNE-D'ARC BLVD

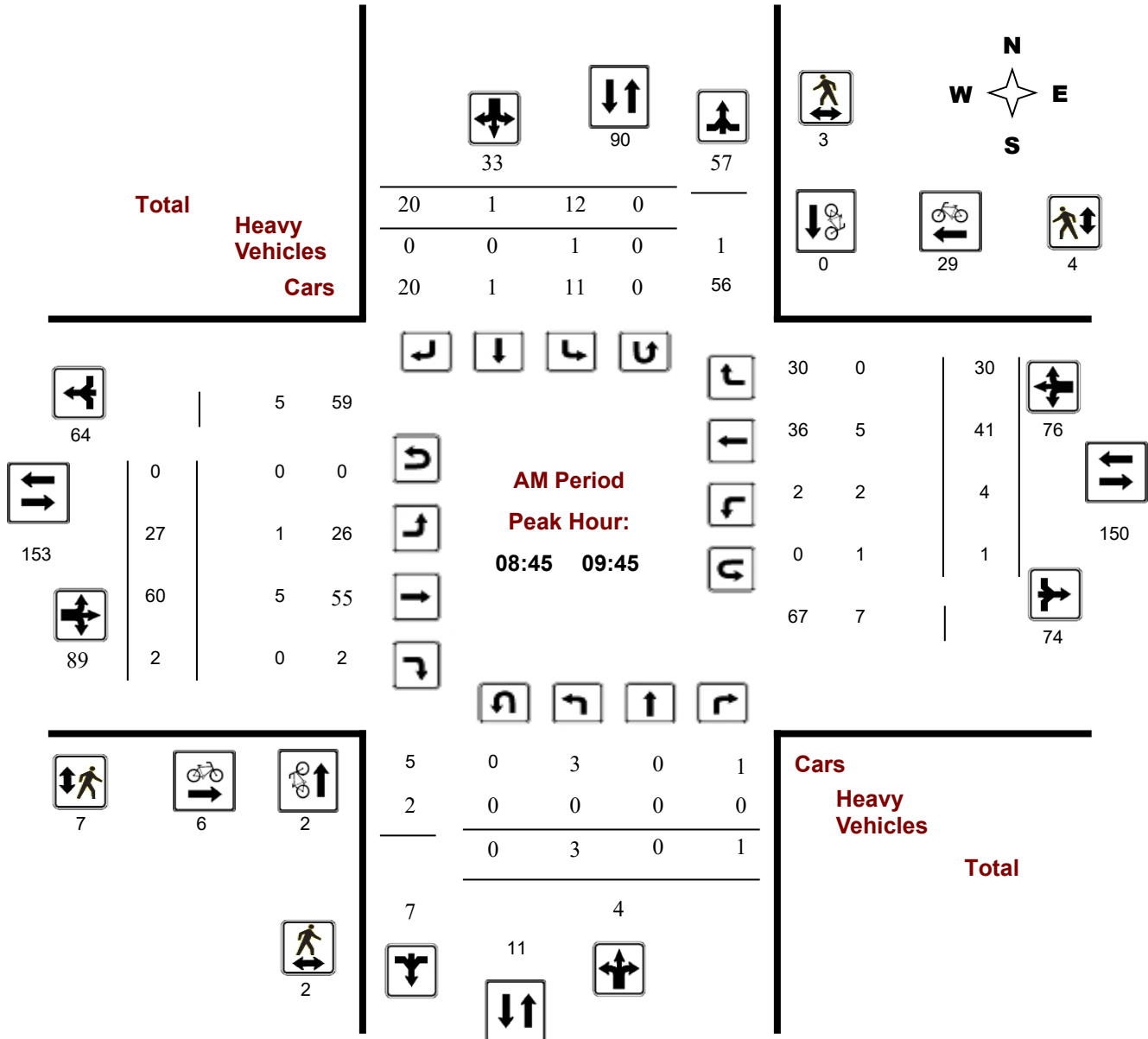
Survey Date: Tuesday, June 25, 2024

WO No: 41857

Start Time: 07:00

Device: Miovision

AM Period Peak Hour Diagram



Turning Movement Count - Study Results TWEDDLE RD & JEANNE-D'ARC BLVD

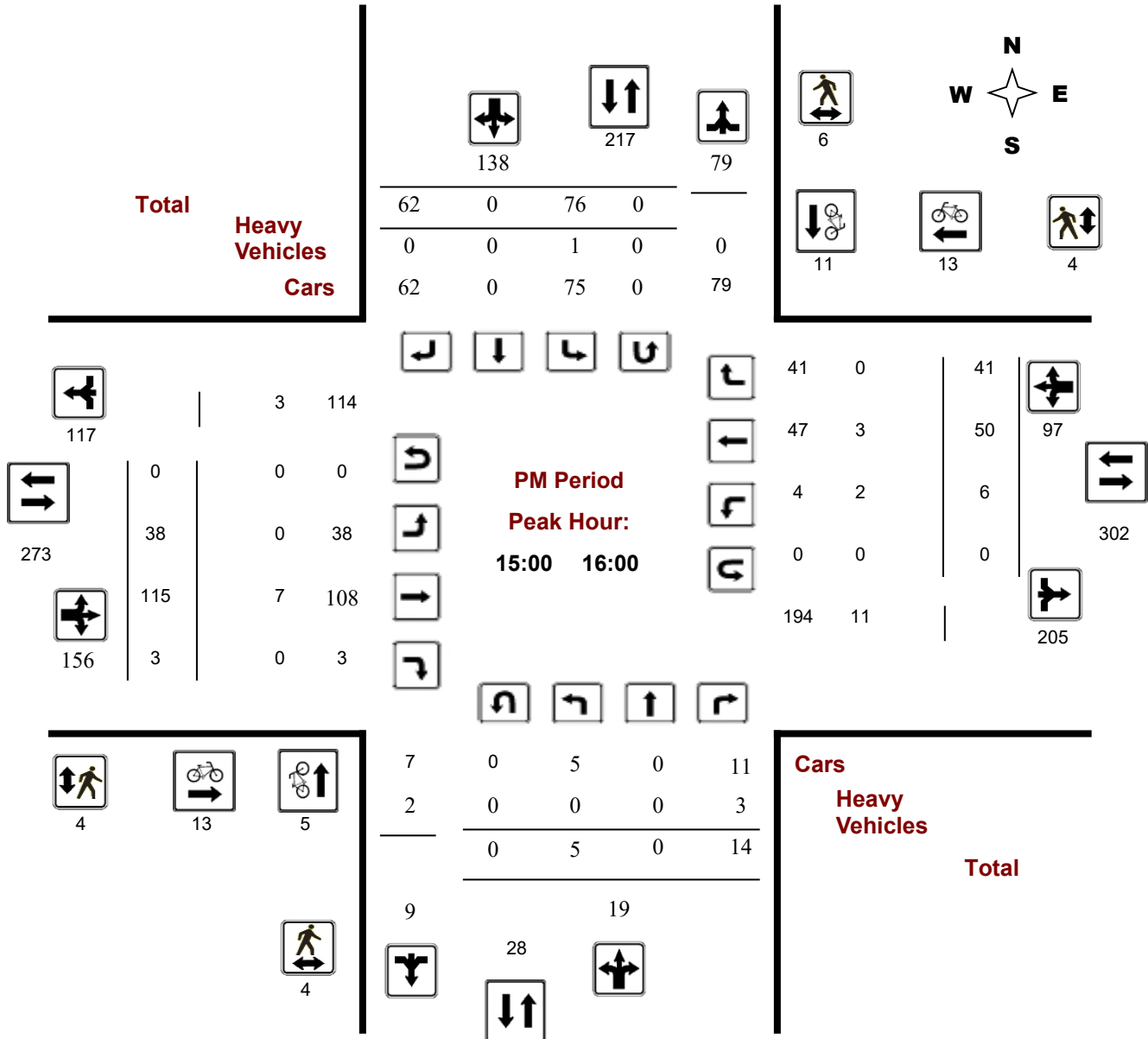
Survey Date: Tuesday, June 25, 2024

WO No: 41857

Start Time: 07:00

Device: Miovision

PM Period Peak Hour Diagram



APPENDIX C

Synchro File Outputs: Existing Conditions

Lanes, Volumes, Timings

2: Trim & H174

Existing AM

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

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 54.5 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Lanes, Volumes, Timings

2: Trim & H174

Existing AM

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 31.2

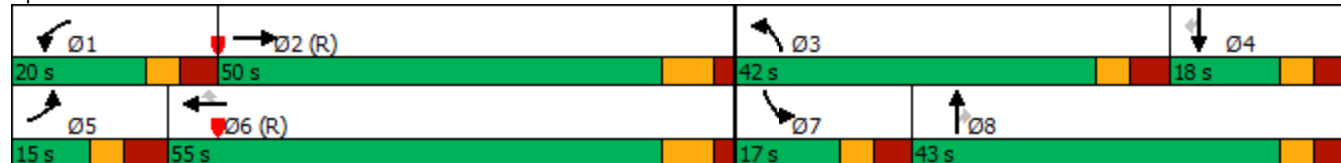
Intersection LOS: C

Intersection Capacity Utilization 54.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Trim & H174



Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

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

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

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

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

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

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

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

Lanes, Volumes, Timings

2: Trim & H174

Existing PM

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

Intersection Summary

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

Lanes, Volumes, Timings

2: Trim & H174

Existing PM

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 32.8

Intersection LOS: C

Intersection Capacity Utilization 63.4%

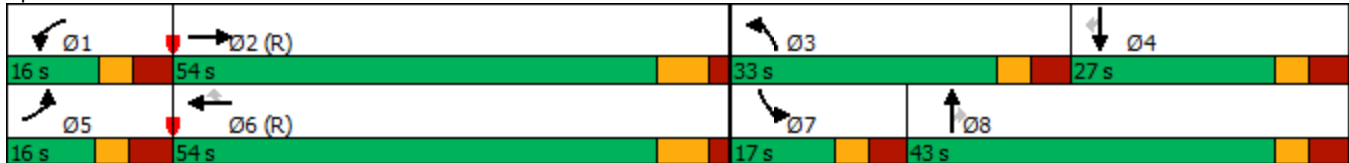
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Trim & H174



Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

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

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

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

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

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

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

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

APPENDIX D

Synchro File Outputs: Background Conditions

Lanes, Volumes, Timings

2: Trim & H174

2035 Background AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	288	5	126	1186	46	424	80	60	41	91	183
Future Volume (vph)	146	288	5	126	1186	46	424	80	60	41	91	183
Satd. Flow (prot)	1695	3357	0	1695	4871	1517	4780	1784	1517	1695	1784	1517
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1689	3357	0	1264	4871	1458	4780	1784	1151	1357	1784	1517
Satd. Flow (RTOR)		2				278			216			276
Lane Group Flow (vph)	146	293	0	126	1186	46	424	80	60	41	91	183
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			4
Detector Phase	5	2		1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	1.0	5.0		1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Minimum Split (s)	8.5	41.2		8.5	41.2	41.2	8.2	42.4	42.4	7.9	12.4	12.4
Total Split (s)	30.0	60.8		12.8	43.6	43.6	28.4	42.4	42.4	14.0	28.0	28.0
Total Split (%)	23.1%	46.8%		9.8%	33.5%	33.5%	21.8%	32.6%	32.6%	10.8%	21.5%	21.5%
Yellow Time (s)	3.3	5.1		3.3	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	4.2	2.1		3.8	2.1	2.1	3.9	4.1	4.1	3.6	4.1	4.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.2		7.1	7.2	7.2	7.2	7.4	7.4	6.9	7.4	7.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	16.4	52.1		11.4	46.7	46.7	16.8	33.5	33.5	6.8	20.8	20.8
Actuated g/C Ratio	0.13	0.40		0.09	0.36	0.36	0.13	0.26	0.26	0.05	0.16	0.16
v/c Ratio	0.68	0.22		0.85	0.68	0.07	0.69	0.17	0.13	0.47	0.32	0.39
Control Delay	69.8	25.6		100.9	39.7	0.2	60.0	37.9	0.6	77.0	50.4	2.4
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	69.8	25.6		100.9	39.7	0.2	60.0	37.9	0.6	77.0	50.4	2.4
LOS	E	C		F	D	A	E	D	A	E	D	A
Approach Delay		40.3			44.1			50.6			25.9	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	36.3	24.9		~47.3	98.8	0.0	37.3	15.7	0.0	10.4	20.1	0.0
Queue Length 95th (m)	55.9	35.0		#87.2	124.6	0.0	47.4	28.8	0.0	22.4	37.3	0.0
Internal Link Dist (m)		686.1			478.0			348.7			179.7	
Turn Bay Length (m)	160.0			130.0		120.0	200.0		40.0	150.0		40.0
Base Capacity (vph)	293	1385		149	1750	702	779	480	467	92	321	499
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.21		0.85	0.68	0.07	0.54	0.17	0.13	0.45	0.28	0.37

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: 0.85

Intersection Signal Delay: 42.7

Intersection LOS: D

Intersection Capacity Utilization 84.4%

ICU Level of Service E

Analysis Period (min) 15

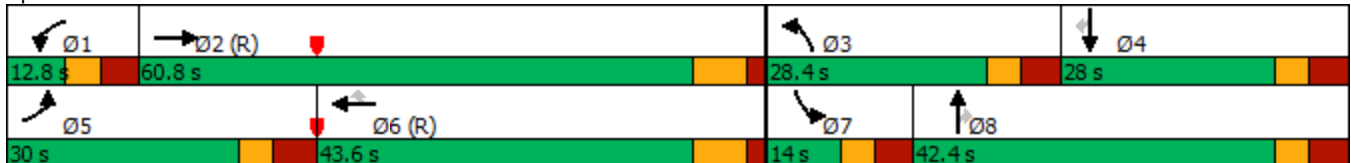
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Trim & H174



Intersection	
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	1	10	199	58	12	0	211	38	33	0	72	2
Future Vol, veh/h	1	10	199	58	12	0	211	38	33	0	72	2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	10	199	58	12	0	211	38	33	0	72	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.8	8.9	10.6	8.5
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	75%	0%	83%	0%
Vol Thru, %	13%	5%	17%	97%
Vol Right, %	12%	95%	0%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	282	210	70	74
LT Vol	211	1	58	0
Through Vol	38	10	12	72
RT Vol	33	199	0	2
Lane Flow Rate	282	210	70	74
Geometry Grp	1	1	1	1
Degree of Util (X)	0.371	0.252	0.101	0.101
Departure Headway (Hd)	4.74	4.325	5.214	4.906
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	756	827	684	726
Service Time	2.791	2.369	3.272	2.967
HCM Lane V/C Ratio	0.373	0.254	0.102	0.102
HCM Control Delay	10.6	8.8	8.9	8.5
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.7	1	0.3	0.3

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	181	2	4	123	41	3	0	1	34	1	23
Future Vol, veh/h	29	181	2	4	123	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	181	2	4	123	41	3	0	1	34	1	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
























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

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	75%	14%	2%	59%
Vol Thru, %	0%	85%	73%	2%
Vol Right, %	25%	1%	24%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	212	168	58
LT Vol	3	29	4	34
Through Vol	0	181	123	1
RT Vol	1	2	41	23
Lane Flow Rate	4	212	168	58
Geometry Grp	1	1	1	1
Degree of Util (X)	0.005	0.247	0.194	0.075
Departure Headway (Hd)	4.835	4.193	4.163	4.642
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	743	844	867	775
Service Time	2.846	2.281	2.163	2.649
HCM Lane V/C Ratio	0.005	0.251	0.194	0.075
HCM Control Delay	7.9	8.7	8.2	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	1	0.7	0.2

