TIA STRATEGY REPORT (DRAFT)

Project No.: 0CP-18-0378 Myers Carstar – 9-17 Colonnade Rd

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December 2018

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1.0 SCREENING FORM

The following section describes the initial assessment of the proposal with respect to the Traffic Impact Assessment (TIA) Screening Form and will provide reasoning for potential triggers. The TIA screening form has been attached in Appendix A.

1.1 Trip Generation Triggers

Trip generation was calculated based on data from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. The development is expected to have a Gross Floor Area (G.F.A) of approximately 1,570 m^2. As shown below in Table 1.1., it is estimated that the site will generate a total of 49 person-trips during the AM peak hour and 67 person-trips during the PM peak hour. A 66% IN and 34% OUT distribution of the person-trips was used for the AM peak and a 48% IN and 52% OUT for the PM peak hour. Based on *Module 1.2,* from the Transportation Impact Assessment Guidelines (2017), since the development is expected to generate more than 60 person-trips during its peak hour; the criteria for the trip generation trigger is satisfied.

Table 1.1: Person-Trips for Carstar Development

ITE Land Use	Unit of Measure	Quantity	Rate		AM Peak Hour			PM Peak Hour		
			AM	PM	In	Out	Total	In	Out	Total
Automobile Care Centre (Code 942)	Ksf	16.9	2.25	3.11	32	17	49	33	35	68
Development Totals:					49			68		

* Rates shown are average rates published within ITE Trip Generation 9th Edition
* Directional splits are published within ITE Trip Generation 9th Edition
* Ksf = 1000 ft^2 *A factor of 1.28 has been applied to convert into person-trips (City of Ottawa factor)

1.2 Location Triggers

The development is not in a Design Priority Area (DPA) or Transit-oriented Development (TOD) Zone as seen in Section 2.5.1, Schedule B, and Annex 6 of the City of Ottawa Official Plan. The proposed new driveway will be located on a boundary street that is designed as part of the Transit Priority, Rapid Transit, or Spine Bicycle Network as reported in the City of Ottawa Transportation Master Plan (2013). As such, the proposed development meets the criteria for a Location Trigger.

1.3 Safety Triggers

The proposed driveway makes use of an existing median brake that serves an existing site. Also, there is a documented history of collisions on the boundary streets within 500 m of the development; 18 collisions during 2017, nine (9) collisions during 2016, and nine (9) collisions during 2015. No other safety trigger checks are met. As such, the proposed development meets the criteria for a Safety Trigger.

2.0 DESCRIPTION OF PROPOSED DEVELOPMENT

The proposed development is located in the urban part of Ottawa, ON at 9-17 Colonnade Rd, between Merivale Rd and Colonnade Rd South. The subject land is designated as a "General Urban Area" within the City of Ottawa Official Plan. The site has two (2) proposed accesses, both allowing full movements. The main access is located approximately 400 m east of the Merivale/Colonnade intersection and it is shared with the adjacent Dow Honda Dealership. The second access is a supplementary access for after hours only. It is located east of the site and it will only be used for periodic access to the vehicle inventory. Refer to Figure 2.1 below for a map of the existing site.

Figure 2.1: 9-17 Colonnade Rd. Surrounding Area (Courtesy of Google Earth)

KWC Architects Inc. has been tasked with the design of a new automobile body shop for the Myers group. The facility will be made up of a single building and the expected date of occupancy is 2019. The building will be a single story with a GFA of approximately 1,570 m^2. In addition, a surface parking lot consisting of 185 spaces is proposed. There is no current structure on the development site. Site Plans have been attached in Appendix B for reference. The property lot is approximately 5.38 Acres and has two access points both located on the north side of Colonnade Rd that allows full movements. The full moves, main access will be shared with the neighbouring automobile dealership and the supplementary access will only be used for after-hours vehicle inventory. It is unknown whether there will be any restrictions on the supplementary access at this time, however, there is no median on Colonnade Rd adjacent to the location of the proposed supplementary access and as such it is expected to be a full-moves access.

The proposed development is in an area designated as a General Urban Area in Schedule B of the City of Ottawa Official Plan and as such, according to *Section 3.6.1*, permits the development of full range of housing types, in combination with conveniently located employment, retail, service, cultural, leisure, entertainment, and institutional uses. The entire site is expected to be built under one phase of development.

3.0 EXISTING CONDITIONS

The following outlines the existing site characteristics and a summary of the expected development transportation conditions.

3.1 Roadways

- As obtained from the City of Ottawa Official Plan, Annex 1 – Road Classification and Rights-of-Way; Colonnade Rd is designated as a major collector urban roadway. Merivale Rd is designated as an arterial urban roadway. They are subject to an equal Rights-of-Way (ROW) protection of 26.0 m, and 44.5 m, respectively.

- Colonnade Rd is a two-lane undivided urban collector roadway that runs east-west from Merivale Rd in the west to Prince of Wales Dr in the east. The roadway has a posted speed limit of 60 km/h and has various commercial driveways within the study area. There is a sidewalk on the south side of Colonnade Rd around the development site and a multi-use pathway on the north side.

- Merivale Rd is a four-lane divided urban arterial roadway that runs north-south from Island Park Dr in the north to Prince of Wales in the south. The roadway has a posted speed limit of 60 km/h and has various residential and commercial driveways within the study area. There is a sidewalk on both sides of the roadway.

- Colonnade Rd and Merivale Rd are both under the jurisdiction of City of Ottawa.

3.2 Study Area Intersections

For the purposes of the scoping report it is expected that the study area will include the Merivale/Colonnade intersection, the Colonnade/Colonnade W intersection, and the site access entrance. Below is a description of the two intersections while Figure 3.2.1 and Figure 3.2.2 provide a visual reference.

The intersection of Merivale/Colonnade is a signalized T-intersection. The following is a description of the lane configuration:

- The east approach has a dual left turn lane with one auxiliary lane of approximately 110 m (70 m storage + 40 m taper), and one auxiliary right turn lane.

- The north approach has two through lanes and one auxiliary left turn lane of approximately 185 m (135 m storage + 50 m taper).

- The south approach has two through lanes and one auxiliary right turn lane of approximately 55 m (30 m storage + 25 m taper).

- Pedestrian crosswalk only at north and east approaches.
- Existing sidewalks are provided along the north and south side of Colonnade Rd as well as the east and west side of Merivale Rd.
- Currently, there are no on-road pavement markings for a bicycle lane on either Colonnade Rd or Merivale Rd. Off-road bicycle facility has been provided on the north side of Colonnade Rd which runs from Colonnade Rd/Merivale Rd to just past the site development's main access point and heads north. Additional cycling facilities on the west side of Merivale Rd are currently being implemented as part of the Nepean Trails project.

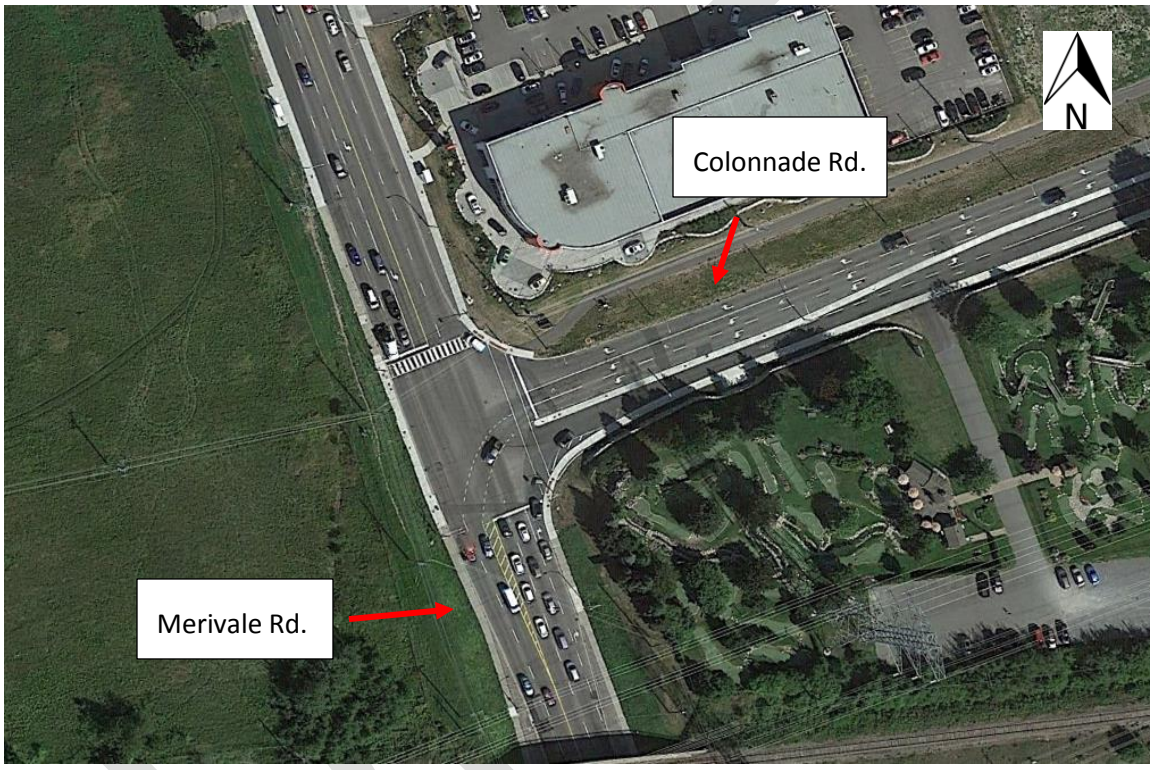

Figure 3.2.1: Merivale Rd and Colonnade Rd (Courtesy of Google Earth)

The intersection of Colonnade/Colonnade W is a signalized intersection. The following is a description of the lane configuration.

- The north approach is a commercial entrance.
- The south approach has one through/right turn lane and an auxiliary left turn lane of approximately 55 m (30 m storage + 25 m taper).
- The east approach has one through/right turn lane and an auxiliary left turn lane of approximately 80 m (45 m storage + 35 m taper).

- The west approach has one through/right turn lane and an auxiliary left turn lane of approximately 60 m (30 m storage + 30 m taper).
- All approaches have a marked and signalized pedestrian crosswalk.
- To the west of Colonnade Rd existing sidewalks are provided along the north and south side. Although the north side sidewalk ends just past the commercial development. To the east of Colonnade Rd an existing sidewalk is provided to the north side only. Colonnade Rd W has an existing sidewalk provided only to the east whereas the north approach of the private entrance has no existing sidewalks.
- Currently, no on-road or off-road bicycle facilities are provided at the intersection.

Figure 3.2.2: Colonnade Rd and Colonnade Rd (Courtesy of Google Earth)

3.3 Existing Pedestrian and Cycling Facilities

Currently there are a number of various pedestrian and cycling related facilities in the study area, they are illustrated in Figure 3.3.1. As illustrated, there is a multi-use pathway adjacent to the site and sidewalks on all study area roads, though not necessarily on both sides. There are cross-walks on all approaches of both study area intersections.

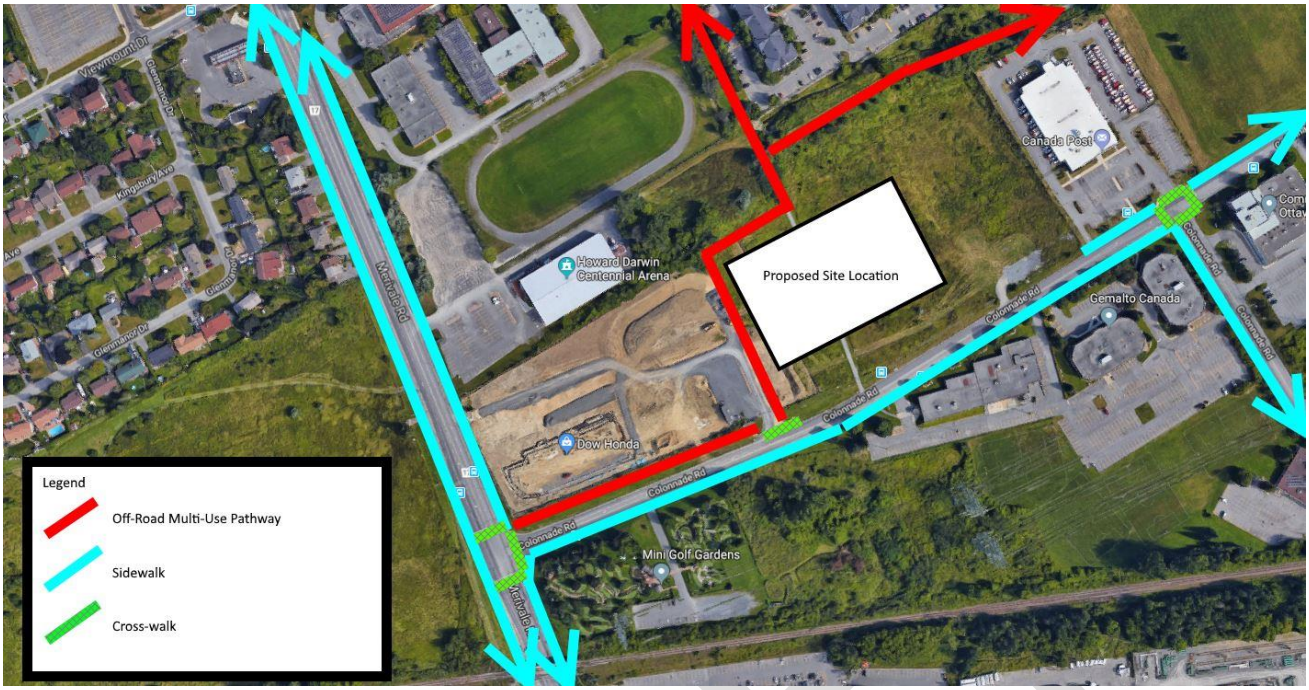

Figure 3.3.1: Pedestrian and Cycling Facilities in the study area (Background c/o Google)

3.4 Existing Transit System

Figure 3.4.1 and Figure 3.4.2 show the bus routes that serve the area surrounding the development as well as the location of bus stops. As shown, there are 4 bus routes: Route 89, which travels from Tunney's Pasture to Colonnade; Route 80, which travels from Tunney's Pasture to Barrhaven Centre; Route 186 which travels from Lincoln Fields to Merivale/Slack; Route 96, which runs from Hurdman to Merivale; and Route 83 which travels from Viewmount to Baseline station. Appendix C shows the typical bus times for the bus stop in front of the development. As shown Route 80, 83, 89, and 96 run frequently throughout the whole day. Route 186 only runs during the AM and PM peak periods in 1 direction each. There are two bus stops within the vicinity of the development, each serving both directions of traffic. One is right in front of the development on Colonnade Rd. (Route 80 and 89) and the other is ± 400 m west of the development on Merivale Rd. (Route 83, 96, and 186).

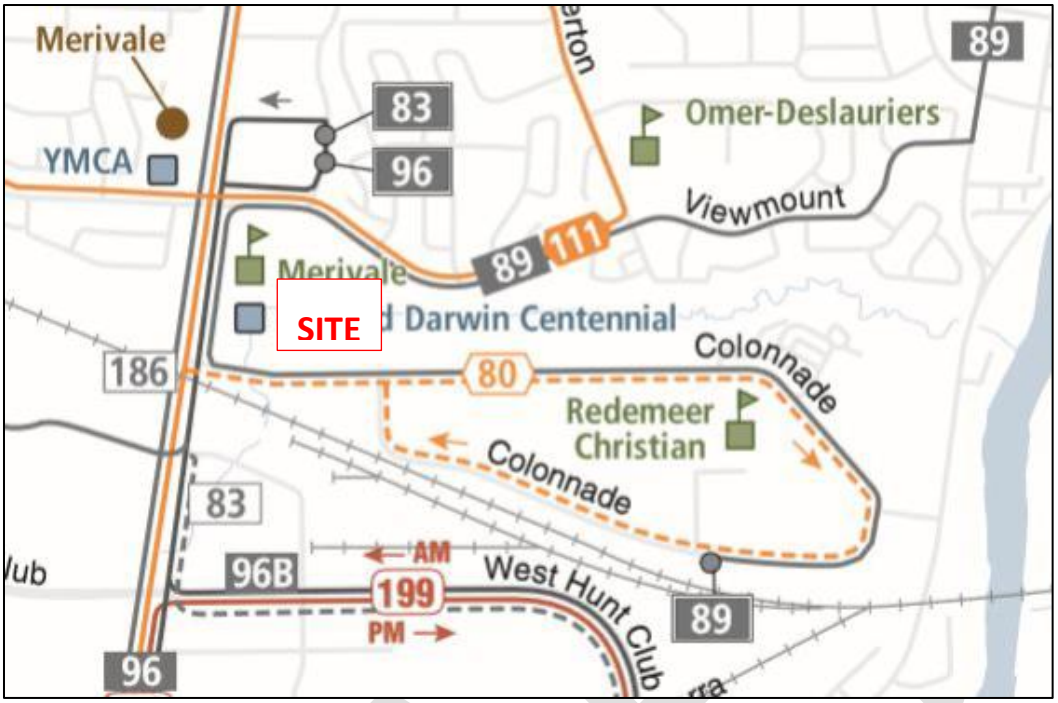

Figure 3.4.1: Bus Routes within Development Boundary (Courtesy of OC Transpo)

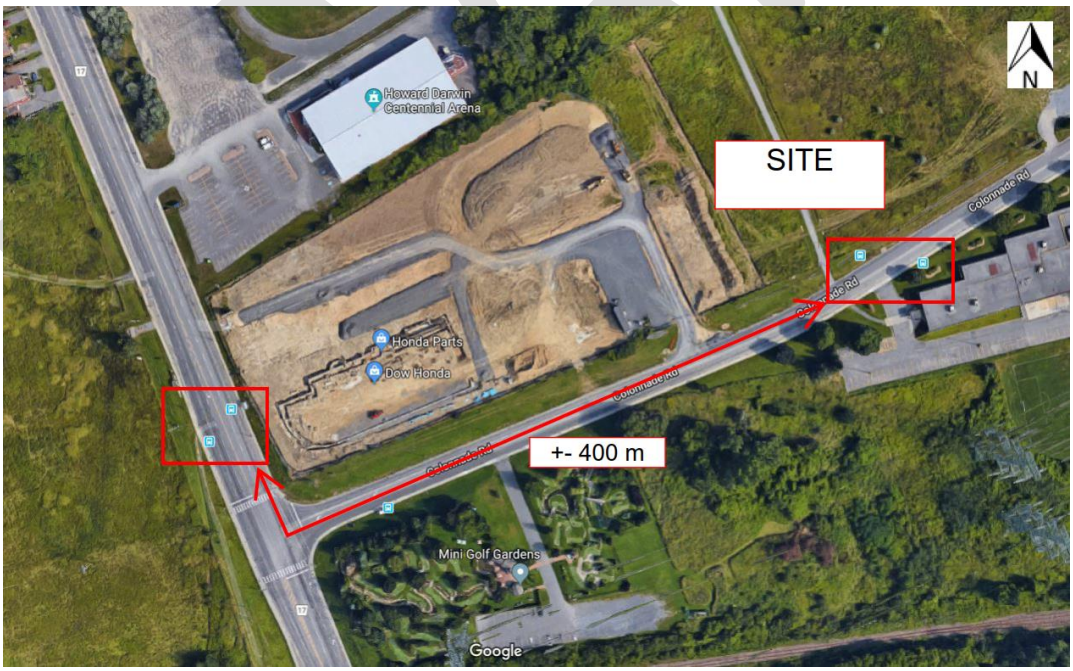

Figure 3.4.2: Bus Stop Locations (Courtesy of Google Earth)

3.5 Existing Driveways

The following are existing driveways within 200 m to the proposed development site. Figure 3.5 provides a visual reference.

- There are some commercial driveways in the vicinity of the proposed development on the north and south side of Colonnade Rd.
- West of the proposed site, at ± 70 m is a Honda car dealership and at ± 170 m there is a mini golf course.
- East of the proposed site: in front and at ± 130 m are 2 Service Canada office entrances, at ± 140 m an entrance to 2 consulting firms, and at ± 190 m a Canada Post.

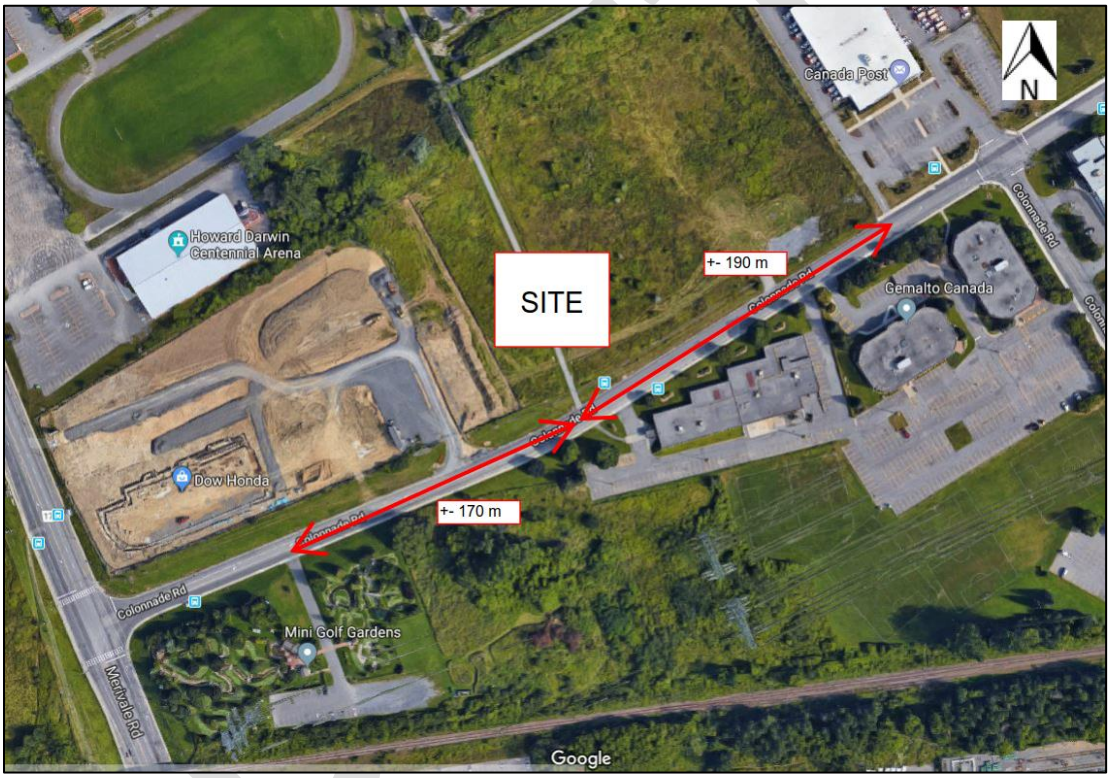

Figure 3.5: Adjacent Driveways (Courtesy of Google Earth)

3.6 Collision History

The 2015, 2016, and 2017 collision data was reviewed for the section of Colonnade Rd between Merivale Rd and Prince of Wales Dr with regards to collision severity, road surface, light condition, collision classification, and impact type. The summarized findings of the collision data can be found in Table 3.6.1 and Table 3.6.2.

As a result of the analysis on the collision data, the findings were as follows:

- There was a total of 27 collisions at the Merivale/Colonnade intersection (Location #1); 18 collisions at Colonnade Rd between Merivale Rd and Prince of Wales Dr (Location #2); and 38 collisions at the Prince of Wales/Colonnade intersection (Location #3).

- At Location #1, 85% of collisions resulted in property damage only while 15% resulted in injury. At Location #2, 100% resulted in property damage only. At Location #3, 82% resulted in property damage only while 18% resulted in injury. No fatal collisions were recorded for the entire section during the analysis years.
- The most frequent impact type was Rear End at the two intersections and Turning Movement throughout the Colonnade road segment.
- Only 4%, 22%, and 11% of collisions occurred during winter conditions for Location #1, Location #2, and Location #3 respectively.

Table 3.6.1: Collisions by Location and Year

Year	Number Of Collisions		
	Colonnade Rd @ Merivale Rd	Colonnade Rd btw Merivale Rd and Prince of Wales Dr	Colonnade Rd @ Prince of Wales Dr
2015	9	9	9
2016	4	2	13
2017	14	7	16

Table 3.6.2: Highlighted Collision Data

		Colonnade Rd @ Merivale Rd	Colonnade Rd btw Merivale Rd and Prince of Wales Dr	Colonnade Rd @ Prince of Wales Dr
Number of Collisions		27	18	38
Collisions Classification	P.D. Only	85%	100%	82%
	Injury	15%	0%	18%
	Fatal	0%	0%	0%
Road Surface	Dry	78%	50%	71%
	Wet	19%	28%	18%
	*Winter Conditions	4%	22%	11%
	Other	0%	0%	0%
Light Conditions	Daylight	85%	61%	76%
	Dark	7%	22%	13%
	Dawn	4%	0%	5%
	Dusk	4%	17%	5%
Impact Type	Rear End	67%	17%	74%
	Angle	4%	11%	0%
	Turning Movement	4%	33%	16%
	Sideswipe	15%	0%	3%
	SMV Other	11%	39%	8%

*Winter conditions include; Slush, Packed Snow, Loose Snow, and Ice.

3.7 Traffic Volume

The traffic data provided by the City of Ottawa included Turning Movement Counts (TMC) at each of the two intersections identified in Section 3.2. The TMC at the intersection of Colonnade/Merivale was conducted in February, 2018. The TMC at the intersection of Colonnade/Colonnade was conducted in April, 2018. Figure 3.7.1 below, illustrates the 2018 AM and PM peak hour vehicle and pedestrian volumes while Figure 3.7.2 illustrates the bicycle volumes. Since the TMC's were conducted in February and April, the cyclist volumes are expected to be higher during late spring, summer, and fall months. The AM peak hour was from 7:30 – 8:30 AM and the PM peak hour was from 3:45 – 4:45 PM at the intersection of Colonnade/Colonnade. At the intersection of Colonnade/Merivale, the AM peak hour was from 7:45 – 8:45 AM and the PM peak hour was from 4:30 – 5:30 PM.

