Addendum No 2:

2226 MER BLEUE ROAD
PROPOSED COMMERCIAL PLAZA,
ORLEANS, OTTAWA
RICHCRAFT HOMES

This Addendum document provides refinements to a TIA document titled ""*Proposed Trailsedge Phase 4 Orleans, Ottawa Richcraft Homes – Transportation Impact Assessment*" dated January 2021 which accounts for improvements/enhancements to the site plan of the proposed commercial development.

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EXECUTIVE SUMMARY

BACKGROUND

Castleglenn Consultants Inc. produced its "*Proposed Trailsedge Phase 4 Orleans, Ottawa Richcraft Homes – Transportation Impact Assessment*" document in January 2021. This study identified and evaluated the traffic related impacts of the Phase 4 expansion to the Trailsedge subdivision, located to the south-west of the Brian Coburn Boulevard / Mer Bleue Road roundabout. The 2021 study concluded that several roadway infrastructure improvements would be required to the surrounding roadways and intersections.

The purpose of this second addendum document was to provide a review a proposed new site plan (dated December 2024) for the commercial block, which is located at 2226 Mer Bleue Road. The site plan provides a breakdown of the specific buildings and their gross floor areas (GFA).

In addition, this addendum document references updated traffic count information collected on Wednesday, August 14th, 2024, as well as the most current City of Ottawa traffic counts information to serve as 2924 baseline condition representing the surrounding roadway network.

This addendum document serves to supplement the previous 2021 study with more detailed information while providing a re-evaluation or the proposed roadway and intersection modifications necessary to meet updated five-year (2031) and ten-year (2036) travel demand forecasts within the surrounding area.

THE PROPOSED COMMERCIAL DEVELOPMENT

The site plan, which was unavailable for the 2021 study, provides information regarding building location, vehicle circulation and indicated a 94,250 ft^2 development that would provide a grocery store, anchor retail, two fast-food drive-thru service establishments in addition to several other commercial/retail stores intended to serve the local community.

EXISTING MER BLEUE / BRIAN COBURN ROUINDABOUT CONSTRAINTS

The west leg of the Brian Coburn Boulevard / Mer Bleue Road roundabout currently operates at failing (LOS "F") service level exhibiting an average-per-vehicle delay of 1.3 minutes, a queue of over 300 meters and exhibits a v/c ratio of 1.14. Constraints associated with the current configuration are considered a pre-existing condition and not attributed to the proposed development.

COMMERCIAL DEVELOPMENT ACCESS REQUIREMENTS

The following two accesses would be required to service the proposed commercial development.

- *Mer Bleue Road Commercial Access:* A new right-in/right-out and left-in access that would connect the commercial development to Mer Bleue Road is envisioned. The right-out driveway would be configured as a minor leg STOP-controlled access. The left-in movement would be provided by way of break in the existing Mer Bleue Road median.

- *Brian Cobrun Commercial Access: Phase 1 (2031 Occupancy):* A new right-in/right-out access/egress which would connect the commercial development to the existing 2-lane Brian Coburn Boulevard corridor is envisioned. The access would be configured during the first phase of development as a minor leg STOP-controlled driveway providing a continuous eastbound lane to the Brian Coburn-Mer Bleue Road roundabout.
- *Brian Cobrun Commercial Access: Phase 2 (2036 Occupancy):* At the time when Phase 2 of the commercial development is completed improvements to the Brian Coburn/Mer Bleue roundabout will be required that would require an upgrade from a single lane roundabout to a 2-lane roundabout.

COMMERCIAL DEVELOPMENT ROADWAY REQUIREMENTS

The following improvements to the Brian Coburn / Mer Bleue roundabout were identified to meet forecast travel demand requirements.

- *Brian Cobrun Commercial Access: Phase 1 (2031):* The following two upgrades to the Brian Coburn Boulevard / Mer Bleue Road roundabout were found to be required within the five -year (2031) time horizon: (See Exhibit 4-3, Annex "G-1"):
  - The west leg of the intersection would require a 130m additional eastbound lane leading to the Brian Coburn commercial access that would taper to permit westbound left turns into the site primarily for heavy vehicle access.
  - The roundabout would be required to be upgraded to have 2 circulation lanes in the eastbound direction.
- *Brian Cobrun Commercial Access: Phase 2 (2036):* At the time when Phase 2 of the commercial development is completed the following additional improvements were found to be required to the roundabout within the ten-year (2036) horizon: (See Exhibit 4-3, Annex "G-2"):
  - The roundabout would be required to be upgraded to have 2 circulation lanes in the westbound direction.
  - The west leg of Brian Coburn will require sufficient widening on the north side to provide two westbound lanes west of the roundabout. A centre median would be required that would provide for an outer WB-Thru lane and a dedicated inner WB-LT lane intended to permit heavy vehicle access into the commercial site.

WESTBOUND LEFT TURN REQUIRED INTO THE COMMERCIAL DEVELOPMENT

As noted in the bullet above, a westbound left turn entry lane from Brian Coburn Blvd was found to be required to accommodate Phase 2 of the development requires. It's noted that the orientation of the loading bays depicted in the site plan require the delivery trucks to approach from the west. With the advent of Phase 2, large trucks (WB-20) entering from the Mer Bleue access would be forced to drive through the Phase 2 parking lot and would be unable to back into the loading bays due to the lack of circulation space. Heavy vehicle traffic will be dependent upon the Brian Coburn access for the drop-off of commodities.

A westbound left turn-in access from Brian Coburn is proposed for the ten-year (2036) horizon that could be accommodated by a median break from a widened cross-section on Brian Coburn Boulevard. After the completion of Phase 1 of the development and the Phase 1 infrastructure improvements along Brian Coburn Boulevard, opportunities to accommodate heavy vehicle access by way of a dedicated westbound left-turn auxiliary lane are encouraged.

With the advent of Phase 2, the traffic generated by the commercial site (could be just under 1,000 2-way vehicle trips during the PM peak hour of travel demand) combined with the background traffic growth on the surrounding corridors will result in the Mer-Blue access being fully utilized by patron traffic.

ULTIMATE BRIAN COBURN BOULEVARD REQUIREMENTS

Brian Cobrun 4-lane Widening [Post Ten-Year (2036) Horizon]: The City of Ottawa's recent DRAFT TMP[1] indicates that the section of Brian Coburn Boulevard (between Navan Road and Mer Bleue Road) is a "*Phase 2 Project*" of the "*Priority Road Network*" which is "*expected to be implemented by 2046, based on the City's long-range financial plans*". The widening represented the 14th project in terms of priority. In short, this roadway widening is currently scheduled for a 20-year time horizon due to competing priorities and budgetary constraints. [See Annex "I" for extracts from the TMP related to this information. See Exhibit 4-4, Annex "G-3")]

- With the advent of Brian Coburn Boulevard being widened to 4 lanes, the roundabout would be modified to permit 2-lanes of traffic in all directions.
- An additional eastbound slip lane may be required to address forecast future demands beyond the ten-year time frame; and
- An ultimate southbound slip lane may be required however its construction should be timed with the development of the lands in the northwest corner of the roundabout.

RECOMMENDATION

It's recommended that the City of Ottawa proceed with site plan approval for the planned 2226 Mer Bleue Road commercial plaza development.

[1] "*Transportation Master Plan (TMP) Capital Infrastructure Plan "Highlights Report*" (March 31st, 2025)

1.0 UPDATES TO 2021 TIA (TRAFFIC GENERATION/DISTRIBUTION)

1.1 ORIGINAL 2021 VERSUS UPDATED 2025 SITE PLANS

The 2226 Mer Bleue commercial block is located within the south-west corner of Mer Bleue Road / Brian Coburn Boulevard roundabout on a site area of approximately 10.5 acres (42,551 m^2). The site is fully integrated with the proposed Trailsedge 4 residential community on both the west and south sides of the development by way of pedestrian pathways.

Without having the advantage of a detailed site plan, the 2021 TIA had conceptually envisioned the proposed commercial development at that time as a retail plaza that would be characterized by 181 employees. This estimate was based on an estimate of retail building sizes that could be sustained on the site and typical retail employment density estimates. The traffic generation estimates in the 2021 study were prepared using the number of employees as the independent variable.

This second addendum had the advantage of having a detailed site plan prepared for the site (See Annex "A") that provided insight to the proposed buildings on the site, their proposed uses, as well as the internal vehicle and pedestrian circulation patterns and parking provisions. The new (dated December 2024) site plan envisions the proposed commercial development estimated to be approximately 95,000 ft^2 of gross floor area (GFA) contained within 10 separate buildings.

1.1.1 The Updated Site Plan

Table 1-1 provides a summary of the updated land uses and the two proposed phases of the commercial site. Phase 1 would represent 60% of the overall building area within 4 buildings which are anticipated to be completed within the 5-year (2031) time horizon, and Phase 2, represents 40% of the total building area which, for the purposes of this addendum, is anticipated to be completed within the 10-year (2036) time horizon.

Table 1-1: Commercial Block Breakdown

Phase 1 (2031)			Phase 2 (2036)		
Land Use	***Commercial Block GFA (ft^2)***	***Parking Stalls***	***Land Use***	***Commercial Block GFA (ft^2)***	***Parking Stalls***
Grocery Store	33,225	146	Stand Alone Retail	10,000	
Stand Alone Retail	7,000		Commercial	27,670	
Anchor Retail	16,365		-	-	
Total Commercial Phase 1: 56,590 ft^2		**191**	**Total Commercial Phase 2: 37,670 ft^2**		**137**
Total Commercial Gross Floor Area (GFA) 94,260 ft^2 - Parking 328 stalls					

Exhibit 1-1 below illustrates the latest 2025 site plan for the 2226 Mer Bleue Road commercial development. Phase 1 (orange) includes an anchor retail, a grocery store, a drive-thru restaurant and another small retail/restaurant building. Phase 2 (purple) contains a second drive-thru restaurant, 21 small commercial blocks contained within 3 buildings, and 2 additional standalone retail/restaurant buildings. As tenants have yet to be finalized, the precise land uses are unknown at this time.

The development is proposed to be accessed by two entrances:

- Access 1 is located to the north connecting to Brian Coburn Boulevard; and
- Access 2 is located to the east connecting to Mer Bleue Road.

The design of these two accesses were determined based on traffic volumes and intersection capacity analyses described in further sections of this addendum.

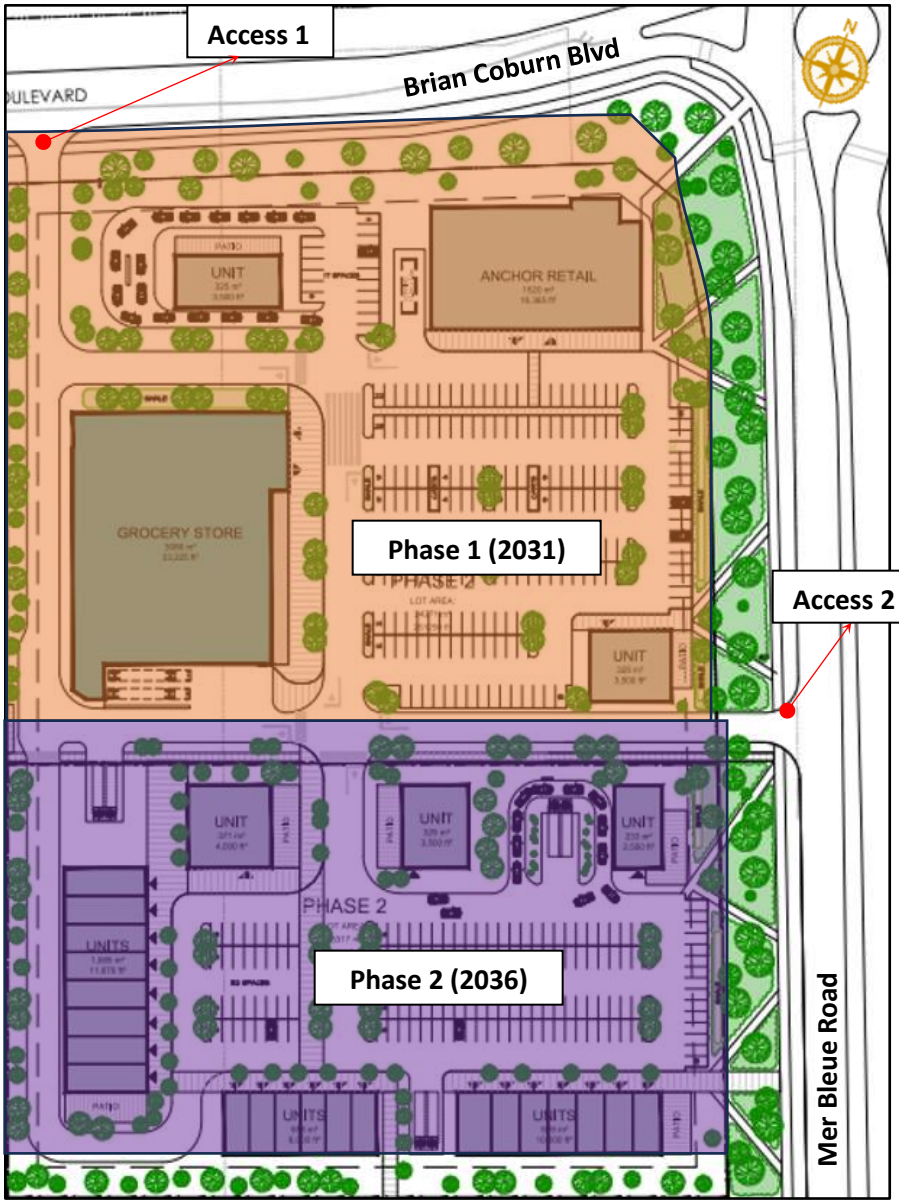


Exhibit 1-1: 2226 Mer Bleue Road Site Plan

1.2 TRAFFIC GENERATION

The updated land use information contained with the recent 2025 site plan provided the opportunity to re-evaluate the traffic generation characteristics associated with the proposed site.

Table 1-2 outlines the average number of vehicle trip-ends for the proposed commercial development. The estimates were derived from referenced ITE literature[2] to provide the travel demand forecasts associated with the new site plan.

The earlier 2021 study had used the recommended TRANS generation rates as detailed in a 2009 study[3]. For this addendum document, the traffic generation rates for the commercial block were adjusted by a 15% reduction in trips to account for internalization and local pedestrian traffic between the proposed commercial development and the adjacent Trailsedge 4 residential area.

[2]. "*Trip Generation Manual*", 11th Edition. Institute of Transportation Engineers (ITE)
[3]."*Trip Generation Residential Trip Rates Study* (2009), TRANS Committee

Table 1-2: Commercial Traffic Generation

Commercial Land Use	ITE Code	GFA (ft^2)	AM				PM			
			Trip Rate	IN	OUT	Total	Trip Rate	IN	OUT	Total
Generation from Phase 1 (2031)										
Super Market	850	33,225	6.78	117	108	225	9.19	156	149	305
Department Store	875	16,365	2.14	18	17	35	2.81	21	25	46
Fast Food with Drive Through	934	3,500	50.57	92	85	177	50.94	91	87	178
High Turnover Restaurant	932	3,500	13.68	27	21	48	16.35	29	28	57
TOTAL		**56,590**		**254**	**231**	**485**		**297**	**289**	**586**
15 % reduction				**216**	**196**	**412**		**252**	**246**	**498**
Additional Generation from Phase 2 (2036)										
Fast food with drive through	934	2,500	50.57	66	60	126	50.94	65	62	127
Liquor store	899	3,500	5.08	9	9	18	17.00	30	30	60
Walk in bank	911	4,000	22.54	47	43	90	26.40	54	52	106
Building 1: Six 1,000 ft^2 units	*	6,000	*	30	24	54	*	36	36	72
Building 2: Seven 1,430 ft^2 units	*	10,000	*	30	28	58	*	37	42	79
Building 3: Eight 1,460 ft^2 units	*	11,670	*	40	32	72	*	48	48	96
TOTAL		**37,670**		**222**	**196**	**418**		**270**	**270**	**540**
15 % reduction				**189**	**167**	**356**		**230**	**230**	**460**
Full Buildout (2036)										
TOTAL		**94,260**		**476**	**427**	**902**		**567**	**559**	**1,126**
15 % reduction (Internalization & Pedestrian Traffic)				**405**	**363**	**768**		**482**	**475**	**957**

* Note: exact land use for these units is not yet solidified, as vendors are still being finalized. An average generation rate was calculated based on likely land uses (ex: hair salon, dispensary, small office, apparel store, etc.

This approach adopted within **Table 1-2** was based on assumptions of individual land uses for each building/unit located within the commercial plaza. As the specific land uses remain to be confirmed, this may have well represent an overestimate of traffic generation.

Annex "J" details an updated approach to traffic generation that applied a general "shopping plaza" rate to the development as a whole, with the exception being the two proposed drive through facilities. Table 1-3 provides the traffic generation results for the proposed plaza. The last row of Table 1-3 provides a comparison to the approach in **Table 1-2** above indicating a significant reduction in forecast trips.

Table 1-3: Updated Commercial Traffic Generation

Commercial Land Use	ITE Code	GFA (ft^2)	AM			PM		
			IN	OUT	Total	IN	OUT	Total
Generation from Phase 1 (2031)								
Shopping Plaza (40-150k)	821	53,090	116	71	187	230	249	479
15 % reduction			99	60	159	196	212	407
Fast Food with Drive Through	934	3,500	92	85	177	91	87	178
50 % pass-by trips			46	43	89	46	44	89
TOTAL		**56,590**	**145**	**103**	**247**	**241**	**255**	**496**
Additional Generation from Phase 2 (2036)								
Shopping Plaza (40-150k)	821	35,170	38	23	61	89	94	183
15 % reduction			32	20	52	76	80	156
Fast Food with Drive Through	934	2,500	66	60	126	65	62	127
50 % pass-by trips			33	30	63	33	31	64
TOTAL		**37,670**	**65**	**50**	**115**	**108**	**111**	**219**
Full Buildout (2036)								
TOTAL		**94,260**	**210**	**152**	**362**	**349**	**366**	**715**
Previous Total			**405**	**363**	**768**	**482**	**475**	**957**
Difference in Forecast Traffic Generation			**195**	**211**	**406**	**133**	**109**	**242**

1.3 TRAFFIC DISTRIBUTION

Table 1-4 indicates the percent traffic distribution trends that were adopted to represent the build-out of the 2226 Mer Bleue Road development. The middle column in the table represents the trends adopted within the 2021 study that were originally referenced from community level traffic distribution estimates. These were further disaggregated within the last column after a review of current (2023/2024) traffic count information to each of the individual roadways that would be used to access the development.

Table 1-4: Traffic Distribution Trends

Traffic Destination/Origin	*Commercial Traffic*	
	2021[1]	*2024[2]*
North: (Mer Bleue Road)	35%	35%
East: (Brian Coburn Boulevard)	35%	25%
East: (Decouer Drive)		10%
South: (Mer Bleue Road)	10%	10%
West: (Brian Coburn Boulevard)	20%	20%
West: (Renaud Road)		0%

1. Referenced from "*Proposed Trailsedge Phase 4 Richcraft Homes Transportation Impact Assessment"* report, Castleglenn, 2021, Page 30.

The route assignment used in the 2021 TIA was further refined/modified to account for the increase in development to the east, which has, since 2021, saw the addition of the Copperhead-Decoeur Drive corridor. The corridor represents a new easterly connection to the adjacent roadway network. [10% of the total 35% of commercial traffic to/from the east was diverted to the Copperhead-Decoeur corridor.]

Exhibit 1-2 illustrates the traffic distribution patterns on the adjacent road network that were adopted to simulate the distribution of traffic associated with the proposed 2226 Mer Bleue Road development.

Exhibit 1-2: Traffic Distribution Trends

1.4 PARKING PROVISIONS

The recent site plan indicates that the proposed commercial development plaza would provide for:

- 191 parking stalls at the completion of Phase 1 (10 of which are accessible stalls); and
- An additional 137 parking spaces at completion of phase 2 (12 of which are accessible stalls).

In total, the site would provide for 328 parking stalls at time of build out (2036).

The City of Ottawa By-law No. 2017-301 Part C pertains to parking required for persons with disabilities. Section 112 (2) states that for a parking lot of 301-250 stalls, a total of 9 accessible stalls would be required (4-Type A stalls and 5-Type B stalls). The commercial development site plan (Annex "A") illustrates that the proponent is providing:

- 16 - Type A stalls; and
- 6 - type B stalls.

As the actual land uses for some of the buildings, at the time of writing, remain to be confirmed, the exact parking requirements for the site may vary. Once finalized, the parking rates would be confirmed, and if the number of spaces is found deficient, a minor variance application would be required.

2.0 UPDATED TRAFFIC VOLUMES

Recent traffic count information was collected Wednesday, August 14th, 2024, at the following intersections:

- Mer Bleue Road and Willow Aster Circle;
- Brian Coburn Boulevard and Mer Bleue Road;

As well, this information was supplemented with available City of Ottawa information:

- Brian Coburn Boulevard and Fern Casey Street (Wednesday January 11th, 2023);
- Mer Bleue Road and Renaud Road (Tuesday April 18th, 2023); and
- Mer Bleue Road and Copperhead Street (Wednesday January 31st, 2024).

The combined traffic counts were then balanced to produce an updated representation of current traffic information. Exhibit 2-1 illustrates the balanced existing (2024) traffic volumes, for both morning and afternoon peak hours of travel demand within the study area.

2.1 EXISTING (2024) INTERSECTION CAPACITY ANALYSIS

Traffic operational analysis was undertaken utilizing Synchro™ 10 and SIDRA™ analysis software to simulate the busiest 15-minute-period within both the morning and afternoon peak hours.

Table 2-1 above illustrates that under the current (2024) conditions

Table 2-1: Existing 2024 Intersection Capacity Analysis Results

Intersection		*Control Type*	*Critical Approach/ Movement*	*Volume of Traffic (vph)*	*Weekday Morning Peak Hour (Afternoon Peak Hour)*			
					Average Delay per Vehicle (Sec.)	*Level of Service*	*95th Percentile Queue (m)*	*Volume-to-Capacity Ratio (v/c)*
1	Brian Coburn Boulevard & Fern Casey Street	Roundabout	NB	209 (176)	8.1 (8.2)	A (A)	7.5 (8.3)	0.19 (0.23)
4	Mer Bleue Road & Willow Aster Circle	Minor leg-STOP-Control	WB	73 (58)	12.7 (18.9)	B (C)	3.75 (5.3)	0.02 (0.20)
6	Mer Bleue Road & Renaud Road	ALL WAY STOP-Control	EB	256 (464)	12.4 (29.0)	B (D)	15.8 (61.5)	0.42 (0.81)
7	Brian Coburn Blvd & Mer Bleue Rd	Roundabout	WB (EB)	666 (678)	9.2 **(79.9)**	A **(F)**	46.5 **(302.3)**	0.85 **(1.14)**
10	Mer Bleue Road & Copperhead Street-Decoeur Drive	Minor leg-STOP-Control	WB	358 (161)	**46.1** (27.2)	**E** (D)	**85.5** (21.8)	**0.92** (0.53)

Morning (Afternoon) / vph – vehicles-per-hour

- The existing west leg of the Brian Coburn Boulevard / Mer Bleue Road roundabout was determined to operate during the afternoon peak hour under a failing (LOS "F") service level. The eastbound approach to the roundabout during the afternoon peak hour currently accommodates a demand of 678 vehicles-per-hour (vph) and experiences an average vehicle delay of 1.3 minutes, a queue of over 300 meters, (which would measure past the proposed new commercial access), and exhibits a v/c ratio of 1.14 which exceeds the City's acceptable value of less than 0.9.

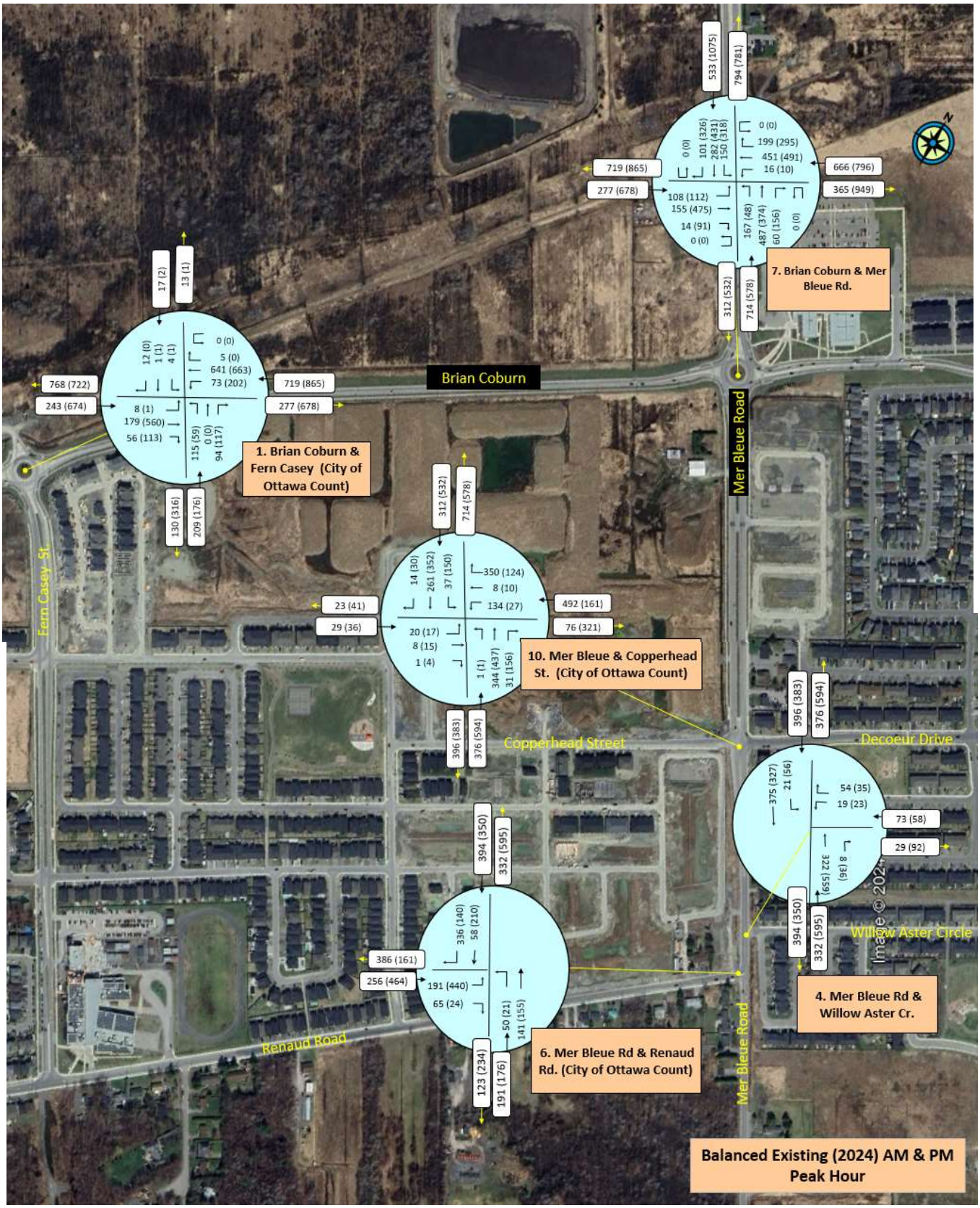


Exhibit 2-1: Existing (2024) Balanced Traffic Volumes

- The current configuration (minor leg STOP-control) of the Mer Bleue Road / Copperhead Street-Decoeur Drive intersection was always intended as in interim configuration that was to be upgraded at the time of the future southerly extension of Mer Bleue Road to a 4-lane cross-section. Current City of Ottawa plans (See Annex "H") call for the widening of the Mer Bleue Road corridor (between the Copperhead-Decoeur intersection to south of Renaud Road). And the production of a detailed design has been initiated. The east leg of the intersection currently operates during the morning peak hour of travel demand with a poor levels-of-service (LOS) of "E" with 492 vehicles-per-hour (vph) travelling in WB direction on Decoeur Drive, an average vehicle delay of 46 seconds, a queue length of 86 meters and a v/c ratio of 0.92.
- All other intersections were found to currently operate at acceptable LOS D or higher.

The Synchro intersection capacity results, the SIDRA roundabout analysis results along with conceptual layouts analyses result sheets are provided within Annex "D".

2.2 HORIZON YEARS OF ANALYSES

This addendum document adopted the following horizon years for analysis purposes.

- 2031 (This horizon represents the build out of Phase 1 of the commercial block); and
- 2036 (This horizon represents the build out of Phase 2 of the commercial block).

2.3 ADDITIONAL TRAFFIC ASSOCIATED WITH ADJACENT PROPOSED DEVELOPMENTS

2.3.1 Surrounding Development Traffic Generation

The previous (January 2021) Trailsedge Phase 4 TIA considered several adjacent developments that were anticipated. Most of these developments have already been completed and represent a component of the 2024 balanced existing traffic volumes depicted in Exhibit 2-1. However, the following five developments were identified as being in progress and were incorporated within the forecasts used within this addendum document:

- *Mer Bleue Expansion Area (Mattamy Homes) – Summerside Phase 4-to-6:* This is an expansion to the existing Summerside West subdivision located east of Mer Bleue Road and south of Renaud Road. (402 singles and 336 townhouses built by 2031)
- *East Urban Community, Phase 2 Lands:* This is a large development located south of Renaud Road and west of Mer Bleue Road. (146 singles and 126 townhouses by 2031, 291 singles and 252 townhouses built by 2036)
- *Caivan Cassette (2275 Mer Bleue Road, 119 Ryan Reynolds Way/2900 Brian Coburn Boulevard):* This development is located on the southeast corner of the Mer Bleue / Brian Coburn Blvd roundabout. (123 townhouses and a six-storey building containing 121 residential dwelling units and 4,040ft^2 of medical/office space built by the end of 2025)
- *Richcraft Block 121*(6273 Renaud Road): This development is located on the northwest corner of the Renaud Road / Compass Street intersection. (76 townhouse by 2031)
- *Richcraft Trailsedge Phase 3-3*: This is part of the previous Trailsedge Phase 3 subdivision located north of Copperhead Street and west of Mer Bleue Road. (92 townhouse by 2031 and 41 singles and 54 townhouses by 2036)
- *Richcraft Trailsedge Phase 4*: This is part of the proposed Trailsedge Phase 4 subdivision located west of the 2226 Mer Bleue Road Commercial Development. (36 singles and 118 townhouses by 2031 and 32 singles and 154 townhouses by 2036)

Exhibit 2-2 illustrates the locations of the adjacent developments. While the first two development initiatives were referenced directly from the January 2021 Richcraft Trailsedge Phase 4 TIA, the traffic assumptions for the Caivan Cassette development were referenced from the "*2275 Mer-Bleue Road Transportation Impact Assessment*[4] and addendum document[5] and an updated "*Proposed Mixed-Use Development 119 Ryan Reynolds Way Transportation Impact Assessment*" document[6] related to the mixed-use component. The development thresholds for the Richcraft developments were provided directly from Richcraft.

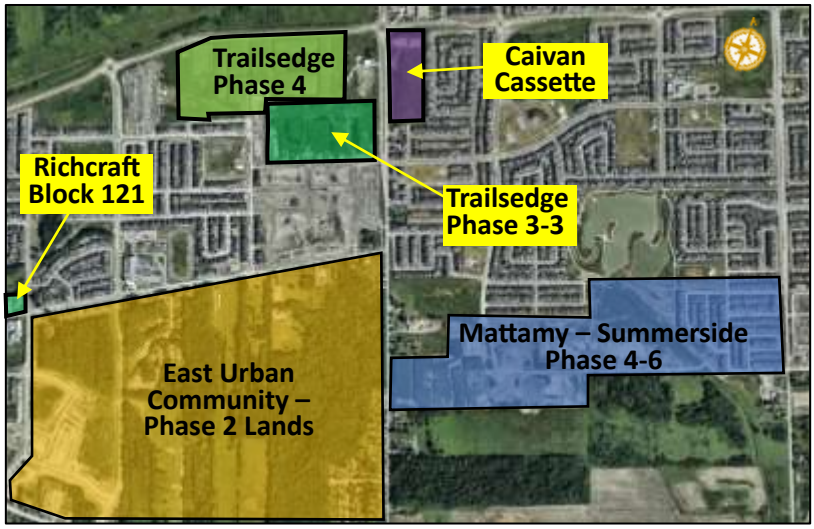


Exhibit 2-2: Adjacent Developments

Exhibits illustrating the traffic generated by these adjacent developments onto the surrounding roadway network are illustrated within Annex "C".

It should be noted that development of the lands north of the hydro/future transit corridor within the Trailsedge Phase 5 (EUC Phase III) lands is not anticipated to occur anytime before the 2036-time horizon.

2.3.2 Additional Background Growth

Although significant land use development potential exists outside of the immediate study area it was felt that this potential would not be realized prior to the 2036-time horizon considered within this addendum document. It is possible that these development initiatives could well result in additional pressures on the existing roadway network that serve to further accelerate the requirement for planned transit and roadway improvements.

[4] "*2275 Mer-Bleue Road Transportation Impact Assessment*", CGH Transportation, March 2021
[5] "*2275 Mer-Bleue Road Transportation Impact Assessment Addendum*", CGH Transportation, June 2021
[6] "*Proposed Mixed-Use Development 119 Ryan Reynolds Way Transportation Impact Assessment*", Novatech, April 2024

3.0 TRAVEL DEMAND FORECASTS

3.1 FIVE YEAR (2031) FORECAST ANALYSES

By the five-year time horizon, the north portion (Phase 1) of the commercial development is anticipated to built out and occupied. It is anticipated that the development would be comprised of 4 buildings inclusive of an anchor retail, a grocery store, a drive-through restaurant and a retail/restaurant building.

3.1.1 Infrastructure Assumptions

The following infrastructure assumptions were assumed to be in place for the five-year (2031) time horizon:

- Mer Bleue Road (south of Willow Aster Circle) was assumed to remain as a 2-lane facility. (However, the City of Ottawa is currently in the process of preparing the detailed design for a 4-lane widened cross-section with a centre median along this corridor.)
- The Ascender Avenue / Brian Coburn Boulevard intersection was assumed to be in place and configured as a right-in/right-out "T"-intersection, and
- The south leg of the Renaud Road / Fern Casey Street intersection would be in place to accommodate the newly developed East Urban Community, Phase 2 lands. (This is a conservative assumption in that the development of these EUC lands may well not occur in the 5-year time frame.)

Both the Brian Coburn Blvd and Mer Bleue Road accesses to the proposed commercial development were assumed to be configured as follows within the five-year (2031) time-horizon:

- *Access 1:* The Brian Coburn Boulevard access to/from the proposed commercial development was assumed initially to be limited to right-in/right-out access only. (See Section 4.1 for illustration), and
- *Access 2:* The Mer Bleue Road access to/from the proposed commercial development was assumed to be limited to right-in/right-out and left-in movements. (See Section 4.2 for illustration)

3.1.2 Forecast Traffic Volumes

Exhibit 3-1 illustrates the forecast five-year (2031) traffic volumes, both for the morning and afternoon peak hours of travel demand based on the traffic generation characteristics within Table 1-2. The anticipated growth in the 5-year period (2024-to 2031) was determined:

- along Brian Coburn Boulevard corridor from west of Fern Casey to Navan Road depending on the direction of travel, the morning or afternoon peak hour of travel demand:
  - was determined to range from 10.5%-to-15%
- along the Mer Bleue Road South corridor (south of Brian Coburn Boulevard):
  - was in the order of 25% in the northbound direction during the morning peak hour of travel demand. (However, 92% of the northbound traffic was attributed to adjacent developments.), and
  - was in the order of 64% in the southbound during the afternoon peak hour of travel demand. (However, 70% of the growth in this southbound traffic was be attributed to adjacent developments.)