Lanes, Volumes, Timings

2: Trim & H174

2035 Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	1271	5	114	575	21	329	80	182	77	117	207
Future Volume (vph)	191	1271	5	114	575	21	329	80	182	77	117	207
Satd. Flow (prot)	1695	3382	0	1695	4871	1517	4780	1784	1517	1695	1784	1517
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1681	3382	0	1585	4871	1458	4780	1784	1155	1357	1784	1517
Satd. Flow (RTOR)						278			216			276
Lane Group Flow (vph)	191	1276	0	114	575	21	329	80	182	77	117	207
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			4
Detector Phase	5	2		1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	1.0	5.0		1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Minimum Split (s)	8.5	41.2		8.5	41.2	41.2	8.2	42.4	42.4	7.9	12.4	12.4
Total Split (s)	33.0	57.6		17.0	41.6	41.6	21.3	42.4	42.4	13.0	34.1	34.1
Total Split (%)	25.4%	44.3%		13.1%	32.0%	32.0%	16.4%	32.6%	32.6%	10.0%	26.2%	26.2%
Yellow Time (s)	3.3	5.1		3.3	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	4.2	2.1		3.8	2.1	2.1	3.9	4.1	4.1	3.6	4.1	4.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.2		7.1	7.2	7.2	7.2	7.4	7.4	6.9	7.4	7.4
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	19.6	54.5		10.1	44.6	44.6	13.2	29.8	29.8	7.0	23.3	23.3
Actuated g/C Ratio	0.15	0.42		0.08	0.34	0.34	0.10	0.23	0.23	0.05	0.18	0.18
v/c Ratio	0.75	0.90		0.87	0.34	0.03	0.68	0.20	0.42	0.85	0.37	0.42
Control Delay	70.4	46.2		109.1	34.8	0.1	63.7	39.0	5.5	119.4	48.8	3.7
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	70.4	46.2		109.1	34.8	0.1	63.7	39.0	5.5	119.4	48.8	3.7
LOS	E	D		F	C	A	E	D	A	F	D	A
Approach Delay		49.4			45.7			42.4			39.1	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	47.3	167.6		29.5	42.3	0.0	29.0	15.7	0.0	20.1	25.7	0.0
Queue Length 95th (m)	69.7	#216.1		#64.1	57.1	0.0	39.5	28.8	10.5	#52.3	43.7	4.8
Internal Link Dist (m)		686.1			478.0			348.7			179.7	
Turn Bay Length (m)	160.0			130.0		120.0	200.0		40.0	150.0		40.0
Base Capacity (vph)	332	1417		131	1669	682	518	480	468	91	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	0.58	0.90		0.87	0.34	0.03	0.64	0.17	0.39	0.85	0.32	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: 130

Control Type: Actuated-Coordinated

Lanes, Volumes, Timings

2: Trim & H174

2035 Background PM

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 46.0

Intersection LOS: D

Intersection Capacity Utilization 91.2%

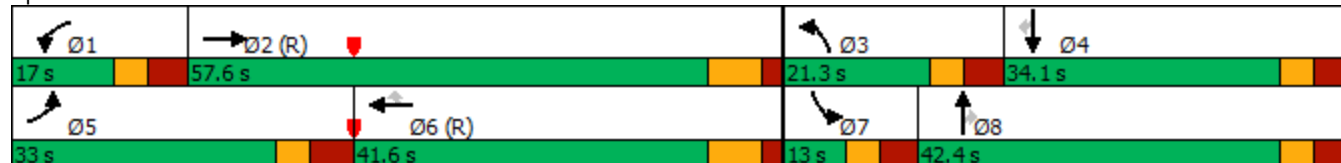
ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Trim & H174



Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	27	255	90	16	0	189	61	57	0	42	1
Future Vol, veh/h	2	27	255	90	16	0	189	61	57	0	42	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	27	255	90	16	0	189	61	57	0	42	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.9	9.4	11.5	8.7
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	62%	1%	85%	0%
Vol Thru, %	20%	10%	15%	98%
Vol Right, %	19%	90%	0%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	307	284	106	43
LT Vol	189	2	90	0
Through Vol	61	27	16	42
RT Vol	57	255	0	1
Lane Flow Rate	307	284	106	43
Geometry Grp	1	1	1	1
Degree of Util (X)	0.417	0.349	0.157	0.064
Departure Headway (Hd)	4.894	4.42	5.319	5.335
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	728	807	668	676
Service Time	2.971	2.484	3.403	3.335
HCM Lane V/C Ratio	0.422	0.352	0.159	0.064
HCM Control Delay	11.5	9.9	9.4	8.7
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	2.1	1.6	0.6	0.2

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	41	217	3	6	158	59	5	0	15	89	0	64
Future Vol, veh/h	41	217	3	6	158	59	5	0	15	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	217	3	6	158	59	5	0	15	89	0	64
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10	9.3	8.1	9.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	16%	3%	58%
Vol Thru, %	0%	83%	71%	0%
Vol Right, %	75%	1%	26%	42%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	261	223	153
LT Vol	5	41	6	89
Through Vol	0	217	158	0
RT Vol	15	3	59	64
Lane Flow Rate	20	261	223	153
Geometry Grp	1	1	1	1
Degree of Util (X)	0.027	0.336	0.279	0.209
Departure Headway (Hd)	4.854	4.639	4.512	4.921
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	732	773	794	727
Service Time	2.919	2.68	2.555	2.971
HCM Lane V/C Ratio	0.027	0.338	0.281	0.21
HCM Control Delay	8.1	10	9.3	9.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.5	1.1	0.8

APPENDIX E

Synchro File Outputs: Future Conditions plus Development

Lanes, Volumes, Timings

2: Trim & H174

2035 Full Buildout AM

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

Intersection Summary

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

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 43.3

Intersection LOS: D

Intersection Capacity Utilization 85.4%

ICU Level of Service E

Analysis Period (min) 15

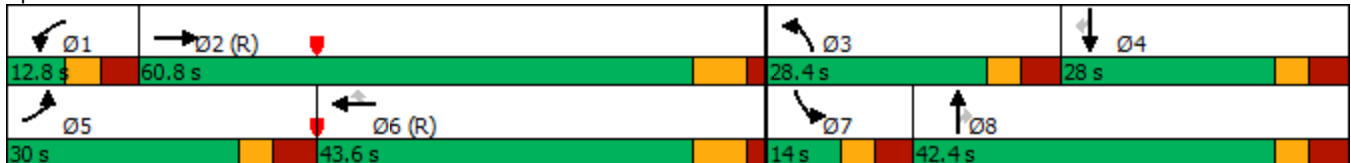
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Trim & H174



Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

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

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

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

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

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

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

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

Lanes, Volumes, Timings

2: Trim & H174

2035 Full Buildout PM

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

Intersection Summary

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

Lanes, Volumes, Timings

2: Trim & H174

2035 Full Buildout PM

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 46.5

Intersection LOS: D

Intersection Capacity Utilization 101.5%

ICU Level of Service G

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Trim & H174



Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

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

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

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

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

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

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

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

APPENDIX F

SimTraffic Queueing Reports

Intersection: 1: Trim & Jeanne D'Arc

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

Intersection: 2: Trim & H174

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

Intersection: 2: Trim & H174

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

Intersection: 3: Tweddle & Jeanne D'Arc

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

Intersection: 5: Tweddle & Tweddle Access

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

Network Summary

Network wide Queuing Penalty: 4

Intersection: 1: Trim & Jeanne D'Arc

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

Intersection: 2: Trim & H174

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

Intersection: 2: Trim & H174

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

Intersection: 3: Tweddle & Jeanne D'Arc

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

Intersection: 5: Tweddle & Tweddle Access

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

Network Summary

Network wide Queuing Penalty: 23

Intersection: 1: Trim & Jeanne D'Arc

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

Intersection: 2: Trim & H174

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

Intersection: 2: Trim & H174

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

Intersection: 3: Tweddle & Jeanne D'Arc

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

Intersection: 5: Tweddle & Tweddle Access

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

Network Summary

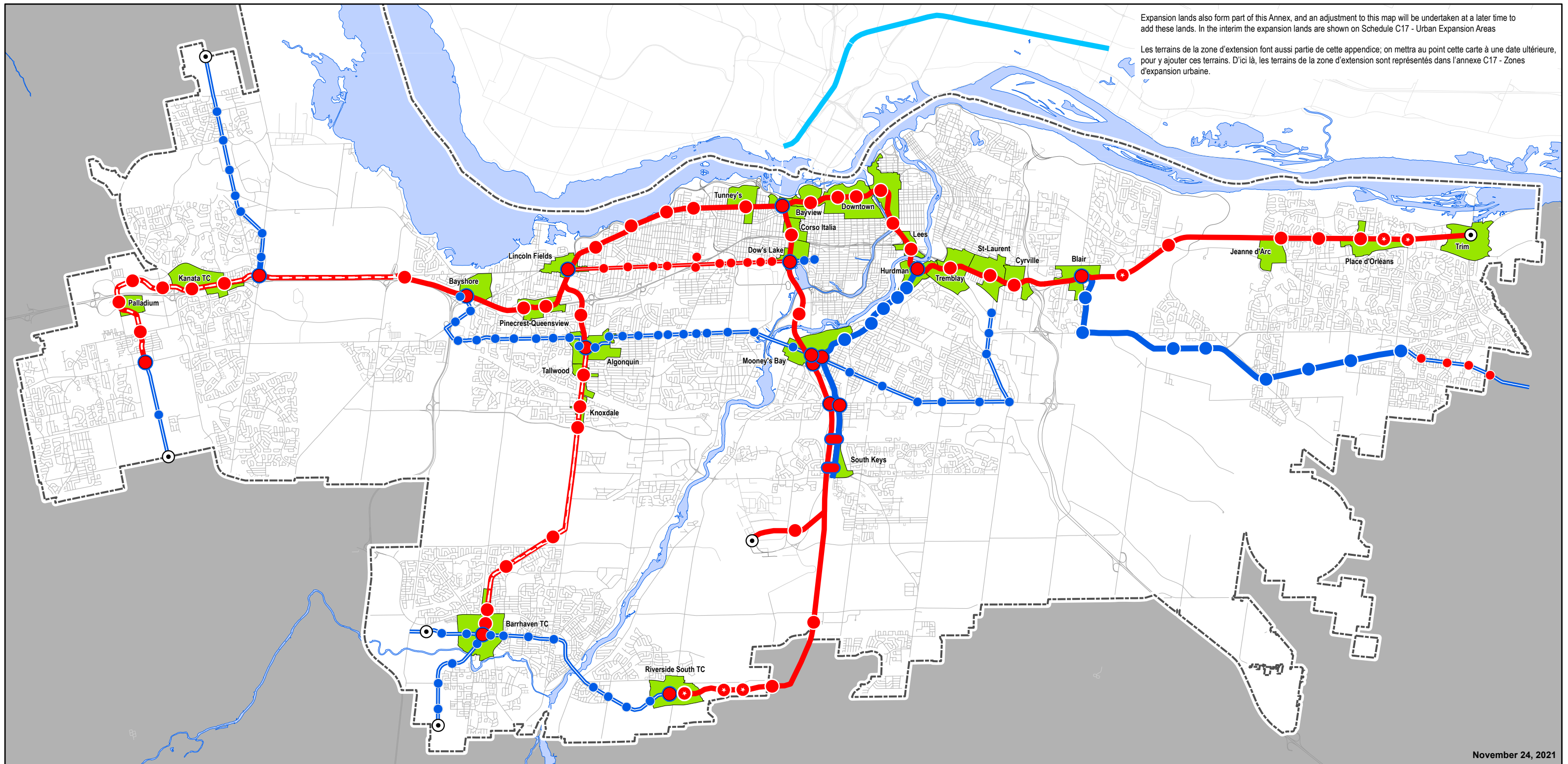
Network wide Queuing Penalty: 27

APPENDIX G

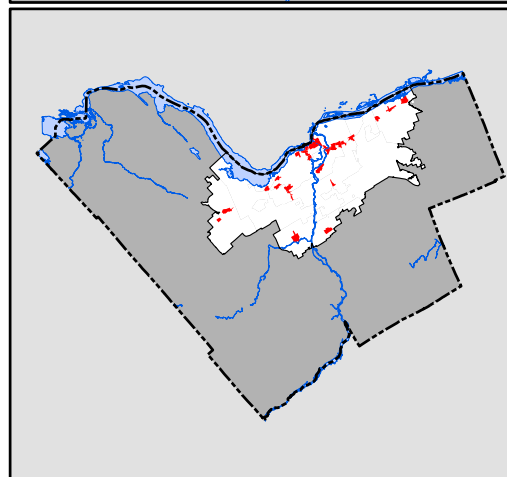
Relevant Policy Maps (Official Plan, TMP, Orleans Secondary Plan)