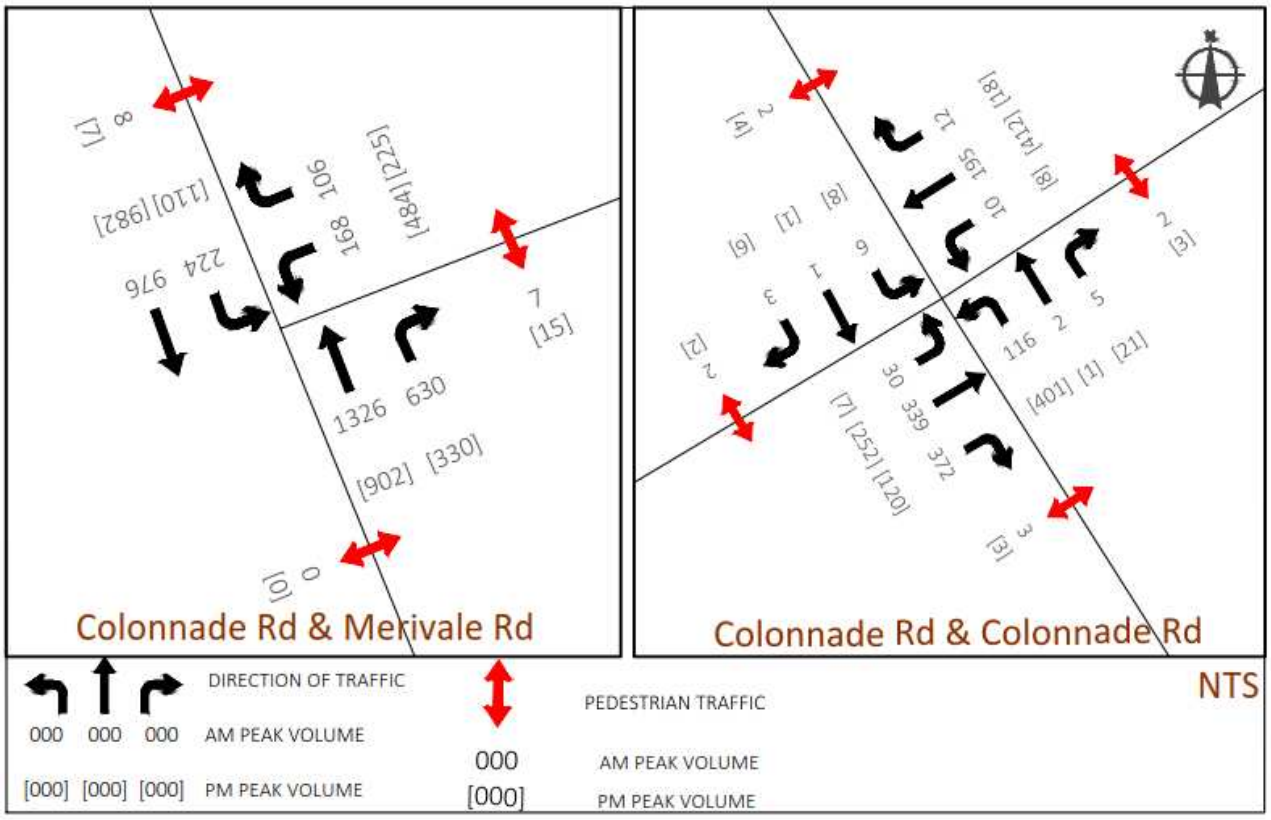

Figure 3.7.1: Existing (2018) Traffic Volumes

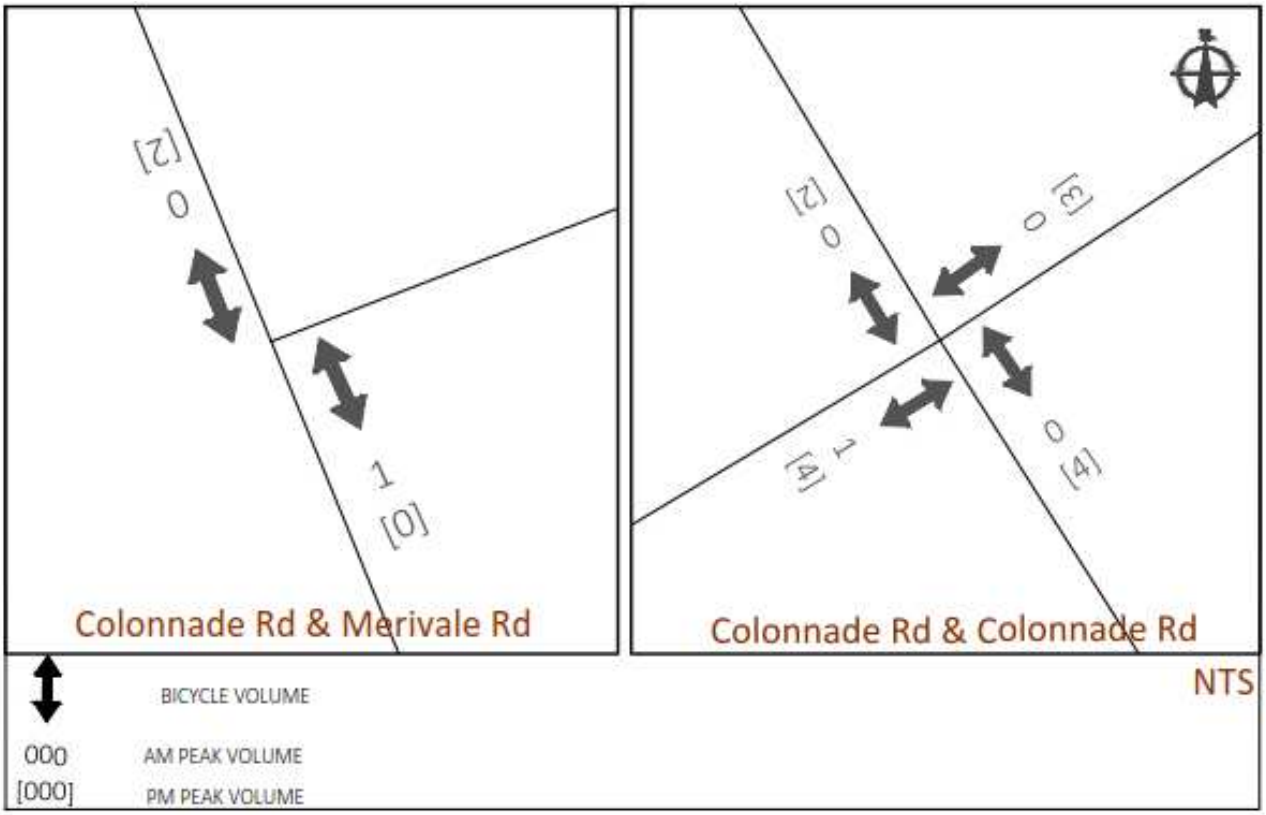

Figure 3.7.2: Existing (2018) Bicycle Volumes

Table 3.7.1 below, shows the expected travel mode percentages based on the most recent Capital Region Origin-Destination Survey which was conducted in the Fall of 2011 for the Merivale Trans District and can be found in Appendix D.

Table 3.7.1: Origin Destination Survey Travel Mode Percentages

% of Person Trips		
Travel Mode	**AM Peak (6:30 - 8:59)**	**PM Peak (15:30 - 17:59)**
Auto Driver	55%	60%
Auto Passenger	12%	14%
Transit	21%	16%
Bicycle	2%	2%
Walk	5%	5%
Other	5%	3%

4.0 PLANNED CONDITIONS

Currently, a bicycle route is expected to be built within the study area transportation network as per the City of Ottawa's TMP. The bicycle route will run from Merivale Rd to just past the site entrance as seen in Figure 4.0.1 below.

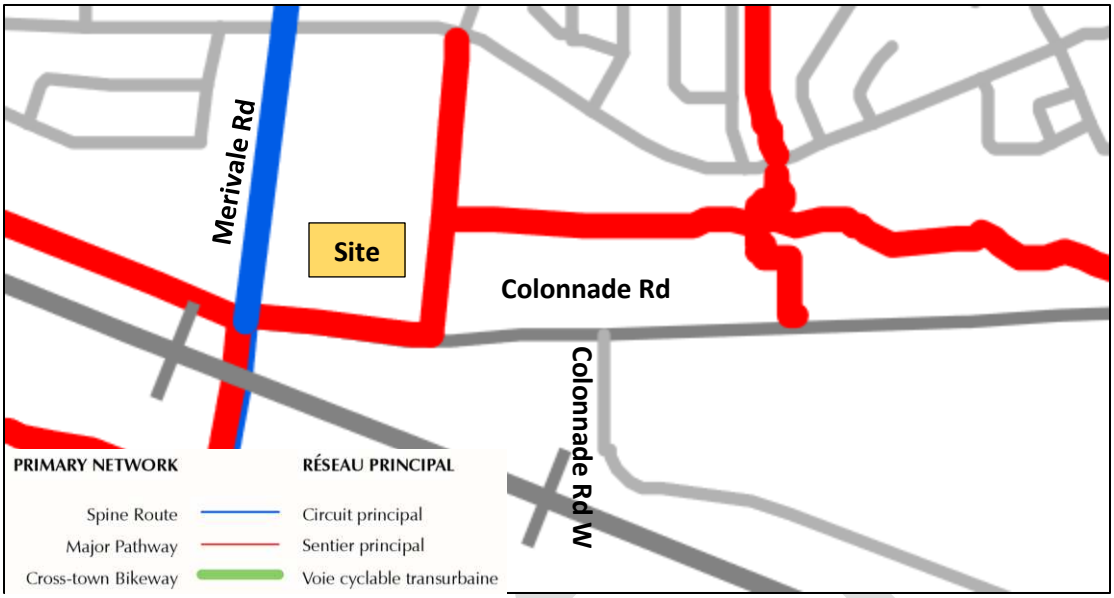

Figure 4.0.1: Future cycling network (courtesy of City of Ottawa)

Additionally, a registered agreement for a Site Plan Control application located at 201, 221, and 225 Citiplace Drive, north of Colonnade Rd. The permit is for the development of two, 3-storey terrace flat buildings. One building is expected to have a GFA of 459 m^2 and have a residential land use. The second building is expected to have a GFA of 514 m^2 and have a mixed use of office space and residential units.

5.0 STUDY AREA

The study area for the purposes of this report is expected to be the intersections of Merivale Rd and Colonnade Rd in the west and Colonnade Rd and Colonnade Rd S in the east, as well as the site entrance.

6.0 TIME PERIODS

For the purposes of the operational analysis, both morning and afternoon peak hours will be considered for background travel demand and development-generated trips. Travel demand will be limited to Colonnade Rd as it is the only adjacent roadway.

7.0 HORIZON YEARS

At the time of writing, the occupancy and build-out are anticipated to occur in 2019. As such, the horizon years analyzed will include 2019 (build-out year) and 2024 (build-out year + 5 years).

8.0 EXEMPTIONS REVIEW

Table 4 of *Section 2.3* in the Transportation Impact Assessment Guidelines (2017) lists several possible exemptions that would reduce the scope of the TIA study.

- Section 4.1.3 concerning new street networks is not expected to be included in the TIS study as no new street networks are being proposed.
- Section 4.2.2 concerning spillover parking is not expected to be included in the TIS study. The proposed development is expected to have 185 surface parking spaces. Based on bylaw requirements; it is estimated that only 59 parking spaces are required. As such, spillover parking is not expected to occur.
- Section 4.5 concerning all elements of transportation demand management is not expected to be included in the TIS study. The proposed development is expected to have fewer than 60 employees and/or students on location at any given time.
- Section 4.8 concerning review of network concept is not expected to be included in the TIS study. Based on ITE Trip Generation Manual, it is expected the site will generate 49 and 67 person-trips during the AM and PM peak hour, respectively. As such the proposed development will not generate 200 person-trips in excess of the equivalent volume permitted by established by zoning.

9.0 DEVELOPMENT GENERATED TRAFFIC

9.1 Trip Generation

9.1.1 Trip Generation Rates

Trip generation was calculated in accordance with institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. The City of Ottawa TIS Guidelines (2017) recommends that when using ITE Trip Generation Manual, assume 10% non-auto mode share and an average vehicle occupancy of 1.15. As such, a factor of 1.28 was applied to the site generated trips in order to estimate the total site generated person-trips. Table 9.1.1 shows the total person-trip generation for the AM and PM peak hours. As shown below, it is estimated the site will generate a total of 49 person-trips during the AM peak hour conditions and 67 person-trips during the PM peak hour conditions.

Table 9.1.1: Person-Trips for Carstar Development

ITE Land Use	Unit of Measure	Quantity	Rate		AM Peak Hour			PM Peak Hour		
			AM	PM	In	Out	Total	In	Out	Total
Automobile Care Centre (Code 942)	Ksf	16.9	2.25	3.11	32	17	49	33	35	68
Development Totals:					49			68		

* Rates shown are average rates published within ITE Trip Generation 9th Edition
* Directional splits are published within ITE Trip Generation 9th Edition
* Ksf = 1000 ft^2 *A factor of 1.28 has been applied to convert into person-trips (City of Ottawa factor)

9.1.2 Mode Shares

The most recent National Capital Region (NCR) Origin-Destination Survey was conducted in Fall of 2011 and can be found in Appendix D. Table 9.1.2.1 and Table 9.1.2.2 below, displays the trips by primary travel mode within the NCR during both the AM and PM peak hour.

Table 9.1.2.1: Trips by Primary Travel Mode - AM

Travel Mode	AM Peak (06:30 - 08:59)			
	% of Person Trips	Person Trips		
		In	Out	Total
Auto Driver	43%	14	7	21
Auto Passenger	15%	5	3	7
Transit	11%	4	2	5
Bicycle	3%	1	1	1
Walk	17%	5	3	8
Other	11%	4	2	5

Table 9.1.2.2: Trips by Primary Travel Mode - PM

Travel Mode	PM Peak (15:30 - 17:59)			
	% of Person Trips	Person Trips		
		In	Out	Total
Auto Driver	52%	17	18	35
Auto Passenger	15%	5	5	10
Transit	9%	3	3	6
Bicycle	2%	1	1	1
Walk	18%	6	6	12
Other	5%	2	2	3

As stated previously in this report, the expected build out year is 2019. There are no major transit network improvements in the surrounding area. Since the development is an automobile bodyshop, it is expected that attendees would mainly use a car to reach the development or use transit after dropping off their car for service. As such the future mode shares are expected to be as follows:

Table 9.1.2.3: Future Mode Share Targets for the Development

Travel Mode	Mode Share Target		Rationale
	AM	PM	
Auto Driver	45%	54%	Auto Driver person trips are expected to slightly increase due to the nature of the development
Auto Passenger	15%	15%	% of auto passenger person trips is not expected to increase
Transit	15%	13%	Transit person trips are expected to slightly increase due to dropoff/pickup their cars before/after repairs
Bicycle	3%	2%	% of bicycle person trips is not expected to change
Walk	11%	12%	% of walking person trips is expected to decrease due to the nature and location of the development
Other	11%	5%	% of other person trips is not expected change

Based on the future mode share targets, Table 9.1.2.4 and Table 9.1.2.5 have been updated with the projected development-generated trips for the year 2024 (5-years after the build out year of 2019).

Table 9.1.2.4: Projected Trips by Primary Travel Mode - AM

Travel Mode	AM Peak (06:30 - 08:59)			
	% of Person Trips	Person Trips		
		In	Out	Total
Auto Driver	45%	14	8	22
Auto Passenger	15%	5	3	7
Transit	15%	5	3	7
Bicycle	3%	1	1	1
Walk	11%	4	2	5
Other	11%	4	2	5

Table 9.1.2.5: Projected Trips by Primary Travel Mode - PM

Travel Mode	PM Peak (15:30 - 17:59)			
	% of Person Trips	Person Trips		
		In	Out	Total
Auto Driver	54%	17	19	36
Auto Passenger	15%	5	5	10
Transit	13%	4	5	9
Bicycle	2%	1	1	1
Walk	12%	4	4	8
Other	5%	2	2	3

No trip reduction factors have been assigned to the proposed development. Currently the site is not in use and due to the nature of the development, it is not expected to generate any pass-by vehicle trips.

9.2 Trip Distribution

A number of assumptions were made to better represent the distribution of trips to and from the development. The assumptions were based on the turning movement counts received from the City of Ottawa, and site visits performed by MP during both the AM and PM peak hour. All traffic data provided by the City of Ottawa can be found Appendix D.

Access to the development can be made from either direction (EB or WB). It was observed that during the PM peak hour, occasional queuing would build up from the EBL at Merivale/Colonnade intersection and back up into the entrance for the development. Additionally, there is a low volume of vehicles coming in/out of the site entrance. As such, it can be assumed that all site generated traffic vehicles taking a left turn from the site entrance will not change their behaviour due to the low volume of cars going in and out of the site. Figure 9.2.1 below shows the distribution of the vehicles at each intersection.

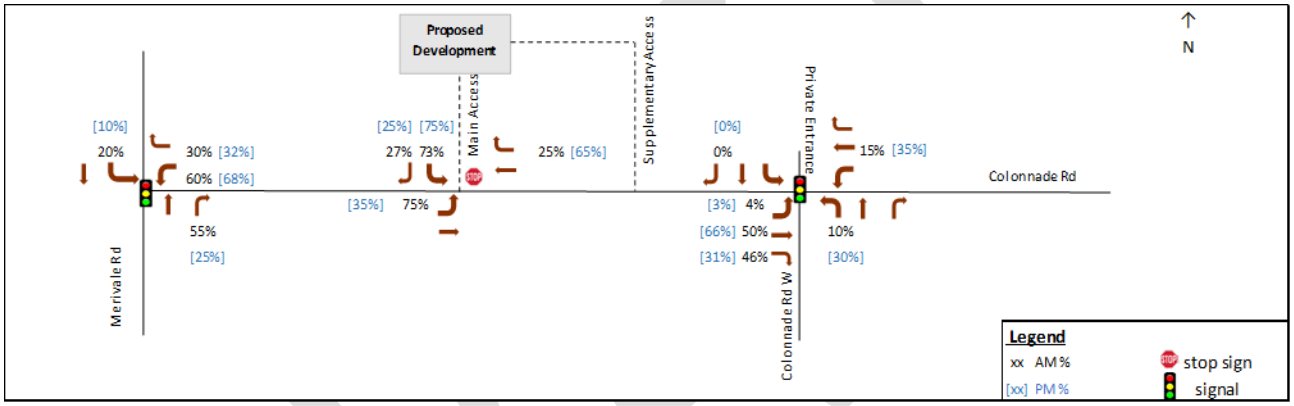

Figure 9.2.1: Trip Distribution Network

9.3 Trip Assignment

The trips generated by the proposed development were assigned to the transportation network to reflect the traffic patterns shown in the turning movement counts. Figure 9.3.1 below shows development-generated vehicle demands applied to the surrounding transportation network. All trip assignment figures can be found in Appendix E.

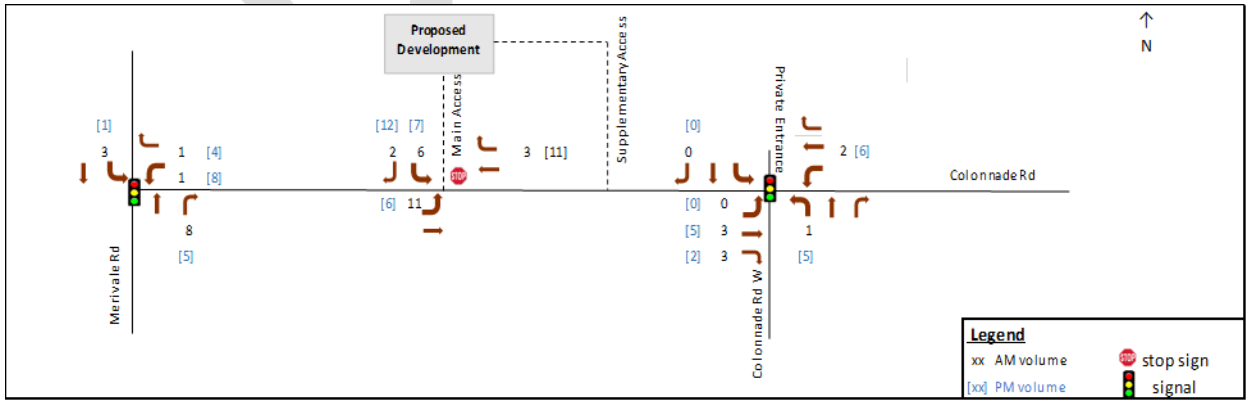

Figure 9.3.1: Development-Generated Vehicle Demand

10.0 BACKGROUND NETWORK TRAFFIC

MP received turning movement counts from the City of Ottawa taken at the intersection of Colonnade Rd and Colonnade Rd W on Tuesday, April 10th, 2018 and the intersection of Colonnade Rd and Merivale Rd on Wednesday, February 7th, 2018. Additionally, MP performed a TMC count at the site shared entrance during both the AM and PM peak hours on Thursday, November 8th, 2018. The traffic volumes for the AM and PM peak were applied to the network and balanced accordingly.

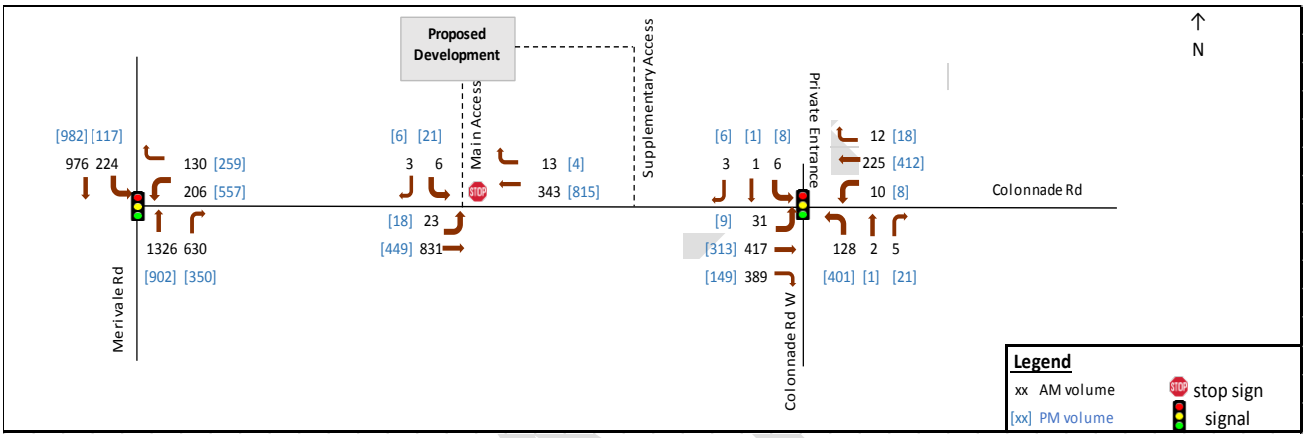

Figure 10.0.1: Existing AM and PM Peak Hour Volumes

10.1 Changes to the Background Transportation Network

As stated previously in this report, the only significant change expected to the transportation network including the road and transit route component is the slight increase in trips of automobiles and transit due to the development attracting attendees to service their car. This is expected to occur during the build out year of 2019. It was estimated previously that an increase of 2% to projected automobile drivers was appropriate and an increase of 4% to transit. Additionally, improvements to the cycling and pedestrian network in the area surrounding the development site are currently being implemented under the Nepean Trails project.

10.2 General Background Growth Rates

To project the traffic volume to the current and future years, a 2.0 % annual background growth rate was applied. This growth rate is considered appropriate as it is consistent with a previously completed traffic impact study conducted by Parsons called “Meadowlands Mall Redevelopment 1585 Merivale Road TIS” dated September 2015. This report was approved by the City of Ottawa.

10.3 Other Area Development

As stated previously, the nearest reported planned development is located at 201, 221, and 225 Citiplace Drive, north of Colonnade Rd. which has a registered agreement for a Site Plan Control application. The permit is for the development of two, 3-storey terrace flat buildings. It is expected that the access point will be from Citiplace Dr. This development is not expected to significantly impact future background traffic. Since

the project is in its initial stage and due to the nature and size of the development it is likely that the development-generated trips will be low. As a result the site generated trips of this development are expected to be covered off by the background growth rate.

11.0 DEMAND RATIONALIZATION

11.1 Intersection Capacity Analysis Methodology

Analysis of traffic operations were performed in accordance with The City of Ottawa's TIA Guidelines (2017) and MMLOS Guidelines. Level of Service (LOS) descriptions for the analysis are provided below in Table 11.1.1 All existing and projected traffic operations were modelled in Synchro 10.

Table 11.1.1: Level of Service vs. Volume to Capacity Ratio

Level of Service	Volume to Capacity Ratio
A	0 to 0.60
B	0.61 to 0.70
C	0.71 to 0.80
D	0.81 to 0.90
E	0.91 to 1.00
F	>1.00

Volume to Capacity (V/C) ratios were analyzed for all signalized intersections overall as well as by individual movements. For unsignalized intersections with a LOS of F, the capacity was based on gap analysis.

Existing signal timing information such as phasing, pedestrian minimums and clearance intervals were provided by the City of Ottawa and used for the analysis of existing conditions for all critical intersections within the study area. The Traffic Signal Timing forms can be found in Appendix D. Signal timings were optimized for all V/C calculations relating to the future conditions with all Synchro 10 parameters taken in accordance with Appendix C: Synchro Analysis Parameters of the City of Ottawa TIA Guidelines (2017).

The initial projections of the development-generated and background travel auto demand at the two study intersections were combined as shown below in Figure 11.1.1.

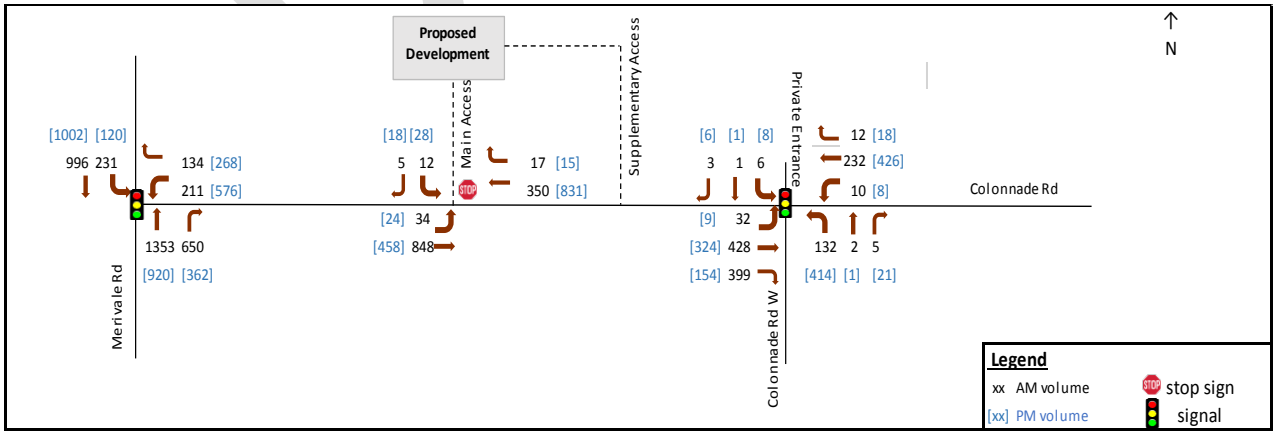

Figure 11.1.1: Intersection Operations, Total (2019)

11.2 Description of Capacity Issue(s)

The background traffic auto demands, development-generated demands, and the total travel auto demands can be found in Appendix E. The overall LOS as calculated by Synchro 10 is also provided in all of the tables below for signalized intersections. Synchro 10 reports for all analysis periods can be found in Appendix F.

11.2.1 Existing Conditions (2018)

Table 11.2.1 below, shows the traffic operations analysis summary for the existing background traffic.

Table 11.2.1: Intersection Operation, Existing Conditions (2018)

Intersection/Approach	AM Peak Hour		PM Peak Hour	
	LOS	v/c Ratio	LOS	v/c Ratio
Merivale Road & Colonnade Road	Intersection LOS: C		Intersection LOS: C	
Northbound	D	0.85	C	0.72
Southbound	C	0.73	A	0.56
Westbound	B	0.64	B	0.70
Eastbound	-	-	-	-
Colonnade Road & Colonnade Road W	Intersection LOS: B		Intersection LOS: C	
Northbound	A	0.53	D	0.87
Southbound	A	0.02	A	0.02
Westbound	A	0.22	B	0.65
Eastbound	C	0.77	C	0.71
Colonnade Road & Site Entrance				
Northbound	-	-	-	-
Southbound	A	0.05	A	0.18
Westbound	A	0.01	A	0.01
Eastbound	A	0.02	A	0.03

Currently, there are no movements with a volume to capacity ratio greater than one, implying that none of the movements are failing. Most of the movements are performing at a LOS of A or B for both the AM and PM peak hour. The movements that are expected to be operating close to capacity are the NBT at the intersection of Merivale Rd and Colonnade Rd and the NBL at the intersection of Colonnade Rd and Colonnade Rd W. Both of the movements are expected to operate at a LOS of D. However, during MP's site visit it was observed during the PM peak that the NBR turning lane would be nearly full and the WBL turning lane backed up to the site entrance. The intersection of Colonnade Road and the Site Entrance is expected to operate at a LOS of A for all movements and was also observed during MP's site visit.

11.2.2 Background Conditions (2019 and 2024)

Table 11.2.2 below, is a summary of the operating conditions during the build out year of 2019 with only the background growth applied.

Table 11.2.2: Intersection Operation, Background Conditions (2019)

Intersection/Approach	AM Peak Hour		PM Peak Hour	
	LOS	v/c Ratio	LOS	v/c Ratio
Merivale Road & Colonnade Road	Intersection LOS: C		Intersection LOS: D	
Northbound	D	0.90	C	0.76
Southbound	D	0.88	B	0.66
Westbound	**E**	**0.96**	D	0.87
Eastbound	-	-	-	-
Colonnade Road & Colonnade Road W	Intersection LOS: B		Intersection LOS: C	
Northbound	A	0.48	D	0.81
Southbound	A	0.02	A	0.02
Westbound	A	0.20	A	0.60
Eastbound	C	0.72	B	0.65
Colonnade Road & Site Entrance				
Northbound	-	-	-	-
Southbound	A	0.03	A	0.14
Westbound	A	0.01	A	0.01
Eastbound	A	0.02	A	0.02

As shown, during the build out year (2019), the projected traffic did not increase substantially, however it should be noted that signal timing was updated to reflect the prosed addition of a bicycle signal in conjunction with the Nepean Trails project. The SBL movement at the Merivale Rd and Colonnade Rd intersection is expected to have a LOS of D while the WBR movement is expected to have a LOS of E. The NBT movement at the intersection of Merivale Rd and Colonnade Rd and the NBL movement at the intersection of Colonnade Rd and Colonnade Rd W are still expected to be operating at a LOS of D.