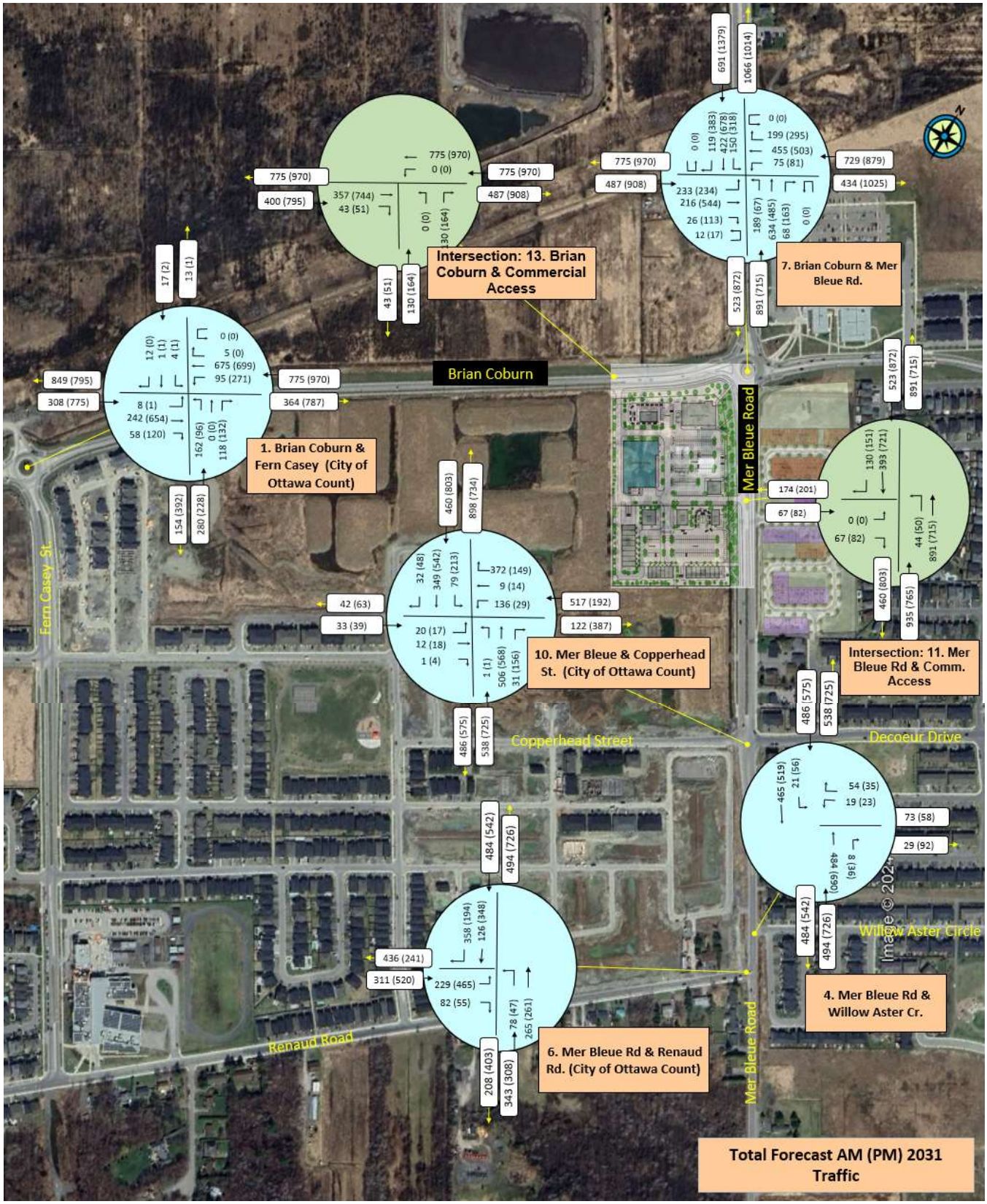


Exhibit 3-1: Forecast (2031) Traffic Volumes

3.1.3 Forecast Traffic Operations

Table 3-1 illustrates the intersection capacity analysis results for the five-year (2031) time-horizon based on the traffic generation rates detailed within Table 1-2.

- The red values highlight the areas of concern, where congestion is anticipated.
- Values in a **light-green** font indicate the anticipated operational performance of possible solutions

Table 3-1: Forecast 2031 (+ 6 years) Intersection Capacity Analysis Results

	Intersection	*Control Type*	*Critical Approach/ Movement*	*Volume of Traffic (vph)*	*Weekday Morning Peak Hour (Afternoon Peak Hour)*			
					Average Delay per Vehicle (Sec.)	*Level of Service*	*95th Percentile Queue (m)*	*Volume-to-Capacity Ratio (v/c)*
1	Brian Coburn Blvd & Fern Casey Street	Single Lane Roundabout	NB	281 (229)	8.5 (8.8)	A (A)	9.6 (11.0)	0.24 (0.28)
4	Mer Bleue Road & Willow Aster Circle	Minor leg- STOP-Control	WB	73 (58)	15.9 (27.4)	C (D)	5.3 (8.3)	0.19 (0.28)
6	Mer Bleue Road & Renaud Road	ALL WAY STOP-Control	SB	484 (589)	23.2 **(75.5)**	C **(F)**	7.1 (16.0)	0.76 **(1.08)**
		Signalized	EB-LT	229 (465)	**17.0 (22.8)**	**C (C)**	**31.8 (66.9)**	**0.57 (0.80)**
		Signalized + 4-Lane Mer Bleue and EB_LT Lane.* (See Annex H)	EB-LT	229 (465)	**14.7 (19.5)**	**B (C)**	**28.0 (56.9)**	**0.55 (0.76)**
7	Brian Coburn Boulevard & Mer Bleue Road	2-Lane Roundabout (2 lane Brian Coburn)	WB	729	**14.3**	**B**	**70.7**	**0.94**
			(EB)	(908)	**(304.1)**	**(F)**	**(945.7)**	**(1.648)**
		2-Lane Roundabout with 2 lane approaches[1]	WB	729	**6.7**	**A**	**17.2**	**0.52**
			(EB)	(908)	**(5.8)**	**(B)**	**(44.9)**	**(0.80)**
10	Mer Bleue Road & Copperhead Street-Decoeur Drive	Minor leg- STOP-Control	WB-LT	136 (29)	**66.9 (164.7)**	**F (F)**	**38.3 (18.8)**	**0.77 (0.64)**
		Signalized	WB-LT	136 (29)	**22.9 (24.7)**	**C (C)**	**22.8 (9.1)**	**0.48 (0.18)**
		Signalized + 4-Lane Mer Bleue * (See Annex H)	WB-LT	136 (29)	**22.9 (22.1)**	**C (C)**	**22.8 (8.3)**	**0.48 (0.17)**
11	**NEW** Mer Bleue Road & Commercial Access	Minor leg- STOP-Control (right-in/right out & Left-in)	NB-LT	44 (50)	8.8 (10.4)	A (B)	0.8 (1.5)	0.05 (0.08)
13	**NEW** Brian Coburn Boulevard & Commercial Access	Minor leg- STOP-Control (right-in/right out)	NB-RT	130 (164)	12.2 (23.7)	B (C)	6.0 (19.5)	0.22 (0.48)

Morning (Afternoon) / vph – vehicles-per-hour / 1. The roundabout would be 2 laned in all directions. The west and east approaches will be provided with additional lanes (the west approach will have an additional 130m lane, the east approach will have an additional 60m lane, and a 100m additional egress lane)

* Indicates Operational results assuming the south extension of Mer Bleue Road is widened to 4-lanes from Copperhead Street-Decoeur Drive to south of Renaud Road that would address failing operations

3.1.4 Required Roadway Improvements

Table 3-2 details the intersections that are forecast to result in unsatisfactory operations within the five-year (2031) time horizon and describes the suggested improvements necessary to address the identified deficiencies. All other intersections are anticipated to operate at an acceptable LOS "D"-or-higher.

Synchro intersection capacity analysis, SIDRA roundabout analysis and conceptual layouts are provided within Annex "D".

Table 3-2: Effect of Suggested Improvements Associated with 2031-Time Horizon

Intersection	*Without Improvements*	*Suggested Improvements*	*Effect of Suggested Improvement*

Brian Coburn Boulevard & Mer Bleue Road Roundabout (Intersection No. 7):	Continues to fail with a LOS "F".	**Roundabout to be widened to include:**
		• **On the west leg of the roundabout:**
		  • **The EB approach would consist of a center EB-Th/LT lane and a new outer EB-Th/RT lane.**
		• **On the east leg of the roundabout.**
		  • **An additional WB-RT lane onto Mer Bleue North.**
		  • **An additional NB-RT lane onto Brian Coburn East leading into the Caivan Cassette Access.**
		• **Within the roundabout the circulating lane on the south side would be widened to accommodate 2 lanes.**
		• **See Exhibit 4-3.**
			The addition of these elements raises the LOS to "B".

Mer Bleue Road & Copperhead Street/Decoeur Drive Intersection (Intersection No. 10):	WB left turns onto Mer Bleue Road from Decoeur Drive fail due to Increased N-S traffic volumes.	• **Intersection to be signalized,** • **Intersection to be widened to accommodate:** • **a SB-LT auxiliary lane (60 meters minimum)** • **Auxiliary EB-LT (70 meters as per City Plan) and WB-LT (45 meters as per City Plan) lanes to be added.** Note: At the 5-year time horizon, only traffic signals & auxiliary lanes are required. Four-laning of Mer Bleue Road is not required at the 5-year time horizon from a traffic operational perspective.	Greatly reduces delays for the WB-LT and improves WB-LT LOS from "F" to "C".
Mer Bleue Road / Renaud Road Intersection (Intersection No. 6):	ALL-way-STOP-controlled intersection fails in the 2031 horizon. Over 400 vehicles are using the EB-LT during the afternoon peak hour.	• **Intersection to be signalized without changes to configuration.** • **City of Ottawa design: 4-Lane Widened Mer Bleue + EB-LT (130 meters as per City Plan) auxiliary Lane operations is indicated as a potential future improvement by 2031. [See Annex "J"].**	Significantly reduces delays from 1.25 mins to 25 seconds and brings the LOS from "F" to "C".
Mer Bleue Road & Commercial Access (Intersection No. 11):	West-leg STOP controlled, "T"-intersection	• **The west leg of the intersection would be developed in concert with the Commercial Plaza Phase 1 development. This will include a dedicated northbound left turn lane into the development.**	Satisfactory LOS "B" on the northbound approach out of the commercial plaza.
Brian Coburn Boulevard & Commercial Access (Intersection No. 13):	South-leg STOP controlled, "T"-intersection (right-in/right-out)	• **The south leg of the intersection would be developed in concert with the Commercial Plaza Phase 1 development.**	Satisfactory LOS "C" on the eastbound approach out of the commercial plaza.

Annex "J" details a re-analysis of the Mer Bleue Road/Brian Coburn Boulevard roundabout using the updated traffic generation values for the Trailsedge Phase 4 residential (See Annex J, Table J-2) development and commercial plaza (See Table 1-3).

The SIDRA roundabout analysis determined that even with the reduction of trips detailed in Annex "J", the suggested improvements within Table 3-2 were still found to be necessary to achieve acceptable traffic operations for the five-year (2031) time horizon.

3.2 TEN-YEAR (2036) FORECAST ANALYSES

By the ten-year (2036) time horizon, the south portion (Phase 2) of the commercial development is anticipated to built out and occupied. The development would be comprised of 5 buildings inclusive of a second drive-through restaurant, 21 small commercial blocks contained within 3 buildings, and 2 additional standalone retail/restaurant buildings.

3.2.1 Infrastructure Assumptions

The following infrastructure assumptions were assumed to be in place by the ten-year (2036) time horizon:

- Mer Bleue Road would be widened to a 4-lane cross-section with a centre median as per the City of Ottawa functional plans (See Annex "I"),
- The Brian Coburn Boulevard commercial development access would be upgraded to include a widening of the corridor that would permit development of a westbound left-in turn movement into the commercial development (See Exhibit 4-3 Interim Design 2036), and
- The Ascender Avenue / Brian Coburn Boulevard intersection will be upgraded to permit WB-LT from Brian Coburn Boulevard onto Ascender Avenue.

3.2.2 Forecast Traffic Volumes:

Exhibit 3-2 illustrates the ten-year forecast (2036) traffic volumes, both for the morning and afternoon peak hours of traffic demand within the study area roadways. The anticipated growth in the 10-year period (2024-to 2036) along the two critical corridors was:

- Brian Coburn Boulevard corridor (from west of Fern Casey to Navan Road) depending on the direction of travel, the morning or afternoon peak hour of travel demand:
  - was determined to range from 21.0%-to-28.6%
- Mer Bleue Road South corridor (south of Brian Coburn Boulevard) was determined to be in the order of:
  - 56% in the northbound direction during the morning peak hour of travel demand. (However, 5.5% of the northbound traffic could be attributed to the Trailsedge Phase 4 and commercial development.), and
  - 134% in the southbound during the afternoon peak hour of travel demand. (However, 13% of the growth in this southbound traffic could be attributed to Trailsedge Phase 4 and commercial development.)

3.2.3 Forecast Traffic Operations

Exhibit 3-2 illustrates the intersection capacity analysis results for the ten-year (2036) horizon.

- The red values highlight the areas of concern, where congestion is anticipated without proposed improvements being implemented.
- Values in a **light-green** font indicate the anticipated operational performance of possible solutions that would address failing operations.

3.2.4 Required Roadway Improvements

Table 3-4 details the critical intersections/corridors with suggested improvements for the ten-year horizon.

- The Brian Coburn Boulevard/Mer Bleue Roundabout assuming the traffic generation characteristics rates as detailed within Table 1-2 and the 2031 configuration is forecast to continue to have a high v/c ratio of 0.98 (over the 0.9 threshold).
- It was determined that the addition of another southbound slip lane (NW quadrant or SB-RT) would be required to address this deficiency. This improvement was thought best to be constructed once the adjacent lands in the north-west quadrant of the roundabout would be developed which would reduce the v/c ratio to below 0.9 for the EB approach.

- The two intersections south of the Brian Coburn Boulevard / Mer Bleue Road roundabout are:
  - Mer Bleue Road & Copperhead Street /Decoeur Drive, and
  - Mer Bleue Road / Renaud Road

  The ten-year forecast operations for both these intersections indicate failure operational performance for the north-south through traffic during the afternoon peak hour of travel demand assuming the 2-lane Mer Bleue Road configuration. This underscores the need for the southern extension of Mer Bleue Road to a point south of Renaud Road by the ten-year horizon.
- All other intersections are anticipated to operate at an acceptable LOS "D"-or-higher.

Synchro analysis, SIDRA roundabout analysis and conceptual layouts are provided under Annex "F".

Table 3-3: Forecast Ten-Year (2036) Intersection Capacity Analysis Results

Intersection		Control Type	Critical Approach/ Movement	Volume of Traffic (vph)	Weekday Morning Peak Hour (Afternoon Peak Hour)			
					Average Delay per Vehicle (Sec.)	Level of Service	95th Percentile Queue (m)	Volume-to-Capacity Ratio (v/c)
1	Brian Coburn Boulevard & Fern Casey Street	2-Lane Roundabout with 4 lane Brian Coburn	NB	382 (308)	8.8 (9.7)	A (A)	13.9 (13.8)	0.38 (0.40)
4	Mer Bleue Road & Willow Aster Circle	Convert Willow Aster Cres. to RI-RO Access[1]	WB-RT	54 (35)	11.6 (12.5)	B (B)	2.3 (1.5)	0.10 (0.07)
6	Mer Bleue Road & Renaud Road	Signalized (2-Lane Mer Bleue) (Shared NB-Th/LT & SB-Th/RT EB-Th/LT	SB-TH	(556)	**(91.8)**	**(F)**	**(137.9)**	**(1.13)**
			NB-TH	(417)	**(82.4)**	**(F)**	**(128.2)**	**(1.21)**
			EB-LT	(495)	(35.3)	(D)	(97.8)	**(0.92)**
		Signalization 4-lane Mer Bleue (Annex H)	SB-TH	(556)	(8.3)	(A)	(26.8)	(0.33)
			NB-TH	(417)	(10.8)	(B)	(21.7)	(0.27)
			EB-LT	277 (495)	13.5 (21.2)	B (C)	39.8 (75.1)	0.59 (0.82)
7	Brian Coburn Boulevard & Mer Bleue Road	2-Lane Roundabout with 4 lane Brian Coburn (Assumes 2031 Configuration	(EB)	(1,136)	**(54.0)**	**(F)**	**(252.3)**	**(1.08)**
			(SB)	(1,788)	**(45.1)**	**(F)**	**(156.8)**	**(1.05)**
		2-Lane Roundabout with 4 lane Brian Coburn and EB slip lane[2]	EB	(1,136)	(27.8)	(C)	(96.4)	(0.98)
			SB	(1,788)	(7.6)	(A)	(34.8)	(0.64)
		2-Lane Roundabout with 4 lane Brian Coburn and SB Slip Lanes*	EB	(1,045)	(15.4)	(B)	(50.1)	(0.87)
			SB	(1,706)	(7.5)	(A)	(31.0)	(0.59)
10	Mer Bleue Road & Copperhead Street /Decoeur Drive	Signalization 2-lane Mer Bleue with Auxiliary NB, EB & WB LT Lanes	WB-LT	155 (52)	23.9 (29.4)	C (C)	25.7 (14.6)	0.49 (0.32)
			NB-Th	754 **(754)**	16.3 **(89.9)**	B **(F)**	70.7 **(233.4)**	0.50 **(1.12)**
		Signalization 4-lane Mer Bleue (Annex H)	WB-LT	155 (52)	23.9 (29.4)	C (C)	25.7 (14.6)	0.49 (0.32)
			NB-TH	754 (754)	16.9 (18.4)	B (B)	69.1 (74.3)	0.52 (0.66)
11	**NEW** Mer Bleue Road & Commercial Access	Minor leg- STOP-Control	NB-LT	82 (96)	9.8 (13.9)	A (B)	3.0 (6.0)	0.11 (0.21)
13	**NEW** Brian Coburn Boulevard & Commercial Access	Minor leg- STOP-Control (right-in/right out) – 4 lane Brian Coburn	NB-RT	245 (321)	13.2 (25.0)	B (D)	13.5 (38)	0.38 (0.67)

Morning (Afternoon) vph – vehicles-per-hour

1. The advent of widening Mer Bleue Road to 4 lanes and addition of the median, converts Willow Aster Cres. to a RI-RO access.
2. Slip lane in the SW Quadrant (EB-RT).

* Based on Annex "J" traffic volumes and traffic generation rates consistent with TRANS residential traffic generation rates and adjusted commercial development generation rates

3.2.5 Brian Coburn Boulevard / Mer Bleue Road Roundabout Analysis (2036)

Annex "J" details an analysis of the Mer Bleue Road / Brian Coburn Boulevard roundabout for the 2036 time horizon.

Using updated traffic generation values for the Trailsedge Phase 4 residential and commercial plaza developments (See Table 1-3), the SIDRA roundabout analysis determined that the suggested eastbound slip lane improvement for the Brian Coburn Boulevard & Mer Bleue Road Roundabout as noted in Table 3-4 would be unnecessary.

A southbound slip lane in the north-west quadrant of the roundabout would be best phased in concert with the buildout of the lands within the northwest quadrant of the roundabout.

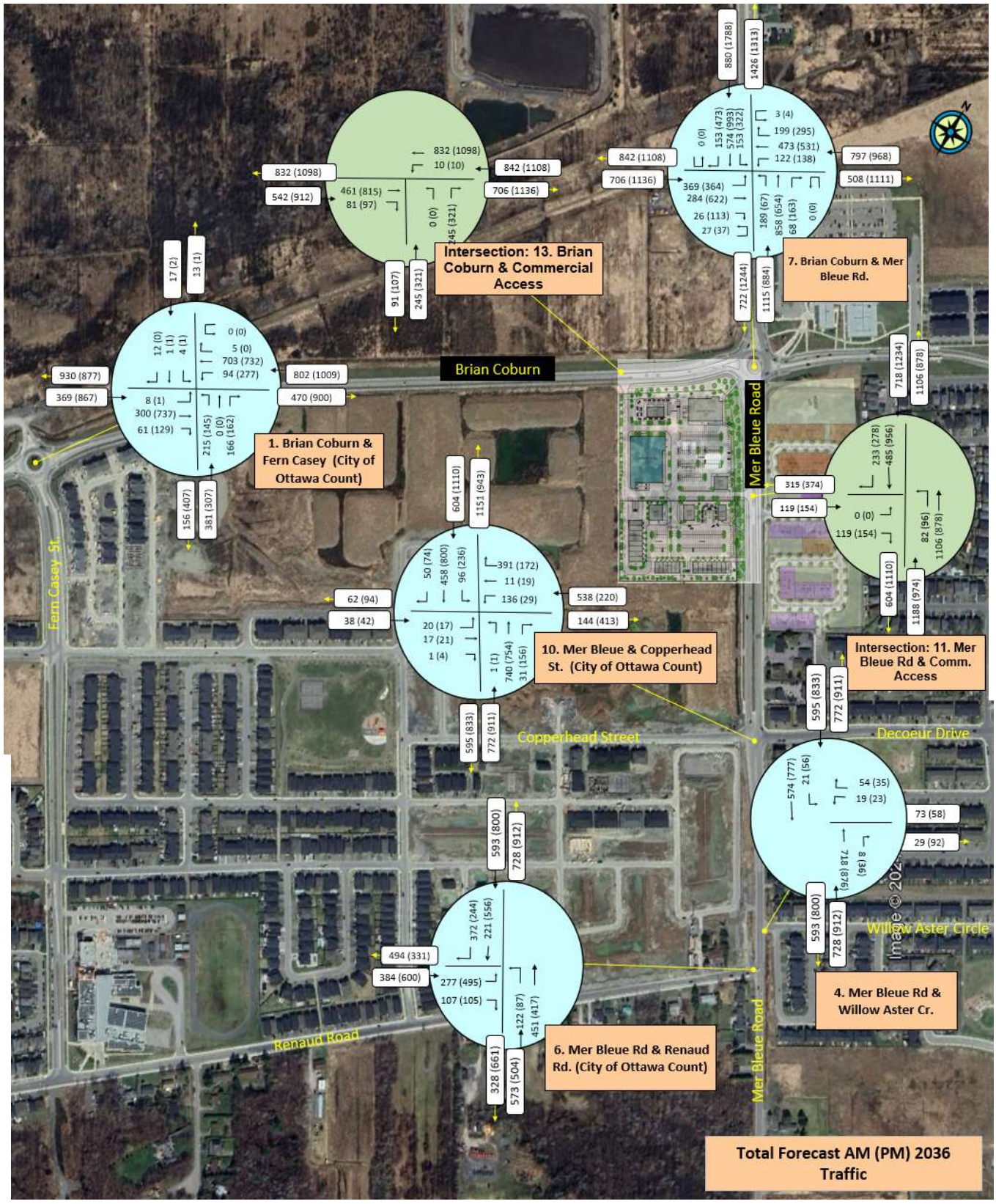


Exhibit 3-2: Forecast (2036) Traffic Volumes

Table 3-4: Forecast Ten-Year (2036) Intersection Capacity Analysis Results

Intersection		Control Type	Critical Approach/ Movement	Volume of Traffic (vph)	Weekday Morning Peak Hour (Afternoon Peak Hour)			
					Average Delay per Vehicle (Sec.)	Level of Service	95th Percentile Queue (m)	Volume-to-Capacity Ratio (v/c)
1	Brian Coburn Boulevard & Fern Casey Street	2-Lane Roundabout with 4 lane Brian Coburn	NB	382 (308)	8.8 (9.7)	A (A)	13.9 (13.8)	0.38 (0.40)
4	Mer Bleue Road & Willow Aster Circle	Convert Willow Aster Cres. to RI-RO Access[1]	WB-RT	54 (35)	11.6 (12.5)	B (B)	2.3 (1.5)	0.10 (0.07)
6	Mer Bleue Road & Renaud Road	Signalized (2-Lane Mer Bleue) (Shared NB-Th/LT & SB-Th/RT EB-Th/LT	SB-TH	(556)	**(91.8)**	**(F)**	**(137.9)**	**(1.13)**
			NB-TH	(417)	**(82.4)**	**(F)**	**(128.2)**	**(1.21)**
			EB-LT	(495)	(35.3)	(D)	(97.8)	**(0.92)**
		Signalization 4-lane Mer Bleue (Annex H)	SB-TH	(556)	(8.3)	(A)	(26.8)	(0.33)
			NB-TH	(417)	(10.8)	(B)	(21.7)	(0.27)
			EB-LT	277 (495)	13.5 (21.2)	B (C)	39.8 (75.1)	0.59 (0.82)
7	Brian Coburn Boulevard & Mer Bleue Road	2-Lane Roundabout with 4 lane Brian Coburn (Assumes 2031 Configuration	(EB)	(1,136)	**(54.0)**	**(F)**	**(252.3)**	**(1.08)**
			(SB)	(1,788)	**(45.1)**	**(F)**	**(156.8)**	**(1.05)**
		2-Lane Roundabout with 4 lane Brian Coburn and EB slip lane[2]	EB	(1,136)	(27.8)	(C)	(96.4)	(0.98)
			SB	(1,788)	(7.6)	(A)	(34.8)	(0.64)
10	Mer Bleue Road & Copperhead Street /Decoeur Drive	Signalization 2-lane Mer Bleue with Auxiliary NB, EB & WB LT Lanes	WB-LT	155 (52)	23.9 (29.4)	C (C)	25.7 (14.6)	0.49 (0.32)
			NB-Th	754 **(754)**	16.3 **(89.9)**	B **(F)**	70.7 **(233.4)**	0.50 **(1.12)**
		Signalization 4-lane Mer Bleue (Annex H)	WB-LT	155 (52)	23.9 (29.4)	C (C)	25.7 (14.6)	0.49 (0.32)
			NB-TH	754 (754)	16.9 (18.4)	B (B)	69.1 (74.3)	0.52 (0.66)
11	**NEW** Mer Bleue Road & Commercial Access	Minor leg- STOP-Control	NB-LT	82 (96)	9.8 (13.9)	A (B)	3.0 (6.0)	0.11 (0.21)
13	**NEW** Brian Coburn Boulevard & Commercial Access	Minor leg- STOP-Control (right-in/right out) – 4 lane Brian Coburn	NB-RT	245 (321)	13.2 (25.0)	B (D)	13.5 (38)	0.38 (0.67)

Morning (Afternoon) vph – vehicles-per-hour

3. The advent of widening Mer Bleue Road to 4 lanes and addition of the median, converts Willow Aster Cres. to a RI-RO access.
4. Slip lane in the SW Quadrant (EB-RT).

Table 3-5: Effect of Suggested Improvements Associated with Ten-Year (2036) Time Horizon

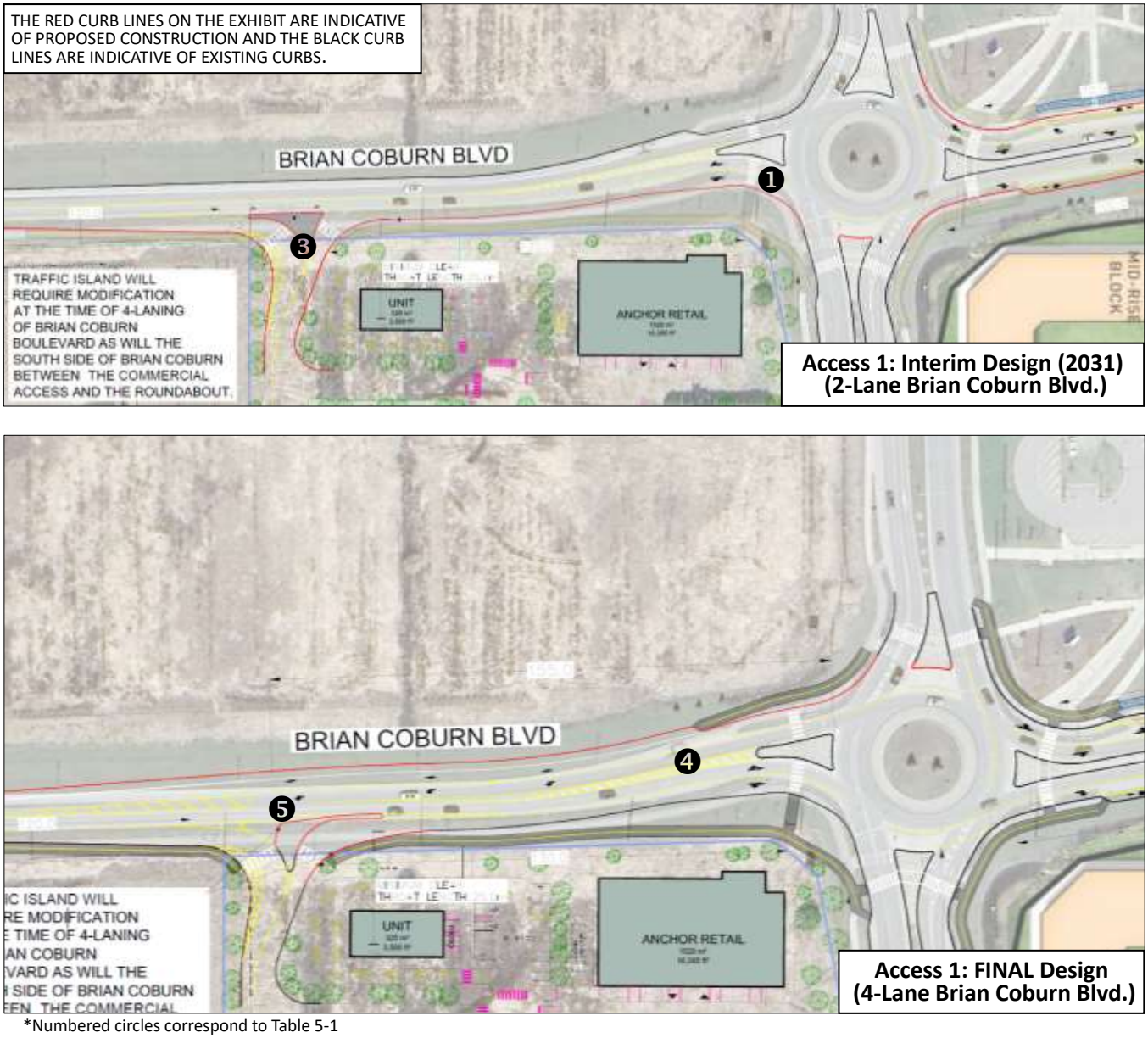
Intersection	Without Improvements	Suggested Improvement	Effect of Suggested Improvement
Renaud Road & Fern Casey Street Intersection (No. 3):	Fails as a minor leg STOP-controlled intersection	• The intersection should be converted to be signalized	The addition of these elements improves the LOS from "F" to "B".
Brian Coburn Boulevard & Mer Bleue Road Roundabout (No. 7):	Fails in the East and South directions assuming 2031 configuration.	• See Exhibit 4-3. • Warrants for an additional southbound right turn slip lane should be monitored.	The addition of these elements would improve the LOS from "F" to "C".
Mer Bleue Road South of Brian Coburn	Failure operational performance measure occurs in the north-south through lanes assuming the existing single through lane in each direction.	• The Mer Bleue corridor is to be widened to a 4-lane cross-section with auxiliary turning lanes as illustrated in Annex "J"	The 4-lane cross section is forecast to improves NS movements from LOS "F" to "C-or-better.
Mer Bleue Road & Commercial Access (Intersection No. 13):	South-leg STOP controlled, "T"-intersection (right-in/right-out)	• **A WB-LT into the commercial plaza would be developed in concert with provisions for a westbound left turn lane.**	Satisfactory LOS "D" on the northbound approach out of the commercial plaza.

4.0 ROADWAY IMPROVEMENT DESIGN

4.1 ACCESS NO. 1: BRIAN COBURN BOULEVARD & COMMERCIAL ACCESS

Exhibit 4-1 (See Annex "G") illustrates the interim (2-lane) and ultimate (4-lane) configurations for the Brian Coburn Boulevard access that connects to the proposed commercial plaza. The access would be located approximately 130 meters west of the Brian Coburn Boulevard / Mer Bleue Road roundabout on the south side of the roadway and restricted to right-in/right-out only movements. The right- out movement would continue as its own lane, leading to the Brian Coburn Boulevard / Mer Bleue Road roundabout.

At the time of the twinning when Brian Coburn Boulevard is widened, the ultimate access arrangement would be upgraded to permit left-in movements. In addition, modification to the interim traffic island would be required, and an eastbound slip lane is anticipated to become warranted by the ten-year horizon.



*Numbered circles correspond to Table 5-1

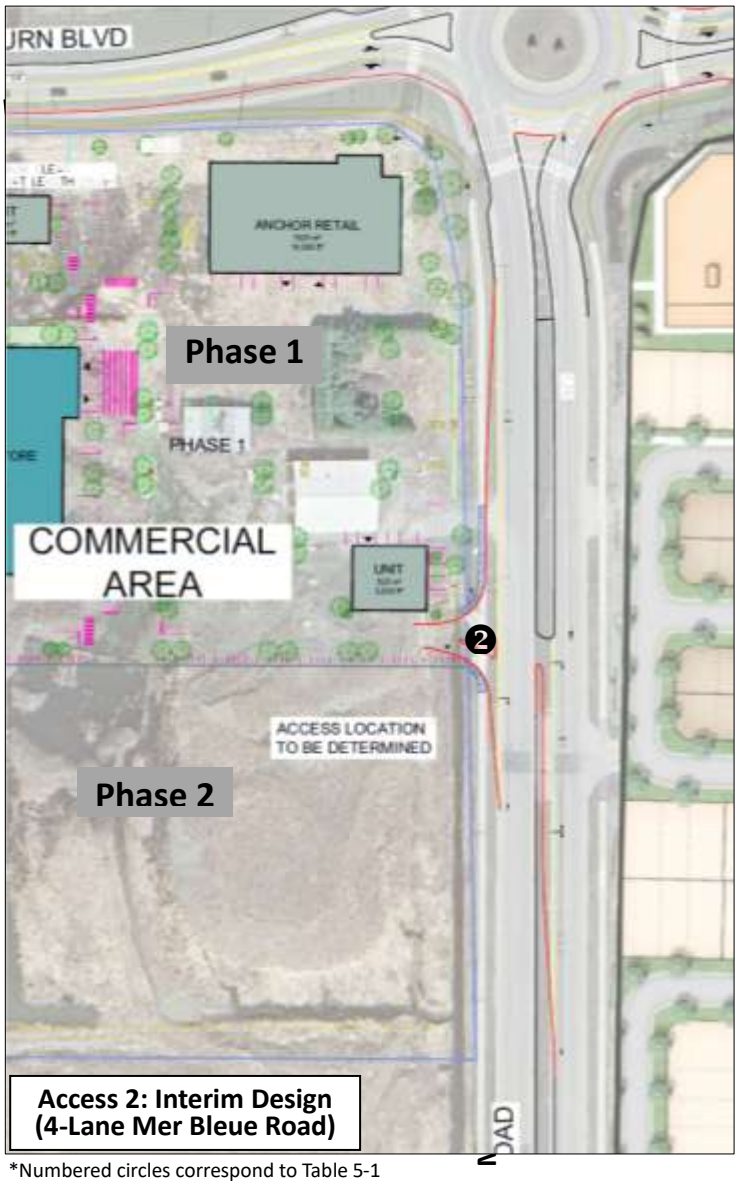
Exhibit 4-1: Access 1: Brian Coburn Access to Proposed Commercial Development

4.2 Access No. 2: Mer Bleue Road & Commercial Access

Exhibit 4-2 (see Annex "G") illustrates the proposed Mer Bleue commercial plaza access which is envisioned to be required in the five-year (2031) time horizon. The access would be:

- located roughly 130 meters south of the Brian Coburn Boulevard / Mer Bleue Road roundabout on the west side of the roadway,
- provide for right-in/right-out by way of a channelized island, and
- provide for northbound left-in movements into the proposed commercial development by way of a median break and a dedicated northbound auxiliary left turn lane.

The right turns in, and out, of the development onto Mer Bleue Road would be tapered, with an island that prevents vehicles from turning left out of the commercial area. The left turn in would require modification to the existing median (to provide a 45-meter long turning lane and a 60-meter taper).



*Numbered circles correspond to Table 5-1

Exhibit 4-2: Access 2: Mer Bleue Road Access to Proposed Commercial Development

4.3 Brian Coburn Boulevard & Mer Bleue Roundabout

The Brian Coburn Boulevard / Mer Bleue roundabout was found to exhibit failure levels of service under the existing (2024) traffic conditions. Exhibit 4-3 (See Annex "H") illustrates the proposed improvements necessary to meet demand in the five-year and ten-year time horizons. Based on the analysis completed, the following configurations are recommended:

- By the five-year (2031) time horizon:
  - The west leg of the roundabout would have a 130m additional eastbound lane.
  - The east leg of the roundabout would have a 70m additional westbound right turn lane.
  - The east leg would have a 2nd eastbound land 100m in length, and
  - The roundabout would be upgraded to have 2 circulation lanes in the eastbound direction.
- By the ten-year (2036) time horizon:
  - the roundabout would be modified to permit 2 lanes of traffic in all directions, and
  - the need/warrant for an ultimate southbound slip lane is required but this should be timed with the development of the northwest corner of the roundabout.