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

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



November 24, 2021



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

Urban Boundary / Périmètre d'urbanisation

TRANSIT

O-Train and Station / O-Train et station

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

Transitway – grade separated / Transitway en site propre

Transitway – at grade / Transitway – Voie à niveau

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

Transfer Station / Station de correspondance

Terminus Station / Station terminus

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

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



Official Plan / Plan officiel

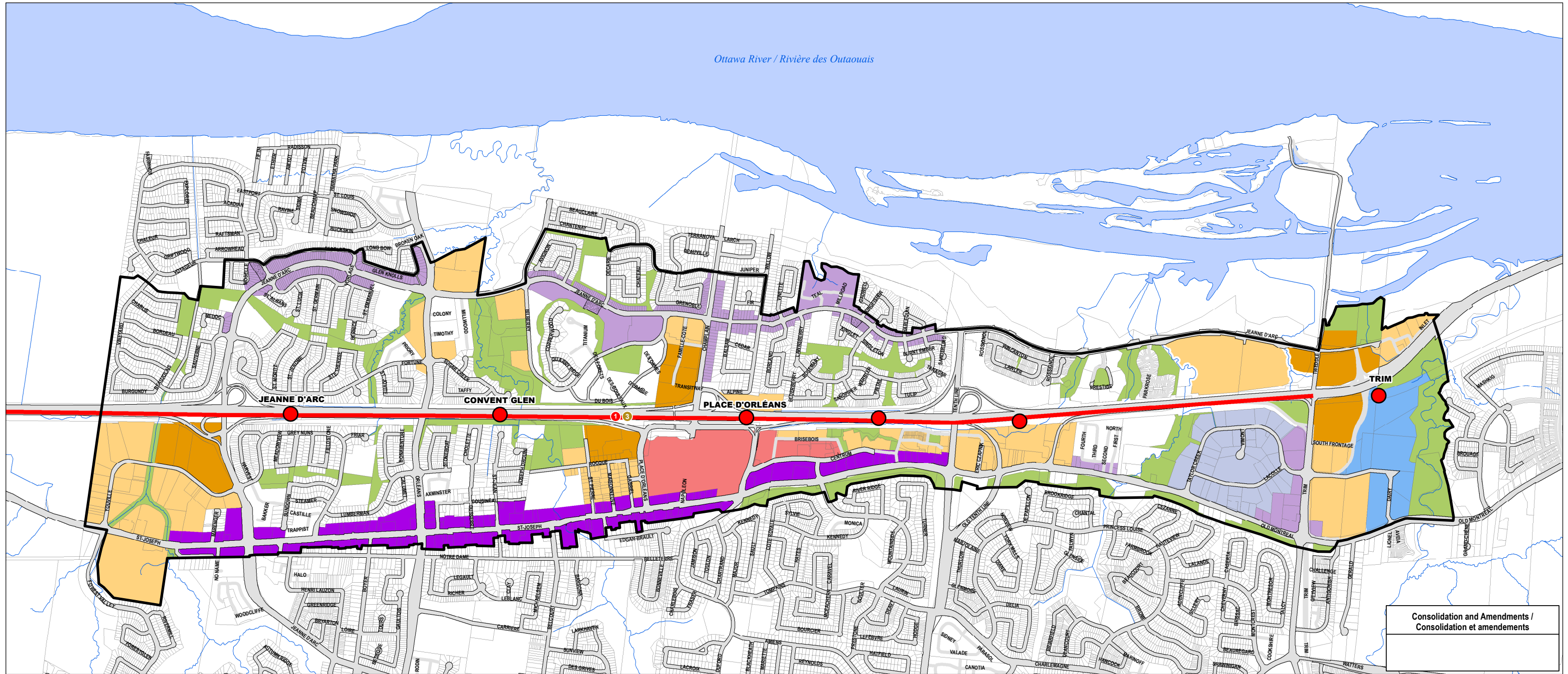
Schedule C1 - Protected Major Transit Station Areas (PMTSA)

Annexe C1 - Zones protégées de grande station de transport en commun

Consolidation and Amendments / Consolidation et amendements



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



Consolidation and Amendments /
Consolidation et amendements

- 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 / Ancre commerciale local