Table 11.2.3 below summarizes the traffic operation conditions for the horizon year 2024 with only the background growth applied.

Table 11.2.3: Intersection Operation, Background Conditions (2024)

Intersection/Approach	AM Peak Hour		PM Peak Hour	
	LOS	v/c Ratio	LOS	v/c Ratio
Merivale Road & Colonnade Road	Intersection LOS: D		Intersection LOS: D	
Northbound	**E**	**0.98**	D	0.86
Southbound	**E**	**0.96**	C	0.79
Westbound	**E**	**0.96**	**E**	**0.92**
Eastbound	-	-	-	-
Colonnade Road & Colonnade Road W	Intersection LOS: B		Intersection LOS: C	
Northbound	A	0.47	D	0.85
Southbound	A	0.02	A	0.02
Westbound	A	0.22	B	0.67
Eastbound	C	0.76	C	0.73
Colonnade Road & Site Entrance				
Northbound	-	-	-	-
Southbound	A	0.05	A	0.19
Westbound	A	0.01	A	0.01
Eastbound	A	0.02	A	0.03

For the future horizon year, none of the movements are expected to fail, however the NBT, SBL and WBR movements at the intersection of Merivale Rd and Colonnade Rd are anticipated to operate on the verge of failure (LOS E), with volume to capacity ratios of 0.98, 0.96 and 0.96 respectively.

11.2.3 Total Traffic (2019 and 2024)

The total traffic operation conditions during the build out year of 2019 with both the site generated traffic demands and the background growth applied has almost no change when compared to the background operating conditions only. As such, the development-generated traffic demand has very little impact on the existing traffic operating conditions as shown below in Table 11.2.4.

Table 11.2.4: Intersection Operation, Total Traffic (2019)

Intersection/Approach	AM Peak Hour		PM Peak Hour	
	LOS	v/c Ratio	LOS	v/c Ratio
Merivale Road & Colonnade Road	Intersection LOS: C		Intersection LOS: D	
Northbound	D	0.90	C	0.76
Southbound	D	0.89	A	0.66
Westbound	**E**	**0.97**	D	0.88
Eastbound	-	-	-	-
Colonnade Road & Colonnade Road W	Intersection LOS: B		Intersection LOS: C	
Northbound	A	0.48	D	0.82
Southbound	A	0.02	A	0.02
Westbound	A	0.21	B	0.61
Eastbound	C	0.72	B	0.66
Colonnade Road & Site Entrance				
Northbound	-	-	-	-
Southbound	A	0.07	A	0.19
Westbound	A	0.01	A	0.01
Eastbound	A	0.03	A	0.03

Just like the total traffic operation compared with the background conditions during the build out of 2019 had almost no change with the site development-generated traffic having very little impact on the existing traffic, the future horizon year of 2024 yields the same pattern. Table 11.2.5 summarizes the synchro results below for the total future traffic operations.

Table 11.2.5: Intersection Operation, Total Traffic (2024)

Intersection/Approach	AM Peak Hour		PM Peak Hour	
	LOS	v/c Ratio	LOS	v/c Ratio
Merivale Road & Colonnade Road	Intersection LOS: D		Intersection LOS: D	
Northbound	**E**	**1.00**	D	0.86
Southbound	**E**	**0.99**	C	0.80
Westbound	**F**	**1.07**	**E**	**0.92**
Eastbound	-	-	-	-
Colonnade Road & Colonnade Road W	Intersection LOS: B		Intersection LOS: C	
Northbound	A	0.55	D	0.86
Southbound	A	0.02	A	0.02
Westbound	A	0.22	B	0.68
Eastbound	C	0.78	C	0.74
Colonnade Road & Site Entrance				
Northbound	-	-	-	-
Southbound	A	0.09	A	0.26
Westbound	A	0.01	A	0.01
Eastbound	A	0.03	A	0.04

11.3 Adjustment to Development Generated Demands

At this time, no adjustments are expected to be applied to the development generated demands. The Colonnade Road and Site Entrance intersection is operating at a LOS of A during the AM and PM peak hour while the Merivale Rd and Colonnade Rd intersection and the Colonnade Rd and Colonnade Rd W intersection are operating at a LOS of D or better during the AM and PM peak hour. As such, the intersections are operating well under the capacity and therefore, the site generated motorists will not necessarily adjust their travel patterns.

11.4 Adjustments to Background Network Demands

The two intersections reviewed as part of this TIA, are currently operating well under the capacity. Due to the good operating conditions with no major queues developing, it is unlikely for drivers to change their traffic pattern.

12.0 DEVELOPMENT DESIGN

This section will review the proposed development and its transportation network elements in order to ensure that a safe and efficient design has been proposed that will encourage walking, cycling, and transit use. The City of Ottawa's TDM-supportive Development Design and Infrastructure checklist has been completed and attached in Appendix G for reference. The TDM-supportive Development Design and Infrastructure checklist outlines the TDM elements expected to be included in the proposed development.

12.1 Design for Sustainable Modes

As stated previously, the proposed development is expected to have a surface parking lot consisting of 185 spaces, including three barrier free spaces adjacent to the main entrance. Additionally, the proposed development includes a two-space bicycle parking rack, located west of the main entrance. It is anticipated that this will provide adequate bicycle parking spaces for the projected peak hour volume of cyclists.

As described in Section 3.4 there are several transit stops located in the vicinity of the proposed development. The closest transit stops are located adjacent to the development on Colonnade Road.

12.2 Circulation and Access

The proposed development is expected to have two access points on the north side of Colonnade Rd. The main access will be shared with the neighboring automobile dealership while the supplementary access will only be used for after-hours vehicle inventory.

Loading and/or short-stay deliveries are not expected to be accommodated on public streets as the proposed development includes an on-site loading space. The proposed accesses will permit vehicles to circulate the site and design vehicle movements can be facilitated within the proposed surface parking lot.

13.0 PARKING

13.1 Parking Supply

13.1.1 Auto Parking

City of Ottawa Zoning By-Law 2008-250, Section 101, states that parking requirements for an Automobile Body Shop is 3 spaces per bay, while requirements for Offices are 2.4 spaces per 100 sq. m as this development is located within Area C per Schedule 1A. As such, the minimum number of spaces required is 59 (3/bay @ 17 bays, 2.4/100 sq. m @ 278 sq. m Office). As stated previously, the proposed development includes a surface parking lot consisting of 185 vehicle parking spaces. In addition, a total of three (3) accessible parking spaces (1x Type A, 2x Type B) have been provided. The proposed development is not located within 600 m of a rapid transit route and is therefore not subject to a maximum parking supply limit. The proposed development meets all City of Ottawa Parking By-Law requirements.

Parking demand was estimated in accordance with the ITE Parking Generation Manual, 4th Edition. For a 1,292 sq. m (13,911 sq. ft) Automobile Body Shop, peak period parking demand is expected to be approximately 76 vehicles, while for the 278 sq. m (2,993 sq. m) office space, the 85th percentile peak period parking demand is expected to be approximately 11 parking spaces. A summary of the peak period parking demand is summarized in Table 13.1.1, below.

Table 13.1.1: Peak Parking Generation Summary

Land Use	Peak Period Demand (vehicles per 1,000 sq. ft GFA)	GFA (sq. ft)	Peak Period Parking Demand
Automobile Body Shop (Land Use 843, pg. 239)	5.40	13,911	76
Office (Land Use 701, pg. 201)	3.45	2,993	11
	TOTAL	**16,904**	**87**

As shown, the total peak parking demand for the proposed development is expected to be approximately 87 vehicles. As the proposed development exceeds this demand, the likelihood of spill-over parking is low and it is not anticipated that off-site parking will be required.

13.1.2 Bicycle Parking

City of Ottawa Zoning By-Law 2008-250, Section 111, states that the minimum number of bicycle parking spaces for this land use is one per 1,500 sq. m gross floor area. As such, the minimum number of spaces required is 2 for the proposed 1,570 sq. m development. As stated previously, the proposed development includes a surface mounted bike rack which will accommodate two (2) bicycles parking spaces therefore the proposed development meets the By-Law requirements for bicycle parking.

14.0 BOUNDARY STREETS

This section will examine the design elements of the noted boundary streets and their ability to accommodate the proposed development as well as their alignment with the City of Ottawa's Complete Streets policy and urban design objectives.

The boundary street for this development is Colonnade Road. At this time, the City has not prepared a complete street concept for this street.

14.1 Mobility

14.1.1 Pedestrian Level of Service (PLOS)

Colonnade Road currently has a 1.8m wide sidewalk on the south side of the road and a 3.0m wide multi-use pathway on the north side, adjacent to the proposed development. The multi-use path is separated from the roadway by a grass boulevard ranging in width from 2 – 10 m. As noted in Section 3.1, Colonnade Road has a posted speed limit of 60 km/h in the vicinity of the subject site. Historical Average Annual Daily Traffic (AADT) was not available for this segment of Colonnade Road, however based on available data from TMCs completed as part of this investigation it was determined that Colonnade Road has an AADT/lane greater than 3000 veh/day. On-street parking is not permitted in the vicinity of the subject site.

Upon review of Exhibit 4 of the City of Ottawa's Multi-Modal Level of Service (MMLOS) Guidelines, the south side of this segment of Colonnade Road has a PLOS of D, while the north side has a PLOS of B.

14.1.2 Bicycle Level of Service (BLOS)

Colonnade Road currently has a physically separated bikeway in the form of a 3.0m wide multi-use pathway on the north side of the road, adjacent to the proposed development.

Upon review of Exhibit 11 of the City of Ottawa's MMLOS Guidelines, this segment of Colonnade Road has a BLOS of A.

14.1.3 Transit Level of Service (TLOS)

This segment of Colonnade Road is a mixed traffic facility and currently does not have any dedicated transit lanes. While the TLOS methodology employed in the City of Ottawa's MMLOS Guidelines is intended primarily for corridors with existing or planned rapid transit or transit priority measures, this segment of Colonnade Road can still be evaluated as it is serviced by regular bus routes. Parking and driveway friction is minimal and can be considered low within the vicinity of the subject site.

Upon review of Exhibit 15 of the City of Ottawa's MMLOS Guidelines, this segment of Colonnade Road has a TLOS of D.

14.1.4 Truck Level of Service (TkLOS)

This segment of Colonnade Road currently has two travel lanes (one in each direction) with a curb lane width of approximately 3.3m at its narrowest point.

Upon review of Exhibit 20 of the City of Ottawa's MMLOS Guidelines, this segment of Colonnade Road has a TkLOS of D.

14.1.5 Vehicular Level of Service (LOS)

The vehicular LOS and associated volume to capacity (v/c) ratio for study area intersections is presented in Section 11.2. The segment LOS for the boundary street was taken as the critical v/c ratios for the eastbound and westbound movements at the intersections of Colonnade Road and Colonnade Road W and Colonnade Road and Merivale Road, respectively. A summary of the approach v/c and associated LOS for all analysis periods, as determined per City of Ottawa TIA Guidelines (2017), are presented in Table 14.1.5. Detailed analysis reports are presented in Appendix F.

Table 11.2.1: Intersection Operation, Existing Conditions (2018)

Analysis Period	Approach	AM Peak Hour		PM Peak Hour	
		LOS	v/c Ratio	LOS	v/c Ratio
Existing Conditions (2018)	EB	C	0.75	B	0.68
	WB	A	0.46	B	0.69
Background Conditions (2019)	EB	C	0.76	C	0.71
	WB	A	0.43	B	0.69
Background Conditions (2024)	EB	A	0.55	C	0.73
	WB	D	0.88	C	0.79
Total Traffic (2019)	EB	C	0.76	C	0.72
	WB	A	0.43	B	0.69
Total Traffic (2024)	EB	D	0.89	C	0.80
	WB	A	0.53	C	0.74

As shown, all approaches are anticipated to operate at acceptable levels of service throughout the 2024 horizon year.

14.2 Road Safety

Available collision data within the study area was reviewed and is presented in Section 3.6. No road safety concerns were identified on boundary streets or within the study area. As City of Ottawa collision records do not indicate direction of travel for vehicles involved, collision diagrams are not feasible.

14.3 Neighborhood Traffic Management

Available background data and subsequent discussion with City of Ottawa Staff suggests that the Merivale Road Corridor is currently over capacity. On-site investigations support this data, and effects on Colonnade Road were observed. During peak hours, queues along Merivale Road often reach the Colonnade Road intersection, impacting westbound movements on Colonnade Road.

In consideration of anticipated site generated volumes during peak hours, it is not anticipated that the proposed development will exacerbate existing operations concerns along the Merivale Road corridor, as illustrated by the overall acceptable Levels of Service anticipated through to the 2024 horizon year.

15.0 ACCESS INTERSECTIONS

This section will examine design elements of the proposed development's access points and assess their alignment with the City of Ottawa's Complete Streets philosophy, MMLOS Guidelines and urban design objectives.

15.1 Location and Design of Access

The proposed development is anticipated to have two full-move accesses, both located on Colonnade Road. The main access will make use of an existing shared access that currently services an adjacent car dealership, while the second access will be a supplementary access which is anticipated to be used primarily after-hours. It is not anticipated that design parameters of the existing access will change.

15.2 Intersection Control

In consideration of existing and projected volumes of traffic anticipated to utilize the shared access, stop-control at the minor approach is recommended. Further, due to the existing access being in close proximity (<200m) to the signalized intersection at Colonnade Road and Merivale Road, signalization is not considered to be a feasible option. As the supplementary access is anticipated to be used primarily after-hours, traffic volumes are expected to be low, stop-control at the minor approach is recommended.

15.3 Intersection Design

The existing site entrance was analyzed under existing, background and total future traffic conditions in Section 11.2. No concerns were noted with regards to approach LOS at the existing site access, which is anticipated to continue operating at LOS A through to the 2024 horizon year.

As the site access will not be signalized, the MMLOS for all modes at the intersection of Colonnade Road and the site entrance will be the same as that for the boundary road segment presented in Section 14.0.

16.0 NEIGHBORHOOD TRAFFIC MANAGEMENT

This section will examine impacts of the proposed development on neighboring streets and identify any Neighborhood Traffic Management (NTM) measures required to mitigate impacts on collector and local roads.

16.1 Adjacent Neighborhoods

As noted in previous sections of this report, the proposed development's main access is located on the north side of Colonnade Road, designated as a major collector roadway. Main access routes to/from the proposed development are not anticipated to include any other collector or local roads.

Upon review of site generated traffic in conjunction with future background traffic volumes, as presented in Section 9.0 and Section 10.0 respectively, it is not anticipated that additional development-related traffic will change the existing roadway classification. More specifically, future total traffic volumes on Colonnade Road are not anticipated to exceed the threshold of 2,500 vehicles per day or 300 vehicles during the peak hour.

17.0 TRANSIT

This section will review the potential impacts of the proposed development on existing and planned transit networks and services in order to ensure TLOS is not negatively impacted.

17.1 Route Capacity

As noted in Section 9.1.2, it is anticipated that the proposed development will generate approximately 7 and 9 transit trips in the AM and PM peak hours, respectively. It is expected that the relatively low number of development-generated transit trips can be accommodated by the existing transit routes adjacent to the site and are not anticipated to result in any requirements for additional transit capacity. Further, it is not anticipated that the existing transit routes will require modification as a result of the proposed development.

17.2 Transit Priority

As noted in Section 3.4, the area of the subject site is serviced by five (5) bus routes, accessed via stops on Colonnade Road and Merivale Road. It is expected that the relatively low number of development-generated transit trips can be accommodated and is not anticipated that any additional transit trips will result in impacts to travel time.

As noted previously, the site will have two (2) accesses on Colonnade Road. The main access will be shared with the adjacent car dealership and will make use of the existing driveway, while the second will act as a supplementary access to be used primarily after hours. It is not anticipated that the addition of one development driveway on Colonnade Road will impact transit travel times, as the additional driveway will not serve as the main access nor will it be used on a regular basis.

18.0 INTERSECTION DESIGN

This section will determine the design elements of study area intersections required to accommodate the proposed development, ensuring they are consistent with the City of Ottawa's Complete Streets philosophy and MMLOS Practices.

18.1 Intersection Control

The two study area intersections are currently signalized, and are anticipated to operate at acceptable levels of service through to the 2024 horizon year. As such, no adjustments to the existing intersection controls are recommended.

18.2 Intersection Design

18.2.1 Intersection Pedestrian Level of Service (PLOS)

The Pedestrian Level of Service (PLOS) for study area intersections was determined in accordance with the City of Ottawa's Multi-Modal Level of Service Guidelines. The Pedestrian Exposure to Traffic at Signalized Intersection (PETSI), average delay to pedestrians, and corresponding levels of service at study area intersections are summarized in Table 18.2.1.

Table 18.2.1: Area Intersection Pedestrian Level of Service (PLOS)

Intersection / Approach (Crossing)	PETSI Evaluation		Pedestrian Delay Evaluation		Critical LOS (PLOS)
	Total Points	LOS	Delay (sec)	LOS	
Merivale & Colonnade					
North (E-W)	54	D	43	E	**E**
East (N-S)	54	D	35	D	**D**
Colonnade & Colonnade W					
North/South (E-W)	71	C	24	C	**C**
East/West (N-S)	70	C	34	D	**D**

Upon review of Exhibit 5, 6 and 7 of the City of Ottawa's Multi-Modal Level of Service (MMLOS) Guidelines, the signalized intersection of Merivale Road and Colonnade Road has an intersection PLOS of E, while the signalized intersection of Colonnade Road and Colonnade Road W has a PLOS of D. No conceptual measures will reduce the pedestrian crossing delay and no geometric changes will improve PETSE scores.

18.2.2 Intersection Bicycle Level of Service (BLOS)

The Bicycle Level of Service (BLOS) for study area intersections was determined in accordance with the City of Ottawa's Multi-Modal Level of Service Guidelines.

There is currently a physically separated bikeway in the form of a continuous bi-directional multi-use pathway on the west side of Merivale Road and north side of Colonnade Road. Upon review of Exhibit 12 of the City of Ottawa's Multi-Modal Level of Service (MMLOS) Guidelines, the signalized intersection of Merivale Road and Colonnade Road has an intersection BLOS of A.

The intersection of Colonnade Road and Colonnade Road W is subject to mixed traffic conditions, with continuous (shared) right turn lanes longer than 50m at all approaches. Upon review of Exhibit 12 of the City of Ottawa's Multi-Modal Level of Service (MMLOS) Guidelines, the signalized intersection of Colonnade Road and Colonnade Road W has an intersection BLOS of F. The addition of bike lanes along Colonnade Road would improve these approaches to a BLOS of C.

18.2.3 Intersection Transit Level of Service (TLOS)

In order to evaluate Transit Level of Service at study area intersections, average delay at approaches were determined based on intersection analysis completed as part of this investigation. Detailed intersection analysis reports are presented in Appendix F.

Upon review of Exhibit 16 of the City of Ottawa's Multi-Modal Level of Service (MMLOS) Guidelines, the signalized intersection of Merivale Road and Colonnade Road has a TLOS of F, while the intersection of Colonnade Road and Colonnade Road W has an intersection TLOS of E. There are currently no existing transit priority measures in the study area, therefore there are no target TLOS for study area intersections.

18.2.4 Intersection Truck Level of Service (TkLOS)

The Truck Level of Service (PLOS) for study area intersections was determined in accordance with the City of Ottawa's Multi-Modal Level of Service Guidelines. The effective radii, receiving lane parameters and corresponding levels of service at study area intersections are summarized in Table 18.2.4.

Table 18.2.1: Area Intersection Pedestrian Level of Service (TkLOS)

Intersection / Approach	Effective Corner Radius (m)	Number of Receiving Lanes	LOS
Merivale Road & Colonnade Road			
South	> 15 m	1	**C**
East	> 15 m	2	**A**
Colonnade Road & Colonnade Road W			
North	10 – 15 m	1	**E**
South	10 – 15 m	1	**E**
East	10 – 15 m	1	**E**
West	10 – 15 m	1	**E**

Upon review of Exhibit 21 of the City of Ottawa's Multi-Modal Level of Service (MMLOS) Guidelines, the signalized intersection of Merivale Road and Colonnade Road has an intersection TkLOS of C, while the signalized intersection of Colonnade Road and Colonnade Road W has a TkLOS of E. The TkLOS cannot be improved for study area intersections as additional receiving lanes would be required.

19.0 SUMMARY OF IMPROVEMENTS INDICATED AND MODIFICATION OPTIONS

The TIA Strategy Report evaluated the proposed development and its expected impact on the existing transportation network. Based on the analysis presented, the area of the subject site is currently operating at acceptable levels of service and is anticipated to continue operating at acceptable levels of service through to the 2024 horizon year based on projected traffic growth, site generated traffic and mode share targets.

The proposed development site plan meets or exceeds the City's minimum By-Law requirements for both vehicle and bicycle parking spaces. Further, direct links to the surrounding pedestrian network are provided via the existing multi-use pathway adjacent to the subject site. No issues with respect to site circulation or truck turning movements are noted.

Upon review of boundary streets, the pedestrian and cycling facilities are anticipated to operate at PLOS and BLOS of D and A, respectively. There is no transit priority present in the study area, however based on mixed traffic conditions the boundary street is anticipated to operate at a TLOS of D. No issues with transit service capacity are noted for the existing or projected conditions. No improvements are recommended to address existing MMLOS for the adjacent study area intersections.

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APPENDIX A – TIA SCREENING FORM

McINTOSH PERRY

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	9-17 Colonnade Road
Description of Location	Part of Lot 30, Concession A (Rideau Front), Geographic Township of Nepean
Land Use Classification	General Urban Area (Traditional Mainstreet zone)
Development Size (units)	N/A
Development Size (m^2)	1,552 m^2 (GFA)
Number of Accesses and Locations	1
Phase of Development	Site Plan Approval
Buildout Year	2019

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

2. Trip Generation Trigger

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

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

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

If the proposed development size is greater than the sizes identified above, the Trip Generation Trigger is satisfied.

3. Location Triggers

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

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

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

4. Safety Triggers

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

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

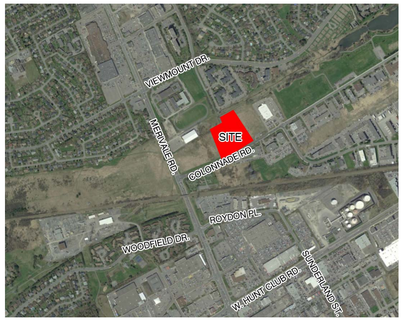
5. Summary

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

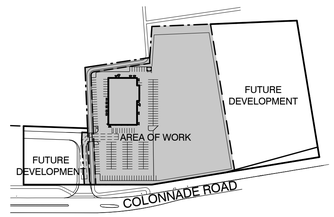
If none of the triggers are satisfied, the TIA Study is complete. If one or more of the triggers is satisfied, the TIA Study must continue into the next stage (Screening and Scoping).

APPENDIX B – SITE PLANS

McINTOSH PERRY



1 A100 LOCATION PLAN SCALE N.T.S.



2 A100 KEY PLAN SCALE 1 : 3000

LEGAL DESCRIPTION:

PLAN 4R-29469

PART OF LOT 30
CONCESSION A (Rideau Front)
Geographic Township of Nepean

CITY OF OTTAWA

PREPARED BY
ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
APRIL 15, 2016

Project Zoning Review/Statistics

Municipality:	City of Ottawa
Municipal Address:	9-17 Colonnade Rd.
Registered Owner:	Zena Investment Corporation
Lot Area:	21,763.7sq.m. (234,263 sq.ft (5.38 acres))

Zoning Analysis
Ottawa

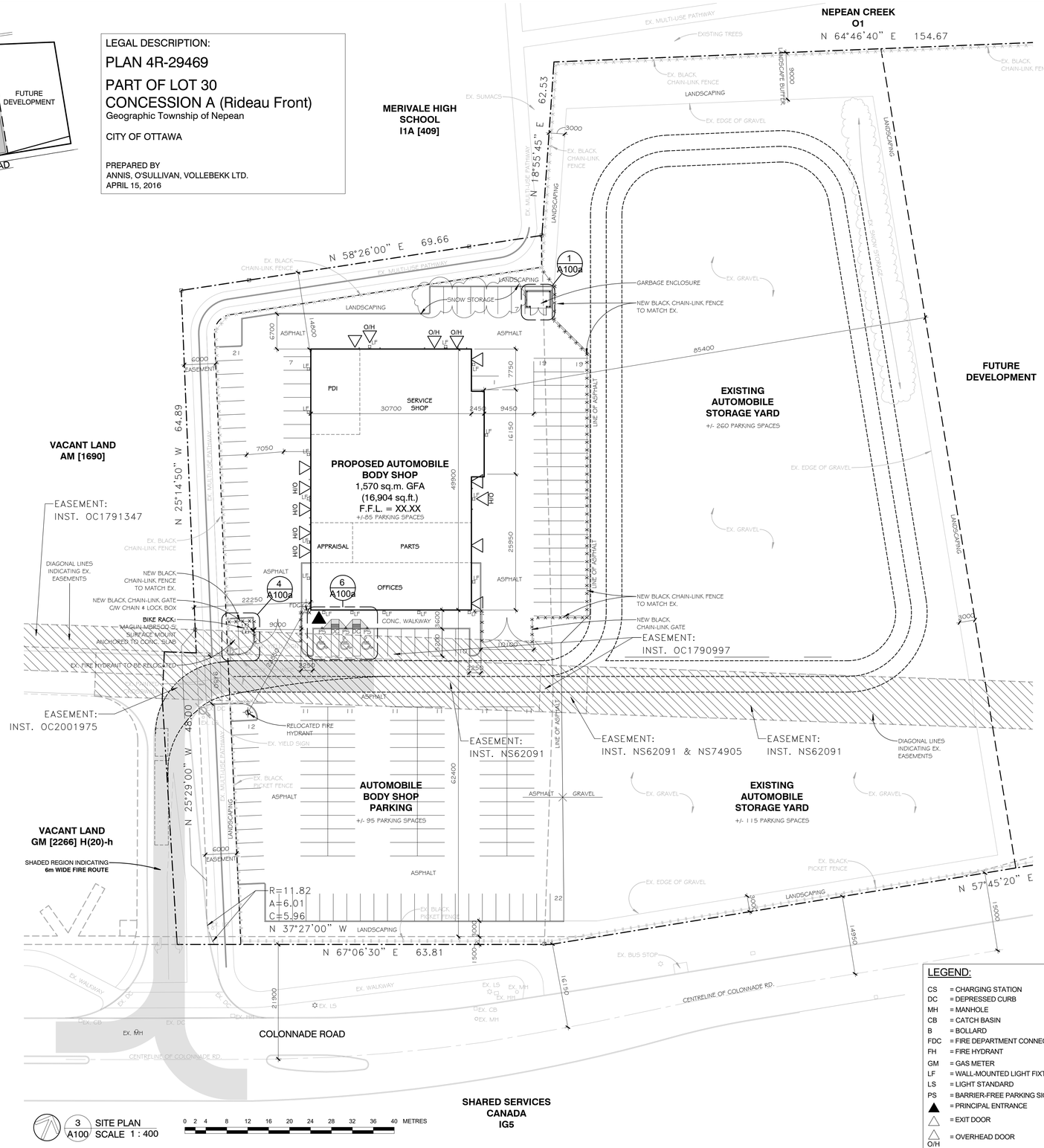
Zoning By-law:	2008-250
Zone:	GM [2266] H(20)
Proposed Use:	Automobile Body Shop

Building Areas

	Gross (out-to-out) Sq.m.	Sq.ft
Ground Floor		
Service Area	1,271	13,681
Ancilliary Offices	278	2,993
	1,549	16,674
Mezzanine	21	230
Totals	1,570	16,904

Development Standards

	Required	Provided	
Minimum Lot Area	No min.	21763.7sq.m.	
Minimum Lot Width	No Min.	166m	
Minimum Required Yard			
Front & Corner Side Yard	3m	60.65m	
Interior Side Yard	No min.	14.80m	
Rear Yard	No Min.	N/A	
Maximum Building Height	20m	7.61m	
Maximum Floor Space Index	2	0.07	
Minimum Width of Landscaping			
Abutting a Street	3m	3m	
Abutting Residential	3m	3m	
All other cases	No min.	3m	
Parking Spaces			Area 'C' on Schedule 1A
Service (Body Shop)			
- 3/bay @ 17 bays	51		
Offices			
- 2.4 /100 sq.m @ 278sq.m.	8		
Total	59	185	
Loading Spaces (3.5m x 7m)	1	1	
Bicycle Parking (1/ 1500 sq.m. @ 1,570 sq.m.)	2	2	
Parking for Physically Disabled	3	3	1x Type A; 2x Type B



3 A100 SITE PLAN SCALE 1 : 400

0 2 4 8 12 16 20 24 28 32 36 40 METRES

LEGEND:

CS	= CHARGING STATION
DC	= DEPRESSED CURB
MH	= MANHOLE
CB	= CATCH BASIN
B	= BOLLARD
FDC	= FIRE DEPARTMENT CONNECTION
FH	= FIRE HYDRANT
GM	= GAS METER
LF	= WALL-MOUNTED LIGHT FIXTURE
LS	= LIGHT STANDARD
PS	= BARRIER-FREE PARKING SIGN
▲	= PRINCIPAL ENTRANCE
△	= EXIT DOOR
△ O/H	= OVERHEAD DOOR
△	= WITH NUMBERS, DENOTES REVISION
	= BARRIER-FREE PARKING SPACE C/W PAINTED LOGO & SIGN ON POST OR WALL
	= PROPERTY LINE
	= SURVEY PARTS
	= TRUCK ROUTE
	= CHAIN LINK FENCE
	= PICKET FENCE

REVISIONS:

No.	DATE	DESCRIPTION
0	31 OCT. 2018	ISSUED FOR SPA

PERMIT	
TENDER	
CONSTRUCTION	

KWC
383 Parkdale Avenue, Suite 201
Ottawa Ontario Canada K1Y 4R4
KWC ARCHITECTS INC.
PHONE (613) 238-2117
FAX (613) 238-6595
E MAIL kwc@kwc-arch.com

NORTH

ARCHITECT'S/ENGINEER'S STAMP

BBS
BUILDING A REPUTATION ON EXCELLENCE
BBS CONTRUCTION (ONTARIO) LTD.
1805 WOODWARD DRIVE,
OTTAWA, ON K2C 0P9 CANADA
TEL.613-226-8830 FAX:613-226-7709

OWNER
ZENA INVESTMENTS CORPORATION

PROJECT
PROPOSED AUTOMOBILE BODY SHOP
'MYERS CARSTAR'
9-17 COLONNADE RD.
OTTAWA, ON.