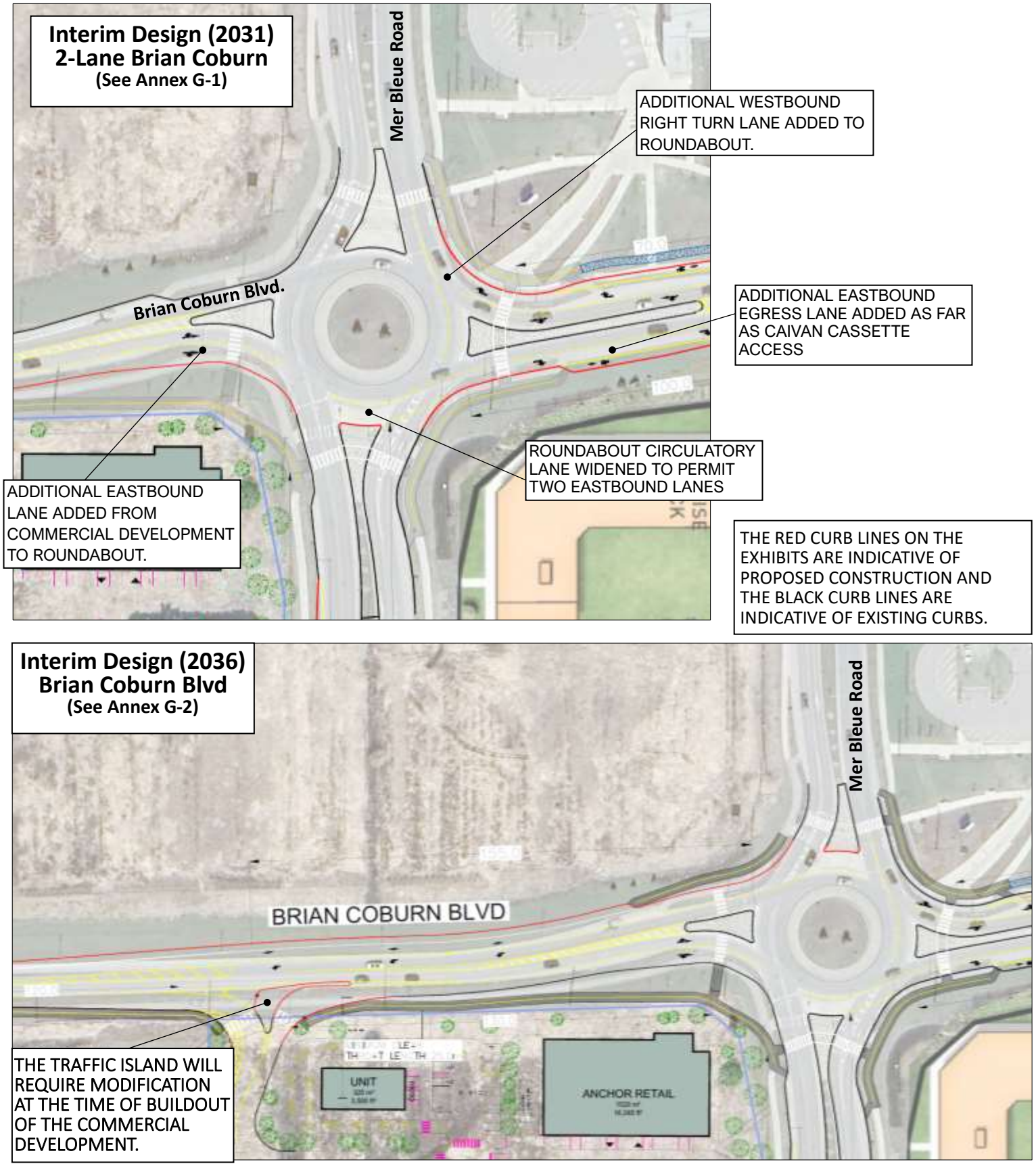


Exhibit 4-3: Interim Five-Year & Ten-Year Configuration of Brian Coburn Boulevard / Mer Bleue Roundabout

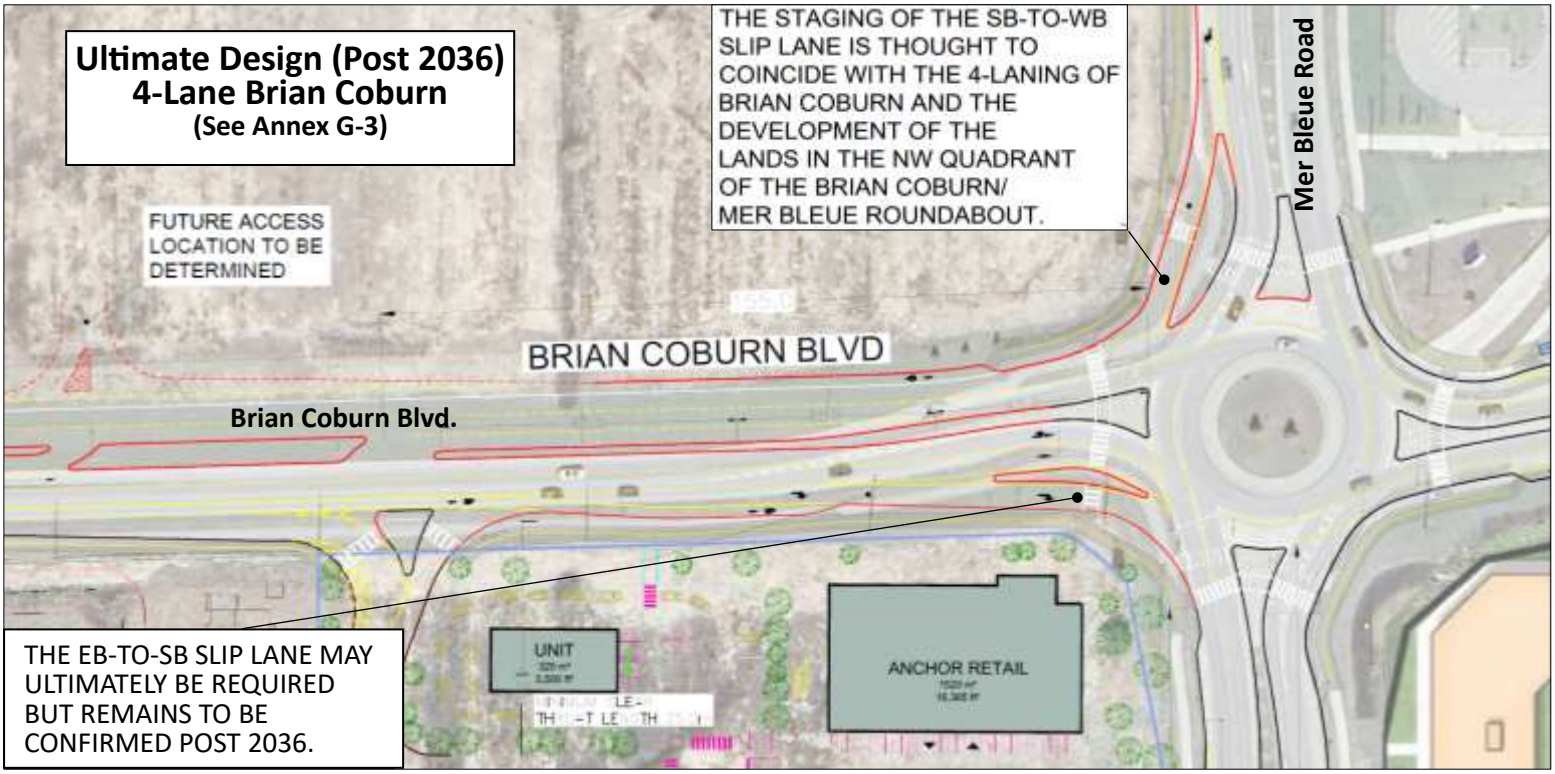


Exhibit 4-4: Ultimate Configuration of Brian Coburn Boulevard Corridor

5.0 FINDINGS & CONCLUSION

This intent of this second addendum document is to serve as an update to the 2021 "*Proposed Trailsedge Phase 4 Orleans, Ottawa Richcraft Homes – Transportation Impact Assessment*". This second addendum focuses on the proposed 2226 Mer Bleue Road commercial plaza. The analyses references information obtained from the latest site plan (Winter 2025) which offers significantly more detail than was readily available when the last TIA had been prepared in 2020/21.

5.1 EXISTING (2024) CONDITIONS:

- Under existing 2024 conditions:
  - The Brian Coburn Boulevard / Mer Bleue Road roundabout already exhibits failure conditions at the west leg of the roundabout for the eastbound approach during the afternoon peak hour of travel demand. Operational analyses indicated an average estimate 80 second delay-per-vehicle, a 300m long queue and a LOS "F" for the eastbound approach at this time.
  - The Mer Bleue Road & Copperhead Street- Decoeur Drive minor leg-STOP-controlled intersection exhibited constrained conditions at the east leg of the intersection for the single-lane westbound approach during the morning peak hour of travel demand. This current configuration was always intended as an interim configuration prior to the 4-lane south extension of the Mer Bleue corridor. Operational analyses indicated that westbound traffic from Decoeur Drive experiences 45 seconds of delay-per-vehicle, an 86m long queue and a LOS "E"

5.2 THE PROPOSED COMMERCIAL DEVELOPMENT

- The proposed commercial plaza when completed involve 94,260 SF of commercial space and 328 parking stalls. The development would be constructed over two phases as follows:
  - Phase 1 totals 56,500 SF of gross leasable area (GLA) accommodating an anchor retail establishment, a grocery store, a drive-thru restaurant and another small retail/restaurant building. This first phase would see 191 parking stalls and is anticipated to be completed within the five-year (2036) time horizon; and
  - Phase 2 totals 37,670 SF of gross leasable area (GLA) accommodating a second drive-thru restaurant, 21 small commercial blocks contained within 3 buildings, and 2 additional standalone retail/restaurant buildings. This second phase would an additional 137 parking stalls and is anticipated to be completed within the ten-year (2036) time horizon.

5.3 THE FIVE-YEAR (2031) TIME HORIZON:

Traffic Generated by the Commercial Development

- The commercial plaza (by the end of Phase 1) is expected to generate 412 (216 in and 196 out) vehicles during the morning peak hour and 498 (252 in and 246 out) vehicles during the afternoon peak hour.

New Accesses and New Intersections

- The following two accesses were determined to be required to service the proposed Phase 1 commercial development.
    - A new right-in/right-out access/egress into the commercial development is envisioned that would connect to the existing 2-lane Brian Coburn Boulevard which would be configured as a minor leg STOP-controlled driveway access.
    - A new right-in/right-out and left-in access that would connect the commercial development to Mer Bleue Road is envisioned. The right-out driveway would be configured as a minor leg STOP-controlled access. The left-in movement would be provided by way of break in the Mer Bleue median.

Forecast Traffic Operations without Improvements

- Analysis of the forecast 2031 volumes were forecast to offer unacceptable levels of service and exhibit poor traffic operations:
    - The failure conditions on the west leg (eastbound approach) of the *Brian Coburn Boulevard / Mer Bleue Road* roundabout during the afternoon peak hour of travel demand are anticipated to worsen. Operational analyses indicated LOS "F" failure conditions for the eastbound approach with the average estimate delay-per-vehicle reaching 5 minutes-per-vehicle, eastbound queues spanning 950m, and the v/c ratio estimated at 1.65.
    - The *Mer Bleue Road/Copperhead Street-Decoeur Drive,* and the *Mer Bleue Road / Renaud Road* intersection were both forecast to exhibit failure levels of service for critical turning movements during the peak hours of travel demand.

Required Intersection Improvements

- The following intersections were found to require improvements within the five-year (2031) time horizon:
    - *Brian Coburn Boulevard / Mer Bleue Road roundabout*: This roundabout should be upgraded to provide an additional eastbound right turn lane onto Mer Bleue North from the east leg of the roundabout. As well, the west leg of the roundabout should be widened to provide an additional two-lane approach with a center EB-Th/LT lane and an outer EB-Th/RT lane continuing through to the south and the east leg of the roundabout. This raises the operational performance of the west leg of the roundabout to a LOS "B".
    - *Mer Bleue Road / Copperhead Street-Decoeur Drive intersection and Mer Bleue Road / Renaud Road intersection:* The operational deficiencies forecast to occur at these two intersections within this addendum document will be fully addressed by the City of Ottawa's "committed project" to widen the Mer Bleue corridor from north of Copperhead Street-Decoeur Drive to south of Renaud Road.

5.4 THE TEN-YEAR (2036) TIME HORIZON:

Traffic Generated by the Commercial Development

- The commercial plaza (by the end of Phase 2) is expected to generate an additional 768 (405 in and 363 out) vehicles during the morning peak hour and 957 (482 in and 475 out) vehicles during the afternoon peak hour.

Required Roadway Improvements

- This addendum document determined that Mer Bleue Road will require widening to provide a 4-lane cross-section by the end of the ten-year horizon.

Required Access Improvements

- The commercial access connecting to Brian Coburn Boulevard is to essentially provide a widened (4-lane cross-section) of Brian Coburn Boulevard between the proposed commercial development and the existing roundabout.
- Given the anticipated traffic levels at the ten-year horizon (~1,000 2-way trips during the PM peak hour) heavy vehicle access from the east must be provided from Brian Coburn Boulevard as access by heavy trucks through the Mer-Bleue access would be required to circulate through the parking area without enough room to back in the planned loading bay areas of the buildings. A westbound left turn-in access from Brian Coburn is proposed for the ten-year horizon which would be accommodated by a median break from the 4-lane cross-section on Brian Coburn Boulevard.

Forecast Traffic Operations with Intersection Improvements

- Analysis of the forecast ten-year (2036) traffic volumes showed that the following intersections needed improvements:
    - *Brian Coburn Boulevard / Mer Bleue Road Roundabout*: The improvements suggested for 2031 are anticipated to exhibit failure levels of service at the north leg (southbound approach) and west leg (eastbound approach) to the roundabout.

      The roundabout will require further upgrades inclusive of widening to provide a 2-lane roundabout configuration with 2 westbound through lanes. This would raise the LOS up to "B". Warrants for an additional eastbound slip lane should be monitored. It was determined that the proposed Trailsedge (residential and commercial) developments would be responsible for … :
        - 24% of the ten-year traffic volumes that would warrant the need for an eastbound slip lane.
        - 15% of the ten-year traffic volumes that would warrant the need for the additional westbound lanes in the vicinity of the roundabout.

      The southbound slip lane is recommended in the ultimate configuration, but this improvement can be delayed until the lands in the northwest quadrant of the roundabout are developed.

5.5 INFRASTRUCTURE ASSIGNED TO THE COMMERCIAL DEVELOPMENT:

Of the improvements listed in Section 4.0, this section details those infrastructure upgrades which are directly required due to traffic generated by the Richcraft commercial development.

Table 5-1 highlights the following 5 improvements necessary to assure operational sustainability. The numbers within the table correspond to markings on Exhibit 4-1and Exhibit 4-2.

By the 5-year (2031) time horizon:

- The Brian Coburn Boulevard / Mer Bleue roundabout will require several modifications to ensure adequate traffic operations. To facilitate the additional traffic generated by the commercial plaza on the south-west corner of the roundabout, a second eastbound approach lane on the west leg of the roundabout would need to be added in addition to a 2nd circulating lane internal to the roundabout. In the interim the widened circulating lane would provide access to the east leg of the roundabout and the inner lane to the north leg.
- The Brian Coburn Boulevard / Commercial Access (right-in/right-out) will need to be in place to access the proposed commercial plaza. The northbound right turn lane will tie into the outer eastbound lane approaching the roundabout.
- The Mer Bleue Road / Commercial Access will need to be in place to access the proposed commercial plaza. An auxiliary northbound left turn lane into the development will tie into the outer eastbound lane approaching the roundabout.

By the 10-year (2036) time horizon:

- The Brian Coburn Boulevard / Mer Bleue roundabout will require additional modifications to ensure continued adequate traffic operations. As the traffic on the surrounding corridors increase and with the completion of Phase 2 of the commercial plaza warrants for a southbound right turn slip lane should be monitored. In addition, a dedicated west-bound left turn lane to support commercial vehicle access into the site is recommended.

Beyond 2036:

- With the advent of the 4-laning of the Brian Coburn Boulevard corridor and addition of a new centre raised median, the Brian Coburn Boulevard / Commercial Access would be further upgraded to accommodate the commercial plaza while still prohibiting northbound left turns out of the development. This would be ensured by way of the raised island at the throat of the access. A southbound slip lane is forecast to be also required by this time horizon with the development of the lands in the north-west quadrant of the roundabout.

Table 5-1: Suggested Richcraft Roadway/Intersection Improvements

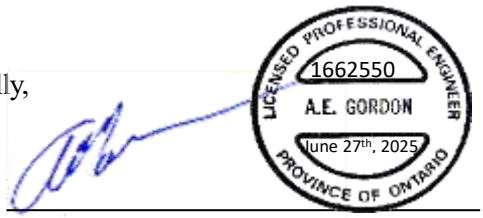
Horizon Year	*Intersection*	*Suggested Improvements*	Responsibility
2031	*Brian Coburn Boulevard & Mer Bleue Road Roundabout (Intersection No. 7):* ❶	• **On the west leg of the roundabout an additional two-lane approach with a center EB-Th/LT lane and an outer EB-Th/RT lane.**	Richcraft Homes
	Mer Bleue Road & Commercial Access (Intersection No. 11): ❷	• **The west leg of the intersection would be developed in concert with the Commercial Plaza Phase 1 development. This will include a dedicated northbound left turn lane into the development.**	Richcraft Homes
	Brian Coburn Boulevard & Commercial Access (Intersection No. 13): ❸	• **The south leg of the intersection would be developed in concert with the Commercial Plaza Phase 1 development. The intersection will be right-in/right-out only.**	Richcraft Homes
2036	*Brian Coburn Boulevard & Mer Bleue Road Roundabout (No. 7):* ❹	• **A WB-LT into the commercial plaza to accommodate heavy vehicles would be developed.** • **Warrants for a southbound right turn slip lane should be monitored.**	Richcraft Homes
	Brian Coburn Boulevard & Commercial Access (Intersection No. 13): ❺	• **Addition of westbound left turn into the commercial plaza.**	Richcraft Homes
Post-2036	*Brian Coburn Boulev ard & Mer Bleue Road Roundabout (Intersection No. 7):* ❻	• **The roundabout will require a southbound right turn slip lane that would be timed to coincide with the development in the north-west quadrant of the roundabout.**	Richcraft Homes

5.6 Conclusion and Recommendation

It is recommendation that:

- The City of Ottawa proceed with site plan approval for the planned 2226 Mer Bleue Road commercial plaza development.

Respectfully,



Mr. Arthur Gordon B.A. P.Eng
Principal Engineer

Castleglenn Consultants Inc.

Mr. Konstantin Joulanov BASc., M. Eng
Transportation Planner

Castleglenn Consultants Inc.

ANNEX A

UPDATED SITE PLAN (MARCH 2025)

SITE AREA 458,011 SF
42,550.6 m²

PHASE 1

GROSS FLOOR AREA

GROCERY STORE (SOBEYS)	33,225 SF
STAND ALONE RETAIL	7,000 SF
ANCHOR RETAIL	16,100 SF
TOTAL	56,325 SF

PARKING	REQUIRED	PROPOSED
GROCERY STORE	105 SPOTS	
STAND ALONE RETAIL(2 rest)	65 SPOTS	
ANCHOR RETAIL	51 SPOTS	
TOTAL PARKING	221 SPOTS	191 SPOTS

PARKING RATIO: 3.67/1000

PHASE 2

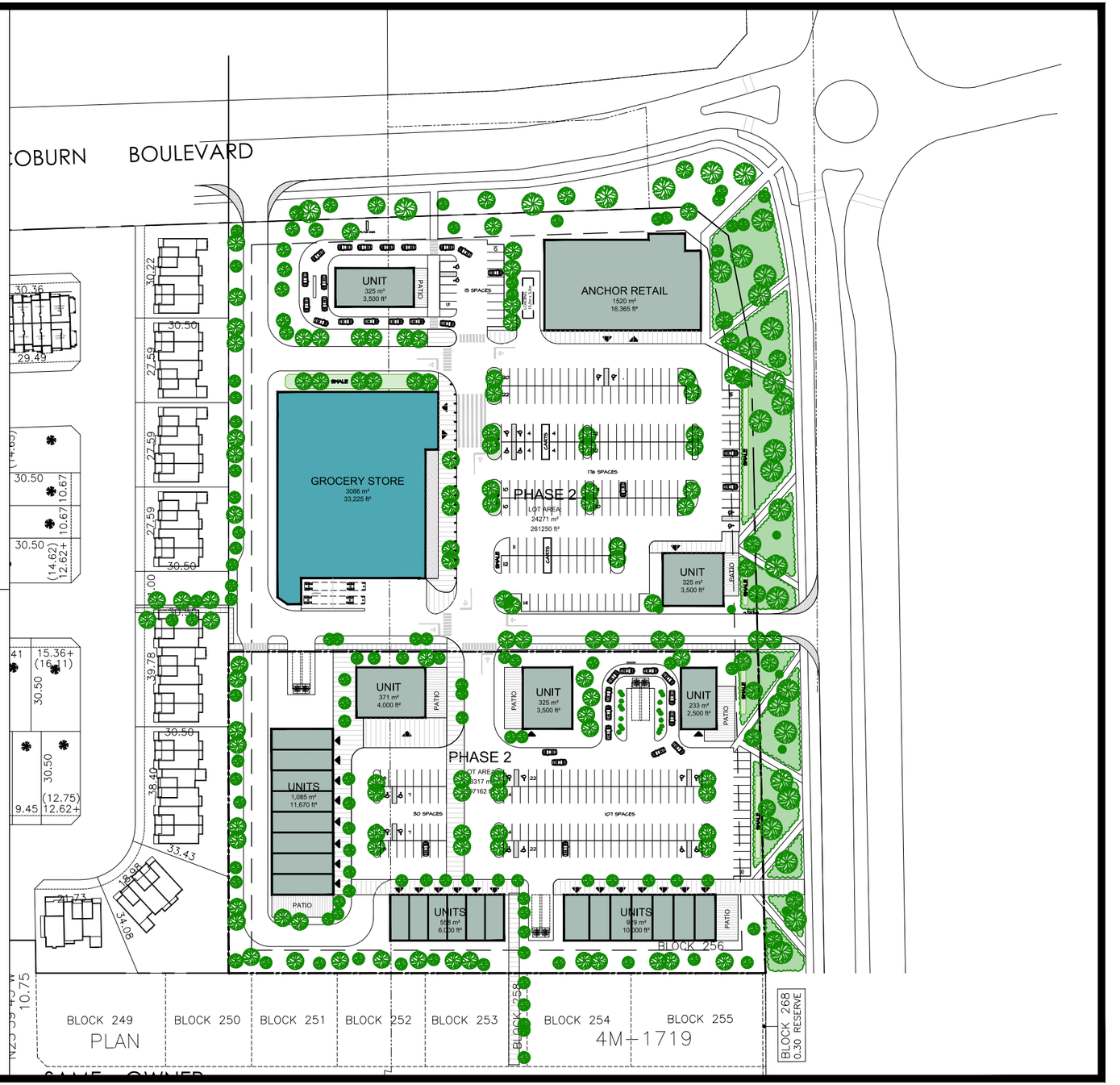
GROSS FLOOR AREA

STAND ALONE RETAIL	9,000 SF
COMMERCIAL	27,670 SF
TOTAL	37,000 SF

PARKING	REQUIRED	PROPOSED
STAND ALONE RETAIL(2 rest)	60 SPOTS	
COMMERCIAL	88 SPOTS	
TOTAL PARKING	148 SPOTS	137 SPOTS

TOTAL SITE:

PARKING RATIO: 3.86/1000



HOBIN

RICHCRAFT

Mer Bleue

SITE PLAN

Scale 1:1500
DECEMBER 2024
OPTION 10/ SOBEYS

ANNEX B

TRAFFIC COUNT INFORMATION

Intersection: 1. Brian Coburn & Fern Casey (City of Ottawa Count)

Wednesday, January 11, 2023

Morning Peak Hour Results: dnesday, August 14, 2024

1.0 Heavy Vehicle Factor

	0:15		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
	Time Period		Westbound							Northbound							Eastbound							Southbound							Total		All	eak Hr Tota
			RT		TH		LT			RT		TH		LT			RT		TH		LT			RT		TH		LT						
	From	To	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger		
1	6:30	6:45	1	2	0	191	1	6	0	0	4	0	0	0	21	2	0	6	1	16	1	0	0	0	0	0	0	0	0	0	4	246	250	250
2	6:45	7:00	2	0	1	146	0	8	0	1	9	0	2	0	18	1	1	8	3	27	0	0	0	0	0	0	0	0	0	0	8	218	226	226
3	7:00	7:15	2	1	0	170	1	15	0	0	14	0	0	0	23	0	0	5	4	23	2	0	0	0	0	0	0	0	0	0	9	251	260	260
4	7:15	7:30	2	0	2	166	0	13	0	1	19	0	0	0	30	0	0	13	5	37	1	1	0	4	1	0	0	0	0	2	15	280	295	1031
5	7:30	7:45	0	0	1	189	0	16	0	1	20	0	0	0	11	2	0	10	3	30	2	1	0	6	0	0	1	4	0	0	17	278	295	1076
6	7:45	8:00	0	0	3	147	0	19	0	2	11	0	0	1	23	2	0	18	3	37	0	1	0	1	0	0	0	0	0	0	10	256	266	1116
7	8:00	8:15	0	1	0	134	0	13	0	0	32	0	0	0	19	0	0	11	4	42	1	1	0	0	0	0	0	0	0	0	5	253	258	1114
8	8:15	8:30	0	0	1	141	0	13	0	1	26	0	0	0	25	2	0	5	1	41	4	0	0	1	0	0	0	1	0	0	9	251	260	1079
9	8:30	8:45	2	0	1	172	0	28	0	1	25	0	0	0	27	0	0	8	2	36	2	0	0	3	0	0	0	1	0	0	12	296	308	1092
10	8:45	9:00	2	0	2	122	1	25	0	0	28	0	0	1	10	5	0	5	2	41	4	0	0	5	0	0	0	1	0	0	18	231	249	1075
11	9:00	9:15	0	0	0	113	0	27	0	0	26	0	0	0	18	1	0	11	2	41	2	0	0	1	1	0	0	2	0	0	7	237	244	1061
12	9:15	9:30	1	0	4	109	1	29	0	1	31	0	0	0	21	2	1	4	0	45	2	0	0	3	0	0	0	0	1	0	13	240	253	1054
3	**7:00**	**8:00**	*<<<Calculated Peak Hour*																															
	AM Total		12	4	15	1800	4	212	0	8	245	0	2	2	246	17	2	104	30	416	21	4	0	24	2	0	1	9	1	2	127	3037	3164	
	Heavy Vehicle %		75%		1%		2%			3%		0%		1%			2%		7%		84%			92%		0%		90%				4%		
	AM Peak Hour		4	1	6	672	1	63	0	4	64	0	0	1	87	4	0	46	15	127	5	3	0	11	1	0	1	4	0	2	51	1065	1116	
	Heavy Vehicle %		80%		1%		2%			6%		#DIV/0!		1%			0%		11%		63%			92%		0%		100%				5%		
	AM Peak Hr Total		5		678		64			68		0		88			46		142		8			12		1		4						
	Peak Hr Approach Tr		747							156							196							17										

Afternoon Peak Hour Results: dnesday, August 14, 2024

	0:15		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
	Time Period		Westbound							Northbound							Eastbound							Southbound							Total		All	eak Hr Tota
			RT		TH		LT			RT		TH		LT			RT		TH		LT			RT		TH		LT						
	From	To	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger		
1	3:30	3:45	0	0	0	107	2	42	0	0	27	0	0	0	14	0	0	24	3	133	0	0	0	0	0	0	0	0	0	0	5	347	352	352
2	3:45	4:00	1	0	3	98	0	38	0	1	30	0	0	0	19	1	0	21	0	117	0	0	0	0	0	0	0	1	0	0	6	323	329	329
3	4:00	4:15	0	0	2	99	1	39	0	0	26	0	0	0	22	5	0	9	0	145	0	0	0	0	0	0	0	0	0	0	3	340	343	343
4	4:15	4:30	0	0	0	105	0	47	0	0	29	0	0	0	16	0	0	27	1	158	0	0	0	0	0	0	0	0	1	0	1	383	384	1408
5	4:30	4:45	0	0	3	108	1	51	0	0	24	0	0	1	12	3	0	19	0	110	0	0	0	0	0	0	0	0	0	0	5	324	329	1385
6	4:45	5:00	0	0	0	126	1	59	0	0	27	0	0	0	18	0	0	25	2	138	0	0	0	0	0	0	0	1	0	0	3	394	397	1453
7	5:00	5:15	0	0	3	106	1	49	0	0	28	0	0	0	9	1	0	34	0	117	0	1	0	0	0	0	0	0	0	0	4	344	348	1458
8	5:15	5:30	0	0	2	120	0	48	0	0	24	0	0	0	18	0	0	26	0	133	0	0	0	0	0	0	0	0	1	0	2	370	372	1446
9	5:30	5:45	0	0	2	122	1	43	0	0	34	0	0	0	10	0	0	28	0	137	0	0	0	0	0	0	0	0	0	0	3	374	377	1494
10	5:45	6:00	0	0	2	118	0	42	0	0	30	0	0	0	21	0	0	22	0	117	0	0	0	0	0	0	0	0	0	0	2	350	352	1449
11	6:00	6:15	0	0	0	115	1	54	0	0	25	0	0	0	14	0	0	21	0	94	0	0	0	0	0	0	0	0	0	0	1	323	324	1425
12	6:15	6:30	0	0	1	113	0	29	0	0	29	0	0	0	15	1	0	18	0	90	0	0	0	0	0	0	0	0	0	0	1	294	295	1348
6	**4:45**	**5:45**	*<<<Calculated Peak Hour*																															
	PM Peak Period		1	0	18	1337	8	541	0	1	333	0	0	1	188	11	0	274	6	1489	0	1	0	0	0	0	1	1	2	0	36	4166	4202	
	Heavy Vehicle %		100%		1%		1%			0%		#DIV/0!		1%			0%		0%		0%			#DIV/0!		0%		33%				1%		
	PM Peak Hour		0	0	7	474	3	199	0	0	113	0	0	0	55	1	0	113	2	525	0	1	0	0	0	0	1	0	1	0	12	1482	1494	
	Heavy Vehicle %		#DIV/0!		1%		1%			0%		#DIV/0!		0%			0%		0%		0%			#DIV/0!		0%		0%				1%		
	PM Peak Hr Total		0		481		202			113		0		55			113		527		1			0		1		1						
	Peak Hr Approach Tr		683							168							641							2										

Intersection: 4. Mer Bleue Rd & Willow Aster Cr.

Wednesday, August 14, 2024

Morning Peak Hour Results: dnesday, August 14, 2024

	0:15		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Time Period			Westbound							Northbound							Eastbound							Southbound							Total		All	eak Hr Tota
			RT		Th		LT			RT		TH		LT			RT		TH		LT			RT		TH		LT						
	From	To	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger		
1	6:30	6:45	0	9	0	0	0	3	0	1	1	2	39	0	0	0	0	0	0	0	0	0	0	0	0	0	18	1	2	0	4	72	76	76
2	6:45	7:00	0	6	0	0	0	5	0	1	1	2	55	0	1	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	3	86	89	89
3	7:00	7:15	0	9	0	0	0	5	0	0	2	1	28	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0	3	0	1	68	69	69
4	7:15	7:30	0	10	0	0	0	7	1	0	2	1	45	0	0	0	0	0	0	0	0	0	0	0	0	1	36	0	2	1	2	102	104	338
5	7:30	7:45	0	9	0	0	0	10	0	0	4	4	47	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0	5	0	4	108	112	374
6	7:45	8:00	0	13	0	0	0	6	0	0	1	2	63	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	4	0	2	123	125	410
7	8:00	8:15	0	15	0	0	0	6	0	0	6	1	51	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	4	1	1	122	123	464
8	8:15	8:30	0	17	0	0	0	8	0	0	1	0	90	0	1	0	0	0	0	0	0	0	0	0	0	3	37	0	0	1	3	154	157	517
9	8:30	8:45	0	13	0	0	0	4	0	0	1	0	72	0	0	0	0	0	0	0	0	0	0	0	0	1	51	0	8	0	1	149	150	555
10	8:45	9:00	0	12	0	0	0	2	0	0	2	0	97	0	0	0	0	0	0	0	0	0	0	0	0	2	43	0	6	0	2	162	164	594
11	9:00	9:15	0	12	0	0	0	5	0	0	4	2	61	0	1	0	0	0	0	0	0	0	0	0	0	0	44	0	7	0	2	134	136	607
12	9:15	9:30	0	9	0	0	1	4	0	0	2	0	69	0	0	0	0	0	0	0	0	0	0	0	0	1	48	0	3	0	2	135	137	587
8	**8:15**	**9:15**	*<<<Calculated Peak Hour*																															
	AM Peak Period		0	134	0	0	1	65	1	2	27	15	717	0	3	0	0	0	0	0	0	0	0	0	0	8	425	1	44	3	27	1415	1442	
	Heavy Vehicle %		0%		#DIV/0!		2%			7%		2%		0%			#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!		2%		2%			2%		
	AM Peak Hour		0	54	0	0	0	19	0	0	8	2	320	0	2	0	0	0	0	0	0	0	0	0	0	6	175	0	21	1	8	599	607	
	Heavy Vehicle %		0%		#DIV/0!		0%			0%		1%		0%			#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!		3%		0%			1%		
	AM Peak Hr Total		54		0		19			8		322		2			0		0		0			0		181		21					
	Peak Hr Approach Tr		73							332							0							202									

Afternoon Peak Hour Results: dnesday, August 14, 2024

	0:15		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Time Period			Westbound							Northbound							Eastbound							Southbound							Total		All	eak Hr Tota
			RT		TH		LT			RT		TH		LT			RT		TH		LT			RT		TH		LT						
	From	To	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger		
1	3:30	3:45	1	18	0	0	0	8	0	1	6	2	117	0	0	0	0	0	0	0	0	0	0	0	0	2	79	0	8	0	6	236	242	242
2	3:45	4:00	0	9	0	0	0	5	0	0	5	2	118	0	0	1	0	0	0	0	0	0	0	0	0	1	53	0	18	0	3	208	211	211
3	4:00	4:15	0	14	0	0	0	5	0	0	10	0	107	0	0	0	0	0	0	0	0	0	0	0	0	1	68	0	18	0	1	222	223	223
4	4:15	4:30	0	5	0	0	0	5	0	0	9	1	159	0	0	0	0	0	0	0	0	0	0	0	0	1	93	0	7	3	2	278	280	956
5	4:30	4:45	0	12	0	0	1	5	0	0	10	0	140	0	0	0	0	0	0	0	0	0	0	0	0	3	77	0	21	0	4	265	269	983
6	4:45	5:00	0	8	0	0	0	7	0	0	9	0	124	0	0	0	0	0	0	0	0	0	0	0	0	0	62	0	13	0	0	223	223	995
7	5:00	5:15	0	10	0	0	0	5	0	0	8	1	134	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	15	0	1	230	231	1003
8	5:15	5:30	0	10	0	0	0	10	0	0	9	1	137	0	0	0	0	0	0	0	0	0	0	0	0	0	66	0	15	0	1	247	248	971
9	5:30	5:45	0	16	0	0	0	5	0	0	6	1	119	0	0	0	0	0	0	0	0	0	0	0	0	0	49	0	22	0	1	217	218	920
10	5:45	6:00	0	12	0	0	0	2	0	0	7	0	91	0	0	0	0	0	0	0	0	0	0	0	0	0	74	0	9	0	0	195	195	892
11	6:00	6:15	0	9	0	0	0	7	0	0	5	1	85	0	0	0	0	0	0	0	0	0	0	0	0	0	67	0	12	0	1	185	186	847
12	6:15	6:30	0	12	0	0	0	2	0	0	6	0	88	0	0	1	0	0	0	0	0	0	0	0	0	0	44	0	9	0	0	161	161	760
4	**4:15**	**5:15**	*<<<Calculated Peak Hour*																															
	PM Peak Period		1	135	0	0	1	66	0	1	90	9	1419	0	0	2	0	0	0	0	0	0	0	0	0	8	790	0	167	3	20	2667	2687	
	Heavy Vehicle %		1%		#DIV/0!		1%			1%		1%		#DIV/0!			#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!		1%		0%			1%		
	PM Peak Hour		0	35	0	0	1	22	0	0	36	2	557	0	0	0	0	0	0	0	0	0	0	0	0	4	290	0	56	3	7	996	1003	
	Heavy Vehicle %		0%		#DIV/0!		4%			0%		0%		#DIV/0!			#DIV/0!		#DIV/0!		#DIV/0!			#DIV/0!		1%		0%			1%		
	PM Peak Hr Total		35		0		23			36		559		0			0		0		0			0		294		56					
	Peak Hr Approach Tr		58							595							0							350									

Intersection: 7. Brian Coburn & Mer Bleue Rd.