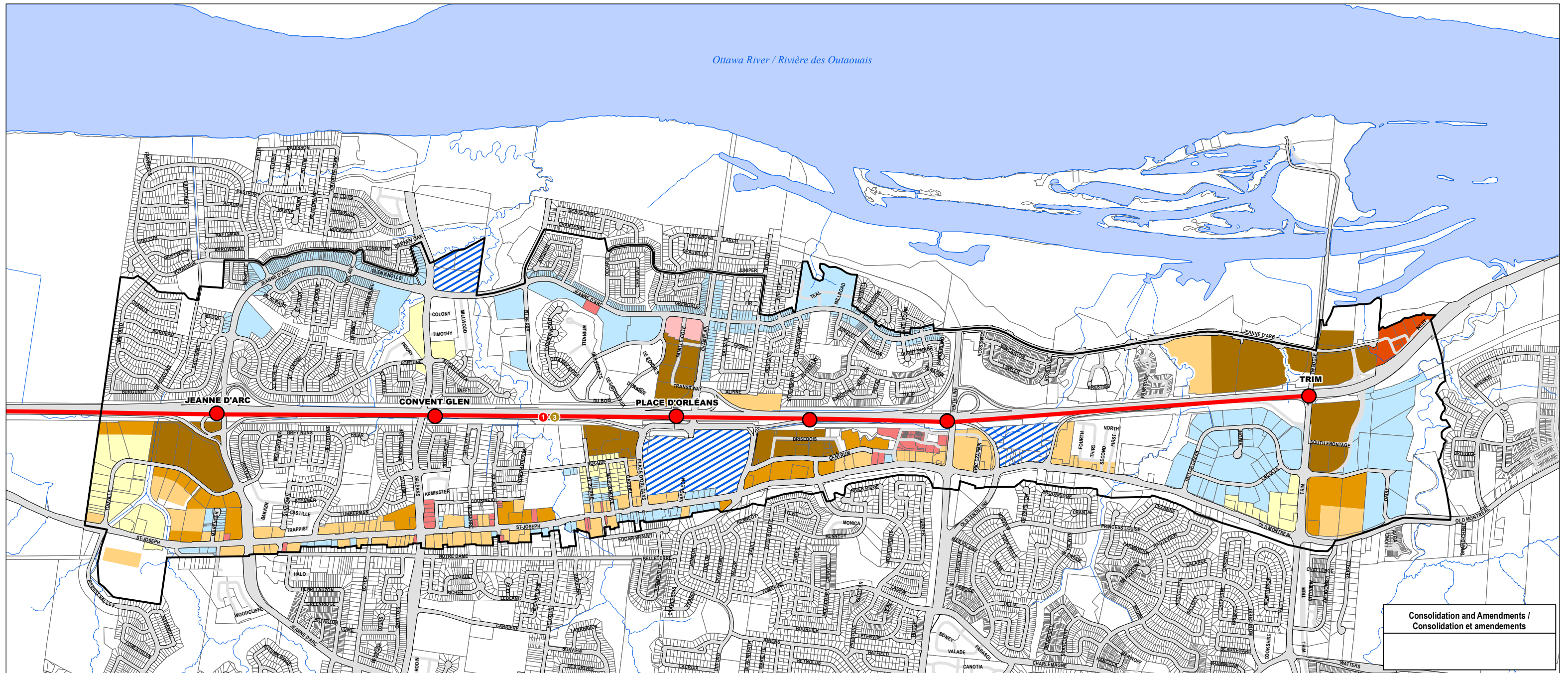
- Secondary Plan Boundary / Limite du plan secondaire
- Light Rail Transit (LRT) / Transport en commun par train léger (TCTL)
- O-Train Lines / Lignes de l'O-Train

Orléans Corridor / Le couloir d'Orléans

SECONDARY PLAN - Volume 2
Schedule A - Designation Plan

PLAN SECONDAIRE - Volume 2
Annexe A - Plan de désignation





Consolidation and Amendments /
Consolidation et amendements

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

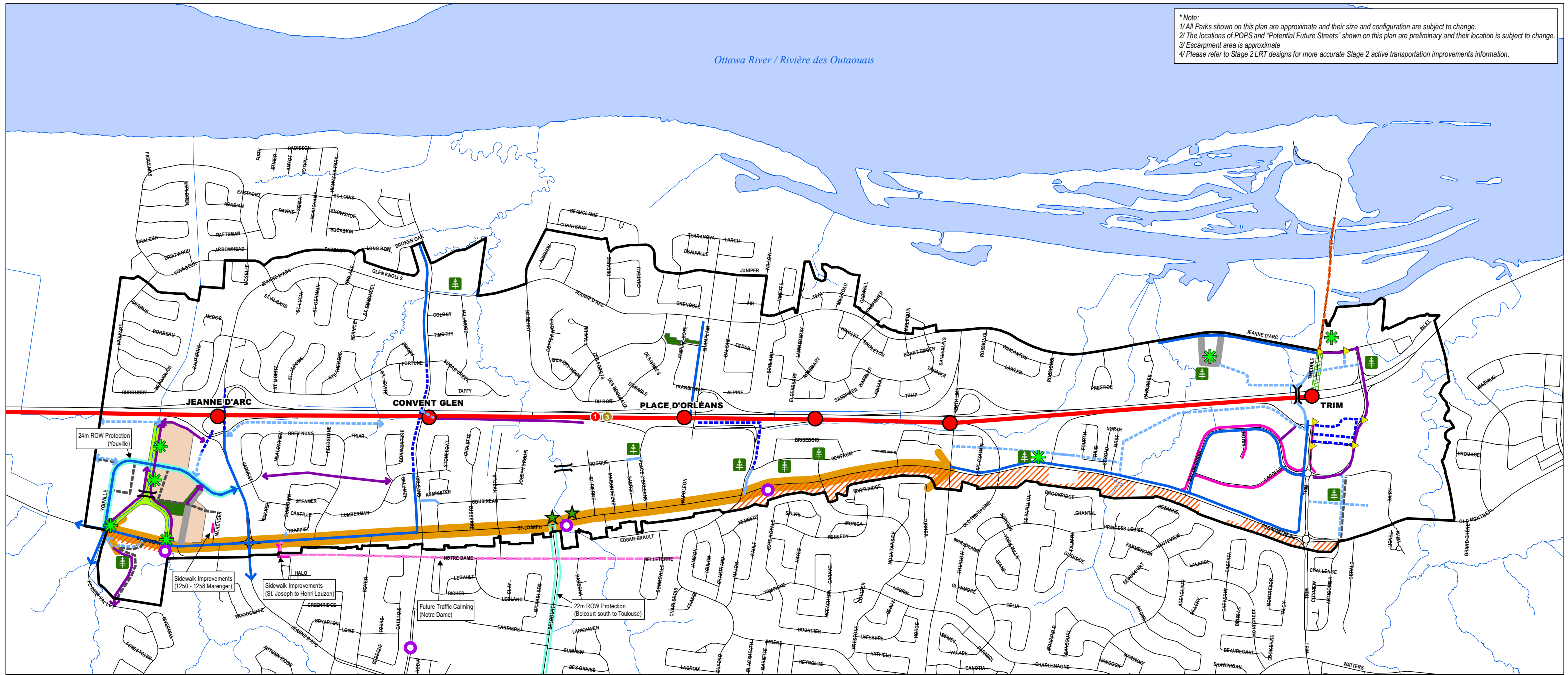
**Orléans Corridor /
Le couloir d'Orléans**