DRAWING TITLE
SITE PLAN

PROJECT No.	1843
SCALE	As indicated
DRAWN BY	AK/TC
DATE	31 OCT 2018

DRAWING No. A100

APPENDIX C – BUS ROUTES

McINTOSH PERRY

Schedule times are based on typical driving conditions and may vary. Please arrive at your stop a few minutes early to allow for any fluctuations in schedule.

Select Date
Tuesday, October 16, 2018

Select Route Number
80 Tunney's Pasture <-> Barrhaven Centre

Search

More Options

80 BARRHAVEN CENTRE

BARRHAVEN CENTRE | TUNNEY'S PASTURE

Tue, Oct 16

[D] Destination Auriga Deakin
[y] Destination 80X McFarlane

[V] Not Via Westgate

[x] Strandherd / Longfields Davidson

TUNNEY'S PASTURE B	HOLLAND / CARLING	CARLING / ANNA - THE ROYAL	WESTGATE MALL	MERIVALE / MEADOWLANDS	COLONNADE / AD. 177	MERIVALE / SLACK	LEIKIN / BECKSTEAD	MARKETPLACE 1A	BARRHAVEN CENTRE 1A	DEAKIN / AURIGA	MACFARLANE / DEAKIN	LONGFIELD - DAVIDSON HEIGHTS H.S.
04:49[V]	04:53[V]	04:54[V]		05:05[V]	05:12	05:18						
05:19[V]	05:23[V]	05:24[V]		05:35[V]	05:42	05:48						
05:34[V]	05:38[V]	05:39		05:50		05:58	06:03	06:20	06:21			
06:06[V]	06:10[V]	06:11		06:22		06:30	06:35	06:52	06:53			
06:21[V] [y]	06:25[V] [y]	06:26[y]		06:37[y]		06:45[y]				06:48	06:54	
06:36[V]	06:40[V]	06:41		06:52		07:00	07:05	07:22	07:23			
06:51[V] [y]	06:55[V] [y]	06:56[y]		07:07[y]		07:15[y]				07:18	07:24	
07:06[V]	07:10[V]	07:11		07:22		07:30	07:35	07:52	07:53			
07:21[V] [y]	07:25[V] [y]	07:26[y]		07:37[y]		07:45[y]				07:48	07:54	
07:30[V]	07:34[V]	07:35		07:46		07:54	07:59	08:16	08:17			
07:45[V] [y]	07:49[V] [y]	07:50[y]		08:01[y]		08:09[y]				08:12	08:18	
							08:10[x]					08:31
							08:13[x]					08:34
							08:18[x]					08:39
							08:21[x]					08:42
07:57[V]	08:01[V]	08:02		08:13		08:21	08:26	08:43	08:44			
08:09[V] [y]	08:13[V] [y]	08:14[y]		08:25[y]		08:33[y]				08:36	08:42	
08:21[V]	08:25[V]	08:26		08:37		08:45	08:50	09:07	09:08			
08:37[V]	08:41[V]	08:42		08:53		09:01	09:06	09:23	09:24			
08:51[V] [y]	08:55[V] [y]	08:56[y]		09:07[y]		09:15[y]				09:18	09:24	
09:06[V]	09:10[V]	09:11		09:24		09:32	09:37	09:54	09:55			
09:22[D]	09:26[D]	09:27[D]	09:29[D]	09:43[D]		09:51[D]				09:54		

09:37	09:41	09:42	09:44	09:58	10:06	10:11	10:28	10:29	
09:52[D]	09:56[D]	09:57[D]	09:59[D]	10:13[D]	10:21[D]				10:24
10:04	10:08	10:09	10:11	10:25	10:33	10:38	10:55	10:56	
10:19[D]	10:23[D]	10:24[D]	10:26[D]	10:40[D]	10:48[D]				10:51
10:34	10:38	10:39	10:41	10:55	11:03	11:08	11:25	11:26	
10:49[D]	10:53[D]	10:54[D]	10:56[D]	11:10[D]	11:18[D]				11:21
11:04	11:09	11:10	11:12	11:26	11:34	11:39	11:56	11:57	
11:19[D]	11:24[D]	11:25[D]	11:27[D]	11:41[D]	11:49[D]				11:52
11:34	11:39	11:40	11:42	11:56	12:04	12:09	12:26	12:27	
11:49[D]	11:54[D]	11:55[D]	11:57[D]	12:13[D]	12:21[D]				12:24
12:04	12:09	12:11	12:13	12:29	12:38	12:43	13:00	13:01	
12:19[D]	12:24[D]	12:26[D]	12:28[D]	12:44[D]	12:53[D]				12:57
12:34	12:39	12:41	12:43	12:59	13:08	13:13	13:30	13:31	
12:49[D]	12:54[D]	12:56[D]	12:58[D]	13:14[D]	13:23[D]				13:27
13:04	13:09	13:11	13:13	13:29	13:38	13:43	14:00	14:01	
13:19[D]	13:24[D]	13:26[D]	13:28[D]	13:44[D]	13:53[D]				13:57
13:37	13:42	13:44	13:46	14:02	14:11	14:17	14:34	14:35	
13:52[D]	13:57[D]	13:59[D]	14:01[D]	14:17[D]	14:26[D]				14:30
14:07	14:12	14:14	14:16	14:32	14:41	14:47	15:04	15:05	
14:22[D]	14:27[D]	14:29[D]	14:31[D]	14:47[D]	14:56[D]				15:00
14:37	14:42	14:44	14:46	15:02	15:11	15:17	15:34	15:35	
14:52[D]	14:57[D]	14:59[D]	15:01[D]	15:17[D]	15:26[D]				15:30
15:07	15:12	15:14	15:16	15:32	15:41	15:47	16:04	16:05	
15:22[D]	15:29[D]	15:31[D]	15:33[D]	15:49[D]	15:58[D]				16:02
15:37[V]	15:44[V]	15:45		16:02	16:11	16:17	16:34	16:35	
15:52[D]	15:59[D]	16:00[D]		16:17[D]	16:26[D]				16:30
[V]	[V]								
16:03[V]	16:10[V]	16:11		16:28	16:37	16:43	17:00	17:01	
16:14[V]	16:21[V]	16:22		16:39	16:48				
16:26[D]	16:33[D]	16:34[D]		16:51[D]	17:00[D]				17:04
[V]	[V]								
16:36[V]	16:43[V]	16:44		17:01	17:10	17:16	17:33	17:34	
16:46[V]	16:53[V]	16:54		17:11	17:19				
16:56[D]	17:03[D]	17:04[D]		17:21[D]	17:29[D]				17:33
[V]	[V]								
17:11[V]	17:17[V]	17:18		17:35	17:43	17:48	18:05	18:06	
17:26[D]	17:32[D]	17:33[D]		17:50[D]	17:58[D]				18:02
[V]	[V]								
17:41[V]	17:47[V]	17:48		18:05	18:13	18:18	18:35	18:36	
17:56[D]	18:02[D]	18:03[D]		18:20[D]	18:28[D]				18:32
[V]	[V]								
18:07[V]	18:13[V]	18:14		18:31	18:39	18:44	19:01	19:02	
18:22[D]	18:27[D]	18:28[D]		18:41[D]	18:49[D]				18:53
[V]	[V]								
18:36	18:41	18:42	18:44	18:58	19:06	19:11	19:28	19:29	
18:51[D]	18:56[D]	18:57[D]	18:59[D]	19:13[D]	19:21[D]				19:25
19:06	19:11	19:12	19:14	19:28	19:36	19:41	19:58	19:59	
19:36	19:41	19:42	19:44	19:57	20:04	20:09	20:26	20:27	
20:06	20:11	20:12	20:14	20:27	20:34	20:39	20:56	20:57	
20:36	20:41	20:42	20:44	20:57	21:04	21:09	21:26	21:27	
21:06	21:11	21:12	21:14	21:27	21:34	21:39	21:56	21:57	
21:36	21:41	21:42	21:44	21:56	22:03	22:08	22:25	22:26	
22:06[V]	22:11[V]	22:12		22:24	22:31	22:36	22:53	22:54	
22:36[V]	22:40[V]	22:41		22:52	22:59	23:04	23:21	23:22	
23:06[V]	23:10[V]	23:11		23:22	23:29	23:34	23:51	23:52	
23:36[V]	23:40[V]	23:41		23:52	23:59	00:04	00:21	00:22	
00:06[V]	00:10[V]	00:11		00:22	00:29	00:34	00:51	00:52	

Schedule times are based on typical driving conditions and may vary. Please arrive at your stop a few minutes early to allow for any fluctuations in schedule.

Select Date
Tuesday, October 16, 2018

Select Route Number
83 Baseline <-> Viewmount

Search

More Options

83 BASELINE

BASELINE | VIEWMOUNT

Tue, Oct 16

[V] [x] This route continues Downtown as route 91 from Baseline Station.

VIEWMOUNT / GRANT CAR-MAN	WOODFIELD / TANGLEWOOD PARK	WOODFIELD / MEDHURST	BASELINE 2B
	05:44	05:47	05:55
	06:04	06:07	06:16
	06:20[x][V]	06:22[x][V]	06:32[x]
06:31	06:36	06:39	06:48
	06:49[x][V]	06:51[x][V]	07:01[x]
07:01	07:06	07:09	07:18
	07:21[x][V]	07:23[x][V]	07:33[x]
07:31	07:36	07:39	07:48
	07:52[x][V]	07:54[x][V]	08:04[x]
08:01	08:06	08:09	08:18
	08:21[x][V]	08:23[x][V]	08:33[x]
08:33	08:37	08:40	08:49
	08:52	08:55	09:04
09:11	09:15	09:18	09:27
09:40	09:44	09:47	09:56
10:10	10:14	10:17	10:26
10:40	10:44	10:47	10:56
11:10	11:14	11:17	11:26
11:40	11:44	11:47	11:56
12:10	12:14	12:17	12:26
12:40	12:44	12:47	12:56
13:10	13:14	13:17	13:26
13:40	13:44	13:47	13:56
14:10	14:14	14:17	14:26
14:40	14:44	14:47	14:56
15:10	15:15	15:18	15:27
15:41	15:46	15:49	15:58
16:11	16:16	16:19	16:29
16:41	16:46	16:49	16:59
17:11	17:16	17:19	17:29
17:41	17:46	17:49	17:59
18:10	18:14	18:17	18:26
18:38	18:42	18:45	18:53

19:08	19:12	19:15	19:23
19:38	19:42	19:45	19:53
20:08	20:12	20:15	20:23
21:08	21:12	21:15	21:23
22:08	22:12	22:15	22:23

Schedule times are based on typical driving conditions and may vary. Please arrive at your stop a few minutes early to allow for any fluctuations in schedule.

Select Date
Tuesday, October 16, 2018

Select Route Number
89 Tunney's Pasture <-> Colonnade

Search

More Options

89 TUNNEY'S PASTURE

TUNNEY'S PASTURE | COLONNADE

Tue, Oct 16

COLONNADE / CONCOURSE	MERIVALE / VIEW-MOUNT	VIEWMOUNT / FARM GATE	FISHER / BASELINE	HOLLAND / CAR-LING	TUNNEY'S PASTURE B
05:13	05:17	05:21	05:26	05:30	05:35
05:38	05:42	05:46	05:51	05:55	06:00
05:53	05:57	06:01	06:06	06:10	06:16
06:06	06:10	06:14	06:19	06:24	06:31
06:21	06:25	06:29	06:34	06:39	06:46
06:33	06:38	06:44	06:50	06:56	07:03
06:48	06:53	06:59	07:05	07:11	07:18
07:06	07:11	07:17	07:23	07:29	07:36
07:21	07:26	07:32	07:38	07:44	07:51
07:38	07:43	07:49	07:55	08:01	08:09
07:53	07:58	08:04	08:10	08:16	08:24
08:08	08:13	08:19	08:25	08:31	08:39
08:23	08:28	08:34	08:40	08:46	08:54
08:39	08:44	08:50	08:55	09:00	09:08
08:56	09:01	09:07	09:12	09:17	09:25
09:19	09:24	09:30	09:35	09:40	09:47
09:49	09:54	10:00	10:05	10:10	10:17
10:19	10:24	10:30	10:35	10:40	10:47
10:49	10:54	11:00	11:05	11:10	11:17
11:19	11:24	11:30	11:35	11:40	11:47
11:50	11:55	12:01	12:06	12:11	12:18
12:18	12:24	12:30	12:36	12:41	12:48
12:50	12:55	13:00	13:06	13:11	13:18
13:20	13:25	13:30	13:36	13:41	13:48
13:50	13:55	14:00	14:06	14:11	14:18
14:12	14:17	14:22	14:28	14:33	14:40
14:41	14:47	14:52	14:58	15:03	15:10
15:11	15:17	15:22	15:28	15:34	15:41
15:40	15:46	15:51	15:57	16:03	16:10
16:09	16:17	16:22	16:28	16:34	16:41
16:39	16:47	16:52	16:58	17:04	17:11
17:08	17:16	17:21	17:27	17:33	17:40
17:42	17:49	17:54	18:00	18:06	18:13
18:18	18:25	18:29	18:34	18:39	18:45
18:47	18:53	18:57	19:02	19:07	19:13
19:17	19:23	19:27	19:32	19:37	19:43
19:47	19:53	19:57	20:02	20:07	20:13

20:19	20:24	20:28	20:32	20:37	20:43
20:49	20:54	20:58	21:02	21:07	21:13
21:19	21:24	21:28	21:32	21:37	21:43
21:49	21:54	21:58	22:02	22:07	22:13
22:19	22:24	22:28	22:32	22:36	22:41
22:49	22:54	22:58	23:02	23:06	23:11

Schedule times are based on typical driving conditions and may vary. Please arrive at your stop a few minutes early to allow for any fluctuations in schedule.

Select Date
Tuesday, October 16, 2018

Select Route Number
96 Greenboro, Hurdman <-> Merivale

Search

More Options

96 GREENBORO & HURDMAN

GREENBORO & HURDMAN | MERIVALE & MERIVALE & COLONNADE

Tue, Oct 16

[L] Continues to Hurdman [V] Via Hunt Club Lowes [x] 96B

VIEW-MOUNT / GRANT CARMAN	MERIVALE / JAMIE	MERIVALE / SLACK	MACFAR-LANE / BRIGGS	340 WEST HUNT CLUB	HUNT CLUB / PRINCE OF WALES	SOUTH KEYS 2A	GREEN-BORO 2A	BILLINGS BRIDGE 2A	HURDMAN A
06:42[V]				06:48[V]	06:55	07:06	07:08		
07:42	07:47	07:49	07:50		07:57	08:09	08:11		
08:45	08:50	08:52	08:53		08:59	09:10	09:12		
09:45	09:50	09:52	09:53		09:58	10:09	10:11		
10:44	10:49	10:51	10:52		10:57	11:08	11:10		
11:44	11:49	11:51	11:52		11:58	12:10	12:12		
12:45	12:50	12:52	12:53		12:59	13:11	13:13		
13:45	13:50	13:52	13:53		13:59	14:11	14:13		
14:42	14:47	14:49	14:50		14:57	15:09	15:11		
15:10[L]	15:15[L]	15:17[L]	15:19[L]		15:26[L]	15:38[L]	15:39	15:44	15:52
15:26[L]	15:31[L]	15:33[L]	15:35[L]		15:42[L]	15:54[L]	15:55	16:00	16:08
15:41[L]	15:46[L]	15:48[L]	15:50[L]		15:57[L]	16:09[L]	16:10	16:15	16:23
15:54[L]	15:59[L]	16:01[L]	16:03[L]		16:10[L]	16:22[L]	16:23	16:28	16:36
16:09[L]	16:15[L]	16:17[L]	16:19[L]		16:27[L]	16:39[L]	16:40	16:45	16:55
16:24[L]	16:30[L]	16:32[L]	16:34[L]		16:42[L]	16:54[L]	16:55	17:00	17:10
16:39[L]	16:45[L]	16:47[L]	16:49[L]		16:57[L]	17:09[L]	17:10	17:15	17:25
16:54[L][V]				17:00[L][V]	17:07[L]	17:19[L]	17:20	17:25	17:35
17:09[L]	17:15[L]	17:17[L]	17:19[L]		17:27[L]	17:39[L]	17:40	17:45	17:55
17:24[L]	17:30[L]	17:32[L]	17:33[L]		17:40[L]	17:52[L]	17:53	17:58	18:06
17:37[L]	17:43[L]	17:45[L]	17:46[L]		17:53[L]	18:05[L]	18:06	18:11	18:19
17:55[L]	18:00[L]	18:02[L]	18:03[L]		18:09[L]	18:19[L]	18:20	18:25	18:32
18:11[L]	18:16[L]	18:18[L]	18:19[L]		18:25[L]	18:35[L]	18:36	18:41	18:48
18:31[L]	18:36[L]	18:38[L]	18:39[L]		18:45[L]	18:55[L]	18:56	19:01	19:08
19:01	19:06	19:08	19:09		19:15	19:25	19:26		
19:46	19:50	19:52	19:53		19:58	20:09	20:10		
20:40	20:44	20:46	20:47		20:52	21:03	21:04		
21:43	21:47	21:49	21:50		21:55	22:06	22:07		
				23:15[x]	23:22	23:33	23:34		

Schedule times are based on typical driving conditions and may vary. Please arrive at your stop a few minutes early to allow for any fluctuations in schedule.

Select Date
Tuesday, October 16, 2018

Select Route Number
186 Lincoln Fields <-> Merivale

Search

More Options

186 LINCOLN FIELDS

LINCOLN FIELDS | MERIVALE / SLACK

Tue, Oct 16

MERIVALE / SLACK	MEADOWLANDS / BAYNE	BASELINE 2B	LINCOLN FIELDS 4B
15:40	15:50	15:57	16:03
16:47	16:57	17:04	17:10
17:26	17:36	17:43	17:49

APPENDIX D – TRAFFIC DATA

McINTOSH PERRY

Merivale

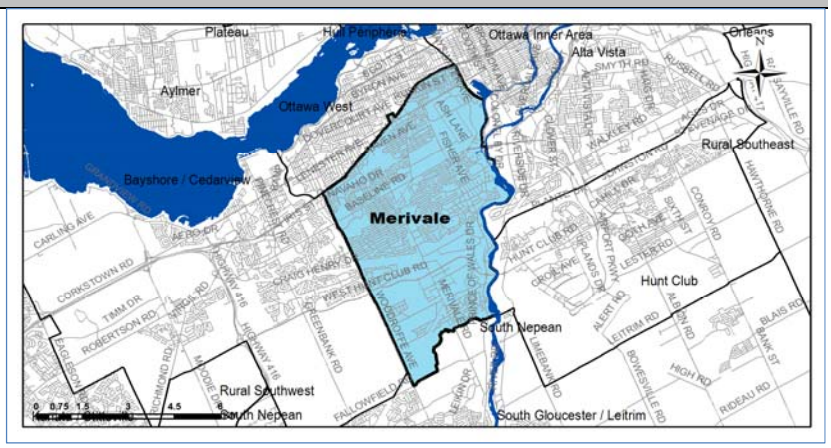
Demographic Characteristics

Population	77,720	Actively Travelled	61,960
Employed Population	34,650	Number of Vehicles	41,580
Households	32,990	Area (km^2)	38.8

Occupation Status (age 5+)	Male	Female	Total
Full Time Employed	15,970	14,080	30,050
Part Time Employed	1,660	2,940	4,600
Student	9,510	8,160	17,680
Retiree	6,960	9,020	15,980
Unemployed	1,340	1,130	2,470
Homemaker	50	1,980	2,030
Other	470	810	1,280
Total:	35,960	38,120	74,080

Traveller Characteristics	Male	Female	Total
Transit Pass Holders	7,770	8,770	16,540
Licensed Drivers	27,680	27,260	54,940
Telecommuters	140	150	290
Trips made by residents	98,530	103,670	202,200

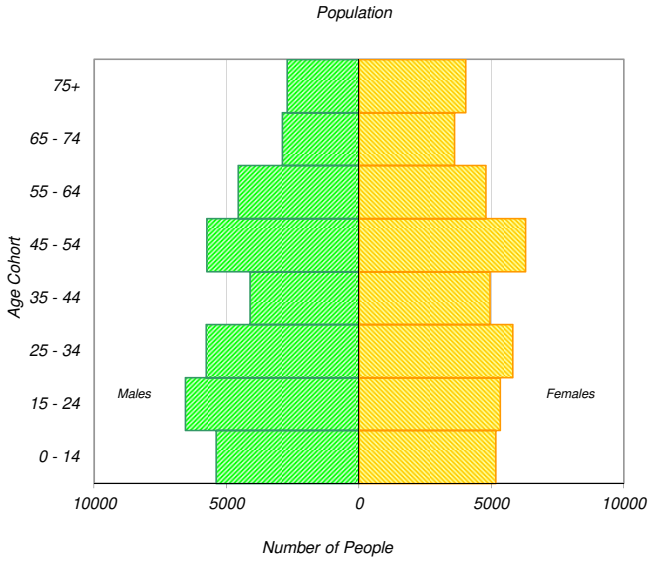
Selected Indicators	
Daily Trips per Person (age 5+)	2.73
Vehicles per Person	0.53
Number of Persons per Household	2.36
Daily Trips per Household	6.13
Vehicles per Household	1.26
Workers per Household	1.05
Population Density (Pop/km2)	2000

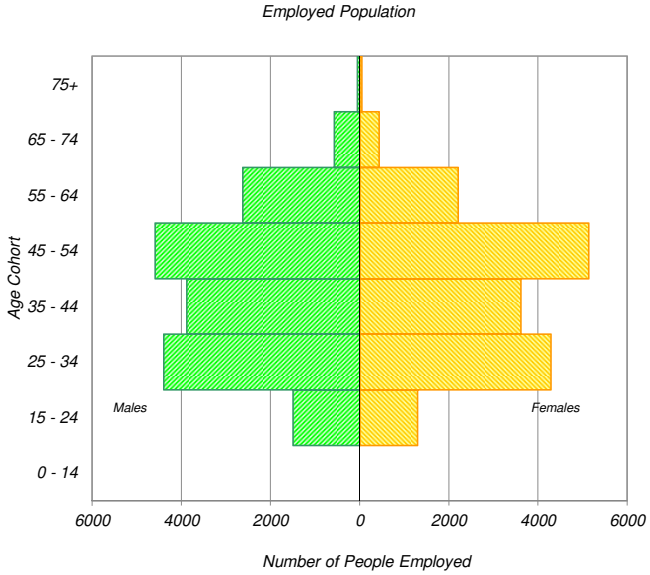


Household Size		
1 person	10,050	30%
2 persons	11,680	35%
3 persons	5,060	15%
4 persons	3,890	12%
5+ persons	2,310	7%
Total:	32,990	100%

Households by Vehicle Availability		
0 vehicles	5,150	16%
1 vehicle	17,220	52%
2 vehicles	8,490	26%
3 vehicles	1,580	5%
4+ vehicles	560	2%
Total:	32,990	100%

Households by Dwelling Type		
Single-detached	13,910	42%
Semi-detached	3,270	10%
Townhouse	4,320	13%
Apartment/Condo	11,490	35%
Total:	32,990	100%



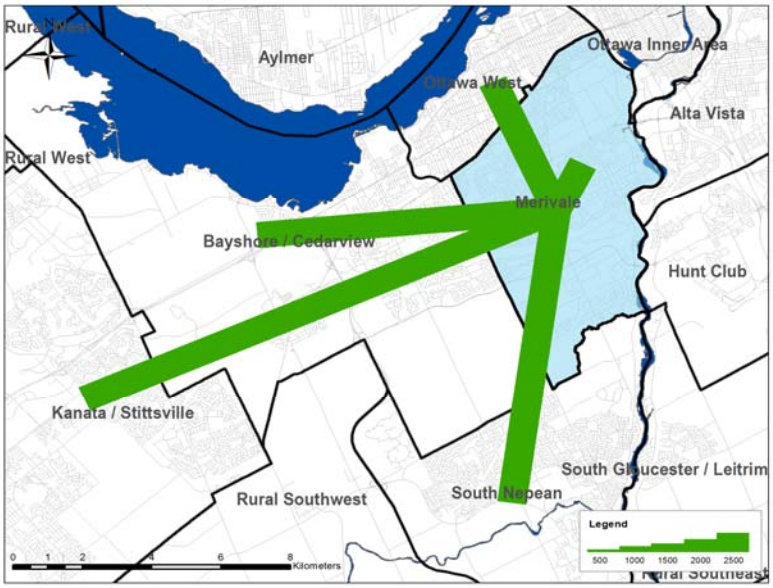


* In 2005 data was only collected for household members aged 11+ therefore these results cannot be compared to the 2011 data.