Wednesday, August 14, 2024

Morning Peak Hour Results: dnesday, August 14, 2024

2.3 Heavy Vehicle Factor

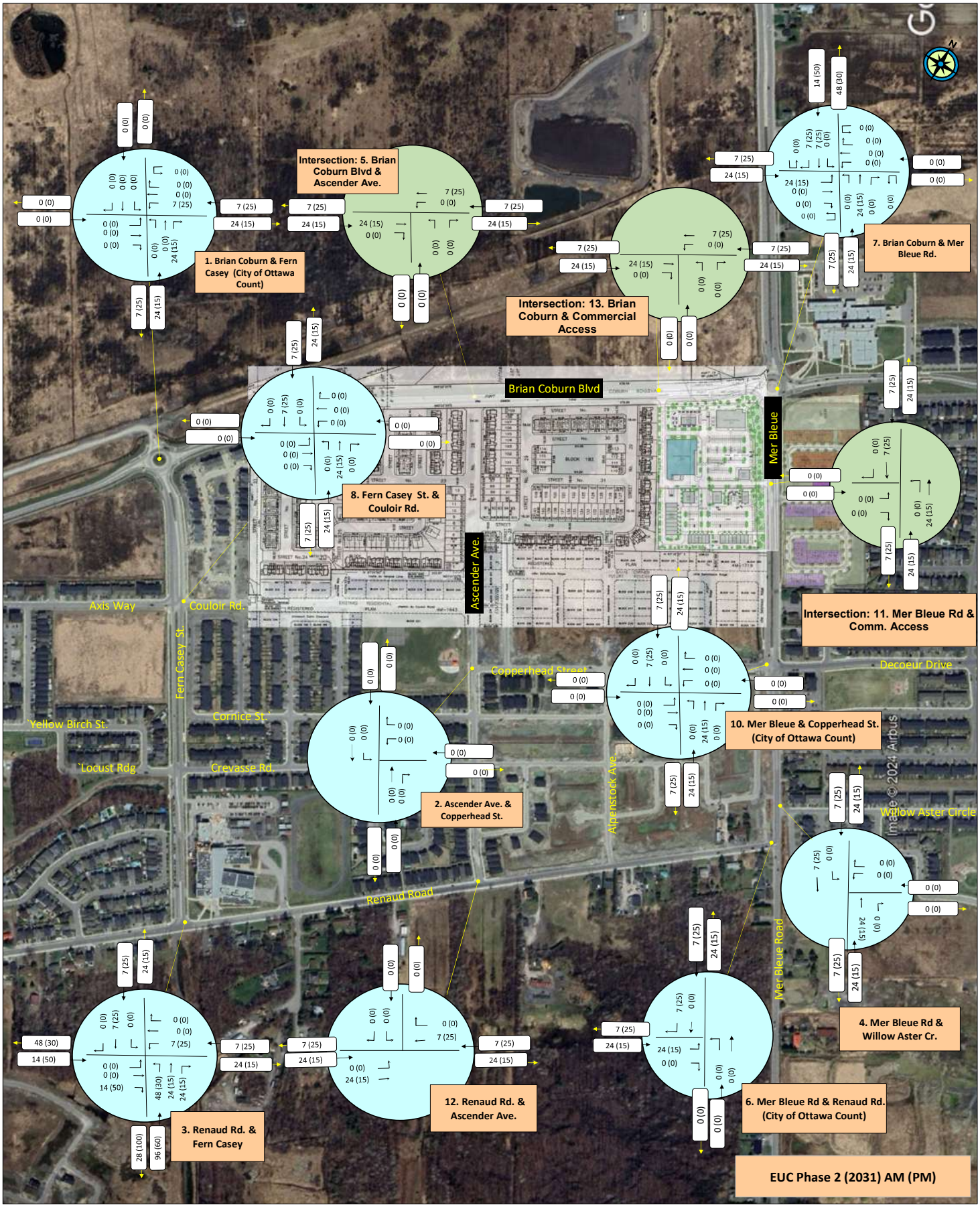
	0:15	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Time Period		Westbound									Northbound							Eastbound							Southbound							Total		All	eak Hr Tota
		RT		TH		LT		U-Turns			RT		TH		LT			RT		TH		LT			RT		TH		LT					
From	To	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger		
1 6:30	6:45	2	26	1	156	0	11	0	0	1	0	5	0	41	0	42	0	0	2	1	11	0	5	0	1	8	0	14	2	10	0	7	331	338	338
2 6:45	7:00	2	33	2	105	0	5	0	0	0	1	13	3	39	0	28	0	1	1	3	29	0	7	0	1	13	2	15	0	19	0	15	307	322	322
3 7:00	7:15	1	33	2	188	0	7	0	0	1	0	5	1	38	0	43	0	0	3	4	23	0	12	0	1	14	0	25	1	17	0	10	408	418	418
4 7:15	7:30	2	46	3	111	0	3	0	0	1	0	15	1	63	0	50	0	2	5	4	27	0	22	0	1	9	1	27	2	30	0	16	408	424	1502
5 7:30	7:45	2	38	0	127	0	3	0	0	2	0	12	0	83	0	46	0	0	1	4	28	1	24	0	2	24	2	29	1	26	0	12	441	453	1617
6 7:45	8:00	2	54	3	111	0	4	0	0	1	0	10	2	80	0	37	0	3	3	4	30	1	17	0	0	26	0	31	2	37	0	17	440	457	1752
7 8:00	8:15	1	49	0	109	0	4	0	0	1	0	26	0	88	0	39	0	0	4	4	42	1	29	0	0	25	1	30	1	45	0	8	490	498	1832
8 8:15	8:30	2	51	1	100	0	5	0	0	2	0	12	1	71	0	45	0	1	2	2	41	0	35	0	0	24	0	34	0	38	0	7	458	465	1873
9 8:30	8:45																															0	0	0	1420
10 8:45	9:00																															0	0	0	963
11 9:00	9:15																															0	0	0	465
12 9:15	9:30																															0	0	0	0
5 **7:30**	**8:30**	*<<<Calculated Peak Hour*																																	
AM Total		14	330	12	1007	0	42	0	0	9	1	98	8	503	0	330	0	7	21	26	231	3	151	0	6	143	6	205	9	222	0	92	3283	3375	
Heavy Vehicle %		4%		1%		0%		#DIV/0!			1%		2%		0%			25%		10%		2%			4%		3%		4%				3%		
AM Peak Hour		7	192	4	447	0	16	0	0	0	0	60	3	322	0	167	0	4	10	14	141	3	105	3	2	99	3	124	4	146	4	44	1829	1873	
Heavy Vehicle %		4%		1%		0%		#DIV/0!			0%		1%		0%			29%		9%		3%			2%		2%		3%				2%		
AM Peak Hr Total		199		451		16		0		0	60		325		167		0	14		155		108		3	101		127		150		4				
Peak Hr Approach Tr		666									552							277							378										

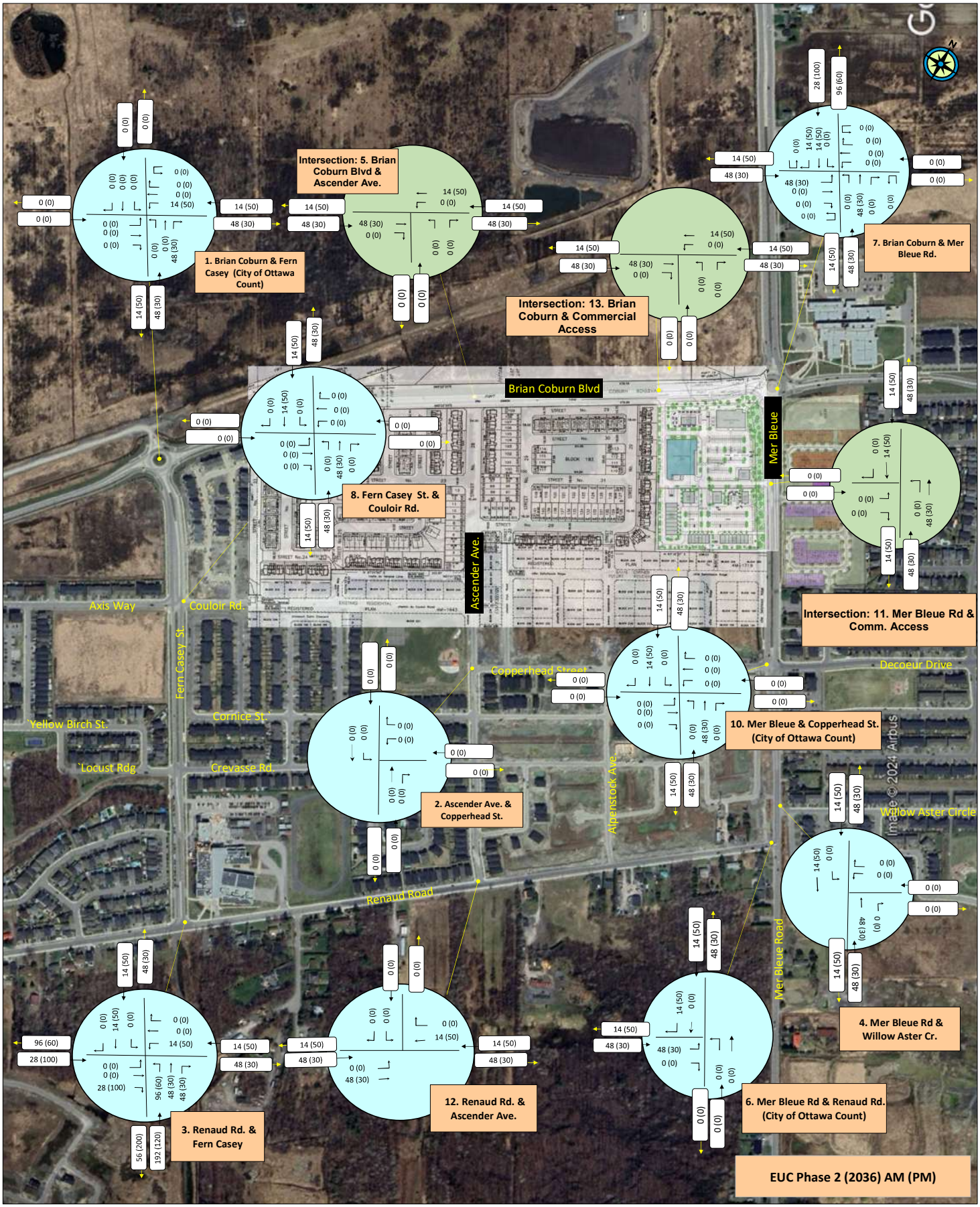
Afternoon Peak Hour Results: dnesday, August 14, 2024

	0:15	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Time Period		Westbound							Northbound							Eastbound							Southbound							Total		All	eak Hr Tota
		RT		TH		LT			RT		TH		LT			RT		TH		LT			RT		TH		LT					
From	To	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger	Heavy	Passenger	Heavy	Passenger	Pedestrians	Heavy	Passenger		
1 3:30	3:45	1	72	5	93	0	1	0	1	56	0	85	1	9	0	1	14	0	108	0	29	0	1	94	2	69	1	49	0	13	679	692	692
2 3:45	4:00	1	67	4	116	0	4	0	1	33	1	68	0	7	0	0	36	0	145	0	38	4	0	105	1	99	2	87	0	10	805	815	815
3 4:00	4:15	0	80	2	132	0	3	0	0	34	1	79	0	16	0	0	19	0	109	1	20	0	0	61	1	76	1	92	0	6	721	727	727
4 4:15	4:30	1	73	0	139	0	2	0	0	31	0	63	0	15	0	1	20	0	113	0	24	0	0	65	0	91	1	85	0	3	721	724	2958
5 4:30	4:45	0	77	0	130	0	1	0	0	29	0	69	0	17	0	0	15	0	133	0	24	1	0	87	0	59	1	27	0	1	668	669	2935
6 4:45	5:00	1	88	0	104	0	0	0	0	37	0	78	1	13	0	0	14	0	123	0	15	0	0	82	2	69	1	51	0	5	674	679	2799
7 5:00	5:15	0	82	0	79	0	0	0	0	29	0	77	1	10	0	0	16	0	98	0	24	0	0	70	1	50	2	55	0	4	590	594	2666
8 5:15	5:30	1	92	0	109	0	0	0	0	43	1	80	0	7	0	0	13	0	100	0	20	0	0	79	0	77	1	76	0	3	696	699	2641
9 5:30	5:45	0	94	1	114	0	1	0	0	28	0	60	0	12	0	0	21	0	84	0	32	0	0	82	1	72	1	68	0	3	668	671	2643
10 5:45	6:00	0	66	0	108	0	0	0	0	25	0	66	1	21	0	0	9	0	93	0	17	0	0	76	0	74	1	76	0	2	631	633	2597
11 6:00	6:15	1	66	0	97	0	0	0	0	19	0	50	0	13	0	0	18	1	92	0	26	0	0	69	1	69	2	77	0	5	596	601	2604
12 6:15	6:30	1	62	0	109	0	0	0	0	29	0	71	1	3	0	0	9	1	88	0	25	0	1	77	0	66	1	83	0	5	622	627	2532
1 **3:30**	**4:30**	*<<<Calculated Peak Hour*																																2958
PM Peak Period		7	919	12	1330	0	12	0	2	393	3	846	5	143	0	2	204	2	1286	1	294	5	2	947	9	871	15	826	0	60	8071	8131	
Heavy Vehicle %		1%		1%		0%			1%		0%		3%			1%		0%		0%			0%		1%		2%			1%			
PM Peak Hour		3	292	11	480	0	10	0	2	154	2	295	1	47	0	2	89	0	475	1	111	4	1	325	4	335	5	313	0	32	2926	2958	
Heavy Vehicle %		1%		2%		0%			1%		1%		2%			2%		0%		1%			0%		1%		2%			1%			
PM Peak Hr Total		295		491		10		0	156		297		48		0	91		475		112		4	326		339		318		0				
Peak Hr Approach Tr		796							501							678							983										

ANNEX C

ADJACENT DEVELOPMENT TRAFFIC EXHIBITS


Intersection: 5. Brian Coburn Blvd & Ascender Ave.
1. Brian Coburn & Fern Casey (City of Ottawa Count)
Intersection: 13. Brian Coburn & Commercial Access
7. Brian Coburn & Mer Bleue Rd.
Brian Coburn Blvd
Mer Bleue
8. Fern Casey St. & Couloir Rd.
Ascender Ave.
Axis Way
Couloir Rd.
Fern Casey St.
Intersection: 11. Mer Bleue Rd & Comm. Access
Copperhead Street
Decoeur Drive
Yellow Birch St.
Cornice St.
Locust Rdg
Crevasse Rd.
10. Mer Bleue & Copperhead St. (City of Ottawa Count)
2. Ascender Ave. & Copperhead St.
Alpenstock Ave
Willow Aster Circle
Renaud Road
Mer Bleue Road
4. Mer Bleue Rd & Willow Aster Cr.
3. Renaud Rd. & Fern Casey
12. Renaud Rd. & Ascender Ave.
6. Mer Bleue Rd & Renaud Rd. (City of Ottawa Count)
EUC Phase 2 (2031) AM (PM)
Image © 2024 Airbus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1. Brian Coburn & Fern Casey (City of Ottawa Count)
Intersection: 13. Brian Coburn & Commercial Access
7. Brian Coburn & Mer Bleue Rd.
Brian Coburn Blvd
Mer Bleue
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Couloir Rd.
Fern Casey St.
Intersection: 11. Mer Bleue Rd & Comm. Access
Copperhead Street
Decoeur Drive
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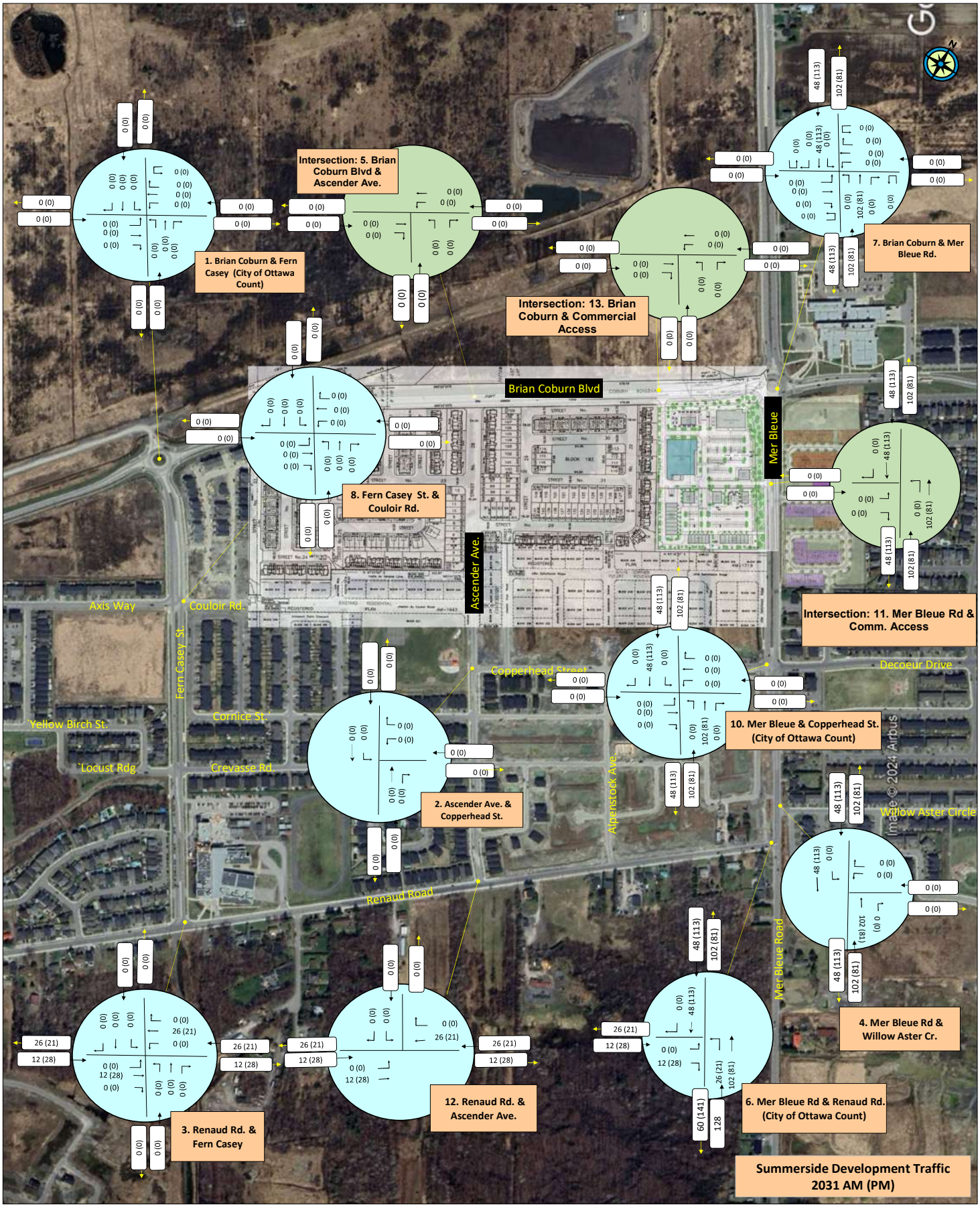
Yellow Birch St.
Cornice St.
Locust Rdg
Crevasse Rd.
2. Ascender Ave. & Copperhead St.
Alpenstock Ave
Willow Aster Circle
Renaud Road
Mer Bleue Road
4. Mer Bleue Rd & Willow Aster Cr.
3. Renaud Rd. & Fern Casey
12. Renaud Rd. & Ascender Ave.
6. Mer Bleue Rd & Renaud Rd. (City of Ottawa Count)
EUC Phase 2 (2036) AM (PM)
Image © 2024 Airbus


1. Brian Coburn & Fern Casey (City of Ottawa Count)
Intersection: 5. Brian Coburn Blvd & Ascender Ave.
7. Brian Coburn & Mer Bleue Rd.
Intersection: 13. Brian Coburn & Commercial Access
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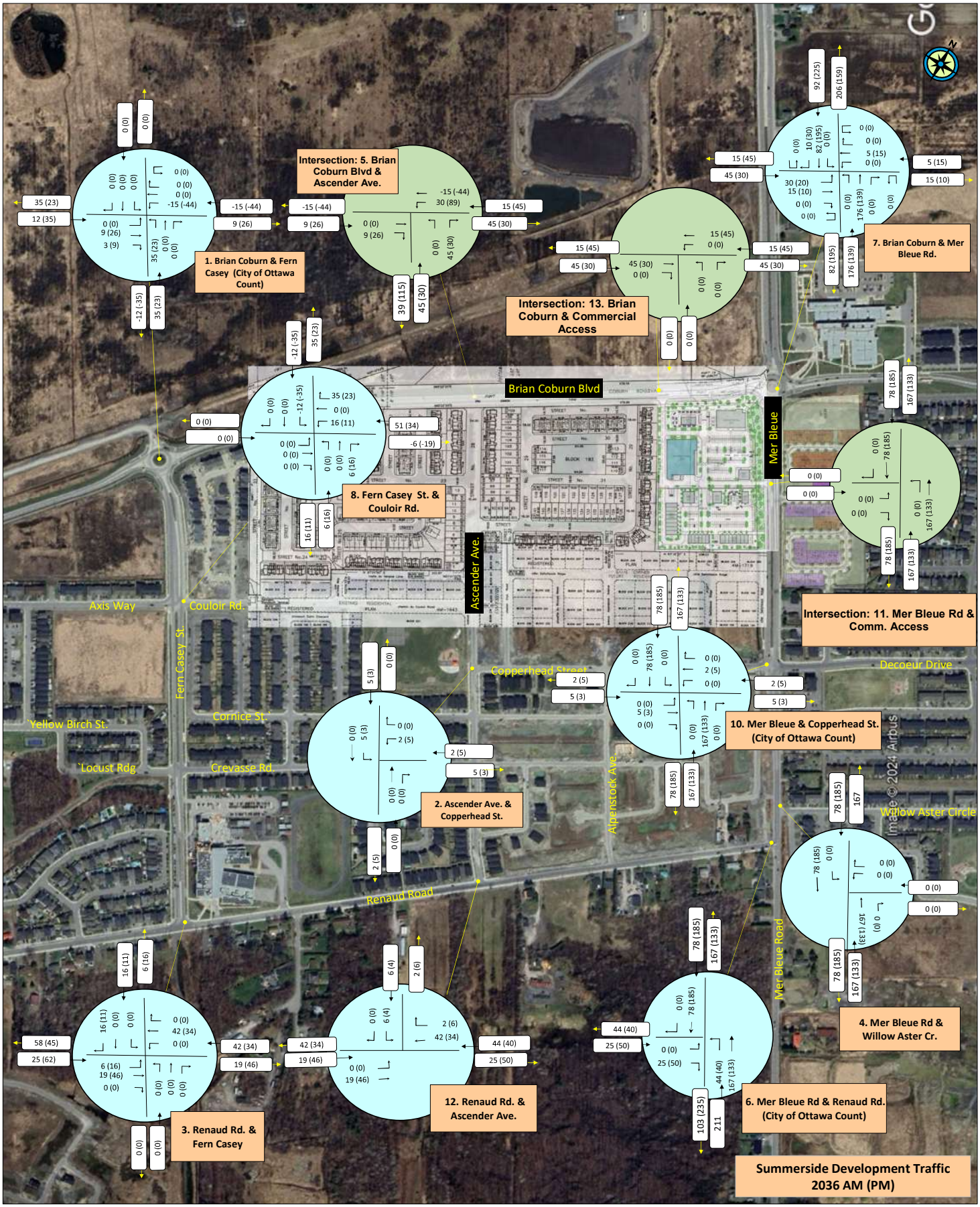
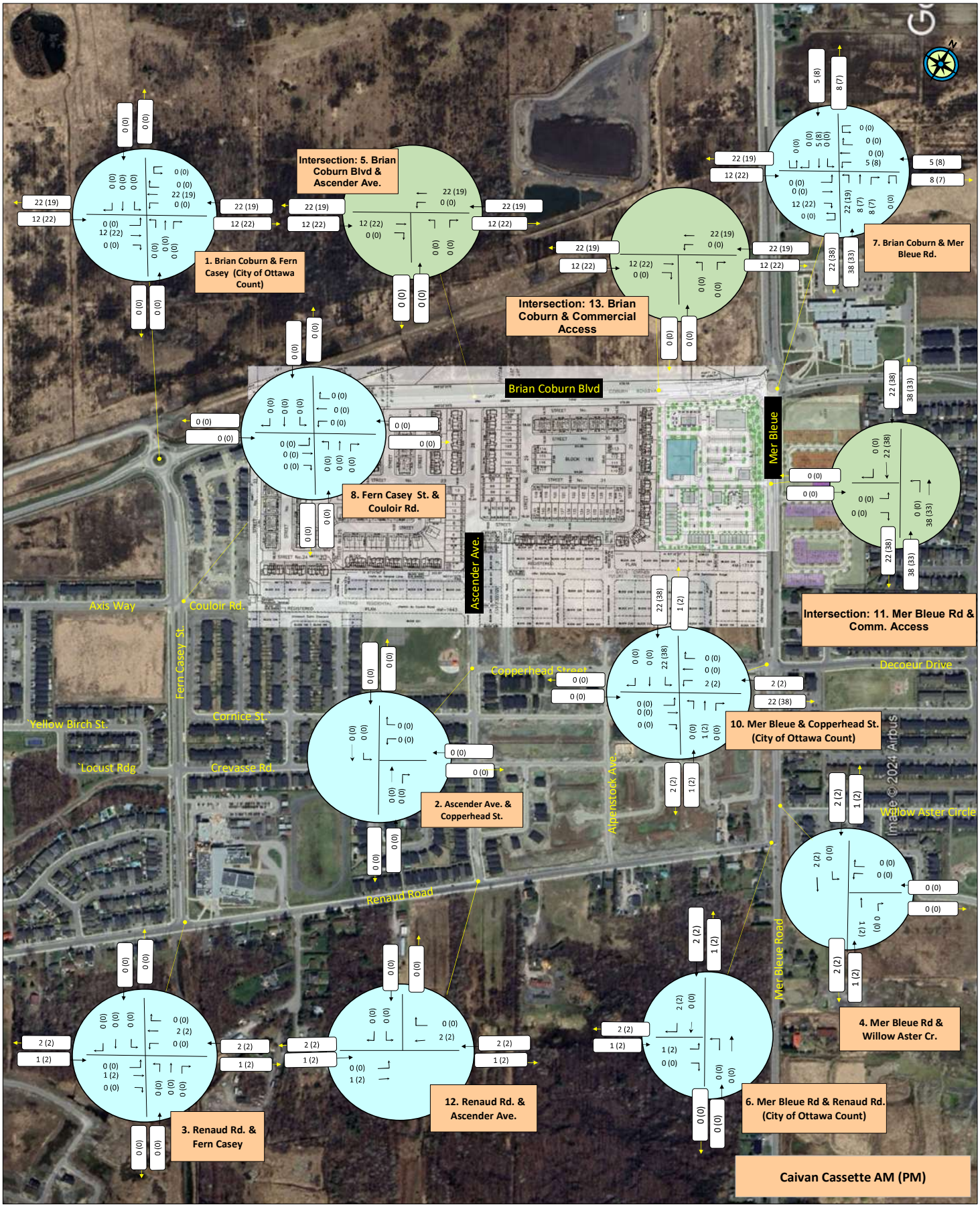
Alpenstock Ave
Willow Aster Circle
Renaud Road
Mer Bleue Road
4. Mer Bleue Rd & Willow Aster Cr.
3. Renaud Rd. & Fern Casey
12. Renaud Rd. & Ascender Ave.
6. Mer Bleue Rd & Renaud Rd. (City of Ottawa Count)
Image © 2024 Airbus
Summerside Development Traffic 2031 AM (PM)


1. Brian Coburn & Fern Casey (City of Ottawa Count)
Intersection: 5. Brian Coburn Blvd & Ascender Ave.
Intersection: 13. Brian Coburn & Commercial Access
7. Brian Coburn & Mer Bleue Rd.
8. Fern Casey St. & Couloir Rd.
Brian Coburn Blvd
Ascender Ave.
Mer Bleue
Intersection: 11. Mer Bleue Rd & Comm. Access
Axis Way
Couloir Rd.
Fern Casey St.
Copperhead Street
Decoeur Drive
Yellow Birch St.
Cornice St.
Locust Rdg
Crevasse Rd.
2. Ascender Ave. & Copperhead St.
10. Mer Bleue & Copperhead St. (City of Ottawa Count)
Alpenstock Ave
Willow Aster Circle
Renaud Road
Mer Bleue Road
4. Mer Bleue Rd & Willow Aster Cr.
12. Renaud Rd. & Ascender Ave.
3. Renaud Rd. & Fern Casey
6. Mer Bleue Rd & Renaud Rd. (City of Ottawa Count)
Summerside Development Traffic 2036 AM (PM)
Image © 2024 Airbus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Alpenstock Ave
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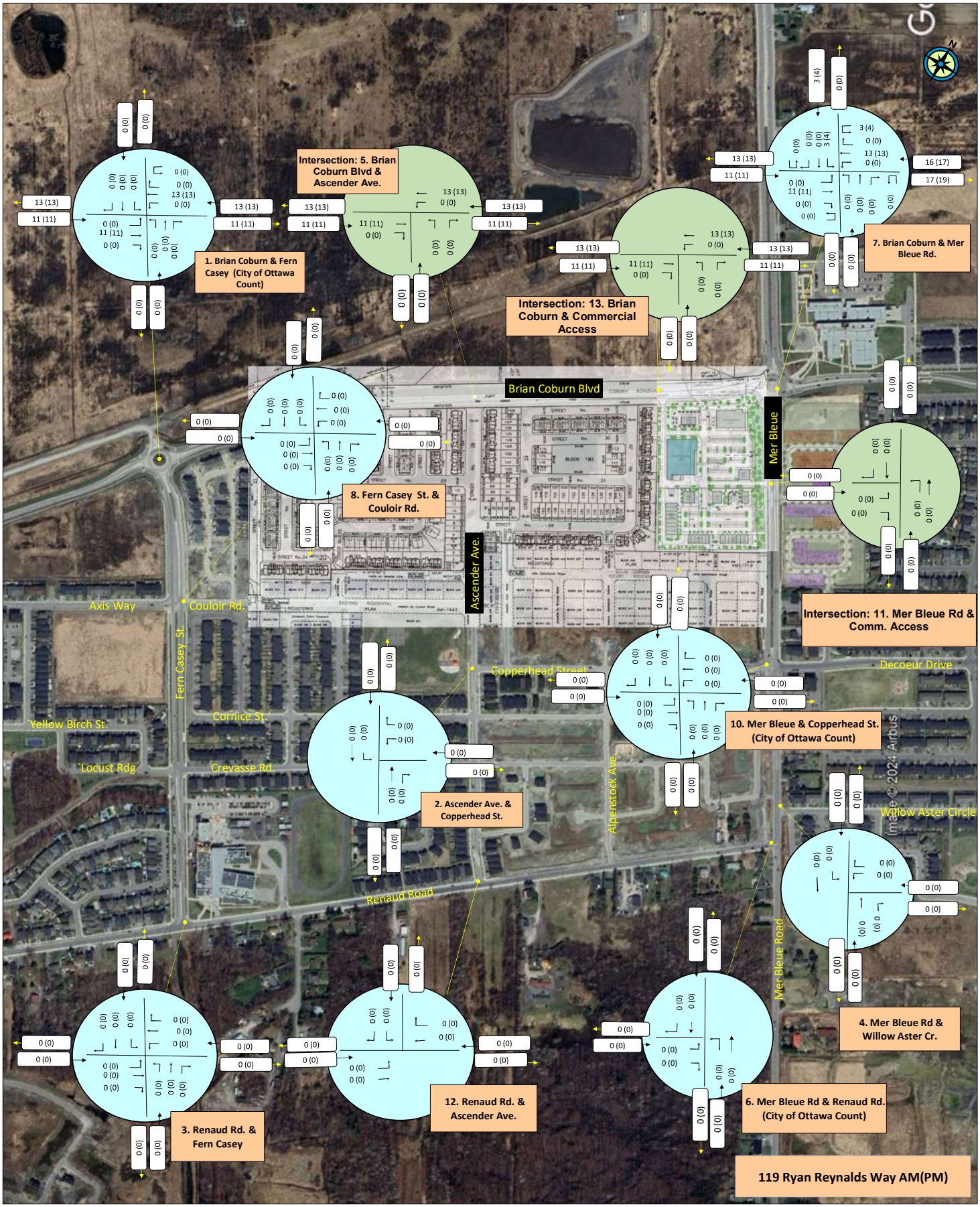
2. Ascender Ave. & Copperhead St.
Willow Aster Circle
Renaud Road
Mer Bleue Road
4. Mer Bleue Rd & Willow Aster Cr.
12. Renaud Rd. & Ascender Ave.
6. Mer Bleue Rd & Renaud Rd. (City of Ottawa Count)
3. Renaud Rd. & Fern Casey
Caivan Cassette AM (PM)
Image © 2024 Airbus


1. Brian Coburn & Fern Casey (City of Ottawa Count)
Intersection: 5. Brian Coburn Blvd & Ascender Ave.
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3. Renaud Rd. & Fern Casey
12. Renaud Rd. & Ascender Ave.
6. Mer Bleue Rd & Renaud Rd. (City of Ottawa Count)
119 Ryan Reynalds Way AM(PM)
Image © 2024 Airbus

ANNEX D

SYNCHRO AND SIDRA ANALYSIS RESULTS: EXISTING CONDITIONS

Intersection	
Intersection Delay, s/veh	12.2
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	191	65	50	141	58	336
Future Vol, veh/h	191	65	50	141	58	336
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	208	71	54	153	63	365
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	12.4	10.7	12.8
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	26%	75%	0%
Vol Thru, %	74%	0%	15%
Vol Right, %	0%	25%	85%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	191	256	394
LT Vol	50	191	0
Through Vol	141	0	58
RT Vol	0	65	336
Lane Flow Rate	208	278	428
Geometry Grp	1	1	1
Degree of Util (X)	0.308	0.421	0.542
Departure Headway (Hd)	5.334	5.447	4.559
Convergence, Y/N	Yes	Yes	Yes
Cap	675	662	797
Service Time	3.366	3.477	2.559
HCM Lane V/C Ratio	0.308	0.42	0.537
HCM Control Delay	10.7	12.4	12.8
HCM Lane LOS	B	B	B
HCM 95th-tile Q	1.3	2.1	3.3

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	54	322	8	21	375
Future Vol, veh/h	19	54	322	8	21	375
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	59	350	9	23	408

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	809	355	0	0	359	0
Stage 1	355	-	-	-	-	-
Stage 2	454	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	350	689	-	-	1200	-
Stage 1	710	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	341	689	-	-	1200	-
Mov Cap-2 Maneuver	341	-	-	-	-	-
Stage 1	710	-	-	-	-	-
Stage 2	624	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	544	1200	-
HCM Lane V/C Ratio	-	-	0.146	0.019	-
HCM Control Delay (s)	-	-	12.7	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

Intersection	
Int Delay, s/veh	19.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	8	1	134	8	350	1	344	31	37	261	14
Future Vol, veh/h	20	8	1	134	8	350	1	344	31	37	261	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	9	1	146	9	380	1	374	34	40	284	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	566	782	150	620	772	204	299	0	0	408	0	0
Stage 1	372	372	-	393	393	-	-	-	-	-	-	-
Stage 2	194	410	-	227	379	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	407	324	870	372	329	803	1259	-	-	1147	-	-
Stage 1	621	617	-	603	604	-	-	-	-	-	-	-
Stage 2	789	594	-	755	613	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	203	310	870	352	315	803	1259	-	-	1147	-	-
Mov Cap-2 Maneuver	203	310	-	352	315	-	-	-	-	-	-	-
Stage 1	620	591	-	602	603	-	-	-	-	-	-	-
Stage 2	409	593	-	712	587	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23	46.1	0	1.1
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1259	-	-	231	584	1147	-	-
HCM Lane V/C Ratio	0.001	-	-	0.136	0.916	0.035	-	-
HCM Control Delay (s)	7.9	0	-	23	46.1	8.3	0.1	-
HCM Lane LOS	A	A	-	C	E	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	11.4	0.1	-	-

Intersection	
Intersection Delay, s/veh	21.7
Intersection LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	440	24	21	155	58	336
Future Vol, veh/h	440	24	21	155	58	336
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	478	26	23	168	63	365
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	29	12.4	17.2
HCM LOS	D	B	C

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	12%	95%	0%
Vol Thru, %	88%	0%	15%
Vol Right, %	0%	5%	85%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	176	464	394
LT Vol	21	440	0
Through Vol	155	0	58
RT Vol	0	24	336
Lane Flow Rate	191	504	428
Geometry Grp	1	1	1
Degree of Util (X)	0.33	0.81	0.633
Departure Headway (Hd)	6.213	5.779	5.324
Convergence, Y/N	Yes	Yes	Yes
Cap	574	625	672
Service Time	4.303	3.834	3.399
HCM Lane V/C Ratio	0.333	0.806	0.637
HCM Control Delay	12.4	29	17.2
HCM Lane LOS	B	D	C
HCM 95th-tile Q	1.4	8.2	4.5

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	35	559	36	56	327
Future Vol, veh/h	23	35	559	36	56	327
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	38	608	39	61	355

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1105	628	0	0	647	0
Stage 1	628	-	-	-	-	-
Stage 2	477	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	233	483	-	-	939	-
Stage 1	532	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	214	483	-	-	939	-
Mov Cap-2 Maneuver	214	-	-	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	573	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.9	0	1.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	322	939	-
HCM Lane V/C Ratio	-	-	0.196	0.065	-
HCM Control Delay (s)	-	-	18.9	9.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.2	-