SECONDARY PLAN - Volume 2
Schedule B - Maximum Building Heights

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



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

**Orléans Corridor /
Le couloir d'Orléans**

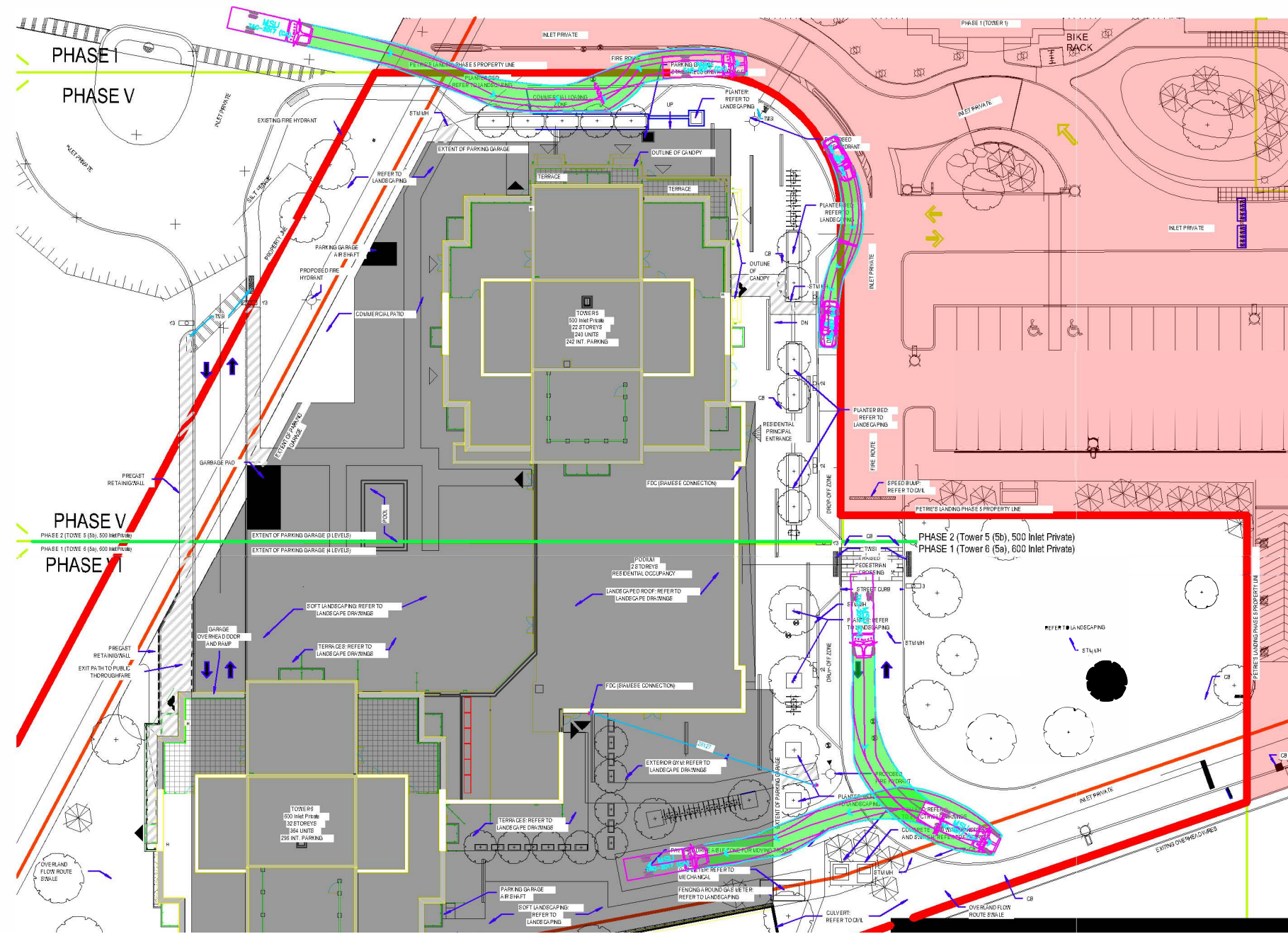
SECONDARY PLAN - Volume 2
**Schedule C - Public Realm and Mobility
Improvements**

PLAN SECONDAIRE - Volume 2
Annex C - Domaine public

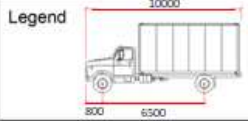


APPENDIX H

Vehicle Turning Templates



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



mm
Not to Scale

Drawing Description		Petrie Landing T5a & 5b	
client	Brigil	Date	Figure Number
Project Number	479044	Project Description	2025-05-23