Travel Patterns

Top Five Origins of Trips to Merivale

AM Peak Period



Summary of Trips to and from Merivale

AM Peak Period (6:30 - 8:59)

Districts	Destinations of Trips From District	% Total	Origins of Trips To District	% Total
Ottawa Centre	4,710	11%	600	1%
Ottawa Inner Area	4,710	11%	3,260	7%
Ottawa East	780	2%	1,610	3%
Beacon Hill	580	1%	540	1%
Alta Vista	3,690	9%	3,010	6%
Hunt Club	960	2%	3,130	6%
Merivale	13,980	34%	13,980	28%
Ottawa West	4,960	12%	3,340	7%
Bayshore / Cedarview	2,850	7%	4,710	9%
Orléans	460	1%	1,940	4%
Rural East	10	0%	340	1%
Rural Southeast	10	0%	960	2%
South Gloucester / Leitrim	340	1%	770	2%
South Nepean	790	2%	4,310	9%
Rural Southwest	200	0%	840	2%
Kanata / Stittsvile	1,200	3%	3,410	7%
Rural West	70	0%	720	1%
Île de Hull	400	1%	130	0%
Hull Périphérie	180	0%	260	1%
Plateau	0	0%	190	0%
Aylmer	70	0%	520	1%
Rural Northwest	10	0%	250	1%
Pointe Gatineau	40	0%	320	1%
Gatineau Est	30	0%	310	1%
Rural Northeast	30	0%	30	0%
Buckingham / Masson-Angers	0	0%	100	0%
Ontario Sub-Total:	40,300	98%	47,470	96%
Québec Sub-Total:	760	2%	2,110	4%
Total:	41,060	100%	49,580	100%

Trips by Trip Purpose

24 Hours	From District		To District		Within District	
Work or related	26,740	17%	34,050	22%	8,200	9%
School	8,520	6%	15,360	10%	6,130	7%
Shopping	12,310	8%	18,860	12%	19,990	23%
Leisure	13,070	9%	13,870	9%	9,290	11%
Medical	3,690	2%	6,540	4%	2,460	3%
Pick-up / drive passenger	9,730	6%	9,810	6%	5,080	6%
Return Home	73,660	48%	48,810	32%	32,900	37%
Other	5,540	4%	6,050	4%	3,690	4%
Total:	153,260	100%	153,350	100%	87,740	100%

AM Peak (06:30 - 08:59)	From District		To District		Within District	
Work or related	16,720	62%	20,310	57%	4,120	29%
School	5,210	19%	8,320	23%	4,760	34%
Shopping	360	1%	520	1%	610	4%
Leisure	470	2%	880	2%	700	5%
Medical	620	2%	1,290	4%	300	2%
Pick-up / drive passenger	1,790	7%	2,450	7%	1,700	12%
Return Home	980	4%	1,110	3%	950	7%
Other	930	3%	740	2%	830	6%
Total:	27,080	100%	35,620	100%	13,970	100%

PM Peak (15:30 - 17:59)	From District		To District		Within District	
Work or related	1,110	3%	1,110	4%	310	2%
School	290	1%	750	2%	220	1%
Shopping	3,540	9%	3,240	10%	3,250	18%
Leisure	3,200	8%	2,840	9%	2,140	12%
Medical	160	0%	530	2%	310	2%
Pick-up / drive passenger	3,430	9%	2,690	9%	1,060	6%
Return Home	27,480	68%	18,570	59%	9,960	56%
Other	940	2%	1,530	5%	610	3%
Total:	40,150	100%	31,260	100%	17,860	100%

Peak Period (%)	Total:	% of 24 Hours	Within District (%)
24 Hours	394,350		22%
AM Peak Period	76,670	19%	18%
PM Peak Period	89,270	23%	20%

Trips by Primary Travel Mode

24 Hours	From District		To District		Within District	
Auto Driver	94,090	61%	94,010	61%	47,940	55%
Auto Passenger	22,640	15%	22,750	15%	13,260	15%
Transit	28,190	18%	27,930	18%	6,370	7%
Bicycle	2,400	2%	2,440	2%	1,340	2%
Walk	2,800	2%	2,790	2%	15,100	17%
Other	3,150	2%	3,420	2%	3,720	4%
Total:	153,270	100%	153,340	100%	87,730	100%

AM Peak (06:30 - 08:59)	From District		To District		Within District	
Auto Driver	14,480	53%	21,440	60%	6,050	43%
Auto Passenger	2,940	11%	4,180	12%	2,030	15%
Transit	6,960	26%	7,770	22%	1,500	11%
Bicycle	840	3%	660	2%	430	3%
Walk	600	2%	500	1%	2,380	17%
Other	1,270	5%	1,060	3%	1,580	11%
Total:	27,090	100%	35,610	100%	13,970	100%

PM Peak (15:30 - 17:59)	From District		To District		Within District	
Auto Driver	25,650	64%	18,310	59%	9,270	52%
Auto Passenger	5,440	14%	4,410	14%	2,650	15%
Transit	6,940	17%	6,070	19%	1,520	9%
Bicycle	590	1%	790	3%	310	2%
Walk	800	2%	890	3%	3,190	18%
Other	710	2%	790	3%	930	5%
Total:	40,130	100%	31,260	100%	17,870	100%

Avg Vehicle Occupancy	From District	To District	Within District
24 Hours	1.24	1.24	1.28
AM Peak Period	1.20	1.19	1.34
PM Peak Period	1.21	1.24	1.29

Transit Modal Split	From District	To District	Within District
24 Hours	19%	19%	9%
AM Peak Period	29%	23%	16%
PM Peak Period	18%	21%	11%

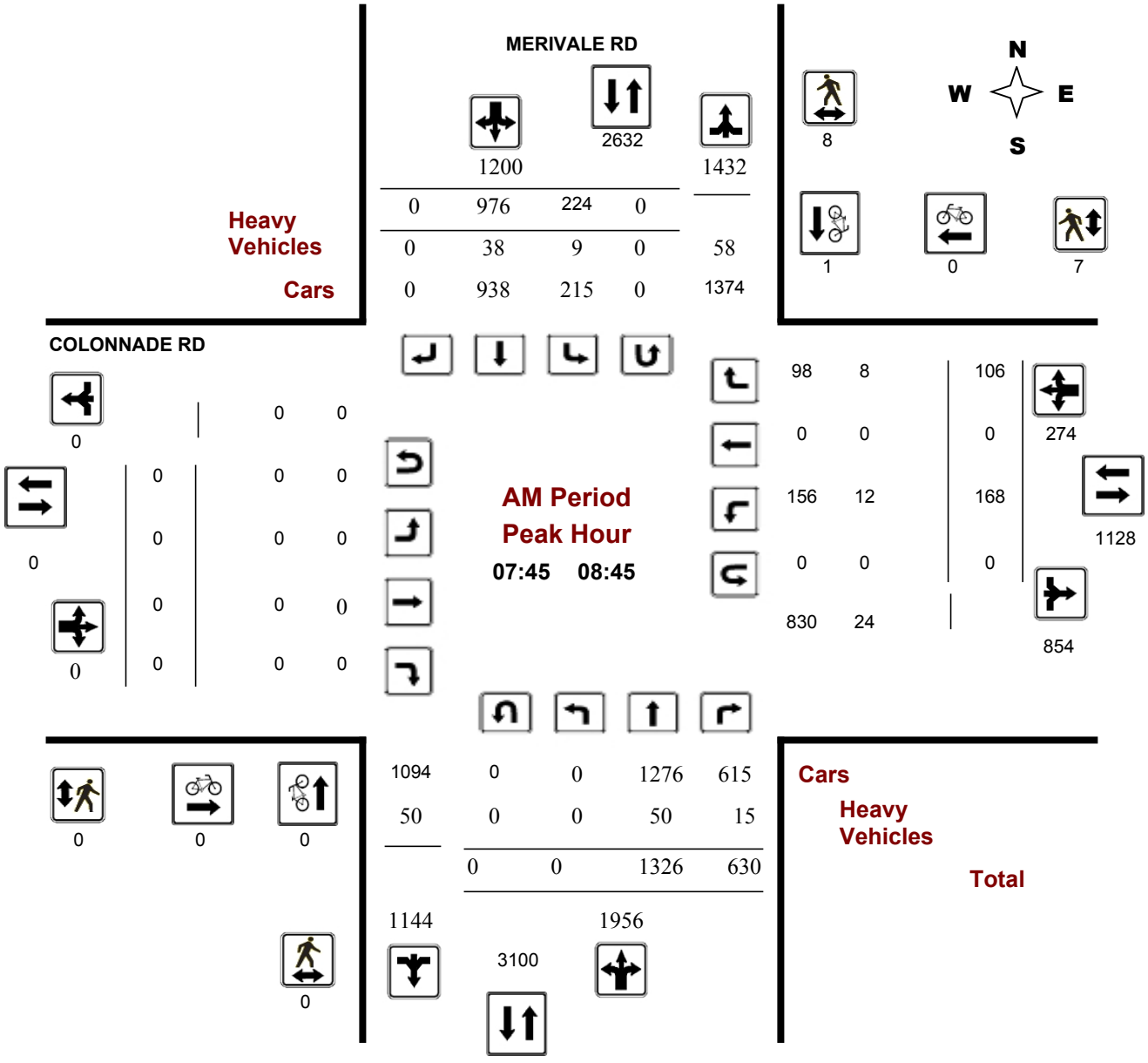
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

COLONNADE RD @ MERIVALE RD

Survey Date: Wednesday, February 07, 2018 **WO No:** 37512

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



Comments

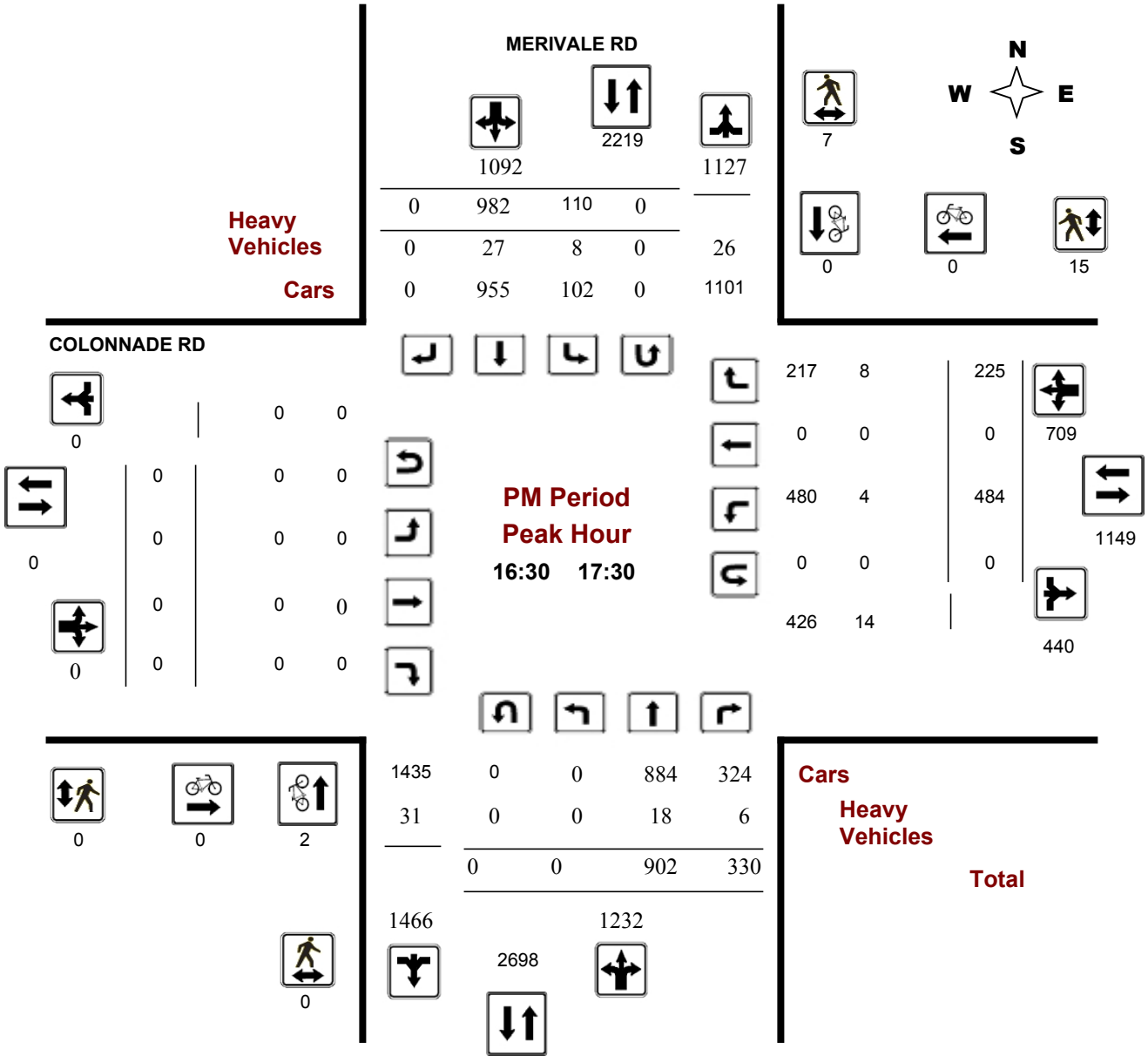
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

COLONNADE RD @ MERIVALE RD

Survey Date: Wednesday, February 07, 2018 **WO No:** 37512

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



Comments

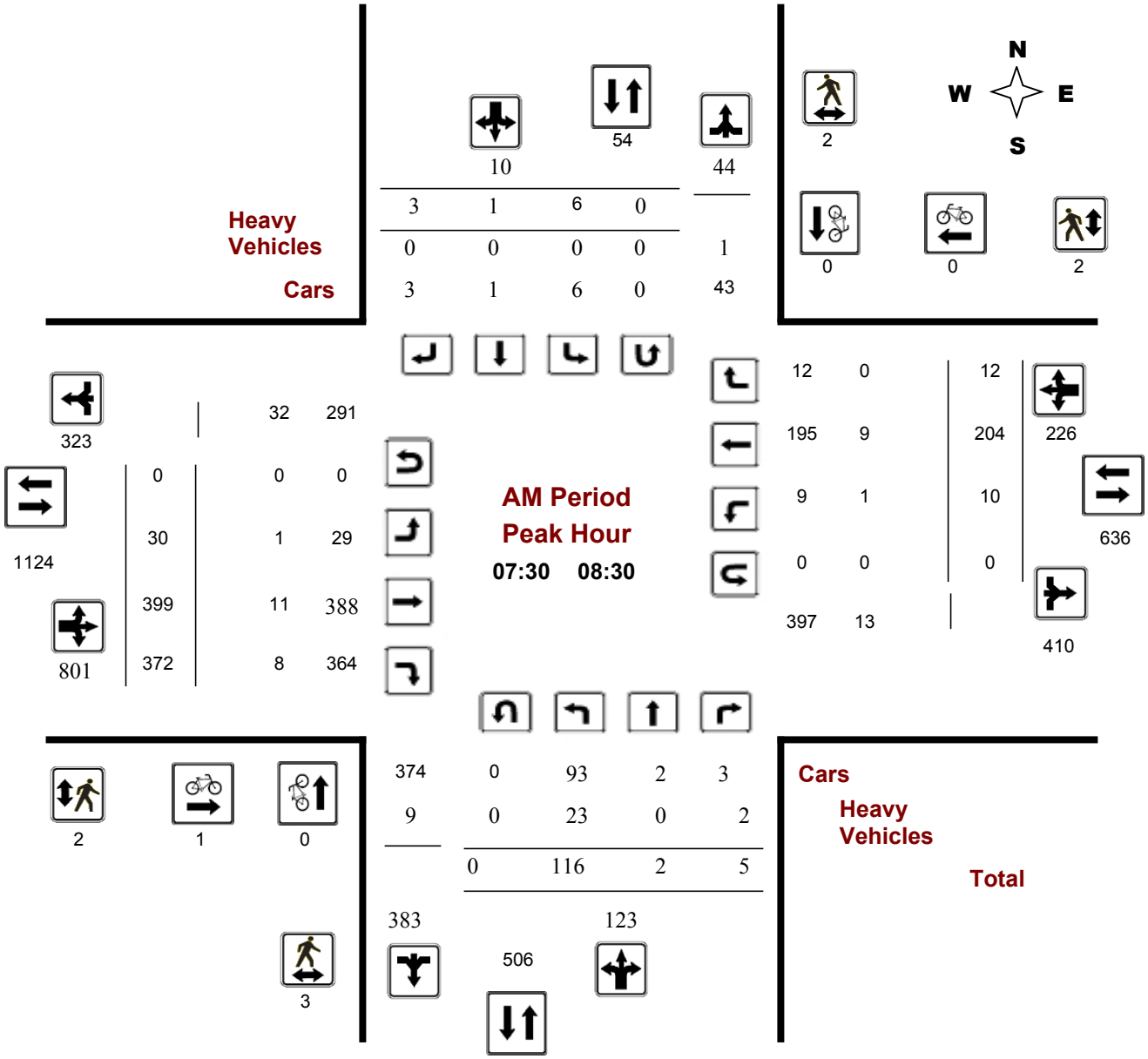
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

COLONNADE RD @ COLONNADE RD W

Survey Date: Tuesday, April 10, 2018 **WO No:** 37712

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



Comments

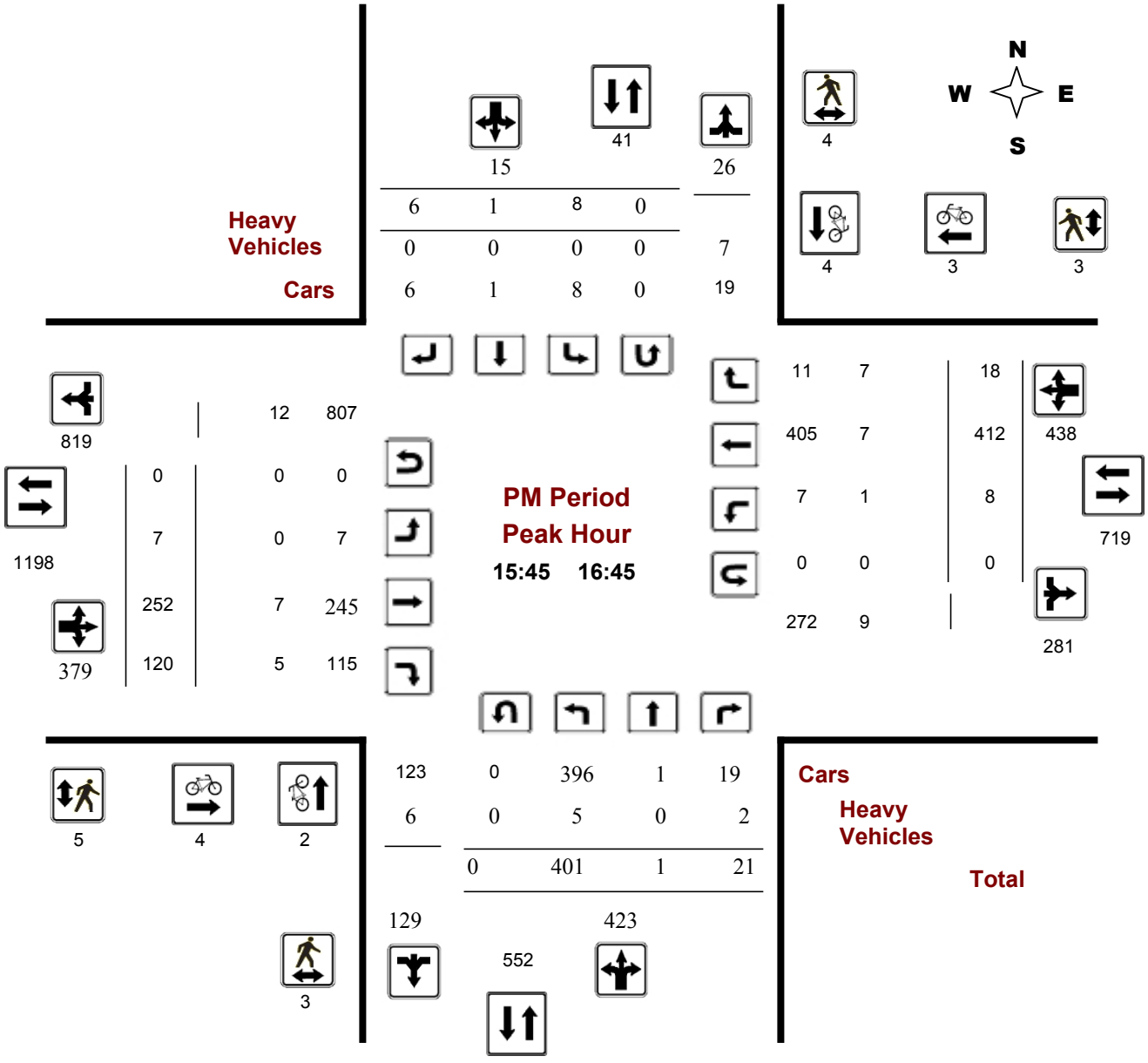
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

COLONNADE RD @ COLONNADE RD W

Survey Date: Tuesday, April 10, 2018 **WO No:** 37712

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



Comments

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

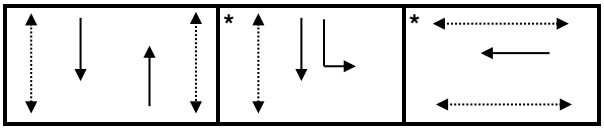
Intersection:	**Main:** Merivale	**Side:**	Colonnade
Controller:	**ATC-3**	**TSD:**	**5754**
Author:	Yassine Bennani	**Date:**	03-Oct-2018

Existing Timing Plans†

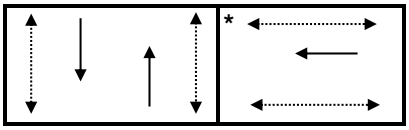
	Plan						**Ped Minimum Time**		
	AM Peak	**Off Peak**	**PM Peak**	**Night**	**Weekend**	**AM Rush**	***Walk***	***DW***	***A+R***
	1	2	3	4	5	21			
Cycle	110	110	130	80	110	130			
Offset	38	7	95	0	7	40			
NB Thru	52	58	78	50	58	70	7	31	3.7+3.1
SB Thru	52	58	78	50	58	70	7	31	3.7+3.1
SB Left	28	22	16	-	22	30	-	-	3.7+3.1
WB Thru	30	30	36	30	30	30	7	16	3.7+2.5

Phasing Sequence‡

Plan: 1, 2, 3, 5 & 21



Plan: 4



Notes:

1) There is a minimum recall for the WB lane on all plans except for plan 4.
2) Any unused time for the southbound left turn is provided to the WB movement. If there is no demand for the southbound left, all of its time is provided to the WB movement.

Schedule

Weekday

Time	Plan
0:15	4
6:00	1
7:00	21
9:30	2
15:00	3
18:30	2
22:00	4

Saturday

Time	Plan
0:15	4
8:00	2
9:30	5
18:00	2
22:30	4

Sunday

Time	Plan
0:15	4
9:30	2
10:00	5
17:30	2
22:30	4

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $56.50 ($50 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

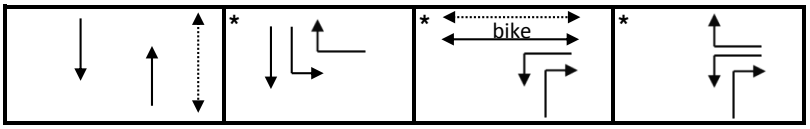
Intersection:	**Main:** Merivale	**Side:**	Colonnade
Controller:	**ATC-3**	**TSD:**	**5754**
Author:	Jaime Yeung Miller	**Date:**	17-Dec-2018

Existing Timing Plans†

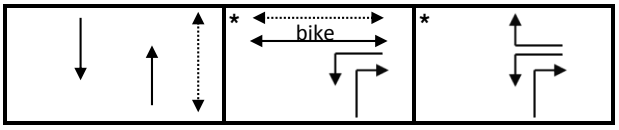
	Plan						**Ped Minimum Time**		
	AM Peak	**Off Peak**	**PM Peak**	**Night**	**Weekend**	**AM Rush**	***Walk***	***DW***	***A+R***
	1	2	3	4	5	21			
Cycle	120	110	130	95	110	130			
Offset	38	7	95	X	7	40			
NB Thru	48	47	72	45	48	58	7	28	3.7+3.2
SB Thru	76	67	88	45	68	88	-	-	3.7+3.2
SB Left	28	20	16	-	20	30	-	-	3.7+3.2
EW Bike/WBL	30	30	30	30	30	30	7	17	3.0+2.8
WB Left/Right	14	13	12	20	12	12	-	-	3.7+2.8

Phasing Sequence‡

Plan: 1, 2, 3, 5 & 21



Plan: 4



Notes: No SB Uturn; No WB Uturn; No WB Right turn on red

Schedule

Weekday

Time	Plan
0:15	4
6:00	1
7:00	21
9:30	2
15:00	3
18:30	2
22:00	4

Saturday

Time	Plan
0:15	4
8:00	2
9:30	5
18:00	2
22:30	4

Sunday

Time	Plan
0:15	4
9:30	2
10:00	5
17:30	2
22:30	4

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $56.50 ($50 + HST)

PC = Passenger Cars
HV = Heavy Vehicles
PD = Pedestrians

AM = morning
PM = evening

Field Data is from MPs TMCs (Nov 2018)

Intersection: Ste Entrance and Colonnade Rd

	TIME	NB						SB						EB						WB						Sum 15	Sum Hour
		L		T		R		L		T		R		L		T		R		L		T		R			
		PC	HV	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV		
AM	7:15 - 7:30							0	0			0	0	3	0	129	0					48	9	2	0	191	
Nov 8/ 18	7:30 - 7:45							0	0			1	0	3	0	208	4					59	5	1	0	281	
	7:45 - 8:00							1	0			1	0	2	0	198	1					47	9	1	0	260	
	8:00 - 8:15							1	0			0	0	5	1	214	4					85	1	3	0	314	1046
	8:15 - 8:30							0	0			0	1	8	0	213	4					88	4	3	0	321	1176
	8:30 - 8:45							2	0			2	0	4	0	160	2					78	5	2	0	255	1150
	8:45 - 9:00							3	0			0	0	4	0	195	2					80	2	4	1	291	1181
	9:00 - 9:15							0	0			0	0	3	0	126	4					44	3	1	0	181	1048

Intersection: Ste Entrance and Colonnade Rd

	TIME	NB						SB						EB						WB						Sum 15	Sum Hour
		L		T		R		L		T		R		L		T		R		L		T		R			
		PC	HV	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV		
PM	3:45 - 4:00							1	0			2	0	2	0	90	1					200	2	0	0	298	
Nov 8/ 18	4:00 - 4:15							2	0			3	0	5	0	108	3					221	3	1	0	346	
	4:15 - 4:30							4	0			2	0	5	0	108	3					175	2	1	0	300	
	4:30 - 4:45							6	0			1	0	2	0	86	3					205	2	1	0	306	1250
	4:45 - 5:00							8	1			0	0	5	1	135	3					147	7	1	0	308	1260
	5:00 - 5:15							3	0			5	0	1	0	96	7					172	2	2	0	288	1202
	5:15 - 5:30							2	0			1	0	2	0	85	2					130	1	1	1	225	1127
	5:30 - 5:45							1	0			2	0	1	0	80	2					105	1	0	0	192	1013

2018

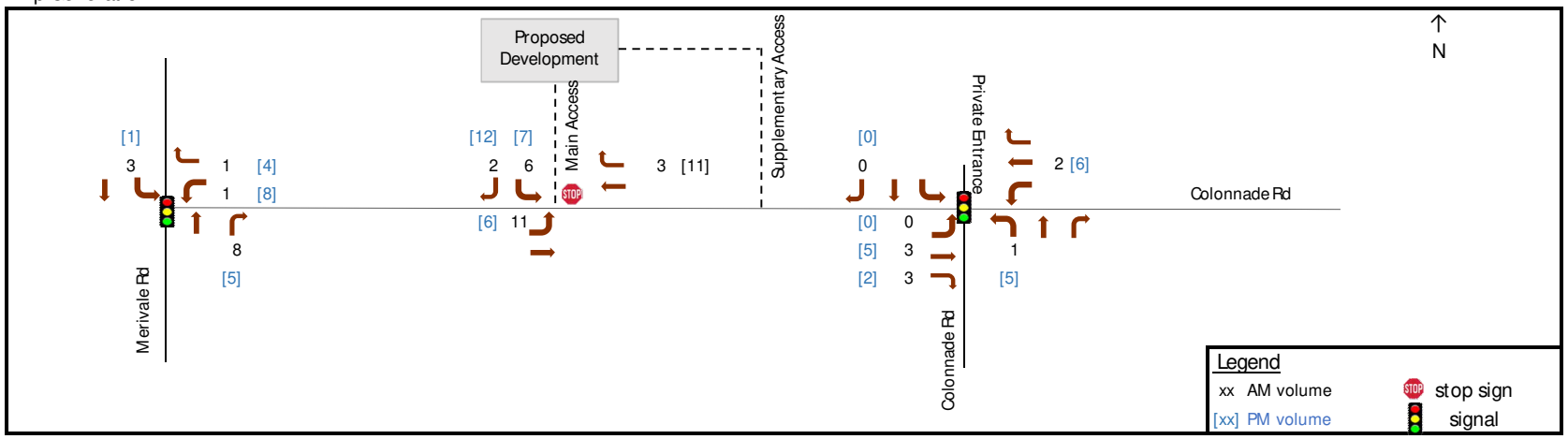
Intersection	Period	NB			SB			EB			WB		
		L	T	R	L	T	R	L	T	R	L	T	R
Site Entrance and Colonnade Rd	AM	x	x	x	6	x	3	22	794	x	x	343	13
	PM	x	x	x	21	x	6	18	449	x	x	762	4