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Traffic Vol, veh/h	17	15	4	27	10	124	1	437	156	150	352	30
Future Vol, veh/h	17	15	4	27	10	124	1	437	156	150	352	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	16	4	29	11	135	1	475	170	163	383	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	971	1373	208	1088	1304	323	416	0	0	645	0	0
Stage 1	726	726	-	562	562	-	-	-	-	-	-	-
Stage 2	245	647	-	526	742	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	207	145	798	170	159	673	1139	-	-	936	-	-
Stage 1	382	428	-	479	508	-	-	-	-	-	-	-
Stage 2	737	465	-	503	420	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	128	112	798	124	123	673	1139	-	-	936	-	-
Mov Cap-2 Maneuver	128	112	-	124	123	-	-	-	-	-	-	-
Stage 1	382	331	-	479	507	-	-	-	-	-	-	-
Stage 2	576	465	-	368	325	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	43.4	27.2	0	3.1
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1139	-	-	132	333	936	-	-
HCM Lane V/C Ratio	0.001	-	-	0.296	0.526	0.174	-	-
HCM Control Delay (s)	8.2	0	-	43.4	27.2	9.7	0.6	-
HCM Lane LOS	A	A	-	E	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.1	2.9	0.6	-	-

LANE SUMMARY

Site: Existing AM 2024 - BCB / Fern Casey

AM PEAK 2024
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Fern Casey													
Lane 1[d]	233	3.0	1221	0.191	100	8.1	LOS A	1.0	7.6	Full	500	0.0	0.0
Approach	233	3.0		0.191		8.1	LOS A	1.0	7.6				
East: Brian Coburn													
Lane 1[d]	799	3.0	1379	0.579	100	5.7	LOS A	5.3	41.7	Full	500	0.0	0.0
Approach	799	3.0		0.579		5.7	LOS A	5.3	41.7				
North: Fern Casey													
Lane 1[d]	19	3.0	730	0.026	100	7.8	LOS A	0.1	0.8	Full	500	0.0	0.0
Approach	19	3.0		0.026		7.8	LOS A	0.1	0.8				
West: Brian Coburn													
Lane 1[d]	270	3.0	1399	0.193	100	4.7	LOS A	1.1	8.9	Full	500	0.0	0.0
Approach	270	3.0		0.193		4.7	LOS A	1.1	8.9				
Intersection	1321	3.0		0.579		6.0	LOS A	5.3	41.7				

LANE SUMMARY

Site: Existing PM 2024 - BCB / Fern Casey

PM PEAK 2024
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Fern Casey													
Lane 1[d]	197	3.0	850	0.231	100	8.2	LOS A	1.1	8.9	Full	500	0.0	0.0
Approach	197	3.0		0.231		8.2	LOS A	1.1	8.9				
East: Brian Coburn													
Lane 1[d]	962	3.0	1514	0.635	100	6.1	LOS A	8.1	62.8	Full	500	0.0	0.0
Approach	962	3.0		0.635		6.1	LOS A	8.1	62.8				
North: Fern Casey													
Lane 1[d]	3	3.0	693	0.005	100	8.5	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	3	3.0		0.005		8.5	LOS A	0.0	0.1				
West: Brian Coburn													
Lane 1[d]	749	3.0	1244	0.602	100	5.7	LOS A	5.3	41.1	Full	500	0.0	0.0
Approach	749	3.0		0.602		5.7	LOS A	5.3	41.1				
Intersection	1911	3.0		0.635		6.2	LOS A	8.1	62.8				

Site: Existing AM 2024 - BCB/Mer Bleue

AM PEAK 2024
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	344	3.0	995	0.345	100	9.3	LOS A	1.8	14.1	Full	500	0.0	0.0
Lane 2[d]	450	3.0	1302	0.345	100	5.6	LOS A	1.9	14.9	Full	500	0.0	0.0
Approach	793	3.0		0.345		7.2	LOS A	1.9	14.9				
East: Brian Coburn													
Lane 1[d]	740	3.0	876	0.845	100	9.2	LOS A	6.2	48.4	Full	500	0.0	0.0
Approach	740	3.0		0.845		9.2	LOS A	6.2	48.4				
North: Mer Bleue													
Lane 1	247	3.0	770	0.321	100	10.8	LOS B	1.6	12.4	Full	500	0.0	0.0
Lane 2[d]	345	3.0	1078	0.321	100	5.9	LOS A	1.7	13.5	Full	500	0.0	0.0
Approach	592	3.0		0.321		7.9	LOS A	1.7	13.5				
West: Brian Coburn													
Lane 1[d]	308	3.0	861	0.357	100	8.4	LOS A	1.6	12.7	Full	500	0.0	0.0
Approach	308	3.0		0.357		8.4	LOS A	1.6	12.7				
Intersection	2433	3.0		0.845		8.1	LOS A	6.2	48.4				

LANE SUMMARY

Site: Existing PM 2024 - BCB/Mer Bleue

PM PEAK 2024
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	258	3.0	636	0.406	100	9.3	LOS A	2.1	16.2	Full	500	0.0	0.0
Lane 2[d]	384	3.0	946	0.406	100	6.4	LOS A	2.3	17.9	Full	500	0.0	0.0
Approach	642	3.0		0.406		7.6	LOS A	2.3	17.9				
East: Brian Coburn													
Lane 1[d]	884	3.0	960	0.921	100	11.2	LOS B	11.0	86.1	Full	500	0.0	0.0
Approach	884	3.0		0.921		11.2	LOS B	11.0	86.1				
North: Mer Bleue													
Lane 1	505	3.0	788	0.641	100	13.1	LOS B	5.1	40.0	Full	500	0.0	0.0
Lane 2[d]	689	3.0	1074	0.641	100	7.4	LOS A	5.7	44.2	Full	500	0.0	0.0
Approach	1194	3.0		0.641		9.8	LOS A	5.7	44.2				
West: Brian Coburn													
Lane 1[d]	753	3.0	660	1.141	100	79.9	LOS F	40.3	314.3	Full	500	0.0	0.0
Approach	753	3.0		1.141		79.9	LOS E	40.3	314.3				
Intersection	3474	3.0		1.141		25.0	LOS C	40.3	314.3				

ANNEX E

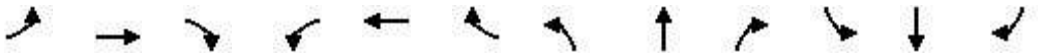
SYNCHRO AND SIDRA ANALYSIS RESULTS: 2031 HORIZON YEAR

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	236	94	95	357	205	390
Future Volume (vph)	236	94	95	357	205	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	50.0	50.0			80.0
Storage Lanes	1	0	0			0
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.962				0.912	
Flt Protected	0.965			0.990		
Satd. Flow (prot)	1748	0	0	1865	1718	0
Flt Permitted	0.965			0.725		
Satd. Flow (perm)	1748	0	0	1365	1718	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	34				254	
Link Speed (k/h)	50			50	50	
Link Distance (m)	511.1			471.6	65.5	
Travel Time (s)	36.8			34.0	4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	257	102	103	388	223	424
Shared Lane Traffic (%)						
Lane Group Flow (vph)	359	0	0	491	647	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	
Total Split (s)	22.5		37.5	37.5	37.5	
Total Split (%)	37.5%		62.5%	62.5%	62.5%	
Maximum Green (s)	18.0		33.0	33.0	33.0	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	4.5			4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		C-Max	C-Max	C-Max	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	15.3			35.7	35.7	
Actuated g/C Ratio	0.26			0.60	0.60	
v/c Ratio	0.76			0.60	0.57	
Control Delay	29.7			12.6	7.2	
Queue Delay	0.0			0.0	0.0	
Total Delay	29.7			12.6	7.2	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	C			B	A	
Approach Delay	29.7			12.6	7.2	
Approach LOS	C			B	A	
Queue Length 50th (m)	32.0			31.5	21.0	
Queue Length 95th (m)	55.0			63.1	49.5	
Internal Link Dist (m)	487.1			447.6	41.5	
Turn Bay Length (m)						
Base Capacity (vph)	548			813	1126	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.66			0.60	0.57	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 14.4		Intersection LOS: B	
Intersection Capacity Utilization 88.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 8: Mer Bleue Road & Renaud Road

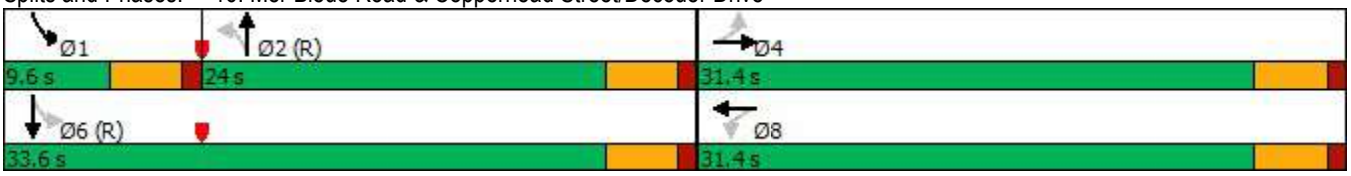


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	16	1	182	11	390	1	695	31	116	433	48
Future Volume (vph)	20	16	1	182	11	390	1	695	31	116	433	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	0.0		0.0	0.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Frt		0.992			0.854			0.994			0.985	
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1789	1868	0	1789	1608	0	0	3557	0	1789	3525	0
Flt Permitted	0.244			0.746				0.955		0.242		
Satd. Flow (perm)	460	1868	0	1405	1608	0	0	3397	0	456	3525	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			255			7			23	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		521.1			318.7			270.2			326.8	
Travel Time (s)		37.5			22.9			19.5			23.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	17	1	198	12	424	1	755	34	126	471	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	18	0	198	436	0	0	790	0	126	523	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		9.5	22.5	
Total Split (s)	31.4	31.4		31.4	31.4		24.0	24.0		9.6	33.6	
Total Split (%)	48.3%	48.3%		48.3%	48.3%		36.9%	36.9%		14.8%	51.7%	
Maximum Green (s)	26.9	26.9		26.9	26.9		19.5	19.5		5.1	29.1	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	16.4	16.4		16.4	16.4			30.3		39.6	39.6	
Actuated g/C Ratio	0.25	0.25		0.25	0.25			0.47		0.61	0.61	
v/c Ratio	0.19	0.04		0.56	0.73			0.50		0.30	0.24	
Control Delay	19.7	14.1		25.8	15.8			16.3		9.3	7.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	19.7	14.1		25.8	15.8			16.3		9.3	7.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	B	B		C	B			B		A	A	
Approach Delay		17.2			18.9			16.3			7.6	
Approach LOS		B			B			B			A	
Queue Length 50th (m)	2.1	1.6		21.2	18.8			34.1		5.3	11.9	
Queue Length 95th (m)	5.9	4.5		30.5	36.8			63.6		16.7	28.1	
Internal Link Dist (m)		497.1			294.7			246.2			302.8	
Turn Bay Length (m)	50.0									50.0		
Base Capacity (vph)	190	773		581	814			1588		417	2156	
Starvation Cap Reductn	0	0		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.12	0.02		0.34	0.54			0.50		0.30	0.24	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 14.4		Intersection LOS: B	
Intersection Capacity Utilization 69.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 16: Mer Bleue Road & Copperhead Street/Decouer Drive



Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	144	583	8	0	549
Future Vol, veh/h	0	144	583	8	0	549
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	157	634	9	0	597

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	639	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	476	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	476	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	476	-
HCM Lane V/C Ratio	-	-	0.329	-
HCM Control Delay (s)	-	-	16.2	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	1.4	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	123	80	1062	453	223
Future Vol, veh/h	0	123	80	1062	453	223
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	500	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	134	87	1154	492	242

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	367	734	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	630	867	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	630	867	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	867	-	630	-	-
HCM Lane V/C Ratio	0.1	-	0.212	-	-
HCM Control Delay (s)	9.6	-	12.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.8	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	420	81	20	806	0	240
Future Vol, veh/h	420	81	20	806	0	240
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	457	88	22	876	0	261

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	545	0	-	501
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.318
Pot Cap-1 Maneuver	-	-	1024	-	0	570
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1024	-	-	570
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	16.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	570	-	-	1024	-
HCM Lane V/C Ratio	0.458	-	-	0.021	-
HCM Control Delay (s)	16.5	-	-	8.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	2.4	-	-	0.1	-

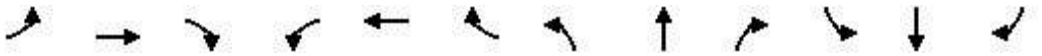
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	494	76	65	375	465	227
Future Volume (vph)	494	76	65	375	465	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	50.0	50.0			80.0
Storage Lanes	1	0	0			0
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.982				0.956	
Flt Protected	0.958			0.993		
Satd. Flow (prot)	1772	0	0	1870	1801	0
Flt Permitted	0.958			0.566		
Satd. Flow (perm)	1772	0	0	1066	1801	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	12				48	
Link Speed (k/h)	50			50	50	
Link Distance (m)	511.1			471.6	65.5	
Travel Time (s)	36.8			34.0	4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	537	83	71	408	505	247
Shared Lane Traffic (%)						
Lane Group Flow (vph)	620	0	0	479	752	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	
Total Split (s)	32.0		43.0	43.0	43.0	
Total Split (%)	42.7%		57.3%	57.3%	57.3%	
Maximum Green (s)	27.5		38.5	38.5	38.5	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	4.5			4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		C-Max	C-Max	C-Max	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	27.1			38.9	38.9	
Actuated g/C Ratio	0.36			0.52	0.52	
v/c Ratio	0.96			0.87	0.79	
Control Delay	51.1			35.4	21.4	
Queue Delay	0.0			0.0	0.0	
Total Delay	51.1			35.4	21.4	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	D			D	C	
Approach Delay	51.1			35.4	21.4	
Approach LOS	D			D	C	
Queue Length 50th (m)	81.7			56.1	76.9	
Queue Length 95th (m)	#145.7			#114.4	#128.2	
Internal Link Dist (m)	487.1			447.6	41.5	
Turn Bay Length (m)						
Base Capacity (vph)	657			552	955	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.94			0.87	0.79	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 35.0		Intersection LOS: C	
Intersection Capacity Utilization 104.9%		ICU Level of Service G	
Analysis Period (min) 15			

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

Splits and Phases: 8: Mer Bleue Road & Renaud Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	20	4	142	18	172	1	714	156	292	782	63
Future Volume (vph)	17	20	4	142	18	172	1	714	156	292	782	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	0.0		0.0	0.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Frt		0.977			0.864			0.973			0.989	
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1789	1840	0	1789	1627	0	0	3482	0	1789	3539	0
Flt Permitted	0.537			0.740				0.954		0.155		
Satd. Flow (perm)	1011	1840	0	1394	1627	0	0	3322	0	292	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			187			48			22	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		521.1			318.7			270.2			326.8	
Travel Time (s)		37.5			22.9			19.5			23.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	22	4	154	20	187	1	776	170	317	850	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	26	0	154	207	0	0	947	0	317	918	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		9.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		25.3	25.3		12.2	37.5	
Total Split (%)	37.5%	37.5%		37.5%	37.5%		42.2%	42.2%		20.3%	62.5%	
Maximum Green (s)	18.0	18.0		18.0	18.0		20.8	20.8		7.7	33.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	12.0	12.0		12.0	12.0			24.0		39.0	39.0	
Actuated g/C Ratio	0.20	0.20		0.20	0.20			0.40		0.65	0.65	
v/c Ratio	0.09	0.07		0.56	0.44			0.70		0.70	0.40	
Control Delay	18.2	15.6		28.4	7.4			19.0		20.5	6.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	18.2	15.6		28.4	7.4			19.0		20.5	6.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	B	B		C	A			B		C	A	
Approach Delay		16.7			16.4			19.0			9.8	
Approach LOS		B			B			B			A	
Queue Length 50th (m)	1.6	2.0		15.4	1.8			44.2		13.8	19.7	
Queue Length 95th (m)	5.3	6.3		27.1	14.1			#68.7		#58.3	39.3	
Internal Link Dist (m)		497.1			294.7			246.2			302.8	
Turn Bay Length (m)	50.0									50.0		
Base Capacity (vph)	303	554		418	619			1355		453	2310	
Starvation Cap Reductn	0	0		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.06	0.05		0.37	0.33			0.70		0.70	0.40	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 14.2		Intersection LOS: B	
Intersection Capacity Utilization 74.1%		ICU Level of Service D	
Analysis Period (min) 15			

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

Splits and Phases: 16: Mer Bleue Road & Copperhead Street/Decouer Drive

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	38	833	36	0	759
Future Vol, veh/h	0	38	833	36	0	759
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	41	905	39	0	825

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	925	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	326	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	326	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	326	-
HCM Lane V/C Ratio	-	-	0.127	-
HCM Control Delay (s)	-	-	17.6	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.4	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	159	96	838	922	269
Future Vol, veh/h	0	159	96	838	922	269
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	500	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	173	104	911	1002	292

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	647	1294	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	414	531	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	414	531	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.8	1.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	531	-	414	-	-
HCM Lane V/C Ratio	0.197	-	0.417	-	-
HCM Control Delay (s)	13.4	-	19.8	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.7	-	2	-	-

Intersection	
Int Delay, s/veh	12.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	778	96	20	1049	0	317
Future Vol, veh/h	778	96	20	1049	0	317
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	846	104	22	1140	0	345

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	950	0	-	898
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.318
Pot Cap-1 Maneuver	-	-	723	-	0	~ 338
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	723	-	-	~ 338
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

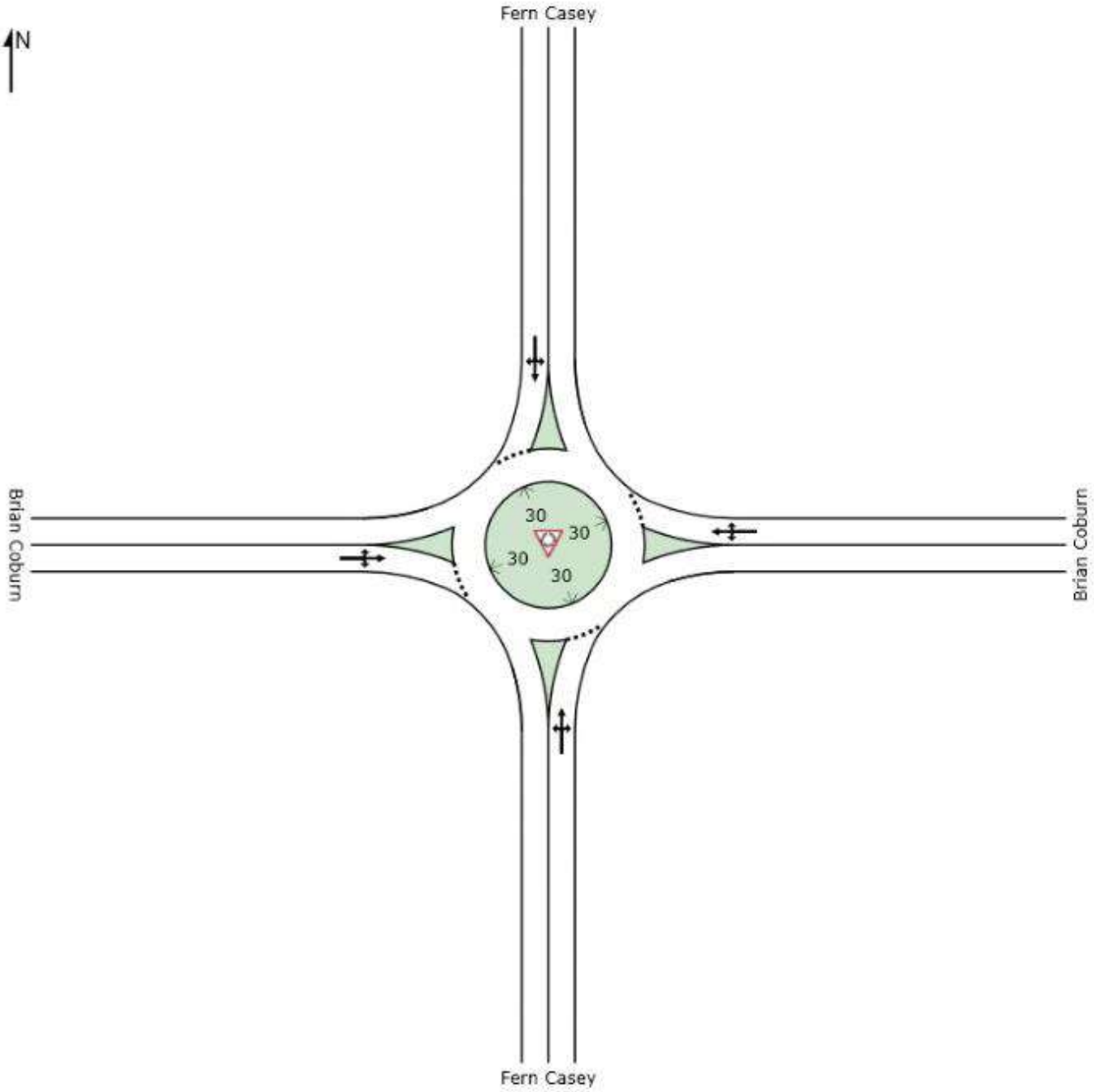
Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	90.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	338	-	-	723	-
HCM Lane V/C Ratio	1.019	-	-	0.03	-
HCM Control Delay (s)	90.1	-	-	10.1	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	11.8	-	-	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Trailsedge Phase 4 - SIDRA Analysis outputs – March 28, 2025
Intersection #1 - Brian Coburn / Fern Casey – 2031 Layout

2031 horizon year



LANE SUMMARY

Site: Future 2031 AM - BCB / Fern Casey

AM PEAK
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Fern Casey													
Lane 1[d]	281	3.0	1182	0.238	100	8.5	LOS A	1.2	9.6	Full	500	0.0	0.0
Approach	281	3.0		0.238		8.5	LOS A	1.2	9.6				
East: Brian Coburn													
Lane 1[d]	760	3.0	1323	0.575	100	6.0	LOS A	5.1	39.5	Full	500	0.0	0.0
Approach	760	3.0		0.575		6.0	LOS A	5.1	39.5				
North: Fern Casey													
Lane 1[d]	17	3.0	727	0.023	100	7.8	LOS A	0.1	0.7	Full	500	0.0	0.0
Approach	17	3.0		0.023		7.8	LOS A	0.1	0.7				
West: Brian Coburn													
Lane 1[d]	308	3.0	1409	0.219	100	4.7	LOS A	1.4	10.6	Full	500	0.0	0.0
Approach	308	3.0		0.219		4.7	LOS A	1.4	10.6				
Intersection	1366	3.0		0.575		6.2	LOS A	5.1	39.5				

LANE SUMMARY

Site: Future 2031 PM - BCB / Fern Casey

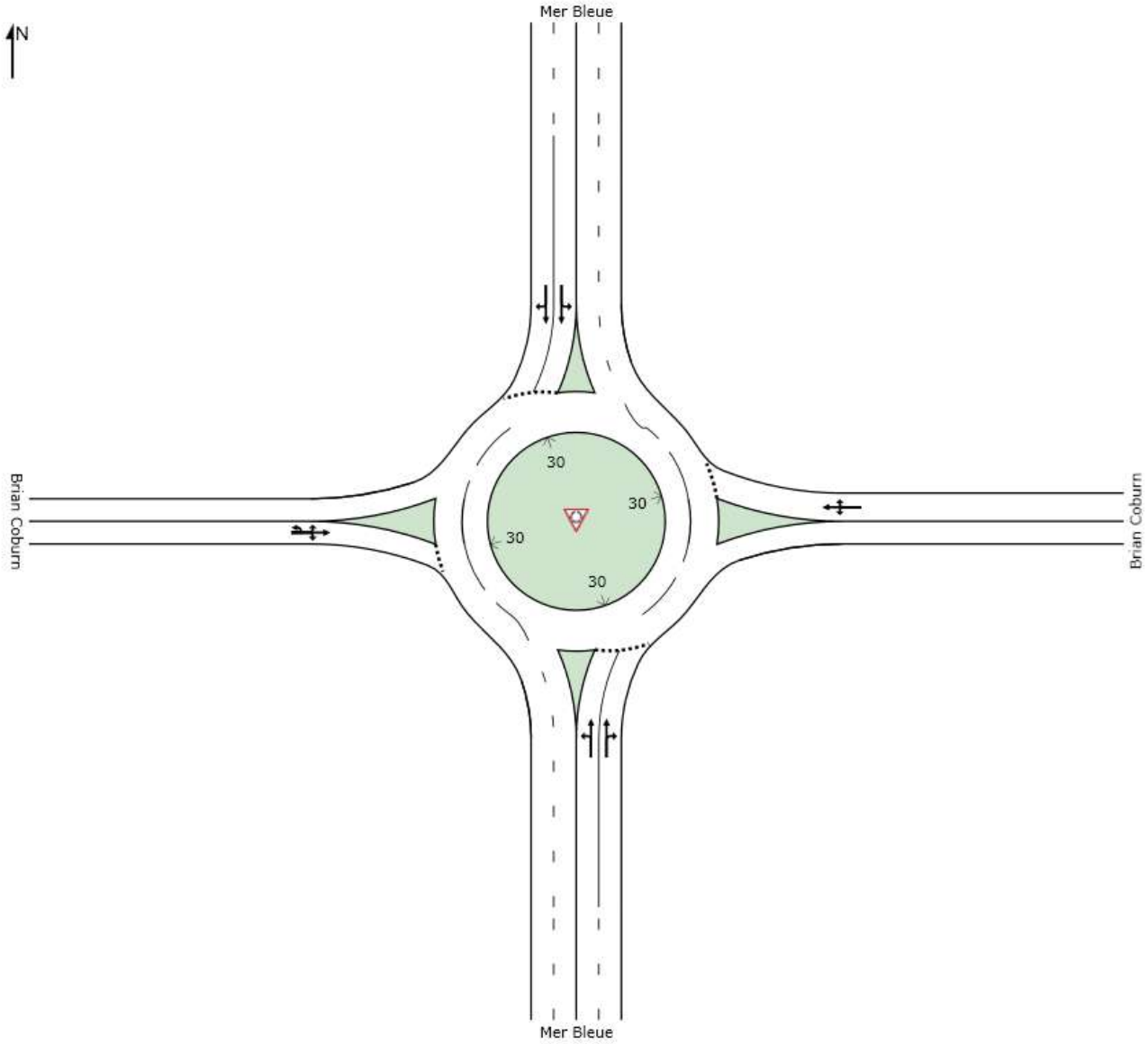
PM PEAK
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Fern Casey													
Lane 1[d]	229	3.0	819	0.280	100	8.8	LOS A	1.4	11.0	Full	500	0.0	0.0
Approach	229	3.0		0.280		8.8	LOS A	1.4	11.0				
East: Brian Coburn													
Lane 1[d]	927	3.0	1444	0.642	100	6.4	LOS A	7.8	60.4	Full	500	0.0	0.0
Approach	927	3.0		0.642		6.4	LOS A	7.8	60.4				
North: Fern Casey													
Lane 1[d]	3	3.0	671	0.004	100	8.5	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	3	3.0		0.004		8.5	LOS A	0.0	0.1				
West: Brian Coburn													
Lane 1[d]	775	3.0	1235	0.627	100	6.0	LOS A	6.0	46.5	Full	500	0.0	0.0
Approach	775	3.0		0.627		6.0	LOS A	6.0	46.5				
Intersection	1934	3.0		0.642		6.5	LOS A	7.8	60.4				

Intersection #7 - Brian Coburn / Mer Bleue – 2031 Layout [2-lane BCB without auxiliary right turn lanes]

2031 horizon year



LANE SUMMARY

Site: Future 2031 AM - BCB/Mer Bleue

AM PEAK 2031
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	377	3.0	847	0.445	100	10.2	LOS B	2.6	20.4	Full	500	0.0	0.0
Lane 2[d]	514	3.0	1156	0.445	100	6.1	LOS A	2.8	21.7	Full	500	0.0	0.0
Approach	891	3.0		0.445		7.9	LOS A	2.8	21.7				
East: Brian Coburn													
Lane 1[d]	729	3.0	774	0.942	100	14.3	LOS B	9.1	70.7	Full	500	0.0	0.0
Approach	729	3.0		0.942		14.3	LOS B	9.1	70.7				
North: Mer Bleue													
Lane 1	287	3.0	740	0.387	100	10.4	LOS B	2.1	16.2	Full	500	0.0	0.0
Lane 2[d]	404	3.0	1043	0.387	100	6.1	LOS A	2.3	17.5	Full	500	0.0	0.0
Approach	691	3.0		0.387		7.9	LOS A	2.3	17.5				
West: Brian Coburn													
Lane 1[d]	487	3.0	784	0.621	100	11.3	LOS B	3.9	30.6	Full	500	0.0	0.0
Approach	487	3.0		0.621		11.3	LOS B	3.9	30.6				
Intersection	2798	3.0		0.942		10.2	LOS B	9.1	70.7				

LANE SUMMARY

Site: Future 2031 PM - BCB/Mer Bleue

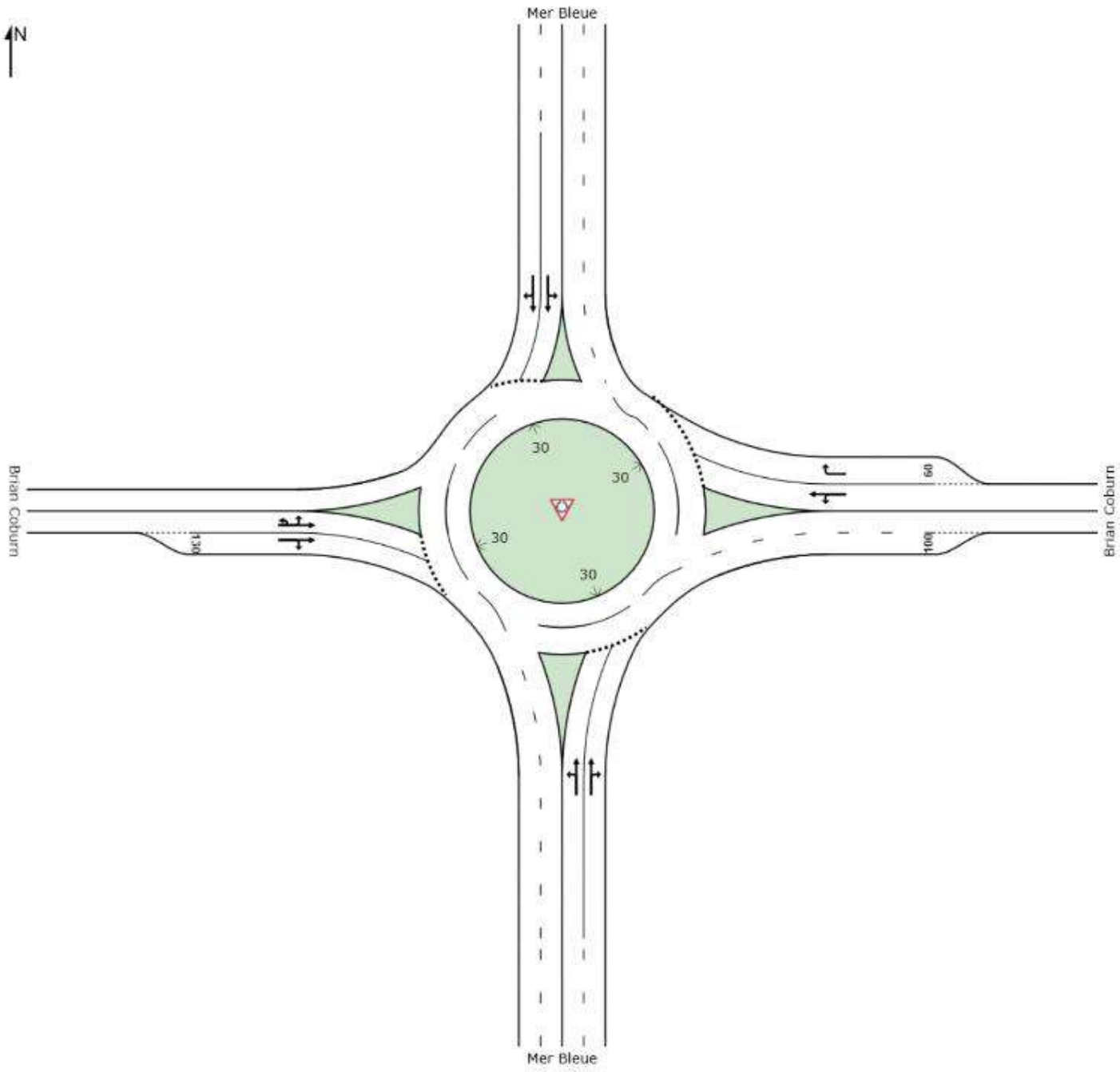
PM PEAK 2031
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	293	3.0	712	0.412	100	9.1	LOS A	2.2	17.1	Full	500	0.0	0.0
Lane 2[d]	422	3.0	1024	0.412	100	6.3	LOS A	2.4	18.6	Full	500	0.0	0.0
Approach	715	3.0		0.412		7.5	LOS A	2.4	18.6				
East: Brian Coburn													
Lane 1[d]	879	3.0	909	0.967	100	15.9	LOS B	13.7	106.8	Full	500	0.0	0.0
Approach	879	3.0		0.967		15.9	LOS B	13.7	106.8				
North: Mer Bleue													
Lane 1	579	3.0	750	0.772	100	14.7	LOS B	7.4	57.5	Full	500	0.0	0.0
Lane 2[d]	800	3.0	1038	0.772	100	9.1	LOS A	8.3	64.8	Full	500	0.0	0.0
Approach	1379	3.0		0.772		11.5	LOS B	8.3	64.8				
West: Brian Coburn													
Lane 1[d]	908	3.0	551	1.648	100	304.1	LOS F	121.4	945.7	Full	500	0.0	29.2
Approach	908	3.0		1.648		304.1	LOS F	121.4	945.7				
Intersection	3881	3.0		1.648		80.2	LOS F	121.4	945.7				

Intersection #7 - Brian Coburn / Mer Bleue – 2031 Layout [2-lane BCB (3 lanes through the roundabout – 2 EB and 1 WB]

2031 horizon year



LANE SUMMARY

Site: Future 2031 AM - BCB/Mer Bleue - 2 EB lanes, 2 WB approach lanes and 1 WB egress

AM PEAK 2031
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	407	3.0	874	0.465	100	9.6	LOS A	2.3	18.3	Full	500	0.0	0.0
Lane 2[d]	484	3.0	1040	0.465	100	6.3	LOS A	2.4	18.8	Full	500	0.0	0.0
Approach	891	3.0		0.465		7.8	LOS A	2.4	18.8				
East: Brian Coburn													
Lane 1[d]	530	3.0	1020	0.520	100	6.8	LOS A	2.2	17.2	Full	500	0.0	0.0
Lane 2	199	3.0	713	0.279	100	6.3	LOS A	0.9	6.6	Short	60	0.0	NA
Approach	729	3.0		0.520		6.7	LOS A	2.2	17.2				
North: Mer Bleue													
Lane 1	287	3.0	789	0.363	100	10.3	LOS B	1.8	14.2	Full	500	0.0	0.0
Lane 2[d]	404	3.0	1113	0.363	100	6.0	LOS A	1.9	15.0	Full	500	0.0	0.0
Approach	691	3.0		0.363		7.8	LOS A	1.9	15.0				
West: Brian Coburn													
Lane 1[d]	315	3.0	996	0.316	100	10.4	LOS B	1.4	10.7	Full	500	0.0	0.0
Lane 2	172	3.0	766	0.225	71[6]	6.4	LOS A	0.9	6.8	Short	130	0.0	NA
Approach	487	3.0		0.316		9.0	LOS A	1.4	10.7				
Intersection	2798	3.0		0.520		7.7	LOS A	2.4	18.8				

LANE SUMMARY

Site: Future 2031 PM - BCB/Mer Bleue - 2 EB lanes, 2 WB approach lanes and 1 WB egress

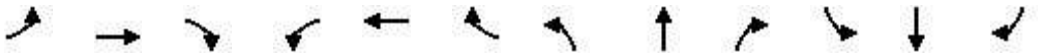
PM PEAK 2031
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	279	3.0	594	0.470	100	10.5	LOS B	2.4	18.5	Full	500	0.0	0.0
Lane 2[d]	436	3.0	927	0.470	100	7.0	LOS A	2.7	20.7	Full	500	0.0	0.0
Approach	715	3.0		0.470		8.4	LOS A	2.7	20.7				
East: Brian Coburn													
Lane 1[d]	584	3.0	1095	0.533	100	6.5	LOS A	2.4	18.8	Full	500	0.0	0.0
Lane 2	295	3.0	837	0.352	100	5.9	LOS A	1.2	9.3	Short	60	0.0	NA
Approach	879	3.0		0.533		6.3	LOS A	2.4	18.8				
North: Mer Bleue													
Lane 1	578	3.0	815	0.709	100	13.5	LOS B	6.0	46.9	Full	500	0.0	0.0
Lane 2[d]	801	3.0	1130	0.709	100	8.3	LOS A	6.7	52.0	Full	500	0.0	0.0
Approach	1379	3.0		0.709		10.5	LOS B	6.7	52.0				
West: Brian Coburn													
Lane 1[d]	603	3.0	755	0.799	100	12.3	LOS B	5.8	44.9	Full	500	0.0	0.0
Lane 2	305	3.0	536	0.568	71[6]	9.2	LOS A	2.8	21.5	Short	130	0.0	NA
Approach	908	3.0		0.799		11.2	LOS B	5.8	44.9				
Intersection	3881	3.0		0.799		9.3	LOS A	6.7	52.0				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach

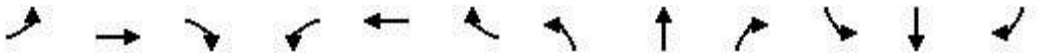


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	12	1	136	8	372	1	506	31	79	349	32
Future Volume (vph)	20	12	1	136	8	372	1	506	31	79	349	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	60.0		0.0	0.0		0.0	60.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.989			0.853			0.991			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1863	0	1789	1607	0	1789	3546	0	1789	3532	0
Flt Permitted	0.333			0.748			0.509			0.346		
Satd. Flow (perm)	627	1863	0	1409	1607	0	959	3546	0	652	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			346			12			26	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		521.1			318.7			270.2			326.8	
Travel Time (s)		37.5			22.9			19.5			23.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	13	1	148	9	404	1	550	34	86	379	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	14	0	148	413	0	1	584	0	86	414	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		9.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		10.0	32.5	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		40.9%	40.9%		18.2%	59.1%	
Maximum Green (s)	18.0	18.0		18.0	18.0		18.0	18.0		5.5	28.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	12.0	12.0		12.0	12.0		27.5	27.5		34.0	34.0	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.50	0.50		0.62	0.62	
v/c Ratio	0.16	0.03		0.48	0.67		0.00	0.33		0.16	0.19	
Control Delay	17.8	13.8		22.9	9.6		12.0	11.3		6.4	5.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	17.8	13.8		22.9	9.6		12.0	11.3		6.4	5.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	B	B		C	A		B	B		A	A	
Approach Delay		16.2			13.1			11.3			5.5	
Approach LOS		B			B			B			A	
Queue Length 50th (m)	1.8	1.0		13.0	5.5		0.1	19.6		2.9	7.2	
Queue Length 95th (m)	5.7	3.8		22.8	21.5		0.9	35.7		9.3	16.5	
Internal Link Dist (m)		497.1			294.7			246.2			302.8	
Turn Bay Length (m)	60.0			60.0						60.0		
Base Capacity (vph)	205	610		461	758		479	1778		530	2195	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.02		0.32	0.54		0.00	0.33		0.16	0.19	

Intersection Summary			
Area Type:	Other		
Cycle Length: 55			
Actuated Cycle Length: 55			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 10.3		Intersection LOS: B	
Intersection Capacity Utilization 54.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 16: Mer Bleue Road & Copperhead Street/Decouer Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	18	4	29	14	149	1	568	156	213	542	48
Future Volume (vph)	17	18	4	29	14	149	1	568	156	213	542	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	60.0		0.0	0.0		0.0	60.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.975			0.863			0.968			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1836	0	1789	1625	0	1789	3464	0	1789	3536	0
Flt Permitted	0.635			0.742			0.408			0.257		
Satd. Flow (perm)	1196	1836	0	1398	1625	0	768	3464	0	484	3536	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			162			68			24	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		521.1			318.7			270.2			326.8	
Travel Time (s)		37.5			22.9			19.5			23.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	20	4	32	15	162	1	617	170	232	589	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	24	0	32	177	0	1	787	0	232	641	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		9.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		10.0	32.5	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		40.9%	40.9%		18.2%	59.1%	
Maximum Green (s)	18.0	18.0		18.0	18.0		18.0	18.0		5.5	28.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	7.4	7.4		7.4	7.4		27.4	27.4		40.6	41.5	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.50	0.50		0.74	0.75	
v/c Ratio	0.11	0.10		0.17	0.50		0.00	0.45		0.41	0.24	
Control Delay	21.1	18.2		22.1	10.3		11.0	10.9		5.4	3.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.1	18.2		22.1	10.3		11.0	10.9		5.4	3.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	B		C	B		B	B		A	A	
Approach Delay		19.5			12.1			10.9			3.8	
Approach LOS		B			B			B			A	
Queue Length 50th (m)	1.7	1.8		2.9	1.4		0.1	22.7		5.4	8.0	
Queue Length 95th (m)	5.7	6.4		8.3	13.9		0.9	46.6		14.9	17.6	
Internal Link Dist (m)		497.1			294.7			246.2			302.8	
Turn Bay Length (m)	60.0			60.0						60.0		
Base Capacity (vph)	391	603		457	640		382	1761		564	2676	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.04		0.07	0.28		0.00	0.45		0.41	0.24	

Intersection Summary			
Area Type:	Other		
Cycle Length: 55			
Actuated Cycle Length: 55			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 7.9		Intersection LOS: A	
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			

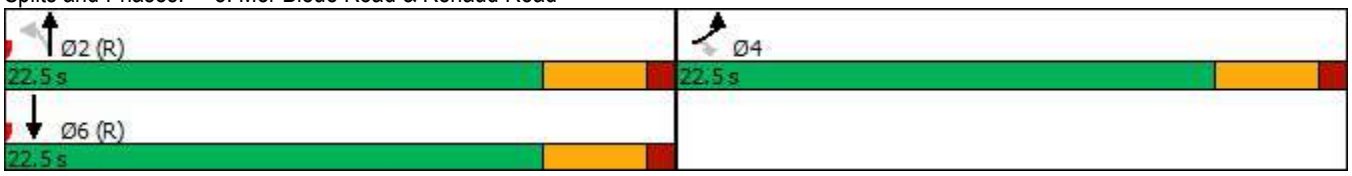
Splits and Phases: 16: Mer Bleue Road & Copperhead Street/Decouer Drive

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	229	82	78	265	126	358
Future Volume (vph)	229	82	78	265	126	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	30.0	50.0			80.0
Storage Lanes	1	1	1			0
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.850			0.889	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1789	1601	1789	3579	3181	0
Flt Permitted	0.950		0.457			
Satd. Flow (perm)	1789	1601	861	3579	3181	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		89			389	
Link Speed (k/h)	50			50	50	
Link Distance (m)	511.1			471.6	65.5	
Travel Time (s)	36.8			34.0	4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	249	89	85	288	137	389
Shared Lane Traffic (%)						
Lane Group Flow (vph)	249	89	85	288	526	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	
Total Split (s)	22.5	22.5	22.5	22.5	22.5	
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	
Act Effct Green (s)	11.5	11.5	24.5	24.5	24.5	
Actuated g/C Ratio	0.26	0.26	0.54	0.54	0.54	
v/c Ratio	0.55	0.19	0.18	0.15	0.28	
Control Delay	18.4	4.3	7.8	6.2	2.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	18.4	4.3	7.8	6.2	2.4	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	B	A	A	A	A	
Approach Delay	14.7			6.5	2.4	
Approach LOS	B			A	A	
Queue Length 50th (m)	16.8	0.0	2.9	5.0	2.3	
Queue Length 95th (m)	28.0	6.1	10.3	11.6	9.2	
Internal Link Dist (m)	487.1			447.6	41.5	
Turn Bay Length (m)		30.0	50.0			
Base Capacity (vph)	715	693	469	1950	1910	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.35	0.13	0.18	0.15	0.28	

Intersection Summary			
Area Type:	Other		
Cycle Length: 45			
Actuated Cycle Length: 45			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 7.0		Intersection LOS: A	
Intersection Capacity Utilization 43.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 8: Mer Bleue Road & Renaud Road

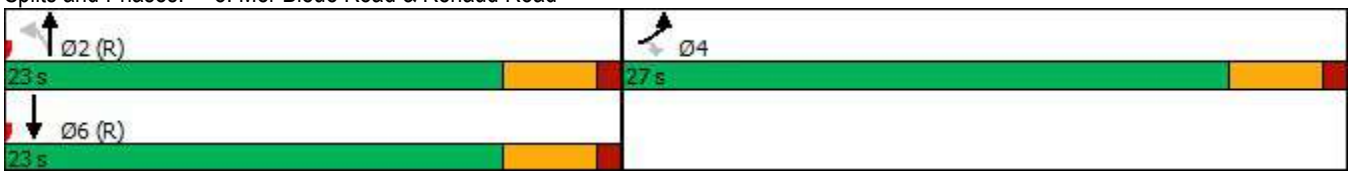


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	465	55	47	261	348	194
Future Volume (vph)	465	55	47	261	348	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	30.0	50.0			80.0
Storage Lanes	1	1	1			0
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.850			0.946	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1789	1601	1789	3579	3385	0
Flt Permitted	0.950		0.406			
Satd. Flow (perm)	1789	1601	765	3579	3385	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		60			211	
Link Speed (k/h)	50			50	50	
Link Distance (m)	511.1			471.6	65.5	
Travel Time (s)	36.8			34.0	4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	505	60	51	284	378	211
Shared Lane Traffic (%)						
Lane Group Flow (vph)	505	60	51	284	589	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	
Total Split (s)	27.0	27.0	23.0	23.0	23.0	
Total Split (%)	54.0%	54.0%	46.0%	46.0%	46.0%	
Maximum Green (s)	22.5	22.5	18.5	18.5	18.5	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	
Act Effct Green (s)	18.5	18.5	22.5	22.5	22.5	
Actuated g/C Ratio	0.37	0.37	0.45	0.45	0.45	
v/c Ratio	0.76	0.10	0.15	0.18	0.36	
Control Delay	21.5	3.3	11.4	9.7	7.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	21.5	3.3	11.4	9.7	7.2	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	C	A	B	A	A	
Approach Delay	19.5			10.0	7.2	
Approach LOS	B			A	A	
Queue Length 50th (m)	36.7	0.0	2.6	7.6	10.5	
Queue Length 95th (m)	56.9	4.4	8.9	15.2	21.7	
Internal Link Dist (m)	487.1			447.6	41.5	
Turn Bay Length (m)		30.0	50.0			
Base Capacity (vph)	805	753	343	1607	1636	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.63	0.08	0.15	0.18	0.36	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 50			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 57.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 8: Mer Bleue Road & Renaud Road



ANNEX F

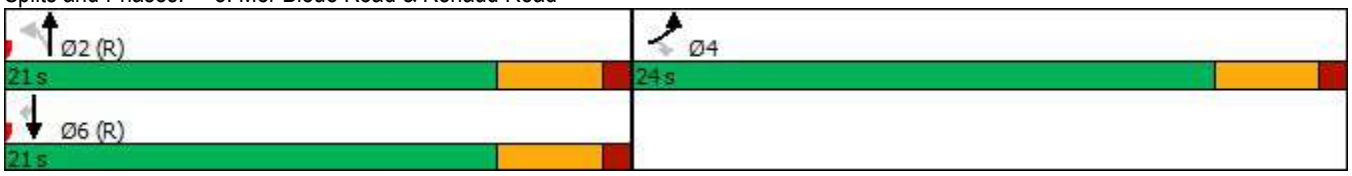
SYNCHRO AND SIDRA ANALYSIS RESULTS: 2036 HORIZON YEAR

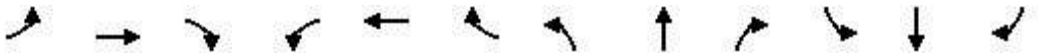
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	251	94	95	367	215	394
Future Volume (vph)	251	94	95	367	215	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	50.0	50.0			100.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1789	1601	1789	3579	3579	1601
Flt Permitted	0.950		0.606			
Satd. Flow (perm)	1789	1601	1141	3579	3579	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		102				428
Link Speed (k/h)	50			50	50	
Link Distance (m)	511.1			471.6	65.5	
Travel Time (s)	36.8			34.0	4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	273	102	103	399	234	428
Shared Lane Traffic (%)						
Lane Group Flow (vph)	273	102	103	399	234	428
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	24.0	24.0	21.0	21.0	21.0	21.0
Total Split (%)	53.3%	53.3%	46.7%	46.7%	46.7%	46.7%
Maximum Green (s)	19.5	19.5	16.5	16.5	16.5	16.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	12.1	12.1	23.9	23.9	23.9	23.9
Actuated g/C Ratio	0.27	0.27	0.53	0.53	0.53	0.53
v/c Ratio	0.57	0.20	0.17	0.21	0.12	0.41
Control Delay	19.8	7.9	7.8	6.8	6.5	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	7.9	7.8	6.8	6.5	2.5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	B	A	A	A	A	A
Approach Delay	16.6			7.0	3.9	
Approach LOS	B			A	A	
Queue Length 50th (m)	23.0	0.0	3.6	7.5	4.2	0.0
Queue Length 95th (m)	37.5	10.8	11.8	16.5	10.2	11.2
Internal Link Dist (m)	487.1			447.6	41.5	
Turn Bay Length (m)		50.0	50.0			100.0
Base Capacity (vph)	775	751	605	1900	1900	1050
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.14	0.17	0.21	0.12	0.41

Intersection Summary			
Area Type:	Other		
Cycle Length: 45			
Actuated Cycle Length: 45			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 8.0		Intersection LOS: A	
Intersection Capacity Utilization 37.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 8: Mer Bleue Road & Renaud Road



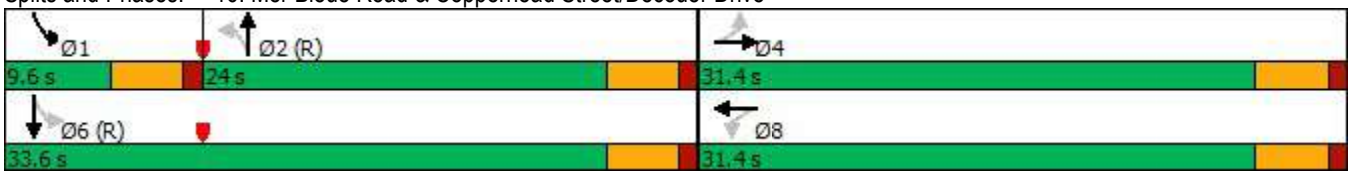


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	16	1	182	11	398	1	720	31	124	447	48
Future Volume (vph)	20	16	1	182	11	398	1	720	31	124	447	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Frt		0.992			0.854			0.994			0.986	
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1789	1868	0	1789	1608	0	0	3557	0	1789	3528	0
Flt Permitted	0.241			0.746				0.955		0.229		
Satd. Flow (perm)	454	1868	0	1405	1608	0	0	3397	0	431	3528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			252			7			23	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		521.1			318.7			270.2			326.8	
Travel Time (s)		37.5			22.9			19.5			23.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	17	1	198	12	433	1	783	34	135	486	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	18	0	198	445	0	0	818	0	135	538	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		9.5	22.5	
Total Split (s)	31.4	31.4		31.4	31.4		24.0	24.0		9.6	33.6	
Total Split (%)	48.3%	48.3%		48.3%	48.3%		36.9%	36.9%		14.8%	51.7%	
Maximum Green (s)	26.9	26.9		26.9	26.9		19.5	19.5		5.1	29.1	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	16.6	16.6		16.6	16.6			30.1		39.4	39.4	
Actuated g/C Ratio	0.26	0.26		0.26	0.26			0.46		0.61	0.61	
v/c Ratio	0.19	0.04		0.55	0.74			0.52		0.33	0.25	
Control Delay	19.4	13.8		25.3	16.5			16.9		9.8	7.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	19.4	13.8		25.3	16.5			16.9		9.8	7.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	B	B		C	B			B		A	A	
Approach Delay		16.9			19.2			16.9			7.9	
Approach LOS		B			B			B			A	
Queue Length 50th (m)	2.1	1.6		21.2	20.2			36.0		5.7	12.4	
Queue Length 95th (m)	5.8	4.4		30.1	38.1			#69.1		18.0	29.4	
Internal Link Dist (m)		497.1			294.7			246.2			302.8	
Turn Bay Length (m)										50.0		
Base Capacity (vph)	187	773		581	813			1577		403	2146	
Starvation Cap Reductn	0	0		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.12	0.02		0.34	0.55			0.52		0.33	0.25	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 14.8		Intersection LOS: B	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 16: Mer Bleue Road & Copperhead Street/Decouer Drive



Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	144	608	8	0	563
Future Vol, veh/h	0	144	608	8	0	563
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	157	661	9	0	612

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	335	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	661	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	661	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	661	-
HCM Lane V/C Ratio	-	-	0.237	-
HCM Control Delay (s)	-	-	12.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.9	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	123	80	1095	475	223
Future Vol, veh/h	0	123	80	1095	475	223
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	500	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	134	87	1190	516	242

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	379	758	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	619	849	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	619	849	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	849	-	619	-	-
HCM Lane V/C Ratio	0.102	-	0.216	-	-
HCM Control Delay (s)	9.7	-	12.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.8	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	544	81	20	918	0	240
Future Vol, veh/h	544	81	20	918	0	240
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	591	88	22	998	0	261

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	679	0	-	340
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.14	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.22	-	-	3.32
Pot Cap-1 Maneuver	-	-	909	-	0	656
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	909	-	-	656
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	14.1
HCM LOS			B

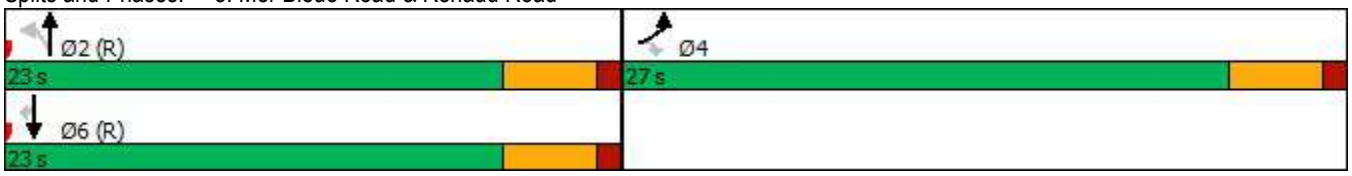
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	656	-	-	909	-
HCM Lane V/C Ratio	0.398	-	-	0.024	-
HCM Control Delay (s)	14.1	-	-	9.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.9	-	-	0.1	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	503	76	65	384	475	243
Future Volume (vph)	503	76	65	384	475	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	50.0	50.0			100.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1789	1601	1789	3579	3579	1601
Flt Permitted	0.950		0.450			
Satd. Flow (perm)	1789	1601	848	3579	3579	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		83				264
Link Speed (k/h)	50			50	50	
Link Distance (m)	511.1			471.6	65.5	
Travel Time (s)	36.8			34.0	4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	547	83	71	417	516	264
Shared Lane Traffic (%)						
Lane Group Flow (vph)	547	83	71	417	516	264
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	27.0	27.0	23.0	23.0	23.0	23.0
Total Split (%)	54.0%	54.0%	46.0%	46.0%	46.0%	46.0%
Maximum Green (s)	22.5	22.5	18.5	18.5	18.5	18.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	19.3	19.3	21.7	21.7	21.7	21.7
Actuated g/C Ratio	0.39	0.39	0.43	0.43	0.43	0.43
v/c Ratio	0.79	0.12	0.19	0.27	0.33	0.31
Control Delay	22.4	3.0	12.2	10.6	11.0	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	3.0	12.2	10.6	11.0	3.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	C	A	B	B	B	A
Approach Delay	19.8			10.8	8.3	
Approach LOS	B			B	A	
Queue Length 50th (m)	39.4	0.0	3.8	12.2	15.6	0.0
Queue Length 95th (m)	63.8	5.2	11.4	21.7	26.8	10.8
Internal Link Dist (m)	487.1			447.6	41.5	
Turn Bay Length (m)		50.0	50.0			100.0
Base Capacity (vph)	805	766	368	1553	1553	844
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.11	0.19	0.27	0.33	0.31

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 50			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 12.8		Intersection LOS: B	
Intersection Capacity Utilization 56.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 8: Mer Bleue Road & Renaud Road



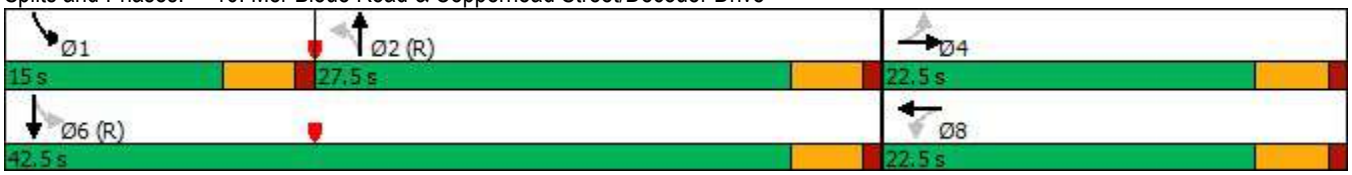
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	20	4	142	18	179	1	732	156	300	808	63
Future Volume (vph)	17	20	4	142	18	179	1	732	156	300	808	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Frt		0.977			0.864			0.974			0.989	
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1789	1840	0	1789	1627	0	0	3485	0	1789	3539	0
Flt Permitted	0.493			0.740				0.954		0.163		
Satd. Flow (perm)	929	1840	0	1394	1627	0	0	3325	0	307	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			195			43			21	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		521.1			318.7			270.2			326.8	
Travel Time (s)		37.5			22.9			19.5			23.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	22	4	154	20	195	1	796	170	326	878	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	26	0	154	215	0	0	967	0	326	946	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		9.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		27.5	27.5		15.0	42.5	
Total Split (%)	34.6%	34.6%		34.6%	34.6%		42.3%	42.3%		23.1%	65.4%	
Maximum Green (s)	18.0	18.0		18.0	18.0		23.0	23.0		10.5	38.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	12.5	12.5		12.5	12.5			28.0		43.5	43.5	
Actuated g/C Ratio	0.19	0.19		0.19	0.19			0.43		0.67	0.67	
v/c Ratio	0.10	0.07		0.58	0.46			0.66		0.71	0.40	
Control Delay	20.5	17.5		31.7	7.9			18.4		19.7	5.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	20.5	17.5		31.7	7.9			18.4		19.7	5.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	B		C	A			B		B	A	
Approach Delay		18.7			17.9			18.4			9.4	
Approach LOS		B			B			B			A	
Queue Length 50th (m)	1.8	2.2		17.1	2.0			46.8		14.5	21.4	
Queue Length 95th (m)	5.9	6.8		29.7	15.5			#74.3		#55.6	41.0	
Internal Link Dist (m)		497.1			294.7			246.2			302.8	
Turn Bay Length (m)										50.0		
Base Capacity (vph)	257	512		386	591			1457		470	2377	
Starvation Cap Reductn	0	0		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.07	0.05		0.40	0.36			0.66		0.69	0.40	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 14.1 Intersection LOS: B
Intersection Capacity Utilization 75.4% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Mer Bleue Road & Copperhead Street/Decouer Drive



Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	38	851	36	0	785
Future Vol, veh/h	0	38	851	36	0	785
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	41	925	39	0	853

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	482	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	530	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	530	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	530	-
HCM Lane V/C Ratio	-	-	0.078	-
HCM Control Delay (s)	-	-	12.4	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.3	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	159	96	863	956	269
Future Vol, veh/h	0	159	96	863	956	269
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	173	104	938	1039	292

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	666	1331	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	402	514	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	402	514	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.5	1.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	514	-	402	-	-
HCM Lane V/C Ratio	0.203	-	0.43	-	-
HCM Control Delay (s)	13.8	-	20.5	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.8	-	2.1	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	902	96	20	1167	0	317
Future Vol, veh/h	902	96	20	1167	0	317
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	980	104	22	1268	0	345

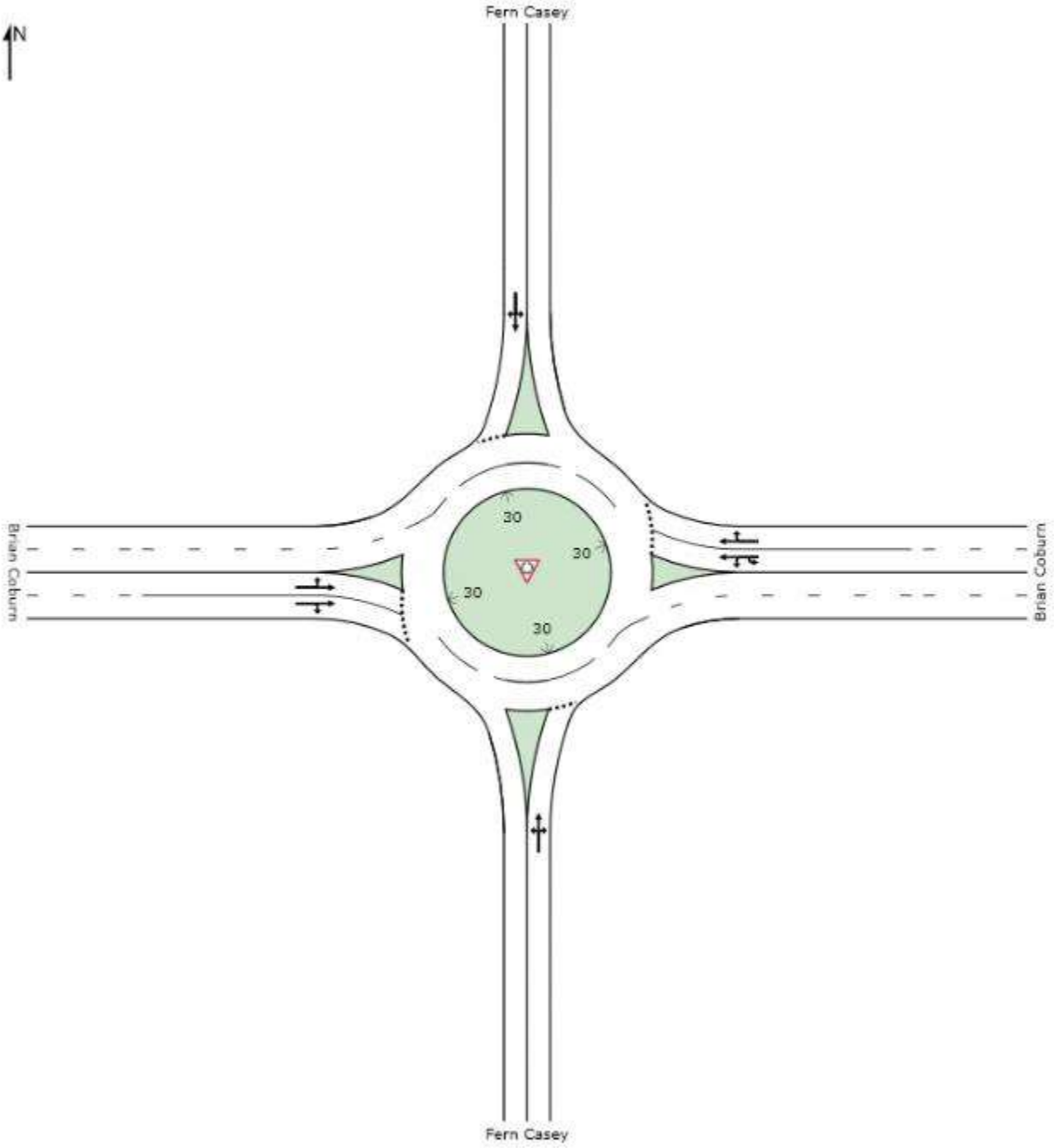
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1084	0	-	542
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.14	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.22	-	-	3.32
Pot Cap-1 Maneuver	-	-	639	-	0	485
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	639	-	-	485
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	28.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	485	-	-	639	-
HCM Lane V/C Ratio	0.71	-	-	0.034	-
HCM Control Delay (s)	28.6	-	-	10.8	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	5.6	-	-	0.1	-

Intersection #1 - Brian Coburn / Fern Casey – 2036 Layout

2036 horizon year



LANE SUMMARY

Site: Future 2036 AM - BCB / Fern Casey

AM PEAK
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Fern Casey													
Lane 1[d]	382	3.0	1013	0.377	100	8.8	LOS A	1.8	13.9	Full	500	0.0	0.0
Approach	382	3.0		0.377		8.8	LOS A	1.8	13.9				
East: Brian Coburn													
Lane 1	359	3.0	1201	0.299	100	6.8	LOS A	1.8	13.7	Full	500	0.0	0.0
Lane 2[d]	443	3.0	1479	0.299	100	5.0	LOS A	1.8	14.2	Full	500	0.0	0.0
Approach	802	3.0		0.299		5.8	LOS A	1.8	14.2				
North: Fern Casey													
Lane 1[d]	17	3.0	695	0.024	100	7.7	LOS A	0.1	0.6	Full	500	0.0	0.0
Approach	17	3.0		0.024		7.7	LOS A	0.1	0.6				
West: Brian Coburn													
Lane 1	168	3.0	1352	0.124	100	4.9	LOS A	0.7	5.2	Full	500	0.0	0.0
Lane 2[d]	201	3.0	1615	0.124	100	4.5	LOS A	0.7	5.3	Full	500	0.0	0.0
Approach	369	3.0		0.124		4.7	LOS A	0.7	5.3				
Intersection	1570	3.0		0.377		6.3	LOS A	1.8	14.2				

LANE SUMMARY

Site: Future 2036 PM - BCB / Fern Casey

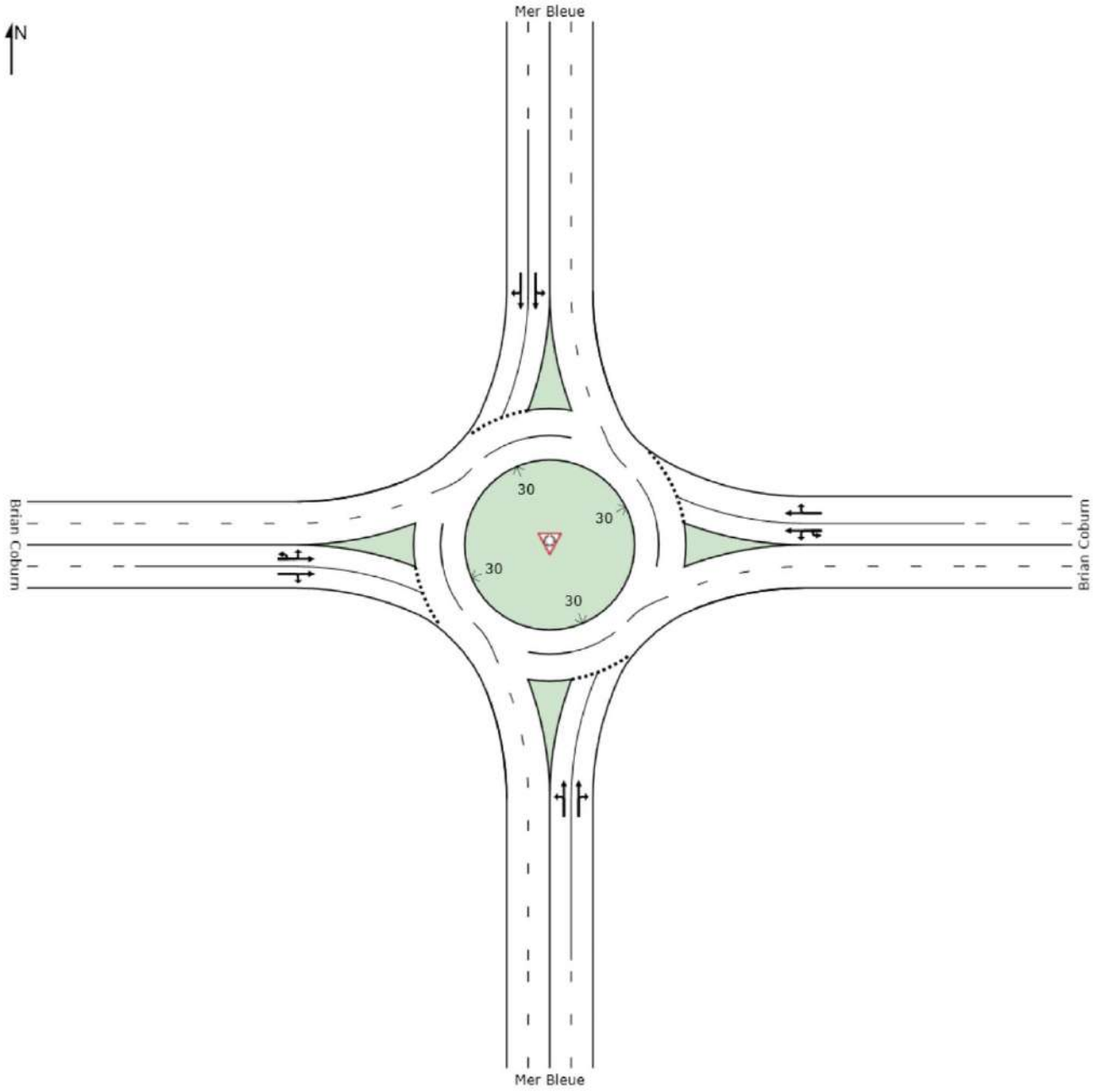
PM PEAK
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Fern Casey													
Lane 1[d]	308	3.0	768	0.401	100	9.7	LOS A	1.8	13.8	Full	500	0.0	0.0
Approach	308	3.0		0.401		9.7	LOS A	1.8	13.8				
East: Brian Coburn													
Lane 1	456	3.0	1286	0.355	100	8.5	LOS A	2.5	19.2	Full	500	0.0	0.0
Lane 2[d]	554	3.0	1560	0.355	100	4.8	LOS A	2.6	20.0	Full	500	0.0	0.0
Approach	1010	3.0		0.355		6.4	LOS A	2.6	20.0				
North: Fern Casey													
Lane 1[d]	3	3.0	657	0.005	100	8.5	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	3	3.0		0.005		8.5	LOS A	0.0	0.1				
West: Brian Coburn													
Lane 1	386	3.0	1146	0.337	100	5.6	LOS A	2.0	15.3	Full	500	0.0	0.0
Lane 2[d]	481	3.0	1430	0.337	100	5.1	LOS A	2.0	15.9	Full	500	0.0	0.0
Approach	867	3.0		0.337		5.3	LOS A	2.0	15.9				
Intersection	2188	3.0		0.401		6.5	LOS A	2.6	20.0				

Intersection #7 - Brian Coburn / Mer Bleue – 2036 Layout [4-lane BCB without auxiliary right turn lanes]

2036 horizon year



LANE SUMMARY

Site: Future 2036 AM - 4-lane BCB/Mer Bleue v2

AM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	495	3.0	736	0.673	100	11.4	LOS B	4.2	32.4	Full	500	0.0	0.0
Lane 2[d]	620	3.0	921	0.673	100	8.0	LOS A	4.4	34.6	Full	500	0.0	0.0
Approach	1115	3.0		0.673		9.5	LOS A	4.4	34.6				
East: Brian Coburn													
Lane 1	332	3.0	595	0.558	100	10.0	LOS B	2.3	17.6	Full	500	0.0	0.0
Lane 2[d]	465	3.0	834	0.558	100	6.7	LOS A	2.5	19.3	Full	500	0.0	0.0
Approach	797	3.0		0.558		8.1	LOS A	2.5	19.3				
North: Mer Bleue													
Lane 1	392	3.0	742	0.528	100	10.2	LOS B	2.7	21.2	Full	500	0.0	0.0
Lane 2[d]	488	3.0	925	0.528	100	7.0	LOS A	2.9	22.3	Full	500	0.0	0.0
Approach	880	3.0		0.528		8.4	LOS A	2.9	22.3				
West: Brian Coburn													
Lane 1[d]	396	3.1	904	0.438	100	12.5	LOS B	2.1	16.5	Full	500	0.0	0.0
Lane 2	310	3.0	721	0.430	98[5]	7.4	LOS A	2.0	15.3	Full	500	0.0	0.0
Approach	706	3.1		0.438		10.3	LOS B	2.1	16.5				
Intersection	3498	3.0		0.673		9.1	LOS A	4.4	34.6				