PEDS*		
North crossing	West crossing	East crossing
3	0	2
5	1	2

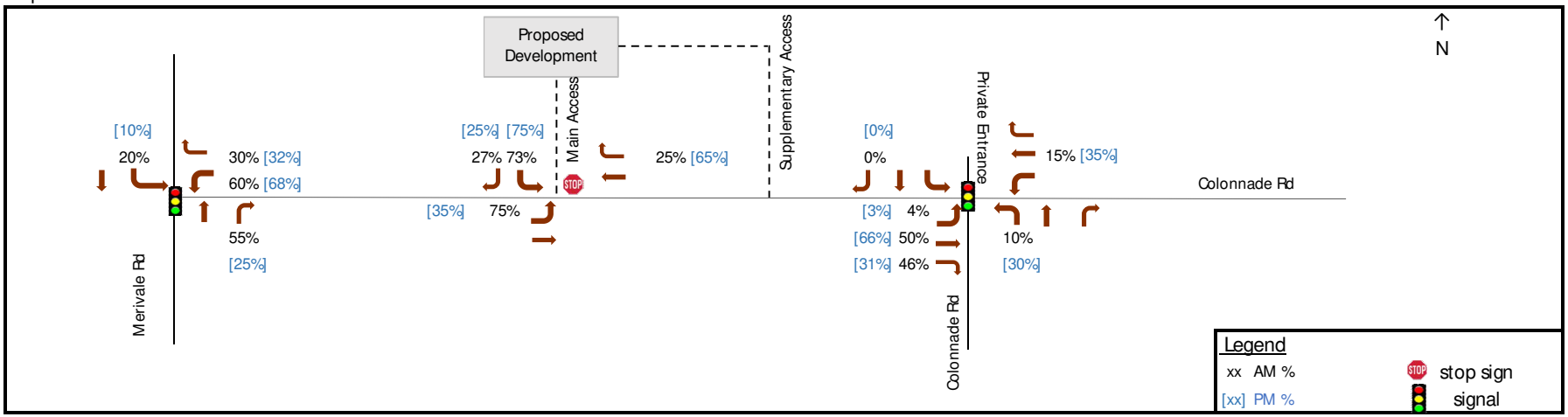
*Only actual crossing at north side, west and east peds were jaywalking

APPENDIX E – TRAFFIC VOLUME FIGURES

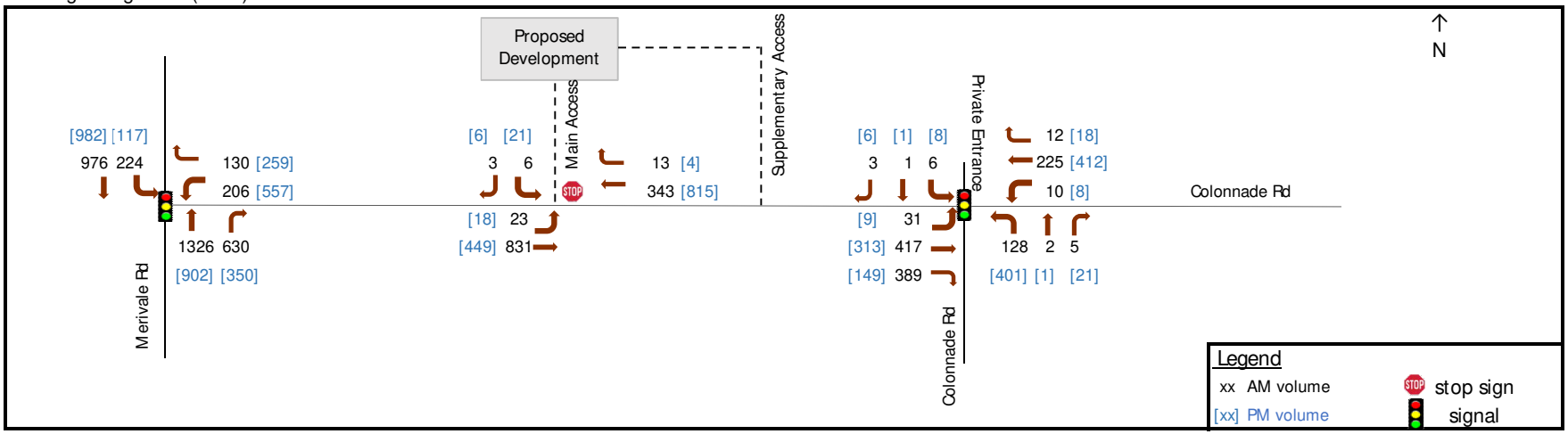
Trip Generation



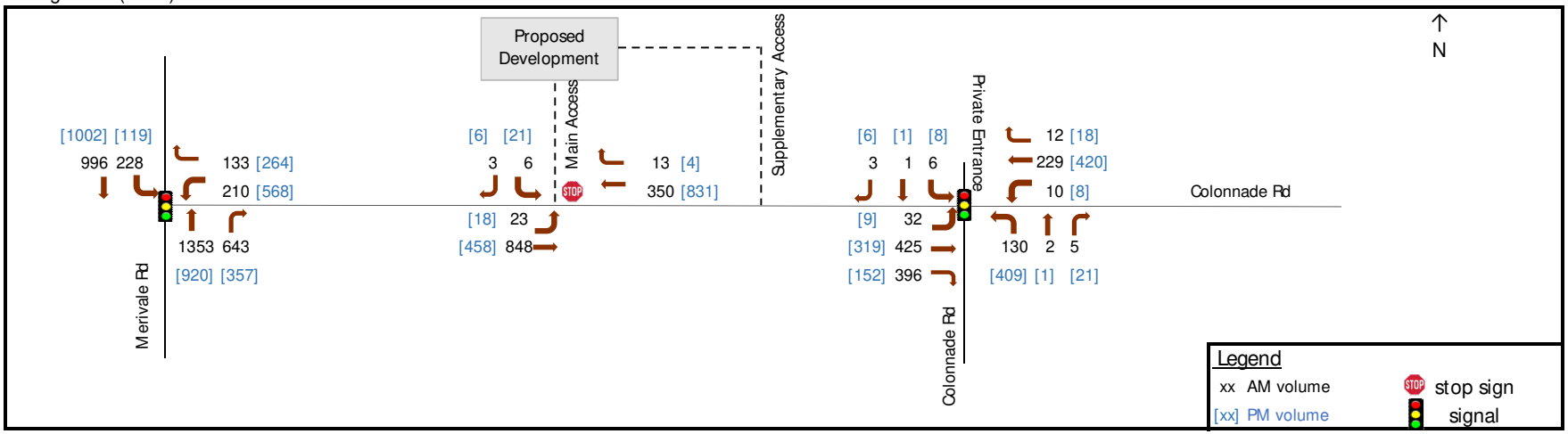
Trip Generation %



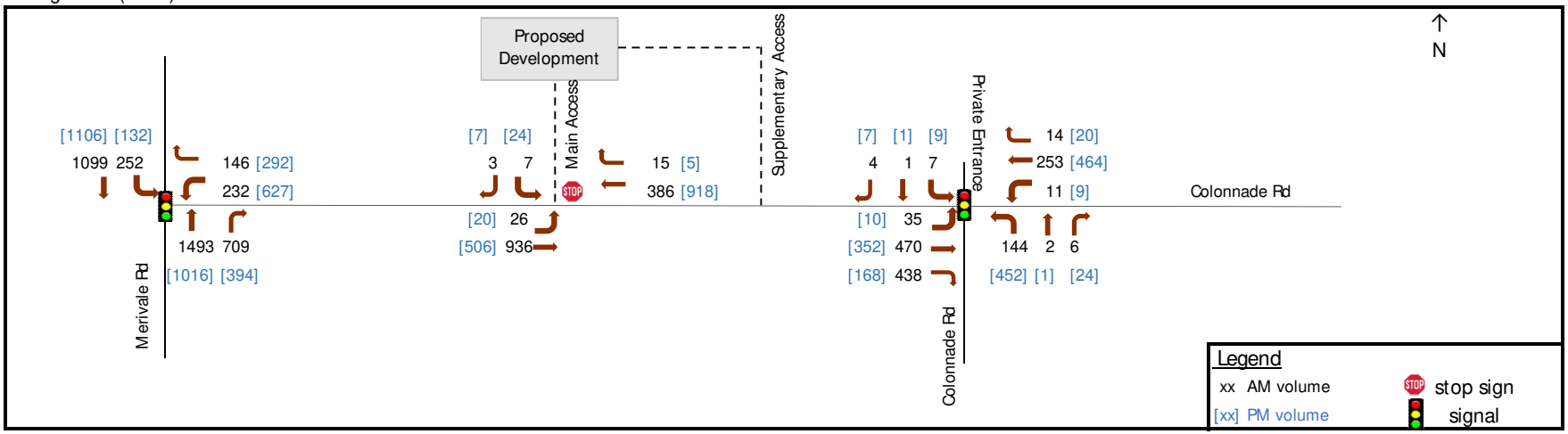
Existing Background (2018)



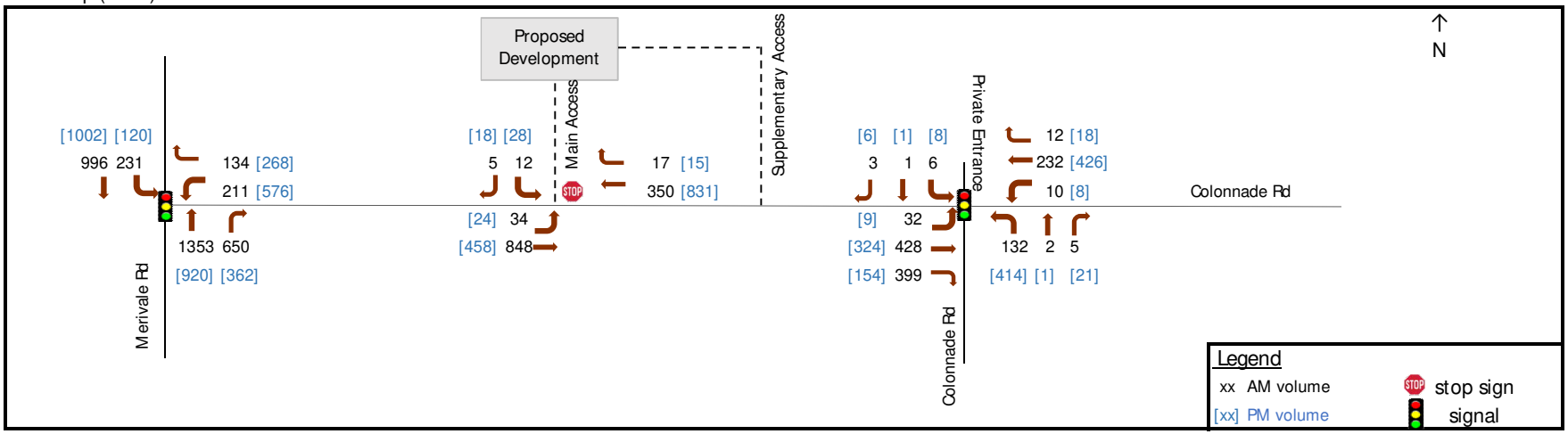
Background (2019)



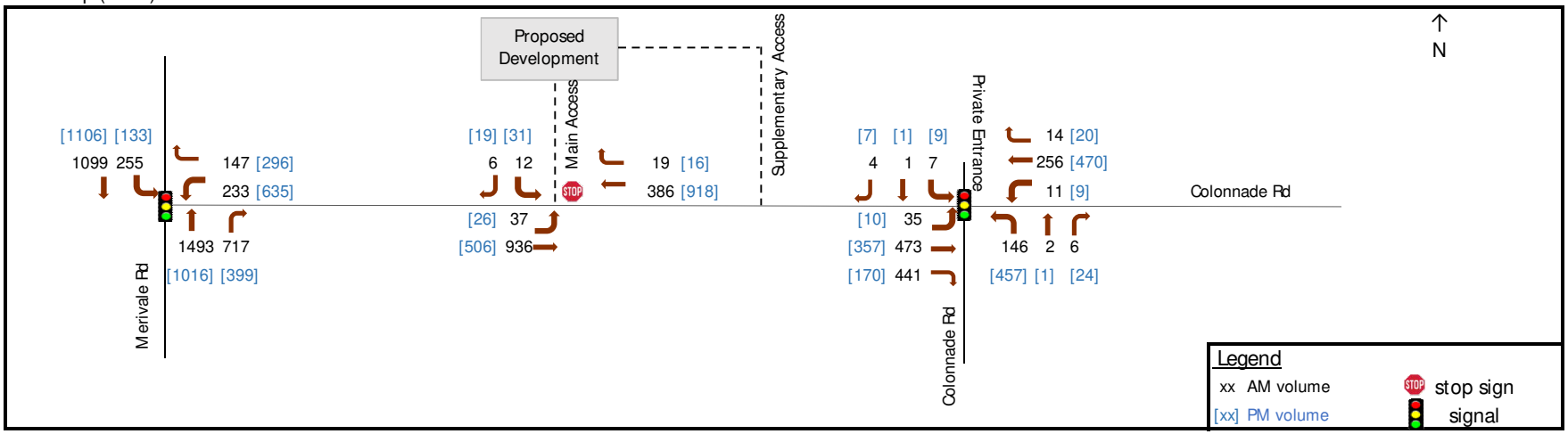
Background (2024)



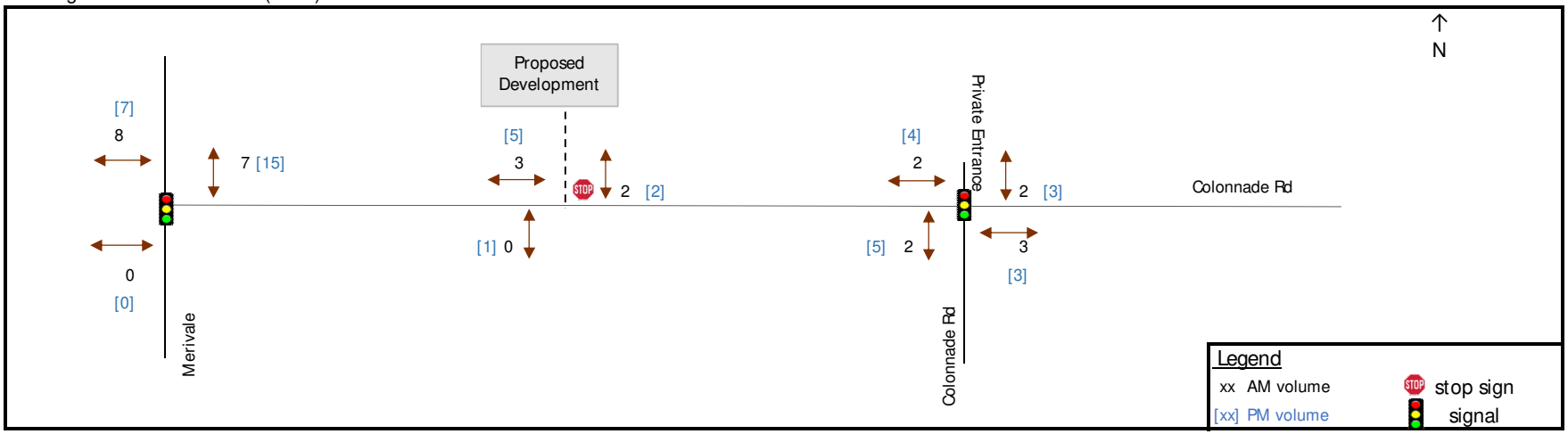
Total Trip (2019)



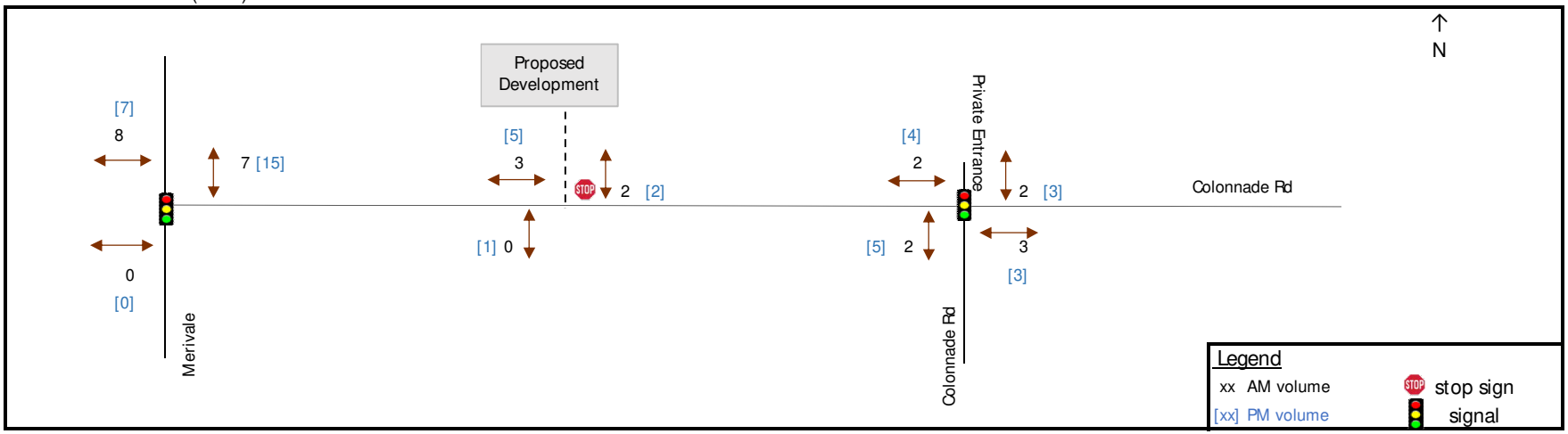
Total Trip (2024)



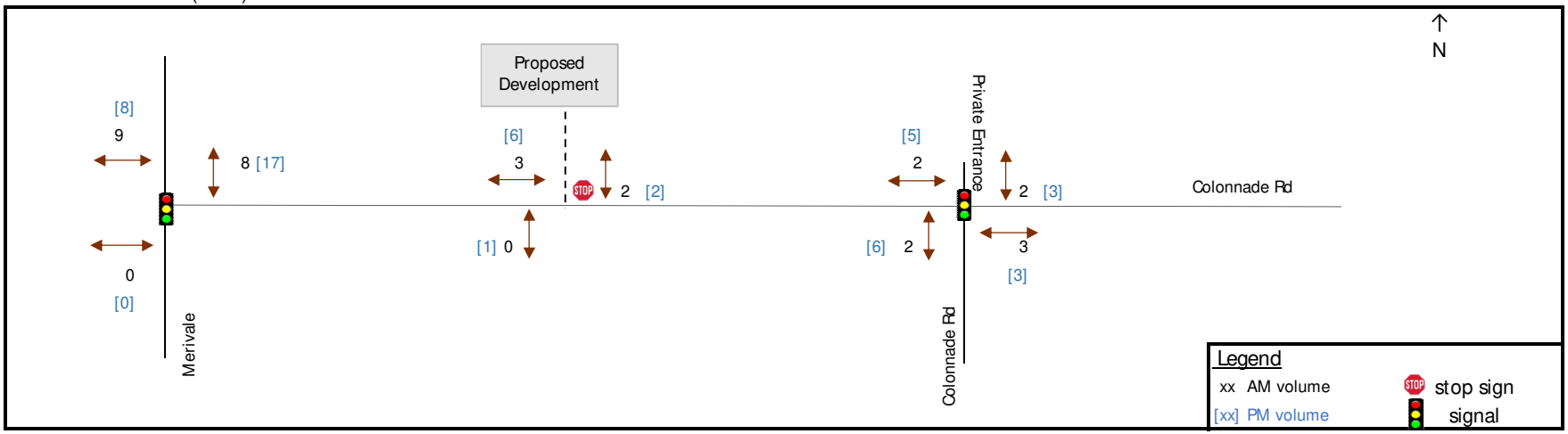
Existing Pedestrians Volume (2018)



Pedestrians Volume (2019)



Pedestrians Volume (2024)



APPENDIX F – SYNCHRO REPORTS

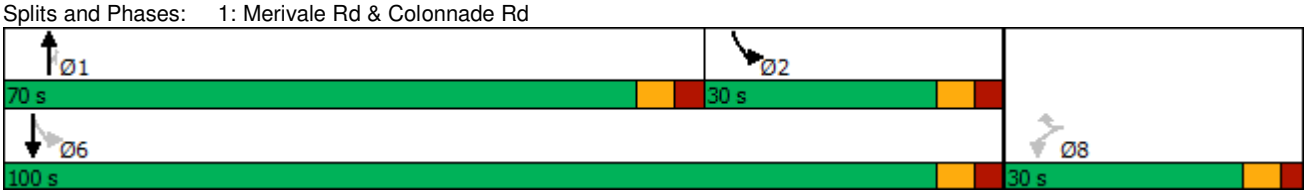
McINTOSH PERRY

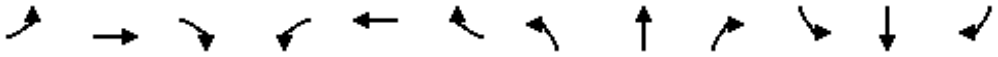
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	206	130	1326	630	224	976
Future Volume (vph)	206	130	1326	630	224	976
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.5	0.0		33.5	153.0	
Storage Lanes	1	1		1	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor		0.97		0.97		
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3273	1495	3471	1583	1736	3471
Flt Permitted	0.950				0.081	
Satd. Flow (perm)	3273	1458	3471	1533	148	3471
Right Turn on Red		No		Yes		
Satd. Flow (RTOR)				253		
Link Speed (k/h)	60		60			60
Link Distance (m)	194.6		836.4			930.5
Travel Time (s)	11.7		50.2			55.8
Confl. Peds. (#/hr)		8		7	7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	8%	4%	2%	4%	4%
Adj. Flow (vph)	229	144	1473	700	249	1084
Shared Lane Traffic (%)						
Lane Group Flow (vph)	229	144	1473	700	249	1084
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.2		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			1		2	6
Permitted Phases	8	8		1	6	
Detector Phase	8	8	1	1	2	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	10.0	10.0	20.0	20.0	5.0	20.0
Minimum Split (s)	30.0	30.0	48.8	48.8	11.8	26.8
Total Split (s)	30.0	30.0	70.0	70.0	30.0	100.0
Total Split (%)	23.1%	23.1%	53.8%	53.8%	23.1%	76.9%
Maximum Green (s)	23.8	23.8	63.2	63.2	23.2	93.2
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.5	2.5	3.1	3.1	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.8	6.8	6.8	6.8
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	None	Min
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	16.0	16.0	31.0	31.0		
Pedestrian Calls (#/hr)	8	8	7	7		
Act Effct Green (s)	16.5	16.5	53.5	53.5	76.5	76.5
Actuated g/C Ratio	0.15	0.15	0.50	0.50	0.72	0.72
v/c Ratio	0.45	0.64	0.85	0.78	0.73	0.44
Control Delay	46.4	59.3	29.5	21.6	45.7	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.4	59.3	29.5	21.6	45.7	6.9
LOS	D	E	C	C	D	A
Approach Delay	51.3		27.0			14.1
Approach LOS	D		C			B

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 106.6	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 24.9	Intersection LOS: C
Intersection Capacity Utilization 76.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Merivale Rd & Colonnade Rd



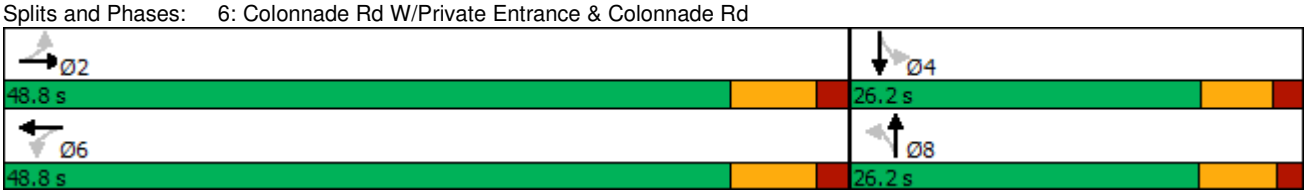


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	417	389	10	225	12	128	2	5	6	1	3
Future Volume (vph)	31	417	389	10	225	12	128	2	5	6	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	33.0		0.0	49.5		0.0	34.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.98	
Frt		0.928			0.993			0.887			0.887	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1700	0	1641	1816	0	1504	1273	0	1805	1655	0
Flt Permitted	0.597			0.190			0.755			0.752		
Satd. Flow (perm)	1099	1700	0	328	1816	0	1191	1273	0	1424	1655	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		101			6			6			3	
Link Speed (k/h)		60			60			50			40	
Link Distance (m)		348.1			694.9			287.6			127.7	
Travel Time (s)		20.9			41.7			20.7			11.5	
Confl. Peds. (#/hr)	2		3	3		2	2		2	2		2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	2%	10%	4%	0%	20%	0%	40%	0%	0%	0%
Adj. Flow (vph)	34	463	432	11	250	13	142	2	6	7	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	895	0	11	263	0	142	8	0	7	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.9	34.9		34.9	34.9		26.1	26.1		26.0	26.0	
Total Split (s)	48.8	48.8		48.8	48.8		26.2	26.2		26.2	26.2	
Total Split (%)	65.1%	65.1%		65.1%	65.1%		34.9%	34.9%		34.9%	34.9%	
Maximum Green (s)	41.9	41.9		41.9	41.9		20.1	20.1		20.2	20.2	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.1	4.1	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.6	1.6		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.1	6.1		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	3	3		2	2		2	2		2	2	
Act Effct Green (s)	41.0	41.0		41.0	41.0		13.8	13.8		13.9	13.9	
Actuated g/C Ratio	0.66	0.66		0.66	0.66		0.22	0.22		0.23	0.23	
v/c Ratio	0.05	0.77		0.05	0.22		0.53	0.03		0.02	0.01	
Control Delay	6.9	16.6		7.7	7.3		31.7	14.7		21.0	15.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.9	16.6		7.7	7.3		31.7	14.7		21.0	15.5	
LOS	A	B		A	A		C	B		C	B	
Approach Delay		16.2			7.3			30.8			19.0	
Approach LOS		B			A			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 61.7			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 16.1		Intersection LOS: B	
Intersection Capacity Utilization 70.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Colonnade Rd W/Private Entrance & Colonnade Rd



Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	831	343	13	6	3
Future Vol, veh/h	23	831	343	13	6	3
Conflicting Peds, #/hr	3	0	0	3	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	780	-	-	990	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	3	8	0	0	0
Mvmt Flow	26	923	381	14	7	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	398	0	-	0	1368	201
Stage 1	-	-	-	-	391	-
Stage 2	-	-	-	-	977	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1172	-	-	-	151	813
Stage 1	-	-	-	-	659	-
Stage 2	-	-	-	-	368	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	1169	-	-	-	147	811
Mov Cap-2 Maneuver	-	-	-	-	147	-
Stage 1	-	-	-	-	643	-
Stage 2	-	-	-	-	367	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	23.6
HCM LOS			C

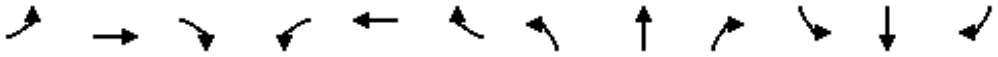
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1169	-	-	-	147	811
HCM Lane V/C Ratio	0.022	-	-	-	0.045	0.004
HCM Control Delay (s)	8.1	-	-	-	30.7	9.5
HCM Lane LOS	A	-	-	-	D	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	557	259	902	350	117	982
Future Volume (vph)	557	259	902	350	117	982
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.5	0.0		33.5	153.0	
Storage Lanes	1	1		1	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor		0.98		0.95	1.00	
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3467	1509	3539	1488	1586	3505
Flt Permitted	0.950				0.188	
Satd. Flow (perm)	3467	1474	3539	1421	312	3505
Right Turn on Red		No		Yes		
Satd. Flow (RTOR)				234		
Link Speed (k/h)	60		60			60
Link Distance (m)	194.6		836.4			930.5
Travel Time (s)	11.7		50.2			55.8
Confl. Peds. (#/hr)		7		15	15	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	4%	2%	2%	7%	3%
Bus Blockages (#/hr)	0	7	0	15	15	0
Adj. Flow (vph)	619	288	1002	389	130	1091
Shared Lane Traffic (%)						
Lane Group Flow (vph)	619	288	1002	389	130	1091
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.2		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.04	1.00	1.08	1.08	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			1		2	6
Permitted Phases	8	8		1	6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	1	1	2	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	20.0	20.0	5.0	20.0
Minimum Split (s)	36.0	36.0	48.8	48.8	11.8	26.8
Total Split (s)	36.0	36.0	78.0	78.0	16.0	94.0
Total Split (%)	27.7%	27.7%	60.0%	60.0%	12.3%	72.3%
Maximum Green (s)	29.8	29.8	71.2	71.2	9.2	87.2
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.5	2.5	3.1	3.1	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.8	6.8	6.8	6.8
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	None	Min
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	16.0	16.0	31.0	31.0		
Pedestrian Calls (#/hr)	7	7	15	15		
Act Effct Green (s)	22.6	22.6	31.6	31.6	44.3	44.3
Actuated g/C Ratio	0.28	0.28	0.39	0.39	0.55	0.55
v/c Ratio	0.63	0.70	0.72	0.55	0.49	0.56
Control Delay	29.0	36.6	24.3	10.9	25.5	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	36.6	24.3	10.9	25.5	13.5
LOS	C	D	C	B	C	B
Approach Delay	31.4		20.5			14.8
Approach LOS	C		C			B

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 80.3			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 21.3		Intersection LOS: C	
Intersection Capacity Utilization 67.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Merivale Rd & Colonnade Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	313	149	8	412	18	401	1	21	8	1	6
Future Volume (vph)	9	313	149	8	412	18	401	1	21	8	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	33.0		0.0	49.5		0.0	34.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		0.99	0.98		1.00	0.98	
Frt		0.952			0.994			0.856			0.869	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1738	0	1597	1823	0	1787	1462	0	1805	1611	0
Flt Permitted	0.378			0.338			0.752			0.742		
Satd. Flow (perm)	717	1738	0	568	1823	0	1404	1462	0	1404	1611	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52			5			23			7	
Link Speed (k/h)		60			60			50			40	
Link Distance (m)		348.1			694.9			287.6			127.7	
Travel Time (s)		20.9			41.7			20.7			11.5	
Confl. Peds. (#/hr)	4		3	3		4	5		3	3		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	3%	4%	13%	2%	38%	1%	0%	9%	0%	0%	0%
Adj. Flow (vph)	10	348	166	9	458	20	446	1	23	9	1	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	514	0	9	478	0	446	24	0	9	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.9	34.9		34.9	34.9		26.1	26.1		26.0	26.0	
Total Split (s)	34.9	34.9		34.9	34.9		26.1	26.1		26.0	26.0	
Total Split (%)	57.2%	57.2%		57.2%	57.2%		42.8%	42.8%		42.6%	42.6%	
Maximum Green (s)	28.0	28.0		28.0	28.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.1	4.1	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.6	1.6		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.1	6.1		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	3	3		4	4		3	3		5	5	
Act Effct Green (s)	22.1	22.1		22.1	22.1		20.1	20.1		20.2	20.2	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.36	0.36		0.37	0.37	
v/c Ratio	0.03	0.71		0.04	0.65		0.87	0.04		0.02	0.01	
Control Delay	10.0	18.4		10.1	18.1		39.4	6.9		12.9	8.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.0	18.4		10.1	18.1		39.4	6.9		12.9	8.9	
LOS	A	B		B	B		D	A		B	A	
Approach Delay		18.3			17.9			37.8			11.0	
Approach LOS		B			B			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 61			
Actuated Cycle Length: 55.2			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 24.2		Intersection LOS: C	
Intersection Capacity Utilization 65.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Colonnade Rd W/Private Entrance & Colonnade Rd

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	449	815	4	21	6
Future Vol, veh/h	18	449	815	4	21	6
Conflicting Peds, #/hr	5	0	0	5	2	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	780	-	-	990	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	3	2	0	0	0
Mvmt Flow	20	499	906	4	23	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	915	0	-	0	1454	461
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	541	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	754	-	-	-	134	553
Stage 1	-	-	-	-	356	-
Stage 2	-	-	-	-	588	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	751	-	-	-	129	550
Mov Cap-2 Maneuver	-	-	-	-	129	-
Stage 1	-	-	-	-	345	-
Stage 2	-	-	-	-	586	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	32.9
HCM LOS			D

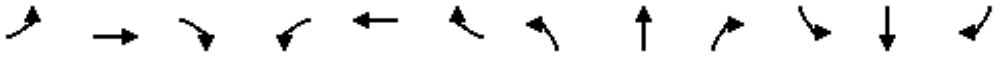
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	751	-	-	-	129	550
HCM Lane V/C Ratio	0.027	-	-	-	0.181	0.012
HCM Control Delay (s)	9.9	-	-	-	39	11.6
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	210	133	1353	643	228	996
Future Volume (vph)	210	133	1353	643	228	996
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.5	0.0		33.5	153.0	
Storage Lanes	1	1		1	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor		0.96		0.96		
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3273	1495	3471	1583	1736	3471
Flt Permitted	0.950				0.074	
Satd. Flow (perm)	3273	1437	3471	1525	135	3471
Right Turn on Red		No		Yes		
Satd. Flow (RTOR)				354		
Link Speed (k/h)	60		60			60
Link Distance (m)	194.6		836.4			930.5
Travel Time (s)	11.7		50.2			55.8
Confl. Peds. (#/hr)		8		7	7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	7%	8%	4%	2%	4%	4%
Adj. Flow (vph)	210	133	1353	643	228	996
Shared Lane Traffic (%)						
Lane Group Flow (vph)	210	133	1353	643	228	996
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.2		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	pm+ov	pm+pt	NA
Protected Phases	8		2	8	1	6
Permitted Phases	8	7		2	6	
Detector Phase	8	7	2	8	1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	29.8	11.5	44.9	29.8	11.9	26.9
Total Split (s)	30.0	17.0	54.0	30.0	19.0	73.0
Total Split (%)	25.0%	14.2%	45.0%	25.0%	15.8%	60.8%
Maximum Green (s)	24.2	10.5	47.1	24.2	12.1	66.1
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.8	2.8	3.2	2.8	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	6.5	6.9	5.8	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	None	None	Max
Walk Time (s)	7.0		7.0	7.0		
Flash Dont Walk (s)	17.0		28.0	17.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	13.0	10.5	47.1	61.2	66.1	66.1
Actuated g/C Ratio	0.12	0.10	0.43	0.56	0.61	0.61
v/c Ratio	0.54	0.96	0.90	0.63	0.88	0.47
Control Delay	50.3	118.0	38.7	8.2	59.1	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	118.0	38.7	8.2	59.1	13.0
LOS	D	F	D	A	E	B
Approach Delay	76.5		28.8			21.6
Approach LOS	E		C			C

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 108.8			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 30.9		Intersection LOS: C	
Intersection Capacity Utilization 75.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Merivale Rd & Colonnade Rd

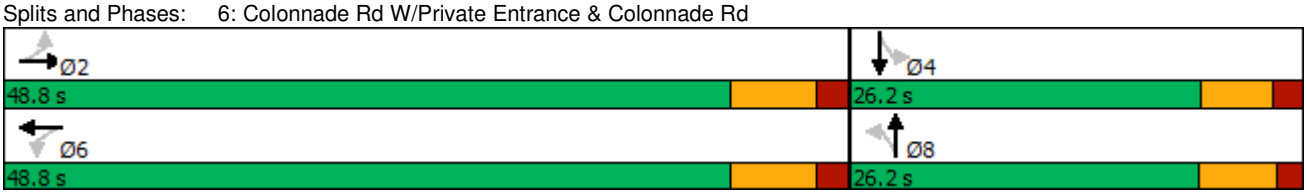


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	425	396	10	229	12	130	2	5	6	1	3
Future Volume (vph)	32	425	396	10	229	12	130	2	5	6	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	33.0		0.0	49.5		0.0	34.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.98	
Frt		0.928			0.993			0.893			0.887	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1700	0	1641	1816	0	1504	1297	0	1805	1655	0
Flt Permitted	0.609			0.229			0.755			0.753		
Satd. Flow (perm)	1121	1700	0	395	1816	0	1191	1297	0	1425	1655	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		101			6			5			3	
Link Speed (k/h)		60			60			50			40	
Link Distance (m)		348.1			694.9			287.6			127.7	
Travel Time (s)		20.9			41.7			20.7			11.5	
Confl. Peds. (#/hr)	2		3	3		2	2		2	2		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 (%)	3%	3%	2%	10%	4%	0%	20%	0%	40%	0%	0%	0%
Adj. Flow (vph)	32	425	396	10	229	12	130	2	5	6	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	821	0	10	241	0	130	7	0	6	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.9	34.9		34.9	34.9		26.1	26.1		26.0	26.0	
Total Split (s)	48.8	48.8		48.8	48.8		26.2	26.2		26.2	26.2	
Total Split (%)	65.1%	65.1%		65.1%	65.1%		34.9%	34.9%		34.9%	34.9%	
Maximum Green (s)	41.9	41.9		41.9	41.9		20.1	20.1		20.2	20.2	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.1	4.1	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.6	1.6		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.1	6.1		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	3	3		2	2		2	2		2	2	
Act Effct Green (s)	37.8	37.8		37.8	37.8		13.3	13.3		13.4	13.4	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.23	0.23		0.23	0.23	
v/c Ratio	0.04	0.72		0.04	0.20		0.48	0.02		0.02	0.01	
Control Delay	6.9	14.4		7.3	7.2		28.7	15.3		20.5	15.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.9	14.4		7.3	7.2		28.7	15.3		20.5	15.8	
LOS	A	B		A	A		C	B		C	B	
Approach Delay		14.1			7.2			28.1			18.6	
Approach LOS		B			A			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 58.3			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 14.3		Intersection LOS: B	
Intersection Capacity Utilization 71.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Colonnade Rd W/Private Entrance & Colonnade Rd



Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	848	350	13	6	3
Future Vol, veh/h	23	848	350	13	6	3
Conflicting Peds, #/hr	3	0	0	3	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	780	-	-	990	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	3	8	0	0	0
Mvmt Flow	23	848	350	13	6	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	366	0	-	0	1256	185
Stage 1	-	-	-	-	360	-
Stage 2	-	-	-	-	896	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1204	-	-	-	178	832
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	402	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1201	-	-	-	174	830
Mov Cap-2 Maneuver	-	-	-	-	174	-
Stage 1	-	-	-	-	668	-
Stage 2	-	-	-	-	401	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	20.7
HCM LOS			C

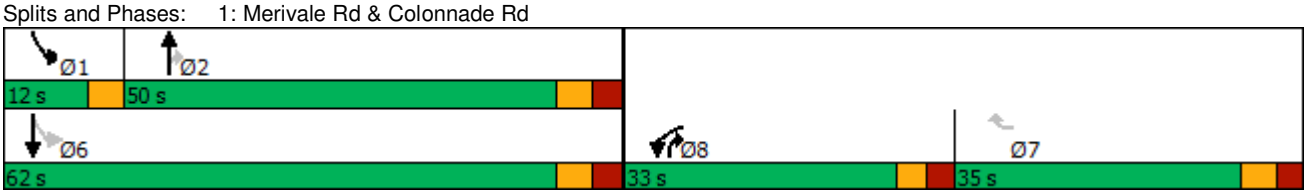
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1201	-	-	-	174	830
HCM Lane V/C Ratio	0.019	-	-	-	0.034	0.004
HCM Control Delay (s)	8.1	-	-	-	26.4	9.4
HCM Lane LOS	A	-	-	-	D	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0

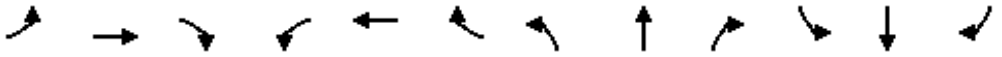
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	568	264	920	357	119	1002
Future Volume (vph)	568	264	920	357	119	1002
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.5	0.0		33.5	153.0	
Storage Lanes	1	1		1	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor		0.98		0.94	1.00	
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3467	1553	3539	1583	1687	3505
Flt Permitted	0.950				0.129	
Satd. Flow (perm)	3467	1520	3539	1489	228	3505
Right Turn on Red		No		Yes		
Satd. Flow (RTOR)				235		
Link Speed (k/h)	60		60			60
Link Distance (m)	194.6		836.4			930.5
Travel Time (s)	11.7		50.2			55.8
Confl. Peds. (#/hr)		7		15	15	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	4%	2%	2%	7%	3%
Adj. Flow (vph)	568	264	920	357	119	1002
Shared Lane Traffic (%)						
Lane Group Flow (vph)	568	264	920	357	119	1002
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.2		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	pm+ov	pm+pt	NA
Protected Phases	8		2	8	1	6
Permitted Phases	8	7		2	6	
Detector Phase	8	7	2	8	1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	29.8	11.5	44.8	29.8	11.9	26.9
Total Split (s)	33.0	35.0	50.0	33.0	12.0	62.0
Total Split (%)	25.4%	26.9%	38.5%	25.4%	9.2%	47.7%
Maximum Green (s)	27.2	28.5	43.1	27.2	8.3	55.1
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.8	2.8	3.2	2.8	0.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	6.5	6.9	5.8	3.7	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	None	Max	Max	None	Max
Walk Time (s)	7.0		7.0	7.0		
Flash Dont Walk (s)	17.0		28.0	17.0		
Pedestrian Calls (#/hr)	7		0	7		
Act Effct Green (s)	27.2	25.4	43.4	71.7	58.4	55.1
Actuated g/C Ratio	0.21	0.20	0.34	0.56	0.46	0.43
v/c Ratio	0.76	0.87	0.76	0.37	0.60	0.66
Control Delay	55.1	76.4	42.7	5.4	34.4	31.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	76.4	42.7	5.4	34.4	31.5
LOS	E	E	D	A	C	C
Approach Delay	61.9		32.3			31.8
Approach LOS	E		C			C

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 127			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 39.7		Intersection LOS: D	
Intersection Capacity Utilization 69.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Merivale Rd & Colonnade Rd



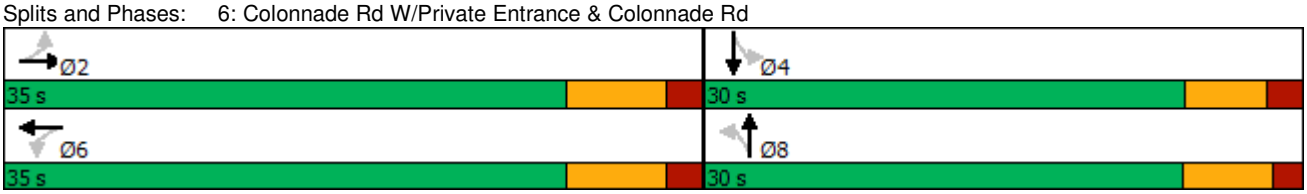


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	319	152	8	420	18	409	1	21	8	1	6
Future Volume (vph)	9	319	152	8	420	18	409	1	21	8	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	33.0		0.0	49.5		0.0	34.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		0.99	0.98		1.00	0.98	
Frt		0.952			0.994			0.857			0.871	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1737	0	1597	1823	0	1787	1464	0	1805	1615	0
Flt Permitted	0.424			0.388			0.753			0.743		
Satd. Flow (perm)	804	1737	0	651	1823	0	1405	1464	0	1405	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			4			21			6	
Link Speed (k/h)		60			60			50			40	
Link Distance (m)		348.1			694.9			287.6			127.7	
Travel Time (s)		20.9			41.7			20.7			11.5	
Confl. Peds. (#/hr)	4		3	3		4	5		3	3		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 (%)	0%	3%	4%	13%	2%	38%	1%	0%	9%	0%	0%	0%
Adj. Flow (vph)	9	319	152	8	420	18	409	1	21	8	1	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	471	0	8	438	0	409	22	0	8	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.9	34.9		34.9	34.9		26.1	26.1		26.0	26.0	
Total Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%		53.8%	53.8%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	28.1	28.1		28.1	28.1		23.9	23.9		24.0	24.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.1	4.1	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.6	1.6		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.1	6.1		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	3	3		4	4		3	3		5	5	
Act Effct Green (s)	22.1	22.1		22.1	22.1		19.8	19.8		19.9	19.9	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.36	0.36		0.36	0.36	
v/c Ratio	0.03	0.65		0.03	0.60		0.81	0.04		0.02	0.01	
Control Delay	11.3	17.7		11.5	17.6		31.5	6.6		12.1	8.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.3	17.7		11.5	17.6		31.5	6.6		12.1	8.4	
LOS	B	B		B	B		C	A		B	A	
Approach Delay		17.6			17.5			30.2			10.4	
Approach LOS		B			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 55.1			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 21.4		Intersection LOS: C	
Intersection Capacity Utilization 66.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Colonnade Rd W/Private Entrance & Colonnade Rd



Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	458	831	4	21	6
Future Vol, veh/h	18	458	831	4	21	6
Conflicting Peds, #/hr	5	0	0	5	2	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	780	-	-	990	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	3	2	0	0	0
Mvmt Flow	18	458	831	4	21	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	840	0	-	0	1334	424
Stage 1	-	-	-	-	838	-
Stage 2	-	-	-	-	496	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	804	-	-	-	159	584
Stage 1	-	-	-	-	390	-
Stage 2	-	-	-	-	616	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	801	-	-	-	154	581
Mov Cap-2 Maneuver	-	-	-	-	154	-
Stage 1	-	-	-	-	380	-
Stage 2	-	-	-	-	614	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	27.4
HCM LOS			D

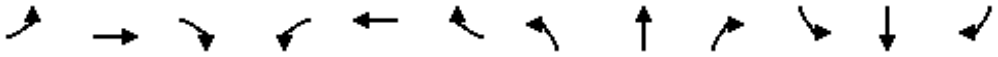
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	801	-	-	-	154	581
HCM Lane V/C Ratio	0.022	-	-	-	0.136	0.01
HCM Control Delay (s)	9.6	-	-	-	32	11.3
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	232	146	1493	709	252	1099
Future Volume (vph)	232	146	1493	709	252	1099
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.5	0.0		33.5	153.0	
Storage Lanes	1	1		1	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.074	
Satd. Flow (perm)	3433	1583	3539	1583	138	3539
Right Turn on Red		No		Yes		
Satd. Flow (RTOR)				403		
Link Speed (k/h)	60		60			60
Link Distance (m)	194.6		836.4			930.5
Travel Time (s)	11.7		50.2			55.8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	232	146	1493	709	252	1099
Shared Lane Traffic (%)						
Lane Group Flow (vph)	232	146	1493	709	252	1099
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.2		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	pm+ov	pm+pt	NA
Protected Phases	8		2	8	1	6
Permitted Phases	8	7		2	6	
Detector Phase	8	7	2	8	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	29.8	11.5	44.9	29.8	11.9	26.9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Split (s)	30.0	17.0	54.0	30.0	19.0	73.0
Total Split (%)	25.0%	14.2%	45.0%	25.0%	15.8%	60.8%
Maximum Green (s)	24.2	10.5	47.1	24.2	12.1	66.1
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.8	2.8	3.2	2.8	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	6.5	6.9	5.8	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	None	None	Max
Walk Time (s)	7.0		7.0	7.0		
Flash Dont Walk (s)	17.0		28.0	17.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	13.5	10.5	47.1	67.6	66.1	66.1
Actuated g/C Ratio	0.12	0.10	0.43	0.62	0.60	0.60
v/c Ratio	0.55	0.96	0.98	0.63	0.96	0.51
Control Delay	49.9	114.9	50.2	7.6	74.7	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.9	114.9	50.2	7.6	74.7	13.8
LOS	D	F	D	A	E	B
Approach Delay	75.0		36.5			25.2
Approach LOS	E		D			C

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 109.4			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 36.3		Intersection LOS: D	
Intersection Capacity Utilization 78.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Merivale Rd & Colonnade Rd

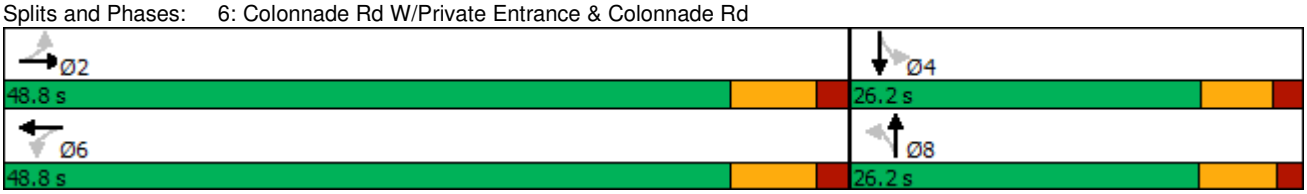


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	470	438	11	253	14	144	2	6	7	1	4
Future Volume (vph)	35	470	438	11	253	14	144	2	6	7	1	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	33.0		0.0	49.5		0.0	34.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.928			0.992			0.887			0.880	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1729	0	1770	1848	0	1770	1652	0	1770	1639	0
Flt Permitted	0.595			0.185			0.754			0.752		
Satd. Flow (perm)	1108	1729	0	345	1848	0	1405	1652	0	1401	1639	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		101			6			6			4	
Link Speed (k/h)		60			60			50			40	
Link Distance (m)		348.1			694.9			287.6			127.7	
Travel Time (s)		20.9			41.7			20.7			11.5	
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
Adj. Flow (vph)	35	470	438	11	253	14	144	2	6	7	1	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	908	0	11	267	0	144	8	0	7	5	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.9	34.9		34.9	34.9		26.1	26.1		26.0	26.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	48.8	48.8		48.8	48.8		26.2	26.2		26.2	26.2	
Total Split (%)	65.1%	65.1%		65.1%	65.1%		34.9%	34.9%		34.9%	34.9%	
Maximum Green (s)	41.9	41.9		41.9	41.9		20.1	20.1		20.2	20.2	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.1	4.1	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.6	1.6		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.1	6.1		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	3	3		2	2		2	2		2	2	
Act Effct Green (s)	40.5	40.5		40.5	40.5		13.2	13.2		13.3	13.3	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.22	0.22		0.22	0.22	
v/c Ratio	0.05	0.76		0.05	0.22		0.47	0.02		0.02	0.01	
Control Delay	6.7	15.9		7.4	7.0		28.8	14.8		21.1	15.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.7	15.9		7.4	7.0		28.8	14.8		21.1	15.0	
LOS	A	B		A	A		C	B		C	B	
Approach Delay		15.6			7.0			28.0			18.6	
Approach LOS		B			A			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 60.6			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 15.3		Intersection LOS: B	
Intersection Capacity Utilization 77.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 6: Colonnade Rd W/Private Entrance & Colonnade Rd



Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	936	386	15	7	3
Future Vol, veh/h	26	936	386	15	7	3
Conflicting Peds, #/hr	3	0	0	3	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	780	-	-	990	0	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	26	936	386	15	7	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	404	0	-	0	1387	204
Stage 1	-	-	-	-	397	-
Stage 2	-	-	-	-	990	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1153	-	-	-	145	803
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	359	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	1150	-	-	-	141	801
Mov Cap-2 Maneuver	-	-	-	-	141	-
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	358	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	25.2
HCM LOS			D

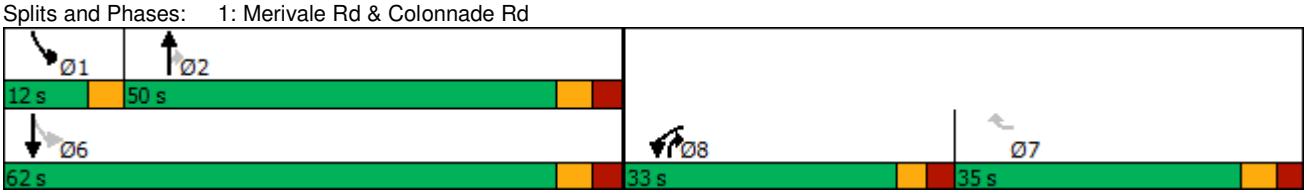
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1150	-	-	-	141	801
HCM Lane V/C Ratio	0.023	-	-	-	0.05	0.004
HCM Control Delay (s)	8.2	-	-	-	31.9	9.5
HCM Lane LOS	A	-	-	-	D	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	0

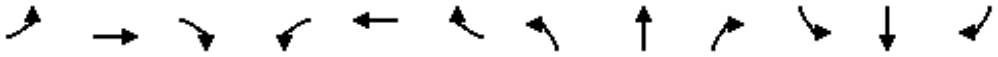
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	627	292	1016	394	132	1106
Future Volume (vph)	627	292	1016	394	132	1106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.5	0.0		33.5	153.0	
Storage Lanes	1	1		1	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor		0.98		0.94	1.00	
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3467	1553	3539	1583	1687	3505
Flt Permitted	0.950				0.085	
Satd. Flow (perm)	3467	1520	3539	1489	150	3505
Right Turn on Red		No		Yes		
Satd. Flow (RTOR)				235		
Link Speed (k/h)	60		60			60
Link Distance (m)	194.6		836.4			930.5
Travel Time (s)	11.7		50.2			55.8
Confl. Peds. (#/hr)		7		15	15	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	4%	2%	2%	7%	3%
Adj. Flow (vph)	627	292	1016	394	132	1106
Shared Lane Traffic (%)						
Lane Group Flow (vph)	627	292	1016	394	132	1106
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.2		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	pm+ov	pm+pt	NA
Protected Phases	8		2	8	1	6
Permitted Phases	8	7		2	6	
Detector Phase	8	7	2	8	1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	29.8	11.5	44.8	29.8	11.9	26.9
Total Split (s)	33.0	35.0	50.0	33.0	12.0	62.0
Total Split (%)	25.4%	26.9%	38.5%	25.4%	9.2%	47.7%
Maximum Green (s)	27.2	28.5	43.1	27.2	8.3	55.1
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.8	2.8	3.2	2.8	0.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	6.5	6.9	5.8	3.7	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	None	Max	Max	None	Max
Walk Time (s)	7.0		7.0	7.0		
Flash Dont Walk (s)	17.0		28.0	17.0		
Pedestrian Calls (#/hr)	7		0	7		
Act Effct Green (s)	27.2	27.0	43.1	71.4	58.3	55.1
Actuated g/C Ratio	0.21	0.21	0.34	0.56	0.45	0.43
v/c Ratio	0.86	0.92	0.86	0.41	0.79	0.74
Control Delay	61.5	82.6	48.5	6.6	56.5	34.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.5	82.6	48.5	6.6	56.5	34.6
LOS	E	F	D	A	E	C
Approach Delay	68.2		36.8			36.9
Approach LOS	E		D			D

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 128.6			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 44.9		Intersection LOS: D	
Intersection Capacity Utilization 70.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Merivale Rd & Colonnade Rd



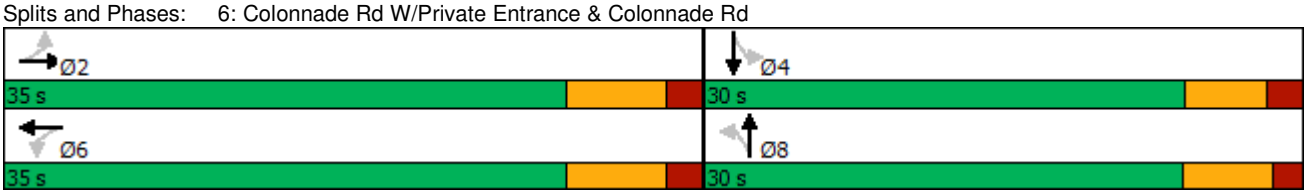


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	352	168	9	464	20	452	1	24	9	1	7
Future Volume (vph)	10	352	168	9	464	20	452	1	24	9	1	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	33.0		0.0	49.5		0.0	34.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		0.99	0.98		1.00	0.98	
Frt		0.952			0.994			0.856			0.869	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1737	0	1597	1823	0	1787	1461	0	1805	1611	0
Flt Permitted	0.361			0.321			0.752			0.741		
Satd. Flow (perm)	684	1737	0	539	1823	0	1403	1461	0	1401	1611	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			4			24			7	
Link Speed (k/h)		60			60			50			40	
Link Distance (m)		348.1			694.9			287.6			127.7	
Travel Time (s)		20.9			41.7			20.7			11.5	
Confl. Peds. (#/hr)	4		3	3		4	5		3	3		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 (%)	0%	3%	4%	13%	2%	38%	1%	0%	9%	0%	0%	0%
Adj. Flow (vph)	10	352	168	9	464	20	452	1	24	9	1	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	520	0	9	484	0	452	25	0	9	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.9	34.9		34.9	34.9		26.1	26.1		26.0	26.0	
Total Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%		53.8%	53.8%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	28.1	28.1		28.1	28.1		23.9	23.9		24.0	24.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.1	4.1	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.6	1.6		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.1	6.1		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	3	3		4	4		3	3		5	5	
Act Effct Green (s)	22.8	22.8		22.8	22.8		21.8	21.8		21.9	21.9	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.38	0.38		0.38	0.38	
v/c Ratio	0.04	0.73		0.04	0.67		0.85	0.04		0.02	0.01	
Control Delay	11.6	20.8		11.8	20.1		35.5	6.4		12.4	8.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.6	20.8		11.8	20.1		35.5	6.4		12.4	8.4	
LOS	B	C		B	C		D	A		B	A	
Approach Delay		20.6			19.9			33.9			10.5	
Approach LOS		C			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 57.7			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 24.5		Intersection LOS: C	
Intersection Capacity Utilization 71.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Colonnade Rd W/Private Entrance & Colonnade Rd



Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	506	918	5	24	7
Future Vol, veh/h	20	506	918	5	24	7
Conflicting Peds, #/hr	6	0	0	6	2	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	780	-	-	990	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	3	2	0	0	0
Mvmt Flow	20	506	918	5	24	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	929	0	-	0	1475	469
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	548	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	744	-	-	-	130	546
Stage 1	-	-	-	-	351	-
Stage 2	-	-	-	-	583	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	740	-	-	-	125	543
Mov Cap-2 Maneuver	-	-	-	-	125	-
Stage 1	-	-	-	-	340	-
Stage 2	-	-	-	-	580	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	34
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	740	-	-	-	125	543
HCM Lane V/C Ratio	0.027	-	-	-	0.192	0.013
HCM Control Delay (s)	10	-	-	-	40.5	11.7
HCM Lane LOS	B	-	-	-	E	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	211	134	1353	650	231	996
Future Volume (vph)	211	134	1353	650	231	996
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.5	0.0		33.5	153.0	
Storage Lanes	1	1		1	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor		0.96		0.96		
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3273	1495	3471	1583	1736	3471
Flt Permitted	0.950				0.074	
Satd. Flow (perm)	3273	1437	3471	1525	135	3471
Right Turn on Red		No		Yes		
Satd. Flow (RTOR)				358		
Link Speed (k/h)	60		60			60
Link Distance (m)	194.6		836.4			930.5
Travel Time (s)	11.7		50.2			55.8
Confl. Peds. (#/hr)		8		7	7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	7%	8%	4%	2%	4%	4%
Adj. Flow (vph)	211	134	1353	650	231	996
Shared Lane Traffic (%)						
Lane Group Flow (vph)	211	134	1353	650	231	996
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.2		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	pm+ov	pm+pt	NA
Protected Phases	8		2	8	1	6
Permitted Phases	8	7		2	6	
Detector Phase	8	7	2	8	1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	29.8	11.5	44.9	29.8	11.9	26.9
Total Split (s)	30.0	17.0	54.0	30.0	19.0	73.0
Total Split (%)	25.0%	14.2%	45.0%	25.0%	15.8%	60.8%
Maximum Green (s)	24.2	10.5	47.1	24.2	12.1	66.1
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.8	2.8	3.2	2.8	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	6.5	6.9	5.8	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	None	None	Max
Walk Time (s)	7.0		7.0	7.0		
Flash Dont Walk (s)	17.0		28.0	17.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	13.0	10.5	47.2	61.2	66.2	66.2
Actuated g/C Ratio	0.12	0.10	0.43	0.56	0.61	0.61
v/c Ratio	0.54	0.97	0.90	0.64	0.89	0.47
Control Delay	50.3	119.8	38.7	8.3	61.1	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	119.8	38.7	8.3	61.1	13.0
LOS	D	F	D	A	E	B
Approach Delay	77.3		28.8			22.1
Approach LOS	E		C			C

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 108.9			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 31.2		Intersection LOS: C	
Intersection Capacity Utilization 75.8%		ICU Level of Service D	
Analysis Period (min) 15			

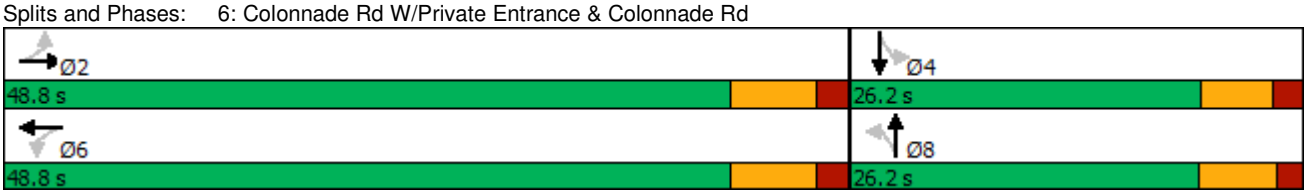
Splits and Phases: 1: Merivale Rd & Colonnade Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	428	399	10	232	12	132	2	5	6	1	3
Future Volume (vph)	32	428	399	10	232	12	132	2	5	6	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	33.0		0.0	49.5		0.0	34.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.928			0.993			0.893			0.887	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1720	0	1641	1818	0	1504	1320	0	1805	1685	0
Flt Permitted	0.607			0.225			0.755			0.753		
Satd. Flow (perm)	1120	1720	0	389	1818	0	1195	1320	0	1431	1685	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		101			6			5			3	
Link Speed (k/h)		60			60			50			40	
Link Distance (m)		348.1			694.9			287.6			127.7	
Travel Time (s)		20.9			41.7			20.7			11.5	
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 (%)	3%	3%	2%	10%	4%	0%	20%	0%	40%	0%	0%	0%
Adj. Flow (vph)	32	428	399	10	232	12	132	2	5	6	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	827	0	10	244	0	132	7	0	6	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		10.0	10.0		10.0	10.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	34.9	34.9		34.9	34.9		26.1	26.1		26.0	26.0	
Total Split (s)	48.8	48.8		48.8	48.8		26.2	26.2		26.2	26.2	
Total Split (%)	65.1%	65.1%		65.1%	65.1%		34.9%	34.9%		34.9%	34.9%	
Maximum Green (s)	41.9	41.9		41.9	41.9		20.1	20.1		20.2	20.2	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.1	4.1	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.6	1.6		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.1	6.1		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	3	3		2	2		2	2		2	2	
Act Effct Green (s)	37.6	37.6		37.6	37.6		13.3	13.3		13.4	13.4	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.23	0.23		0.23	0.23	
v/c Ratio	0.04	0.72		0.04	0.21		0.48	0.02		0.02	0.01	
Control Delay	6.9	14.3		7.4	7.3		28.7	15.1		20.5	15.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.9	14.3		7.4	7.3		28.7	15.1		20.5	15.8	
LOS	A	B		A	A		C	B		C	B	
Approach Delay		14.0			7.3			28.0			18.6	
Approach LOS		B			A			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 58.2			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 14.3		Intersection LOS: B	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Colonnade Rd W/Private Entrance & Colonnade Rd



Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	848	350	17	12	5
Future Vol, veh/h	34	848	350	17	12	5
Conflicting Peds, #/hr	3	0	0	3	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	780	-	-	990	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	3	8	0	0	0
Mvmt Flow	34	848	350	17	12	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	370	0	-	0	1280	187
Stage 1	-	-	-	-	362	-
Stage 2	-	-	-	-	918	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1200	-	-	-	172	830
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	392	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1197	-	-	-	166	828
Mov Cap-2 Maneuver	-	-	-	-	166	-
Stage 1	-	-	-	-	660	-
Stage 2	-	-	-	-	391	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	22.8
HCM LOS			C

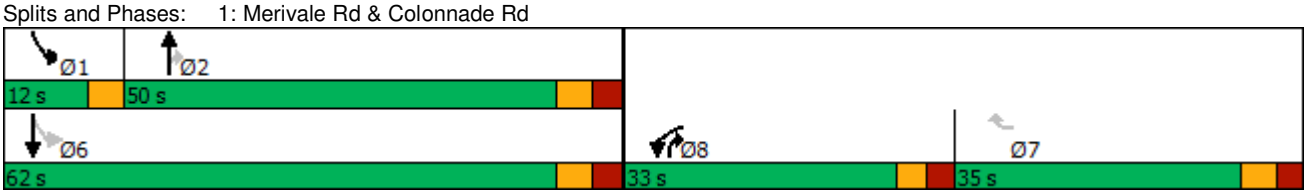
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1197	-	-	-	166	828
HCM Lane V/C Ratio	0.028	-	-	-	0.072	0.006
HCM Control Delay (s)	8.1	-	-	-	28.4	9.4
HCM Lane LOS	A	-	-	-	D	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	0

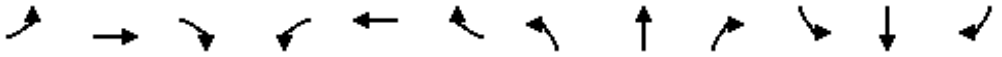
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	576	268	920	362	120	1002
Future Volume (vph)	576	268	920	362	120	1002
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.5	0.0		33.5	153.0	
Storage Lanes	1	1		1	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor		0.98		0.94	1.00	
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3467	1553	3539	1583	1687	3505
Flt Permitted	0.950				0.128	
Satd. Flow (perm)	3467	1520	3539	1489	226	3505
Right Turn on Red		No		Yes		
Satd. Flow (RTOR)				238		
Link Speed (k/h)	60		60			60
Link Distance (m)	194.6		836.4			930.5
Travel Time (s)	11.7		50.2			55.8
Confl. Peds. (#/hr)		7		15	15	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	4%	2%	2%	7%	3%
Adj. Flow (vph)	576	268	920	362	120	1002
Shared Lane Traffic (%)						
Lane Group Flow (vph)	576	268	920	362	120	1002
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.2		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	pm+ov	pm+pt	NA
Protected Phases	8		2	8	1	6
Permitted Phases	8	7		2	6	
Detector Phase	8	7	2	8	1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	29.8	11.5	44.8	29.8	11.9	26.9
Total Split (s)	33.0	35.0	50.0	33.0	12.0	62.0
Total Split (%)	25.4%	26.9%	38.5%	25.4%	9.2%	47.7%
Maximum Green (s)	27.2	28.5	43.1	27.2	8.3	55.1
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.8	2.8	3.2	2.8	0.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	6.5	6.9	5.8	3.7	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	None	Max	Max	None	Max
Walk Time (s)	7.0		7.0	7.0		
Flash Dont Walk (s)	17.0		28.0	17.0		
Pedestrian Calls (#/hr)	7		0	7		
Act Effct Green (s)	27.2	25.6	43.3	71.7	58.3	55.1
Actuated g/C Ratio	0.21	0.20	0.34	0.56	0.46	0.43
v/c Ratio	0.78	0.88	0.76	0.38	0.61	0.66
Control Delay	55.8	77.3	42.9	5.5	35.0	31.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	77.3	42.9	5.5	35.0	31.6
LOS	E	E	D	A	C	C
Approach Delay	62.6		32.3			32.0
Approach LOS	E		C			C

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 127.2			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 40.1		Intersection LOS: D	
Intersection Capacity Utilization 69.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Merivale Rd & Colonnade Rd



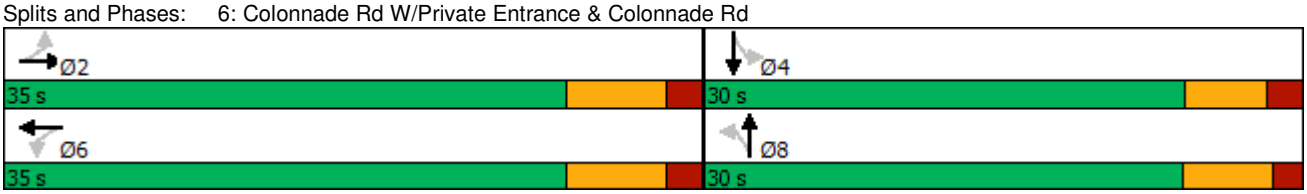


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	324	154	8	426	18	414	1	21	8	1	6
Future Volume (vph)	9	324	154	8	426	18	414	1	21	8	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	33.0		0.0	49.5		0.0	34.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		0.99	0.98		1.00	0.98	
Frt		0.952			0.994			0.857			0.871	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1737	0	1597	1824	0	1787	1464	0	1805	1615	0
Flt Permitted	0.417			0.379			0.753			0.743		
Satd. Flow (perm)	790	1737	0	636	1824	0	1405	1464	0	1405	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			4			21			6	
Link Speed (k/h)		60			60			50			40	
Link Distance (m)		348.1			694.9			287.6			127.7	
Travel Time (s)		20.9			41.7			20.7			11.5	
Confl. Peds. (#/hr)	4		3	3		4	5		3	3		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 (%)	0%	3%	4%	13%	2%	38%	1%	0%	9%	0%	0%	0%
Adj. Flow (vph)	9	324	154	8	426	18	414	1	21	8	1	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	478	0	8	444	0	414	22	0	8	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.9	34.9		34.9	34.9		26.1	26.1		26.0	26.0	
Total Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%		53.8%	53.8%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	28.1	28.1		28.1	28.1		23.9	23.9		24.0	24.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.1	4.1	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.6	1.6		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.1	6.1		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	3	3		4	4		3	3		5	5	
Act Effct Green (s)	22.2	22.2		22.2	22.2		20.0	20.0		20.1	20.1	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.36	0.36		0.36	0.36	
v/c Ratio	0.03	0.66		0.03	0.61		0.82	0.04		0.02	0.01	
Control Delay	11.4	18.1		11.5	17.9		31.9	6.6		12.1	8.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.4	18.1		11.5	17.9		31.9	6.6		12.1	8.4	
LOS	B	B		B	B		C	A		B	A	
Approach Delay		17.9			17.8			30.6			10.4	
Approach LOS		B			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 55.4			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 21.8		Intersection LOS: C	
Intersection Capacity Utilization 67.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Colonnade Rd W/Private Entrance & Colonnade Rd



Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	24	458	831	15	28	18
Future Vol, veh/h	24	458	831	15	28	18
Conflicting Peds, #/hr	5	0	0	5	2	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	780	-	-	990	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	3	2	0	0	0
Mvmt Flow	24	458	831	15	28	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	851	0	-	0	1352	429
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	508	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	796	-	-	-	155	580
Stage 1	-	-	-	-	387	-
Stage 2	-	-	-	-	608	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	793	-	-	-	149	577
Mov Cap-2 Maneuver	-	-	-	-	149	-
Stage 1	-	-	-	-	374	-
Stage 2	-	-	-	-	606	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	25.6
HCM LOS			D

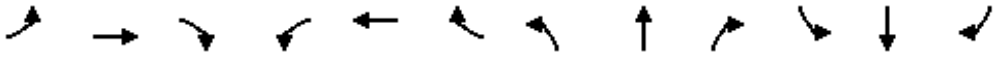
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	793	-	-	-	149	577
HCM Lane V/C Ratio	0.03	-	-	-	0.188	0.031
HCM Control Delay (s)	9.7	-	-	-	34.7	11.4
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7	0.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	233	147	1493	717	255	1099
Future Volume (vph)	233	147	1493	717	255	1099
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.5	0.0		33.5	153.0	
Storage Lanes	1	1		1	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor		0.96		0.96		
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3273	1495	3471	1583	1736	3471
Flt Permitted	0.950				0.074	
Satd. Flow (perm)	3273	1437	3471	1525	135	3471
Right Turn on Red		No		Yes		
Satd. Flow (RTOR)				358		
Link Speed (k/h)	60		60			60
Link Distance (m)	194.6		836.4			930.5
Travel Time (s)	11.7		50.2			55.8
Confl. Peds. (#/hr)		8		7	7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	7%	8%	4%	2%	4%	4%
Adj. Flow (vph)	233	147	1493	717	255	1099
Shared Lane Traffic (%)						
Lane Group Flow (vph)	233	147	1493	717	255	1099
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.2		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	pm+ov	pm+pt	NA
Protected Phases	8		2	8	1	6
Permitted Phases	8	7		2	6	
Detector Phase	8	7	2	8	1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	29.8	11.5	44.9	29.8	11.9	26.9
Total Split (s)	30.0	17.0	54.0	30.0	19.0	73.0
Total Split (%)	25.0%	14.2%	45.0%	25.0%	15.8%	60.8%
Maximum Green (s)	24.2	10.5	47.1	24.2	12.1	66.1
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.8	2.8	3.2	2.8	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	6.5	6.9	5.8	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	None	None	Max
Walk Time (s)	7.0		7.0	7.0		
Flash Dont Walk (s)	17.0		28.0	17.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	14.0	10.5	47.1	62.2	66.1	66.1
Actuated g/C Ratio	0.13	0.10	0.43	0.57	0.60	0.60
v/c Ratio	0.56	1.07	1.00	0.70	0.99	0.53
Control Delay	50.3	146.0	56.1	10.2	84.2	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	146.0	56.1	10.2	84.2	14.2
LOS	D	F	E	B	F	B
Approach Delay	87.3		41.2			27.4
Approach LOS	F		D			C

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 109.8			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay: 40.9		Intersection LOS: D	
Intersection Capacity Utilization 81.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Merivale Rd & Colonnade Rd

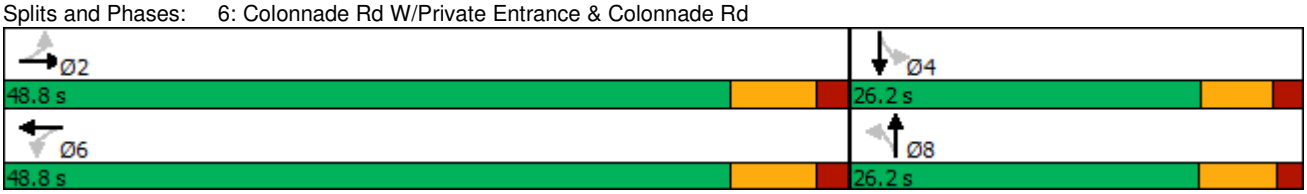


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	473	441	11	256	14	146	2	6	7	1	4
Future Volume (vph)	35	473	441	11	256	14	146	2	6	7	1	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	33.0		0.0	49.5		0.0	34.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.98	
Frt		0.928			0.992			0.887			0.880	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1700	0	1641	1814	0	1504	1273	0	1805	1640	0
Flt Permitted	0.593			0.179			0.754			0.752		
Satd. Flow (perm)	1092	1700	0	309	1814	0	1189	1273	0	1424	1640	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		101			6			6			4	
Link Speed (k/h)		60			60			50			40	
Link Distance (m)		348.1			694.9			287.6			127.7	
Travel Time (s)		20.9			41.7			20.7			11.5	
Confl. Peds. (#/hr)	2		3	3		2	2		2	2		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 (%)	3%	3%	2%	10%	4%	0%	20%	0%	40%	0%	0%	0%
Adj. Flow (vph)	35	473	441	11	256	14	146	2	6	7	1	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	914	0	11	270	0	146	8	0	7	5	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.9	34.9		34.9	34.9		26.1	26.1		26.0	26.0	
Total Split (s)	48.8	48.8		48.8	48.8		26.2	26.2		26.2	26.2	
Total Split (%)	65.1%	65.1%		65.1%	65.1%		34.9%	34.9%		34.9%	34.9%	
Maximum Green (s)	41.9	41.9		41.9	41.9		20.1	20.1		20.2	20.2	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.1	4.1	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.6	1.6		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.1	6.1		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	3	3		2	2		2	2		2	2	
Act Effct Green (s)	41.9	41.9		41.9	41.9		14.1	14.1		14.1	14.1	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.22	0.22		0.22	0.22	
v/c Ratio	0.05	0.78		0.05	0.22		0.55	0.03		0.02	0.01	
Control Delay	6.9	17.3		7.8	7.3		32.5	14.8		21.0	15.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.9	17.3		7.8	7.3		32.5	14.8		21.0	15.0	
LOS	A	B		A	A		C	B		C	B	
Approach Delay		16.9			7.3			31.6			18.5	
Approach LOS		B			A			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 62.7			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 16.6		Intersection LOS: B	
Intersection Capacity Utilization 77.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 6: Colonnade Rd W/Private Entrance & Colonnade Rd



Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	37	936	386	19	12	6
Future Vol, veh/h	37	936	386	19	12	6
Conflicting Peds, #/hr	3	0	0	3	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	780	-	-	990	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	3	8	0	0	0
Mvmt Flow	37	936	386	19	12	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	408	0	-	0	1411	206
Stage 1	-	-	-	-	399	-
Stage 2	-	-	-	-	1012	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1162	-	-	-	142	807
Stage 1	-	-	-	-	652	-
Stage 2	-	-	-	-	354	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1159	-	-	-	137	805
Mov Cap-2 Maneuver	-	-	-	-	137	-
Stage 1	-	-	-	-	629	-
Stage 2	-	-	-	-	353	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	25.7
HCM LOS			D

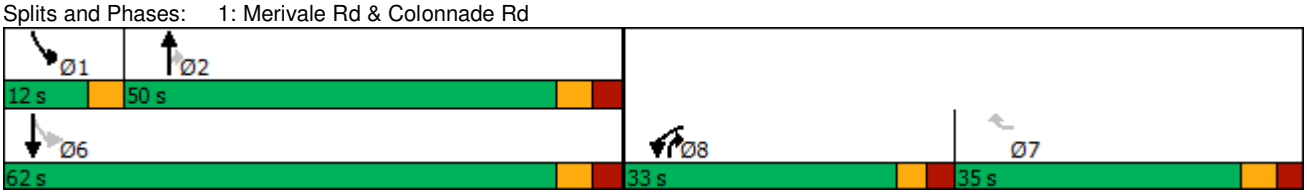
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1159	-	-	-	137	805
HCM Lane V/C Ratio	0.032	-	-	-	0.088	0.007
HCM Control Delay (s)	8.2	-	-	-	33.8	9.5
HCM Lane LOS	A	-	-	-	D	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3	0

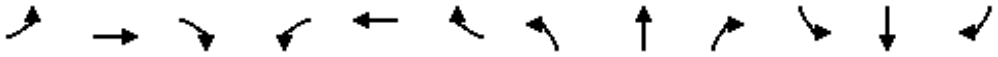
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	635	296	1016	399	133	1106
Future Volume (vph)	635	296	1016	399	133	1106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.5	0.0		33.5	153.0	
Storage Lanes	1	1		1	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor		0.98		0.94	1.00	
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3467	1553	3539	1583	1687	3505
Flt Permitted	0.950				0.085	
Satd. Flow (perm)	3467	1520	3539	1489	150	3505
Right Turn on Red		No		Yes		
Satd. Flow (RTOR)				238		
Link Speed (k/h)	60		60			60
Link Distance (m)	194.6		836.4			930.5
Travel Time (s)	11.7		50.2			55.8
Confl. Peds. (#/hr)		7		15	15	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	4%	2%	2%	7%	3%
Adj. Flow (vph)	635	296	1016	399	133	1106
Shared Lane Traffic (%)						
Lane Group Flow (vph)	635	296	1016	399	133	1106
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.2		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	pm+ov	pm+pt	NA
Protected Phases	8		2	8	1	6
Permitted Phases	8	7		2	6	
Detector Phase	8	7	2	8	1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	29.8	11.5	44.8	29.8	11.9	26.9
Total Split (s)	33.0	35.0	50.0	33.0	12.0	62.0
Total Split (%)	25.4%	26.9%	38.5%	25.4%	9.2%	47.7%
Maximum Green (s)	27.2	28.5	43.1	27.2	8.3	55.1
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.8	2.8	3.2	2.8	0.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	6.5	6.9	5.8	3.7	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	None	Max	Max	None	Max
Walk Time (s)	7.0		7.0	7.0		
Flash Dont Walk (s)	17.0		28.0	17.0		
Pedestrian Calls (#/hr)	7		0	7		
Act Effct Green (s)	27.2	27.2	43.1	71.4	58.3	55.1
Actuated g/C Ratio	0.21	0.21	0.33	0.55	0.45	0.43
v/c Ratio	0.87	0.92	0.86	0.42	0.80	0.74
Control Delay	62.7	83.8	48.7	6.6	57.5	34.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	83.8	48.7	6.6	57.5	34.7
LOS	E	F	D	A	E	C
Approach Delay	69.4		36.8			37.1
Approach LOS	E		D			D

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 128.8			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 45.4		Intersection LOS: D	
Intersection Capacity Utilization 70.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Merivale Rd & Colonnade Rd



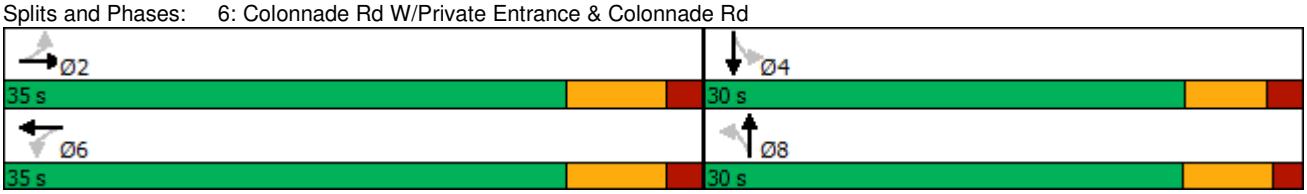


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	357	170	9	473	20	457	1	24	9	1	7
Future Volume (vph)	10	357	170	9	473	20	457	1	24	9	1	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	33.0		0.0	49.5		0.0	34.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		0.99	0.98		1.00	0.98	
Frt		0.952			0.994			0.856			0.869	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1737	0	1597	1824	0	1787	1461	0	1805	1611	0
Flt Permitted	0.350			0.313			0.752			0.741		
Satd. Flow (perm)	664	1737	0	526	1824	0	1403	1461	0	1401	1611	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			4			24			7	
Link Speed (k/h)		60			60			50			40	
Link Distance (m)		348.1			694.9			287.6			127.7	
Travel Time (s)		20.9			41.7			20.7			11.5	
Confl. Peds. (#/hr)	4		3	3		4	5		3	3		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 (%)	0%	3%	4%	13%	2%	38%	1%	0%	9%	0%	0%	0%
Adj. Flow (vph)	10	357	170	9	473	20	457	1	24	9	1	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	527	0	9	493	0	457	25	0	9	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.9	34.9		34.9	34.9		26.1	26.1		26.0	26.0	
Total Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%		53.8%	53.8%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	28.1	28.1		28.1	28.1		23.9	23.9		24.0	24.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.1	4.1	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.6	1.6		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.1	6.1		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	3	3		4	4		3	3		5	5	
Act Effct Green (s)	22.9	22.9		22.9	22.9		22.0	22.0		22.1	22.1	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.38	0.38		0.38	0.38	
v/c Ratio	0.04	0.74		0.04	0.68		0.86	0.04		0.02	0.01	
Control Delay	11.6	21.3		11.8	20.5		36.3	6.4		12.4	8.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.6	21.3		11.8	20.5		36.3	6.4		12.4	8.5	
LOS	B	C		B	C		D	A		B	A	
Approach Delay		21.1			20.3			34.8			10.6	
Approach LOS		C			C			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 58			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 25.0		Intersection LOS: C	
Intersection Capacity Utilization 72.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Colonnade Rd W/Private Entrance & Colonnade Rd



Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	506	918	16	31	19
Future Vol, veh/h	26	506	918	16	31	19
Conflicting Peds, #/hr	6	0	0	6	2	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	780	-	-	990	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	3	2	0	0	0
Mvmt Flow	26	506	918	16	31	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	940	0	-	0	1492	474
Stage 1	-	-	-	-	932	-
Stage 2	-	-	-	-	560	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	737	-	-	-	126	542
Stage 1	-	-	-	-	348	-
Stage 2	-	-	-	-	576	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	733	-	-	-	120	539
Mov Cap-2 Maneuver	-	-	-	-	120	-
Stage 1	-	-	-	-	334	-
Stage 2	-	-	-	-	573	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	32.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	733	-	-	-	120	539
HCM Lane V/C Ratio	0.035	-	-	-	0.258	0.035
HCM Control Delay (s)	10.1	-	-	-	45.1	11.9
HCM Lane LOS	B	-	-	-	E	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1	0.1

APPENDIX G – TDM CHECKLIST

McINTOSH PERRY

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	☒ Main entrance located approximately 15m from existing multi-use path
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	☑ Building doors and windows face pedestrian facilities and ensure visibility of pedestrians
	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)*	☑ The proposed development site is located in close proximity to existing OC Transpo bus stops
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)*	☑ The proposed development site is located adjacent to an existing multi-use path and provides direct access to the surrounding sidewalk network

		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)*	☑ Development includes a concrete walkway at main entrance, adjacent to the parking lot
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)*	☑ Depressed concrete walkway with TWIS's at parking lot access adjacent to accessible parking spaces
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)*	☑ Proposed development site is adjacent to and existing multi-use pathway
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☑ Direct access to nearby transit stops is provided
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☑ via existing multi-use pathway adjacent to the development
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	☑ Lighting provided throughout the proposed development site
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)*	☑ Secure bicycle parking provided adjacent to main entrance
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)*	☑ The number of bicycle parking spaces meets the requirements of the City's zoning by-law
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)*	☑ The proposed surface mounted bike rack will be anchored to concrete slab
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	☑ Two bicycle trips expected during peak hours and two bicycle parking spaces provided
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)	☑ Two bicycle parking spaces provided
	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	☑ Sufficient land available shelter at existing bus stop adjacent to development site
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	☑ Proposed number of parking spaces meets by-law requirements
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	☒