LANE SUMMARY

Site: Future 2036 PM - 4-lane BCB/Mer Bleue v2

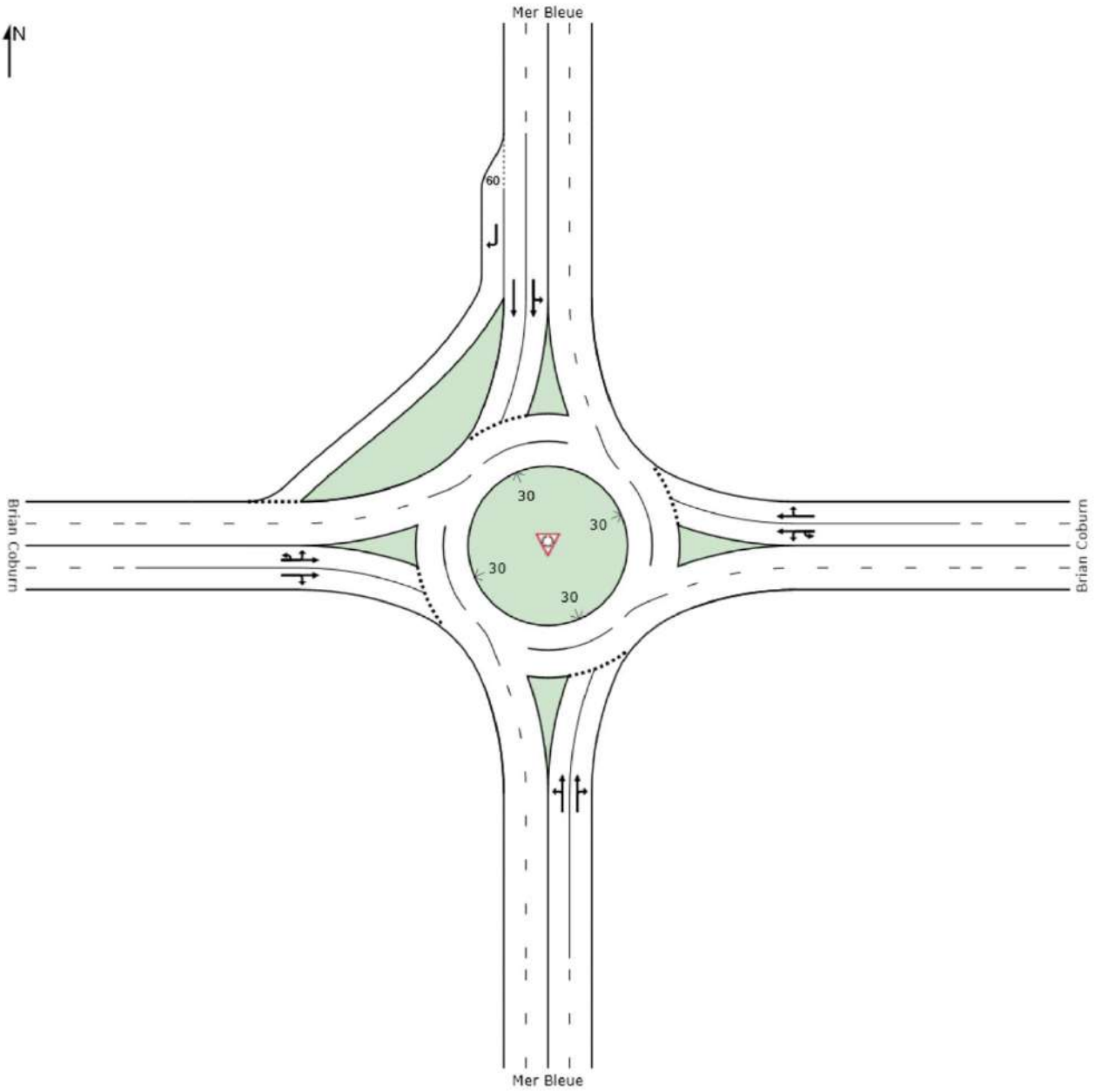
PM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	370	3.0	502	0.737	100	12.3	LOS B	4.0	31.0	Full	500	0.0	0.0
Lane 2[d]	514	3.0	697	0.737	100	9.0	LOS A	4.4	34.5	Full	500	0.0	0.0
Approach	884	3.0		0.737		10.4	LOS B	4.4	34.5				
East: Brian Coburn													
Lane 1	415	3.0	607	0.683	100	11.9	LOS B	3.7	29.2	Full	500	0.0	0.0
Lane 2[d]	553	3.0	810	0.683	100	8.3	LOS A	4.1	31.8	Full	500	0.0	0.0
Approach	968	3.0		0.683		9.9	LOS A	4.1	31.8				
North: Mer Bleue													
Lane 1	800	3.0	740	1.081	100	56.7	LOS F	32.4	252.3	Full	500	0.0	0.0
Lane 2[d]	988	3.0	914	1.081	100	51.9	LOS F	38.2	297.4	Full	500	0.0	0.0
Approach	1788	3.0		1.081		54.0	LOS D	38.2	297.4				
West: Brian Coburn													
Lane 1	470	3.2	448	1.048	100	50.9	LOS F	15.8	123.3	Full	500	0.0	0.0
Lane 2[d]	666	3.0	636	1.048	100	41.0	LOS F	20.1	156.8	Full	500	0.0	0.0
Approach	1136	3.1		1.048		45.1	LOS D	20.1	156.8				
Intersection	4776	3.0		1.081		34.9	LOS C	38.2	297.4				

Intersection #7 - Brian Coburn / Mer Bleue – 2036 Layout [with auxiliary SB-RT right turn lane]

2036 horizon year – with SB-RT



LANE SUMMARY

Site: Future 2036 AM - 4-lane BCB/Mer Bleue v2 - SB-RT added

AM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	495	3.0	739	0.670	100	11.4	LOS B	4.1	32.1	Full	500	0.0	0.0
Lane 2[d]	620	3.0	925	0.670	100	8.0	LOS A	4.4	34.3	Full	500	0.0	0.0
Approach	1115	3.0		0.670		9.5	LOS A	4.4	34.3				
East: Brian Coburn													
Lane 1	332	3.0	596	0.557	100	10.0	LOS B	2.3	17.6	Full	500	0.0	0.0
Lane 2[d]	465	3.0	835	0.557	100	6.7	LOS A	2.5	19.2	Full	500	0.0	0.0
Approach	797	3.0		0.557		8.1	LOS A	2.5	19.2				
North: Mer Bleue													
Lane 1	302	3.0	872	0.346	100	9.2	LOS A	1.5	11.5	Full	500	0.0	0.0
Lane 2[d]	425	3.0	1229	0.346	100	5.4	LOS A	1.6	12.3	Full	500	0.0	0.0
Lane 3	153	3.0	1284	0.119	100	5.1	LOS A	0.5	3.6	Short	60	0.0	NA
Approach	880	3.0		0.346		6.7	LOS A	1.6	12.3				
West: Brian Coburn													
Lane 1[d]	396	3.1	925	0.428	100	12.5	LOS B	2.0	15.7	Full	500	0.0	0.0
Lane 2	310	3.0	738	0.420	98[5]	7.4	LOS A	1.9	14.6	Full	500	0.0	0.0
Approach	706	3.1		0.428		10.2	LOS B	2.0	15.7				
Intersection	3498	3.0		0.670		8.6	LOS A	4.4	34.3				

LANE SUMMARY

Site: Future 2036 PM - 4-lane BCB/Mer Bleue v2 - SB-RT added

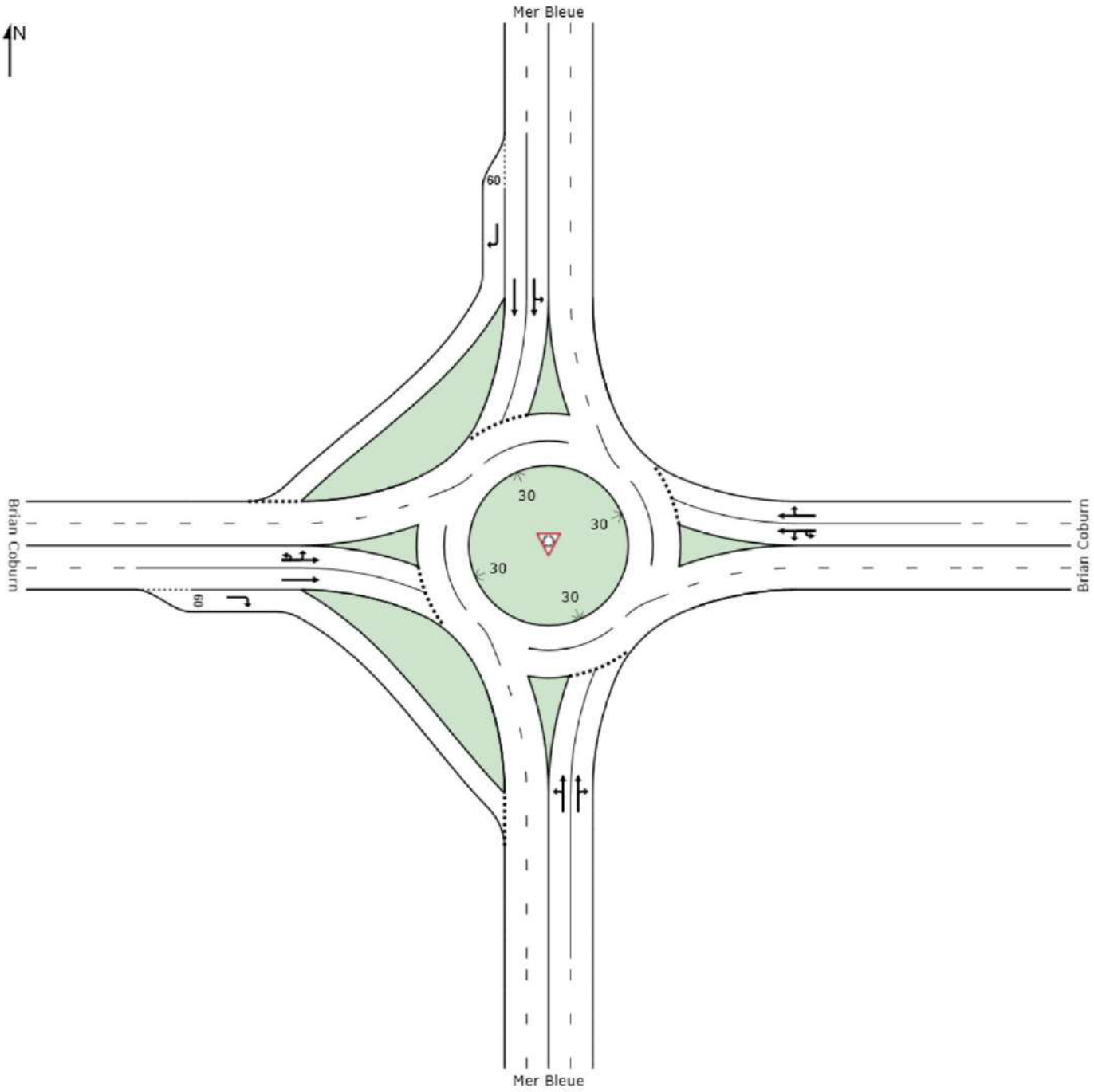
PM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	366	3.0	482	0.759	100	12.9	LOS B	4.1	31.9	Full	500	0.0	0.0
Lane 2[d]	518	3.0	682	0.759	100	9.4	LOS A	4.6	35.6	Full	500	0.0	0.0
Approach	884	3.0		0.759		10.9	LOS B	4.6	35.6				
East: Brian Coburn													
Lane 1	414	3.0	601	0.689	100	12.0	LOS B	3.8	29.4	Full	500	0.0	0.0
Lane 2[d]	554	3.0	804	0.689	100	8.4	LOS A	4.1	32.1	Full	500	0.0	0.0
Approach	968	3.0		0.689		10.0	LOS A	4.1	32.1				
North: Mer Bleue													
Lane 1	549	3.0	864	0.635	100	11.2	LOS B	4.0	31.5	Full	500	0.0	0.0
Lane 2[d]	766	3.0	1207	0.635	100	6.5	LOS A	4.5	34.8	Full	500	0.0	0.0
Lane 3	473	3.0	1274	0.371	100	5.2	LOS A	1.8	14.3	Short	60	0.0	NA
Approach	1788	3.0		0.635		7.6	LOS A	4.5	34.8				
West: Brian Coburn													
Lane 1	463	3.2	470	0.986	100	34.4	LOS C	10.3	80.0	Full	500	0.0	0.0
Lane 2[d]	673	3.0	682	0.986	100	23.3	LOS C	12.4	96.4	Full	500	0.0	0.0
Approach	1136	3.1		0.986		27.8	LOS C	12.4	96.4				
Intersection	4776	3.0		0.986		13.5	LOS B	12.4	96.4				

Intersection #7 - Brian Coburn / Mer Bleue – 2036 Layout [with auxiliary SB-RT and EB-RT right turn lanes]

2036 horizon year – with SB-RT and EB-RT



LANE SUMMARY

Site: Future 2036 AM - 4-lane BCB/Mer Bleue v2 - SB-RT and EB-RT added

AM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	495	3.0	748	0.662	100	11.3	LOS B	4.0	31.3	Full	500	0.0	0.0
Lane 2[d]	620	3.0	937	0.662	100	7.9	LOS A	4.3	33.3	Full	500	0.0	0.0
Approach	1115	3.0		0.662		9.4	LOS A	4.3	33.3				
East: Brian Coburn													
Lane 1	332	3.0	599	0.554	100	10.0	LOS A	2.2	17.4	Full	500	0.0	0.0
Lane 2[d]	465	3.0	839	0.554	100	6.7	LOS A	2.4	19.0	Full	500	0.0	0.0
Approach	797	3.0		0.554		8.1	LOS A	2.4	19.0				
North: Mer Bleue													
Lane 1	302	3.0	873	0.346	100	9.2	LOS A	1.5	11.5	Full	500	0.0	0.0
Lane 2[d]	425	3.0	1230	0.346	100	5.4	LOS A	1.6	12.2	Full	500	0.0	0.0
Lane 3	153	3.0	1285	0.119	100	5.1	LOS A	0.5	3.6	Short	60	0.0	NA
Approach	880	3.0		0.346		6.7	LOS A	1.6	12.2				
West: Brian Coburn													
Lane 1[d]	398	3.1	1234	0.323	100	11.3	LOS B	1.4	11.0	Full	500	0.0	0.0
Lane 2	282	3.0	872	0.323	100	6.3	LOS A	1.3	10.3	Full	500	0.0	0.0
Lane 3	26	3.0	1300	0.020	100	4.9	LOS A	0.1	0.6	Short	60	0.0	NA
Approach	706	3.1		0.323		9.1	LOS A	1.4	11.0				
Intersection	3498	3.0		0.662		8.4	LOS A	4.3	33.3				

LANE SUMMARY

Site: Future 2036 PM - 4-lane BCB/Mer Bleue v2 - SB-RT and EB-RT added

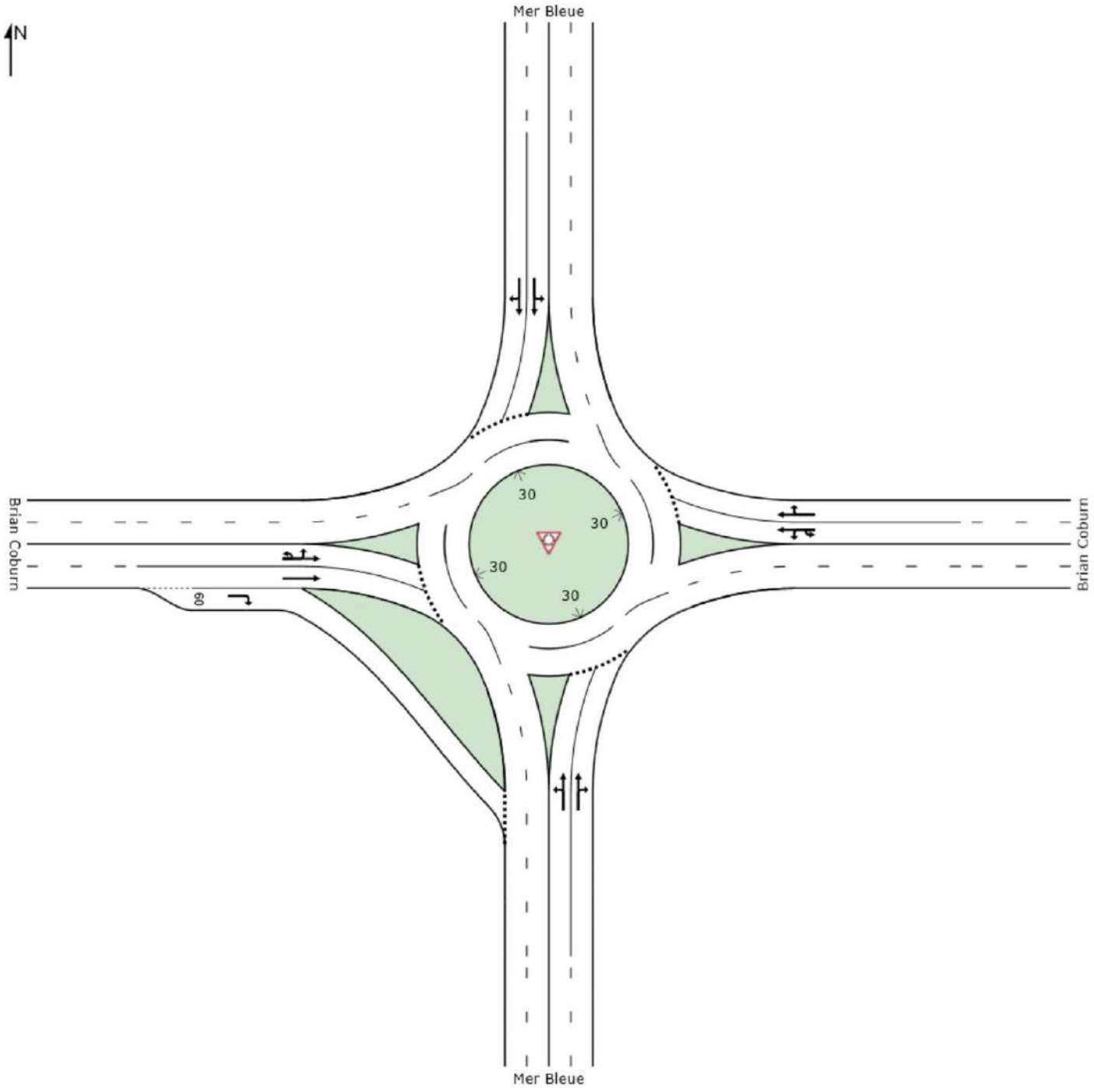
PM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	366	3.0	514	0.712	100	12.1	LOS B	3.6	28.4	Full	500	0.0	0.0
Lane 2[d]	518	3.0	727	0.712	100	8.8	LOS A	4.1	31.6	Full	500	0.0	0.0
Approach	884	3.0		0.712		10.2	LOS B	4.1	31.6				
East: Brian Coburn													
Lane 1	414	3.0	606	0.683	100	12.0	LOS B	3.7	29.0	Full	500	0.0	0.0
Lane 2[d]	554	3.0	811	0.683	100	8.3	LOS A	4.1	31.6	Full	500	0.0	0.0
Approach	968	3.0		0.683		9.9	LOS A	4.1	31.6				
North: Mer Bleue													
Lane 1	549	3.0	865	0.634	100	11.2	LOS B	4.0	31.4	Full	500	0.0	0.0
Lane 2[d]	766	3.0	1208	0.634	100	6.5	LOS A	4.5	34.7	Full	500	0.0	0.0
Lane 3	473	3.0	1275	0.371	100	5.2	LOS A	1.8	14.3	Short	60	0.0	NA
Approach	1788	3.0		0.634		7.6	LOS A	4.5	34.7				
West: Brian Coburn													
Lane 1	401	3.2	604	0.664	100	15.0	LOS B	3.4	26.2	Full	500	0.0	0.0
Lane 2[d]	622	3.0	981	0.634	95[5]	6.9	LOS A	3.6	28.4	Full	500	0.0	0.0
Lane 3	113	3.0	1076	0.105	100	5.3	LOS A	0.4	3.2	Short	60	0.0	NA
Approach	1136	3.1		0.664		9.6	LOS A	3.6	28.4				
Intersection	4776	3.0		0.712		9.0	LOS A	4.5	34.7				

Intersection #7 - Brian Coburn / Mer Bleue – 2036 Layout [with auxiliary EB-RT right turn lane]

2036 horizon year – with EB-RT



LANE SUMMARY

Site: Future 2036 AM - 4-lane BCB/Mer Bleue v2 - EB-RT added

AM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	495	3.0	745	0.664	100	11.4	LOS B	4.0	31.5	Full	500	0.0	0.0
Lane 2[d]	620	3.0	933	0.664	100	8.0	LOS A	4.3	33.6	Full	500	0.0	0.0
Approach	1115	3.0		0.664		9.5	LOS A	4.3	33.6				
East: Brian Coburn													
Lane 1	332	3.0	598	0.555	100	10.0	LOS B	2.2	17.5	Full	500	0.0	0.0
Lane 2[d]	465	3.0	838	0.555	100	6.7	LOS A	2.4	19.1	Full	500	0.0	0.0
Approach	797	3.0		0.555		8.1	LOS A	2.4	19.1				
North: Mer Bleue													
Lane 1	392	3.0	743	0.528	100	10.2	LOS B	2.7	21.2	Full	500	0.0	0.0
Lane 2[d]	488	3.0	925	0.528	100	7.0	LOS A	2.9	22.3	Full	500	0.0	0.0
Approach	880	3.0		0.528		8.4	LOS A	2.9	22.3				
West: Brian Coburn													
Lane 1[d]	398	3.1	1206	0.330	100	11.3	LOS B	1.5	11.6	Full	500	0.0	0.0
Lane 2	282	3.0	853	0.330	100	6.3	LOS A	1.4	10.8	Full	500	0.0	0.0
Lane 3	26	3.0	1278	0.020	100	4.9	LOS A	0.1	0.6	Short	60	0.0	NA
Approach	706	3.1		0.330		9.1	LOS A	1.5	11.6				
Intersection	3498	3.0		0.664		8.8	LOS A	4.3	33.6				

LANE SUMMARY

Site: Future 2036 PM - 4-lane BCB/Mer Bleue v2 - EB-RT added

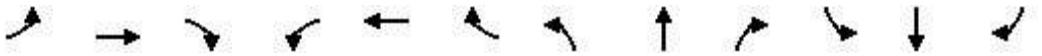
PM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	367	3.0	509	0.721	100	12.2	LOS B	3.8	29.3	Full	500	0.0	0.0
Lane 2[d]	517	3.0	716	0.721	100	8.8	LOS A	4.2	32.6	Full	500	0.0	0.0
Approach	884	3.0		0.721		10.2	LOS B	4.2	32.6				
East: Brian Coburn													
Lane 1	414	3.0	604	0.685	100	12.0	LOS B	3.7	29.1	Full	500	0.0	0.0
Lane 2[d]	554	3.0	809	0.685	100	8.4	LOS A	4.1	31.7	Full	500	0.0	0.0
Approach	968	3.0		0.685		9.9	LOS A	4.1	31.7				
North: Mer Bleue													
Lane 1	800	3.0	739	1.082	100	57.3	LOS F	32.6	254.1	Full	500	0.0	0.0
Lane 2[d]	988	3.0	913	1.082	100	52.4	LOS F	38.5	299.8	Full	500	0.0	0.0
Approach	1788	3.0		1.082		54.6	LOS D	38.5	299.8				
West: Brian Coburn													
Lane 1	401	3.2	568	0.706	100	15.7	LOS B	3.8	29.8	Full	500	0.0	0.0
Lane 2[d]	622	3.0	907	0.686	97[5]	7.6	LOS A	4.3	33.4	Full	500	0.0	0.0
Lane 3	113	3.0	1028	0.110	100	5.4	LOS A	0.5	3.6	Short	60	0.0	NA
Approach	1136	3.1		0.706		10.2	LOS B	4.3	33.4				
Intersection	4776	3.0		1.082		26.8	LOS C	38.5	299.8				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach



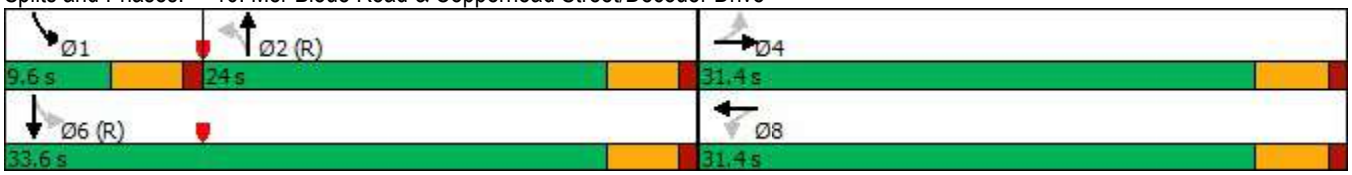
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	17	1	155	11	391	1	754	31	117	437	50
Future Volume (vph)	20	17	1	155	11	391	1	754	31	117	437	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.992			0.854			0.994			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1868	0	1789	1608	0	1789	3557	0	1789	1855	0
Flt Permitted	0.252			0.745			0.467			0.219		
Satd. Flow (perm)	475	1868	0	1403	1608	0	880	3557	0	412	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			247			6			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		521.1			318.7			270.2			326.8	
Travel Time (s)		37.5			22.9			19.5			23.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	18	1	168	12	425	1	820	34	127	475	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	19	0	168	437	0	1	854	0	127	529	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		9.5	22.5	
Total Split (s)	31.4	31.4		31.4	31.4		24.0	24.0		9.6	33.6	
Total Split (%)	48.3%	48.3%		48.3%	48.3%		36.9%	36.9%		14.8%	51.7%	
Maximum Green (s)	26.9	26.9		26.9	26.9		19.5	19.5		5.1	29.1	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	15.9	15.9		15.9	15.9		30.9	30.9		40.1	40.1	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.48	0.48		0.62	0.62	
v/c Ratio	0.19	0.04		0.49	0.75		0.00	0.50		0.32	0.46	
Control Delay	19.5	14.1		23.9	17.2		15.0	16.3		9.6	10.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.5	14.1		23.9	17.2		15.0	16.3		9.6	10.1	

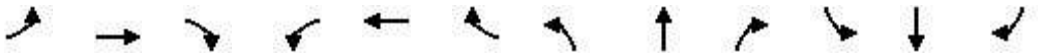
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	B	B		C	B		B	B		A	B	
Approach Delay		17.0			19.1			16.3			10.0	
Approach LOS		B			B			B			A	
Queue Length 50th (m)	2.1	1.7		17.6	19.9		0.1	37.3		5.3	27.8	
Queue Length 95th (m)	5.8	4.6		25.7	37.5		1.0	#70.7		17.0	72.9	
Internal Link Dist (m)		497.1			294.7			246.2			302.8	
Turn Bay Length (m)										50.0		
Base Capacity (vph)	196	773		580	810		418	1692		396	1148	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.02		0.29	0.54		0.00	0.50		0.32	0.46	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 15.2 Intersection LOS: B
Intersection Capacity Utilization 66.2% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Mer Bleue Road & Copperhead Street/Decouer Drive





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	21	4	52	19	172	1	754	156	292	744	50
Future Volume (vph)	17	21	4	52	19	172	1	754	156	292	744	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		0.978			0.865			0.974			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1842	0	1789	1629	0	1789	1834	0	1789	1866	0
Flt Permitted	0.476			0.740			0.343			0.112		
Satd. Flow (perm)	897	1842	0	1394	1629	0	646	1834	0	211	1866	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			187			18			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		521.1			318.7			270.2			326.8	
Travel Time (s)		37.5			22.9			19.5			23.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	23	4	57	21	187	1	820	170	317	809	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	27	0	57	208	0	1	990	0	317	863	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		9.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		28.5	28.5		14.0	42.5	
Total Split (%)	34.6%	34.6%		34.6%	34.6%		43.8%	43.8%		21.5%	65.4%	
Maximum Green (s)	18.0	18.0		18.0	18.0		24.0	24.0		9.5	38.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	8.4	8.4		8.4	8.4		31.1	31.1		47.6	47.6	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.48	0.48		0.73	0.73	
v/c Ratio	0.16	0.11		0.32	0.56		0.00	1.12		0.71	0.63	
Control Delay	26.7	22.0		29.4	12.0		12.0	89.9		20.4	7.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.7	22.0		29.4	12.0		12.0	89.9		20.4	7.5	

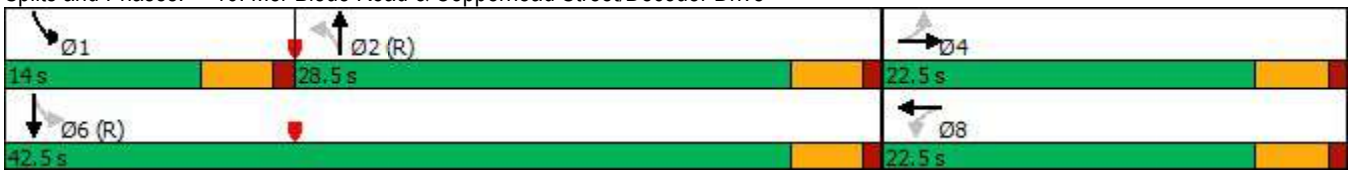
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C		C	B		B	F		C	A	
Approach Delay		23.9			15.7			89.8			10.9	
Approach LOS		C			B			F			B	
Queue Length 50th (m)	2.0	2.5		6.4	2.3		0.1	~139.7		18.7	36.8	
Queue Length 95th (m)	6.7	8.0		14.6	17.5		0.9	#233.4		43.8	86.4	
Internal Link Dist (m)		497.1			294.7			246.2			302.8	
Turn Bay Length (m)										50.0		
Base Capacity (vph)	248	512		386	586		308	886		452	1369	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.05		0.15	0.35		0.00	1.12		0.70	0.63	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay: 43.2		Intersection LOS: D	
Intersection Capacity Utilization 90.7%		ICU Level of Service E	
Analysis Period (min) 15			

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

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

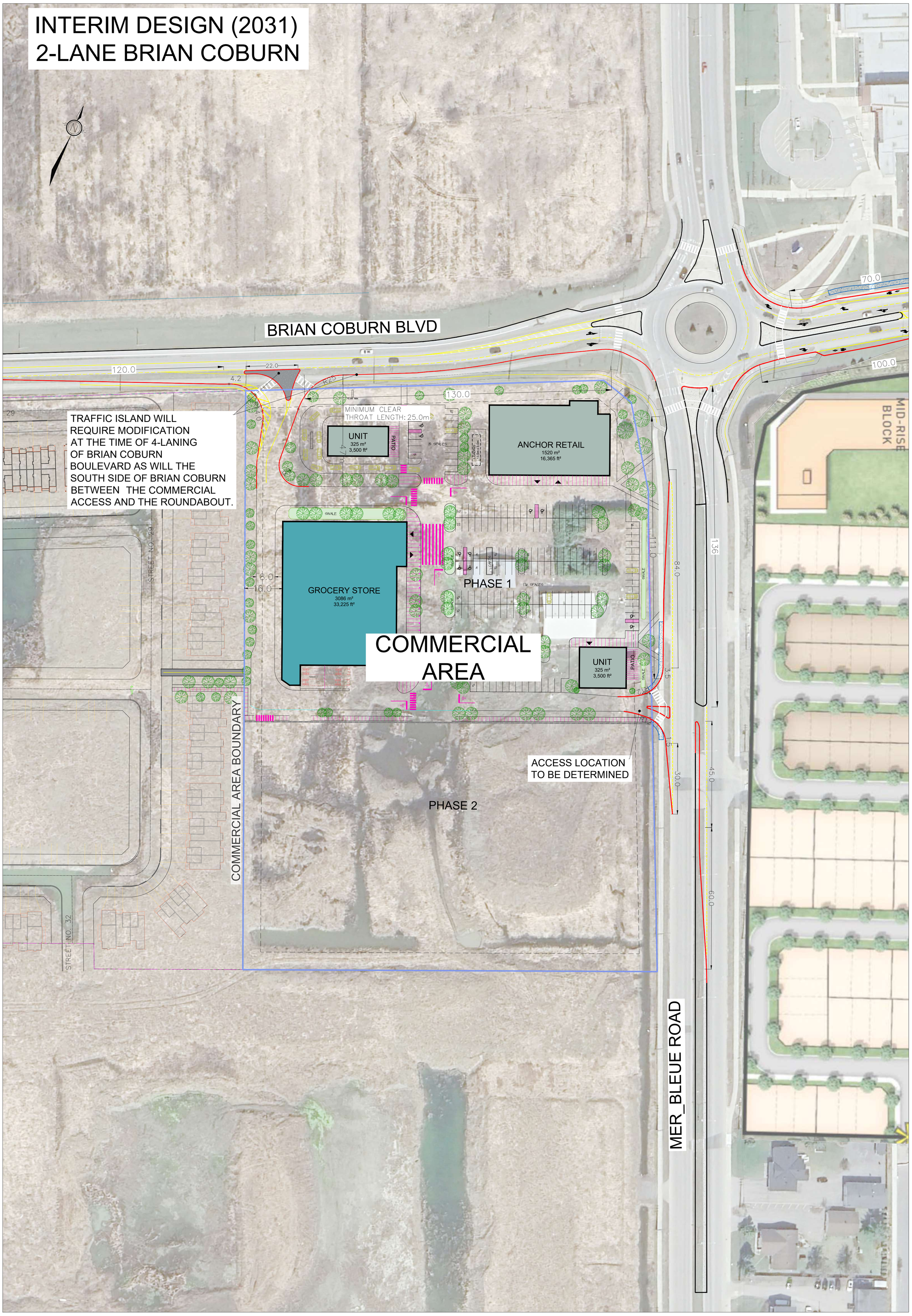
Splits and Phases: 16: Mer Bleue Road & Copperhead Street/Decouer Drive



ANNEX G

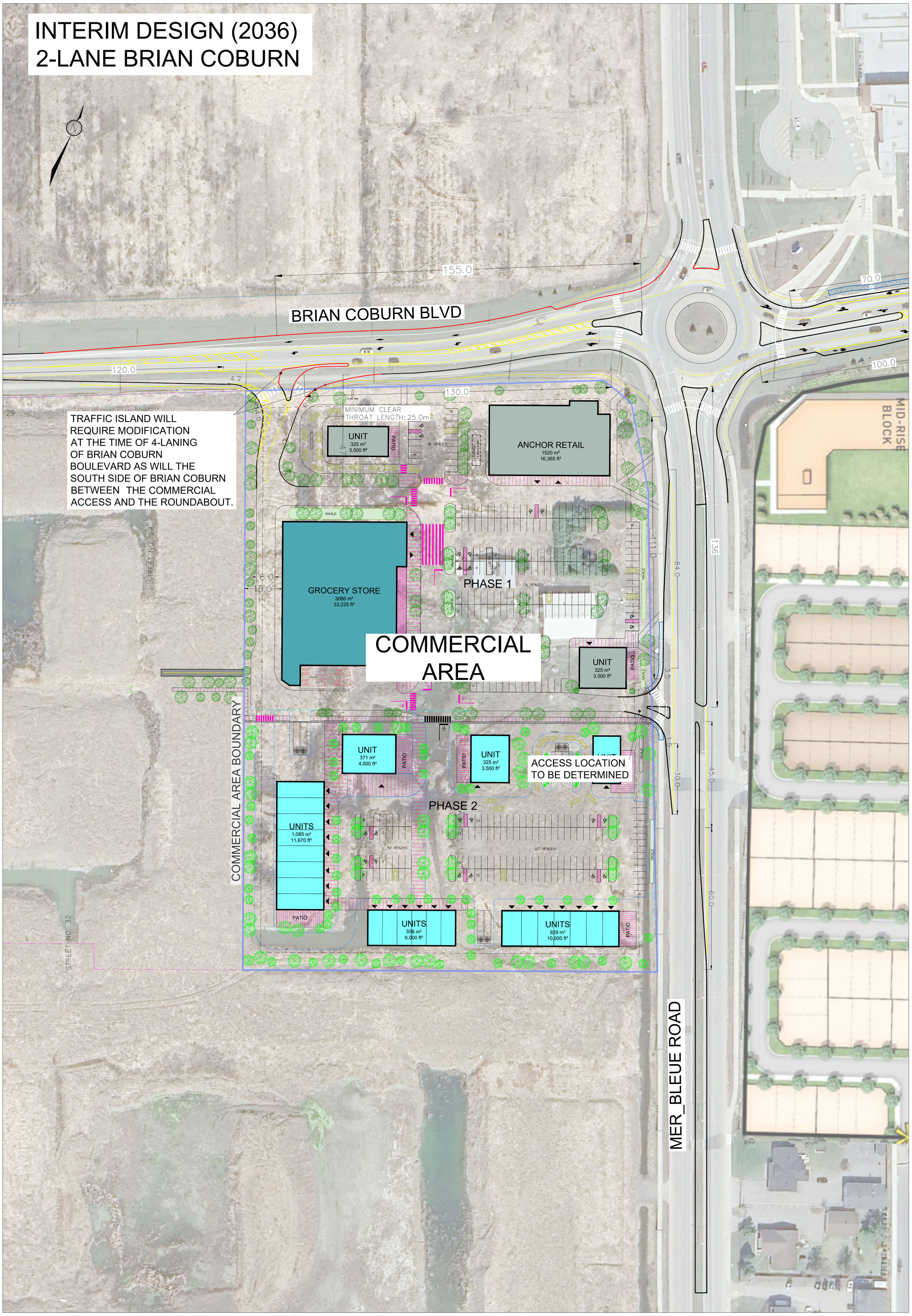
COMMERCIAL ACCESS DESIGNS AND BRIAN COBURN MER BLEUE ROUNDABOUT DESIGNS

INTERIM DESIGN (2031)
2-LANE BRIAN COBURN



CONSULTANT Castleglenn Consultants Engineers, Project Managers & Planners	LEGEND PROPOSED CURB LINES PROPOSED MULTI-USE PATH (3.0m WIDE)	16m 0 16m HORIZ 1:800 SCALE	TRAILSEDGE PHASE 4 COMMERCIAL ACCESSES ANNEX G-1		RICHCRAFT GROUP COMPANIES
DESIGNED BY A.P. / CHECKED BY A.E.G. CONSULTANTS JOB NO. 7359		PLAN NUMBER	STATUS DRAFT	DATE JUN 19 2025	SHEET 01 OF 01

INTERIM DESIGN (2036)
2-LANE BRIAN COBURN



CONSULTANT

Castleglenn Consultants
Engineers, Project Managers & Planners

DESIGNED BY A.P. | CHECKED BY A.E.G.

CONSULTANTS JOB NO. 7359

LEGEND

PROPOSED CURB LINES

PROPOSED MULTI-USE PATH (3.0m WIDE)

16m 0 16m

HORIZ 1:800

SCALE

PLAN NUMBER

TRAILSEDGE PHASE 4

COMMERCIAL ACCESSES

ANNEX G-2

STATUS	DATE	SHEET
DRAFT	JUN 19 2025	01 OF 01

RICHCRAFT GROUP COMPANIES

ULTIMATE DESIGN
(2036 HORIZON YEAR)
4-LANE BRIAN COBURN

THE STAGING OF THE SB-TO-WB SLIP LANE IS THOUGHT TO COINCIDE WITH THE 4-LANING OF BRIAN COBURN AND THE DEVELOPMENT OF THE LANDS IN THE NW QUADRANT OF THE BRIAN COBURN/ MER BLEUE ROUNDABOUT.

FUTURE ACCESS LOCATION TO BE DETERMINED

BRIAN COBURN BLVD

THE STAGING OF THE EB-TO-SB SLIP LANE IS THOUGHT TO COINCIDE WITH THE 4-LANING OF BRIAN COBURN BOULEVARD.

THE EB-TO-SB SLIP LANE MAY ULTIMATELY BE REQUIRED BUT REMAINS TO BE CONFIRMED POST 2036.

UNIT 325 m² 3,500 ft²

MINIMUM CLEAR THROAT LENGTH: 25.0m

ANCHOR RETAIL 1520 m² 16,365 ft²

GROCERY STORE 3086 m² 33,225 ft²

PHASE 1

COMMERCIAL AREA

UNIT 371 m² 4,000 ft²

UNIT 325 m² 3,500 ft²

ACCESS LOCATION TO BE DETERMINED

PHASE 2

UNITS 1,085 m² 11,670 ft²

UNITS 558 m² 6,000 ft²

UNITS 929 m² 10,000 ft²

COMMERCIAL AREA BOUNDARY

STREET NO. 29

STREET NO. 32

MER BLEUE ROAD

CONSULTANT	Castleglenn Consultants — Engineers, Project Managers & Planners
DESIGNED BY A.P.	CHECKED BY A.E.G.
CONSULTANTS JOB NO. 7359	

LEGEND

PROPOSED CURB LINES

PROPOSED MULTI-USE PATH (3.0m WIDE)

16m 0 16m

HORIZ 1:800

SCALE

PLAN NUMBER

TRAILSEDGE PHASE 4

COMMERCIAL ACCESSES

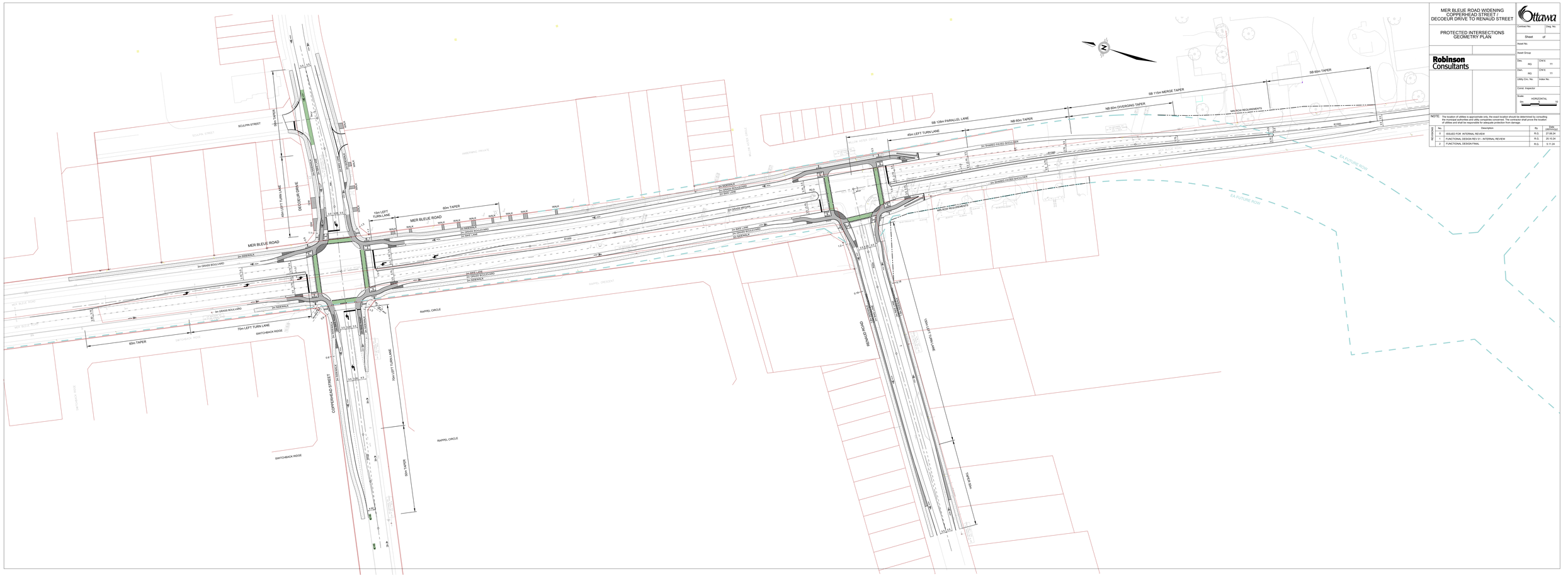
ANNEX G-3

STATUS	DATE	SHEET
DRAFT	JUN 19 2025	01 OF 01

RICHCRAFT GROUP COMPANIES

ANNEX H

MER BLEUE ROAD WIDENING
(COPPERHEAD STREET-DECOEUR DRIVE TO SOUTH OF RENAUD ROAD):
[ROBINSON CONSULTANTS, NOVEMBER 5, 2024]



MER BLEUE ROAD WIDENING
COPPERHEAD STREET / DECOEUR DRIVE TO RENAUD STREET

PROTECTED INTERSECTIONS GEOMETRY PLAN

Robinson Consultants

Ottawa

Contract No.: Dwg. No.
Sheet of
Asset No.:
Asset Group:
Des.: RG Chk'd: ??
Dwn.: RG Chk'd: ??
Utility Cnt. No: Index No:
Const. Inspector:
Scale: HORIZONTAL
0m 5m 10m

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

REVISIONS	No.	Description	By	Date (yy/mm/dd)
	0	ISSUED FOR INTERNAL REVIEW	R.G.	27.09.24
	1	FUNCTIONAL DESIGN REV 01 - INTERNAL REVIEW	R.G.	25.10.24
	2	FUNCTIONAL DESIGN FINAL	R.G.	5.11.24

ANNEX I

CITY OF OTTAWA

TRANSPORTATION MASTER PLAN "HIGHLIGHTS REPORT" EXCERPTS:

[MARCH 31, 2025]

Prioritization is based on the **Transit and Road Project Prioritization Frameworks** from the TMP Part 1. The Transit and Road Project Prioritization Frameworks were developed based on Official Plan objectives, TMP policies, and the frameworks from the 2013 TMP. They were also reviewed and refined based on the results of public engagement from June 1 to July 2, 2022. Council approved the Prioritization Frameworks in 2023. The Frameworks include prioritization criteria, metrics and scoring rubrics. In applying the framework, each project receives a total score that allows it to be compared to other projects within the same category.

3.3.1 Road Capacity Projects

Scoring – Road Capacity Projects

All road capacity projects in the Needs-Based Network were prioritized on their mobility benefits, city-building merit, and cost. Top-performing projects were selected for the Priority Network and assigned a phase for implementation. The framework and its application are described below:

- **Mobility needs (score out of 55):** A measure of the project's ability to achieve the goals of Ottawa's transportation system and meet current and future mobility needs. Projects usually received points on either Access to Development or Congestion Reduction, so the maximum score for mobility needs was 33. A minimum threshold of 10 points was required for a project to be considered in the Priority Network.
  - **Access to development (score out of 33):** This measures the extent to which a road project improves access to new development areas. Road widening projects automatically received a score of 0 (because access is already provided via the existing road), while new roads were assessed on whether they significantly improve access to existing communities or open up new development lands. Projects providing access to areas where development is already underway received more points than those at earlier stages of development or without approved plans.
  - **Congestion reduction (score out of 22):** This measure assigns points based on a project's effect on reducing delay, and considers the level of congestion in the 2022 base year as well as the 2046 "Transit First" scenario. The highest-scoring projects were those that showed high levels of congestion in both the base and future years, and that significantly reduced delays on the corridor as a result of implementing the project. Compared to the Council-approved framework, this metric was amended slightly such that each scoring category reflects both the level of congestion in the base year (2022) and the level of congestion in 2046 without the project. The score also accounts for the extent of delay reduction in 2046 with and without the projects.

- **City-building impacts (score out of 25):** The contribution of the project to achieving the City's objectives identified in the Official Plan and Transportation Master Plan:
  - **Potential for induced demand & GHG emissions (score out of 4):** This measures the road's potential impact on generating new auto demand and, by extension, GHG emissions. All new roads were assigned 4 points since they support more direct routing of trips. Road widening projects are intended to reduce congestion, and therefore make driving more attractive; these projects received a score of 2 points. These base scores were then adjusted by subtracting two points from any project that competes with rapid transit within the Priority Transit Network; these projects are expected to have a more significant impact on induced demand by encouraging modal shift.
  - **Impacts on natural systems (score out of 4):** This metric assigns points to projects based on their proximity to natural systems, as measured using data from the City's Geographic Information Systems (GIS). Most projects scored 1 point out of 4 because of their proximity to a watercourse.
  - **Effect on priority neighbourhoods (score out of 4):** Projects that benefit TMP Equity Priority Neighbourhoods (by, for example, reducing cut-through traffic) received 4 points, while projects that negatively impact Priority Neighbourhoods (because of increased noise, for example) received 0 points. Most road projects received 2 points because they had neither positive nor negative impacts on Priority Neighbourhoods.
  - **Support for place-making & healthy streets (score out of 4):** Projects scored 4 points if they would add new sidewalks and cycling facilities where they are absent today. Projects received 2 points if adjacent land uses are not sensitive to street design, such as roads through the Greenbelt. Projects received 0 points where a widening would be expected to have a notable negative impact on adjacent properties and land uses. Most projects scored 4 points.
  - **Support for transit (score out of 5):** This metric assigns up to 5 points to indicate the degree to which the project supports transit. Road projects that are fully integrated with new transit infrastructure scored 5 points, while projects that improve conditions for transit in mixed traffic scored 3 points. Projects that have limited or no benefit to transit travel times scored 1 or 0.
  - **Goods movement & economic development (score out of 4):** This measures a project's importance to moving goods as a function of the number of trucks using the corridor (from the travel demand forecasting model) and a qualitative assessment of the importance of the corridor to the movement of goods.

- **Cost (score out of 20):** This metric assigns points based on the total estimated cost of a project, relative to (normalized against) other projects. Lower cost projects received high scores than higher cost projects.

The above criteria were used to assess the overall performance of projects in the Needs-Based Network, and the highest ranked projects became part of the Priority Network.

Phasing – Road Capacity Projects

Scoring and phasing are closely related, in that projects with the highest score are most likely to be assigned an earlier phase of implementation. However, the prioritization framework is unable to capture every nuance that might inform project phasing. As such, the recommended phasing considers local conditions, availability and capacity of parallel routes, anticipated development timing, and other factors affecting project urgency.

While the City intends to generally pursue projects in the order listed, there may be cases where implementation is delayed or advanced, for example, due to coordination opportunities, property requirements, project readiness, or funding opportunities from other levels of government. Further, the City intends to review the project prioritization every five years, in line with the TMP Part 1 direction for the Capital Infrastructure Plan to be dynamic with respect to the implementation of projects, with flexibility to shift priorities if external factors affect planned growth or mobility.

Exhibit 3.4 provides a summary of the projects in the Priority Road Network, including their cost, phase, and prioritization score. Although total scores are out of 100, the actual scores range between 30 and 70 as the scoring methodology and framework make it difficult to receive a high score (for example, projects generally received points for either access to development OR congestion reduction). The scores do not reflect the need for the project, as all projects in the Needs-Based Network are important and necessary for meeting travel needs to 2046. Instead, the scores reflect the priority of each project relative to the other projects in the Needs-Based Network. Scores between 40 and 60 indicate projects with the greatest benefit which should be implemented as a high priority.

The estimated costs for projects in the Needs-Based Network presented in the table are for capital costs, including design, engineering and contingencies. Lifecycle costs will be captured in the final TMP, so that they can be accounted for in the City's long-range financial planning.

A map of the Priority Road Network is presented in **Exhibit 3.5**, while prioritization scores for all projects in the Needs-Based Road Network are provided in **Appendix B**.

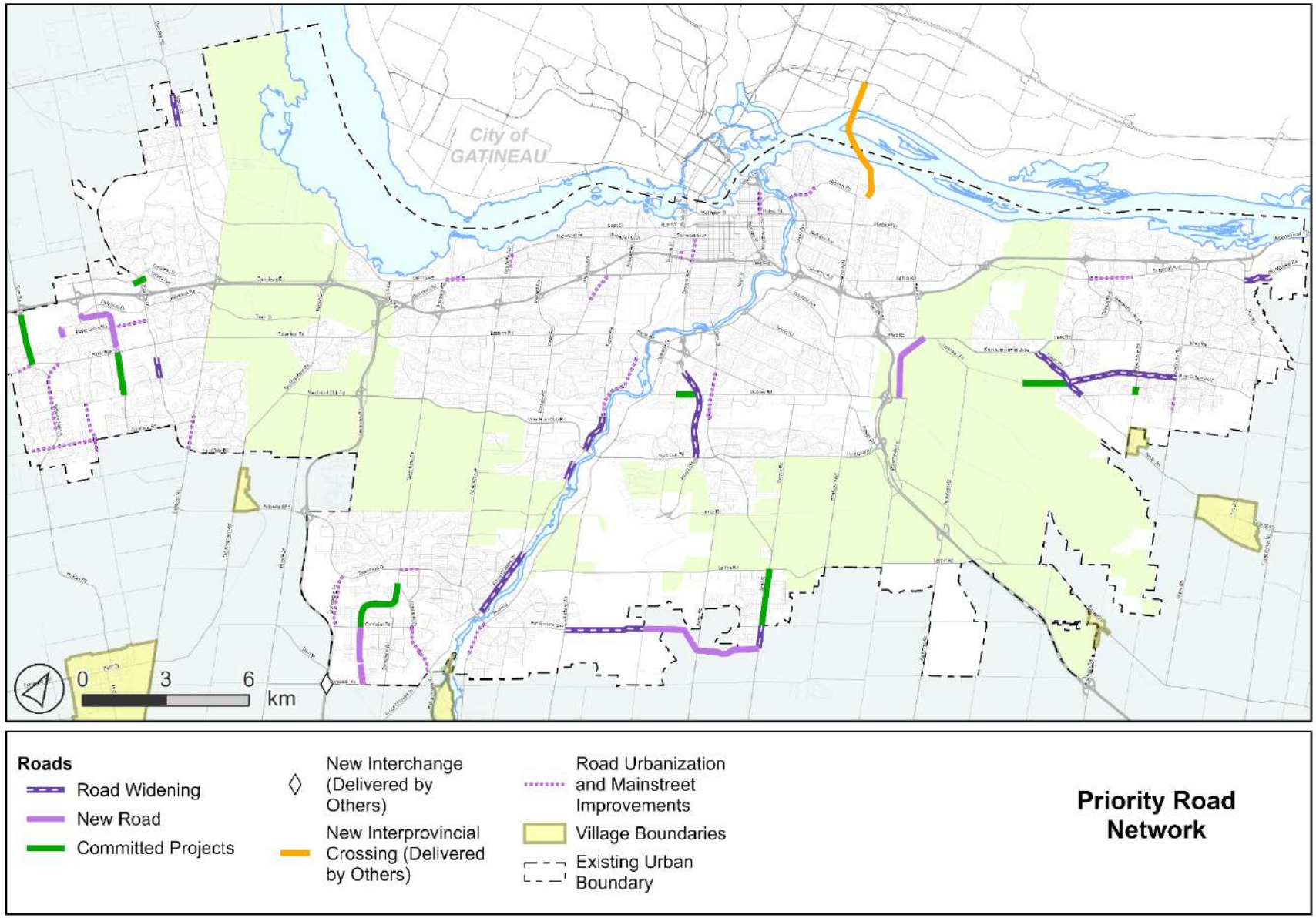
Exhibit 3.4: Priority Road Network - Costing, Phasing, and Prioritization Scores[7]

Project Name	Description	Cost ($M)	Phase	Score
Stittsville Main Street Extension (Maple Grove to Derreen)	New north-south collector road between Maple Grove Road and Derreen Avenue, connecting to the new east-west road delivered through development	8.0	1	66.4
Greenbank Road Re-Alignment (Cambrian to Kilbirnie)	New road (two lanes) connecting Cambrian Road to Kilbirnie Drive	33.0	1	62.3
Robert Grant Extension (Palladium to Hazeldean)	New two-lane road between Palladium Drive and Hazeldean Road	88.4	1	54.9
Prince of Wales Drive (Deakin to Amberwood)	Widen from two to four lanes from ~200 m south of Deakin Street to Amberwood Crescent.	31.2	1	47.5
Brian Coburn Boulevard (Mer-Bleue to Tenth Line)	Widen from two to four lanes between Mer-Bleue Road and Tenth Line Road	42.3	1	44.6
Terry Fox Drive (Winchester to Castlefrank)	Widen from two to four lanes between Winchester Drive and Castlefrank Road	34.0	1	42.3
Earl Armstrong Road Extension (Bowesville Station to Bank)	New/upgraded two-lane road between Bowesville Station and Bank Street	98.0	1	42.1
Airport Parkway (Brookfield to Hunt Club)	Widen from two to four lanes between Brookfield Road and Hunt Club Road. This project is needed even with O-Train Line 2 to accommodate significant growth in Riverside South and Findlay Creek.	89.0	1	40.8
Innes-Walkley Link	New two-lane road between Innes Road and Walkley Road; included in phase 1 due to importance, despite high cost	110.0	1	37.2

[7] Phasing of projects primarily considered project scores. Other considerations included the phasing of development and factors such as implementation readiness, the implementation timelines of other projects, and project urgency.

Project Name	Description	Cost ($M)	Phase	Score
Greenbank Road Re-Alignment (Kilbirnie to Barnsdale)	New road (two lanes) between Kilbirnie Road and Barnsdale Road; included in phase 2 because it primarily supports Future Neighbourhoods which are in the early stages of planning	20.0	2	41.4
Prince of Wales Drive (Colonnade to Hunt Club)	Widen from two to four lanes from Colonnade Road to West Hunt Club Road	81.0	2	40.5
Prince of Wales Drive (Merivale to Barnstone)	Widen from two to four lanes between Merivale Road and Barnstone Drive	91.6	2	39.6
Navan Road (Renaud to Blackburn Hamlet Bypass)	Widen from two lanes to four lanes between existing Renaud Road and Blackburn Hamlet Bypass	96.0	2	38.3
Brian Coburn Boulevard (Navan to Mer-Bleue)	Widen from two to four lanes between Navan Road and Mer Bleue Road	72.1	2	38.2
March Road (Maxwell Bridge to Buckbean)	Widen from two to four lanes between Maxwell Bridge and Buckbean Avenue	48.0	2	36.1
Old Montreal Road (Trim to Famille-Laporte)	Widen from two to four lanes between Trim Road and Famille-Laporte Avenue	30.0	2	35.6
Bank Street (Blais to Earl Armstrong Extension)	Widen from two to four lanes between Blais Road and Earl Armstrong Road Extension	35.2	2	35.2
Earl Armstrong Road Widening (Limebank to Bowesville)	Widen from two to four lanes between Limebank Road and Bowesville Road	85.0	2	33.2

Exhibit 3.5: Priority Road Networks



ANNEX J

UPDATED TRANS TRIP GENERATION

Annex J: An Alternative Approach to Traffic Generation

In June 2021, the City of Ottawa Traffic Impact Assessment Guidelines were updated and directed that the 2020 TRANS Trip Generation Manual Summary Report[1] be used to establish the traffic generation for residential land uses. Mode share (motor-vehicles, motor-vehicle passengers, transit, cycling and walking trips) proportions for both residential and non-residential land uses were provided.

The approach incorporates the use of the City of Ottawa's origin-destination survey results and specifies the peak period (3 Hr) travel demands in terms of person trips for and then provides factors to convert these values to morning and afternoon peak hour results while further disaggregating the trips by specific types of dwellings.[2]

A. Residential Traffic Generation

The 2020 TRANS Trip Generation Manual Summary Report[3] was referenced to determined updated generation rates for the residential component of the Trailsedge Phase 4 development for both 2031 and 2036 horizon years. Table J-1 shows the calculations for converting residential units into auto driver (vehicle) trips.

Table J-1: Generated Traffic (Trailsedge Phase 4)
Person Trips

Residential Land Use	No. of Residential Units	Peak Period Rates		Peak Period Trips		Peak Hour Conversion		Peak Hour Trips		Peak Hour Vehicle Trips (Auto Driver)			
										Rate per Unit		Resulting Trips	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
2031													
Singles	36 Units	2.05	2.48	74	89	0.5	0.44	37	39	0.48	0.54	**18**	**21**
Multi-Unit (Low Rise)	118 Units	1.35	1.58	159	186			80	82	0.47	0.51	**37**	**42**
2036													
Singles	32 units	2.05	2.48	66	79	0.5	0.44	33	35	0.48	0.54	**16**	**19**
Multi-Unit (Low Rise)	154 Units	1.35	1.58	208	243			104	107	0.47	0.51	**49**	**55**

Table J-2 takes those trips and provides the appropriate directional splits (inbound and outbound traffic).

Table J-2 shows that when using the TRANS method, the calculated trips generated are significantly lower than just relying on the ITE manual.

Table J-2: Peak Hour Vehicles Trip Generation
(Trailsedge Phase 4) (Vehicle-per-hour)

Land Use	Size	AM PEAK HOUR			PM PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Present-2031							
Singles	36 Units	5	12	**17**	13	8	**21**
Multi-Unit (Low Rise)	118 Units	12	27	**39**	24	18	**42**
TOTAL		**17**	**39**	**55**	**37**	**26**	**63**
2031-2036							
Singles	32 units	5	11	**16**	12	7	**19**
Multi-Unit (Low Rise)	154 Units	14	34	**49**	30	24	**54**
TOTAL		**19**	**45**	**65**	**42**	**31**	**73**
TOTAL AT 2036							
TOTAL		**36**	**84**	**120**	**79**	**58**	**137**
Previous ITE Totals		**47**	**138**	**185**	**136**	**91**	**227**

1 *"TRANS Trip Generation Manual" Summary Report, December 2020*
2 Ibid, Table 3: Recommended Residential Person Trip Rates
3 Ibid, Tables 4-through-9

B. Non-Residential Traffic Generation

The 2020 TRANS Trip Generation Manual Summary Report[4] does not provide peak period person trip rates for non-residential lands uses. This report[5] specifies individual non-residential commercial buildings and land uses which remain to be confirmed. Instead, an alternative approach is outlined below which applies a general "shopping plaza" rate. The two proposed drive-through facilities; one proposed for the 2031 horizon year and the other for the 2036 horizon year, were addressed separately from the rest of the commercial plaza.

Table J-3 provides updated traffic generation estimates for the proposed commercial plaza. A 15 percent additional reduction was applied to account for internalization and walking trips between the adjacent Trailsedge Phase 4 residential community. A 50 percent reduction factor was applied to the drive thru facilities that was referenced from the Institute of Transportation ITE Pass-By information.[6] The table indicates that this method provided a considerable reduction in trips generate.

Table J-3: Updated Commercial Traffic Generation

Commercial Land Use	ITE Code	GFA (ft^2)	AM			PM		
			IN	OUT	Total	IN	OUT	Total
Generation from Phase 1 (2031)								
Shopping Plaza (40-150k)	821	53,090	116	71	187	230	249	479
15 % reduction			99	60	159	196	212	407
Fast Food with Drive Through	934	3,500	92	85	177	91	87	178
50 % pass-by trips			46	43	89	46	44	89
TOTAL		**56,590**	**145**	**103**	**247**	**241**	**255**	**496**
Additional Generation from Phase 2 (2036)								
Shopping Plaza (40-150k)	821	35,170	38	23	61	89	94	183
15 % reduction			32	20	52	76	80	156
Fast Food with Drive Through	934	2,500	66	60	126	65	62	127
50 % pass-by trips			33	30	63	33	31	64
TOTAL		**37,670**	**65**	**50**	**115**	**108**	**111**	**219**
Full Buildout (2036)								
TOTAL		**94,260**	**210**	**152**	**362**	**349**	**366**	**715**
Previous Total			**405**	**363**	**768**	**482**	**475**	**957**

The updated trips determined to be generated by Trailsedge Phase 4 and the commercial development were reallocated onto the surrounding road network, using the same directional splits as within the addendum documents.

The focus of this updates analysis was the Mer Bleue Road / Brian Coburn Boulevard roundabout, as it had the majority of upgrade requirements within the study horizons. All other intersections required negligible improvements, or the improvements are already part of dedicated City of Ottawa project.

4 Ibid, Tables 3-through-9

5 "*Addendum No 2: 2226 Mer Bleue Road Proposed Commercial Plaza"*, Orleans, Ottawa, Richcraft Homes", June 17th, 2025

6 "*ITE Trip Gen Appendices Pass-By Data and Rate Tables*", 2021

Exhibit J-1 shows the traffic volume diagrams for the Mer Bleue Road / Brian Coburn Boulevard roundabout for the 2031- and 2036-time horizons.

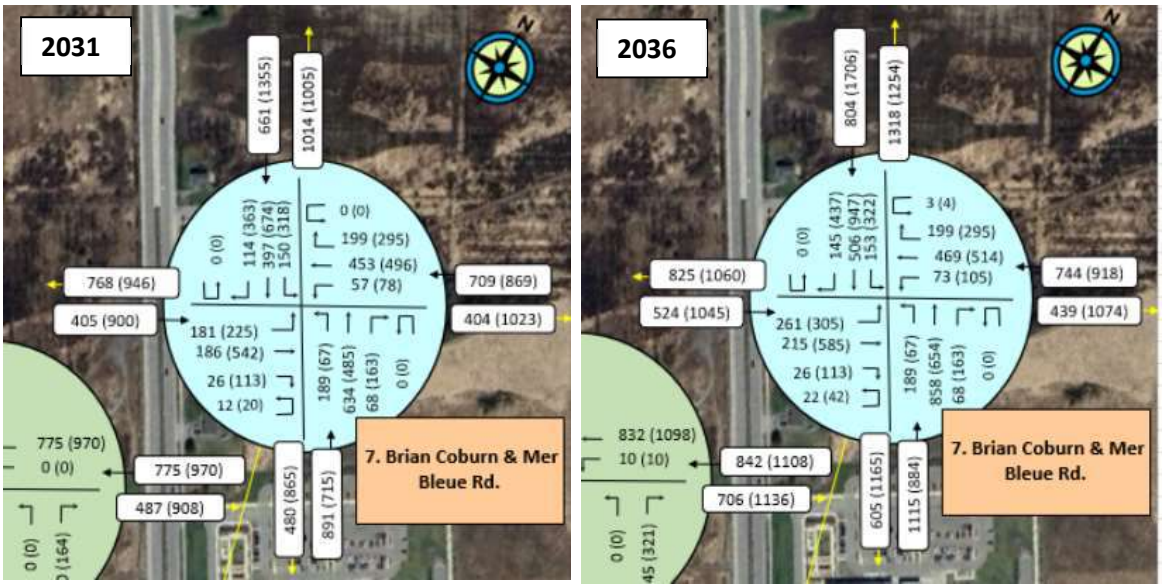


Exhibit J-1: Traffic Volume Diagrams
Mer Bleue Road / Brian Coburn Boulevard Roundabout

Traffic operational analysis was undertaken utilizing SIDRA^{TM} analysis software to simulate the busiest 15-minute-period of the overall morning and afternoon peak hours of travel demand. The SIDRA analysis and roundabout configuration are presented at the end of this annex. Analysis of the roundabout with the updated volumes determined the following:

2031 Horizon Year:

The roundabout still exhibits failures under the existing configuration. Upon review, the previously suggested configuration is still required, as removal of these improvements increases the v/c ratios beyond the acceptable 0.9 threshold.

The configuration illustrated is required by 2031.

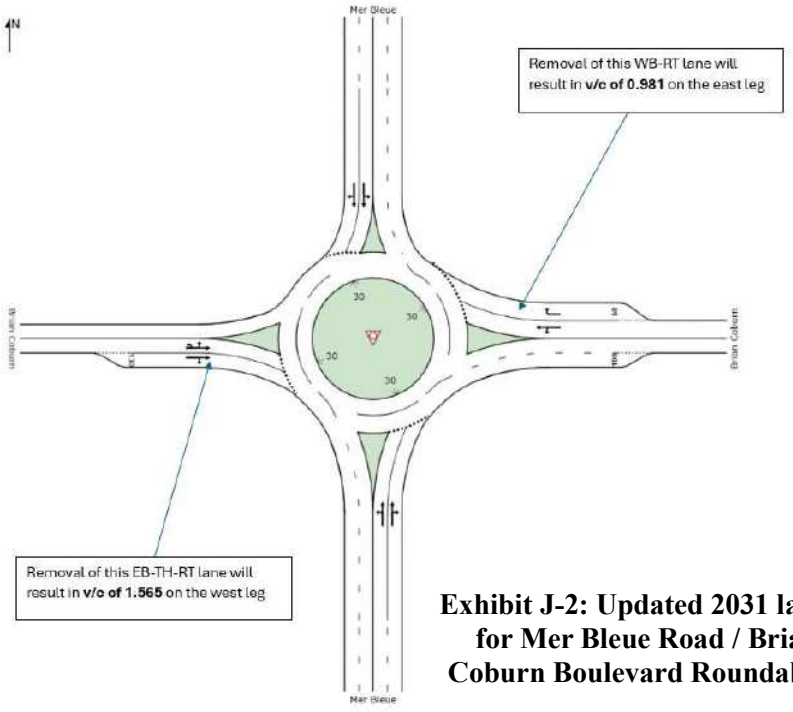


Exhibit J-2: Updated 2031 layout for Mer Bleue Road / Brian Coburn Boulevard Roundabout

2036 Horizon Year:

The updated 2036 volumes at the Mer Bleue Road / Brian Coburn Boulevard roundabout did allow for removal of the eastbound right-turn lane. The southbound right-turn lane remains necessary but should be phased in when the lands at the north-west quadrant of the roundabout are developed.

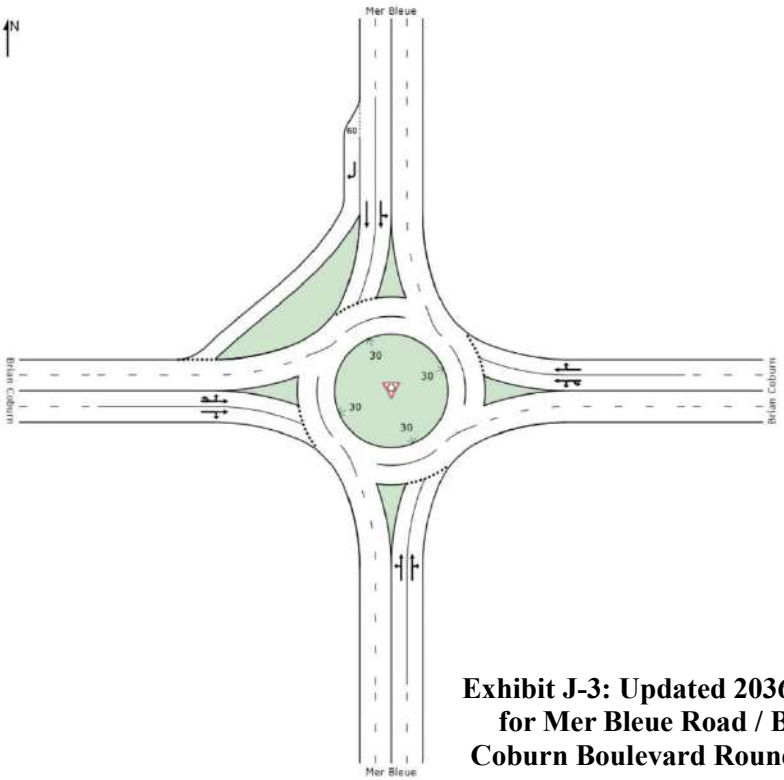


Exhibit J-3: Updated 2036 layout for Mer Bleue Road / Brian Coburn Boulevard Roundabout

Conclusion:

The updated analysis, using the City of Ottawa's preferred TRANS Trip Generation Manual, determined the following:

For the 2031 Horizon Year:

- Although there was a significant reduction in anticipated generated traffic from the Trailsedge Phase 4 and commercial development, the improvements required for the Mer Bleue Road/Brian Coburn Boulevard roundabout to ensure satisfactory traffic operations remain unchanged. Using the existing configuration, the v/c ratios of the east and west approach are well beyond the acceptable 0.9. It should be recalled that the existing roundabout configuration was found to exhibit failures under existing 2024 travel demands.

For the 2036 Horizon Year:

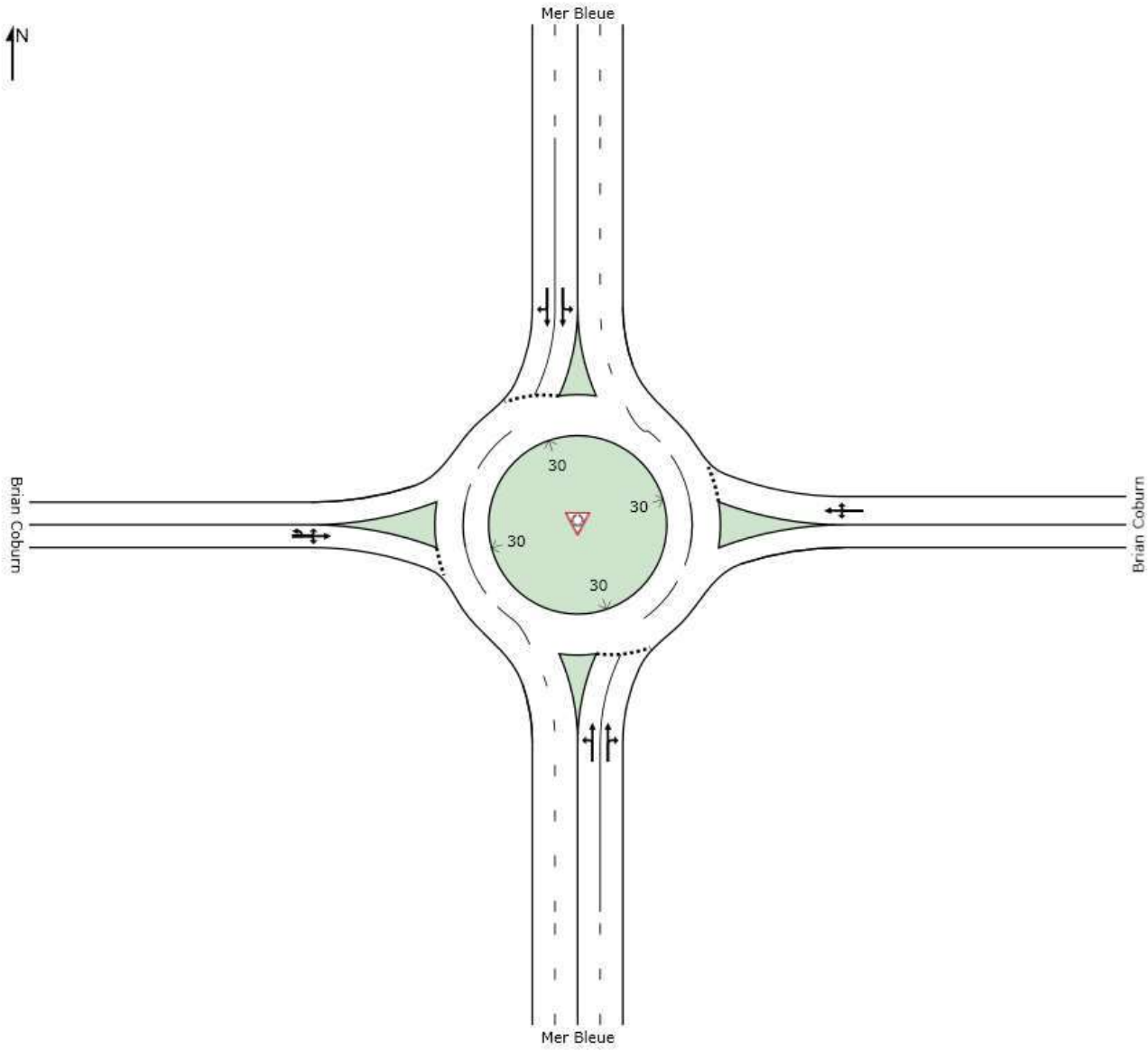
- The Mer Bleue Road/Brian Coburn Boulevard roundabout was found to continue to require 2 complete circulating lanes, and Brian Coburn Boulevard requires 4-laning (at least in the immediate vicinity of the roundabout).
- The southbound right turn slip lane was still found to be a requirement associated with the development of the lands in the northwest quadrant of the roundabout which is beyond the timefame of this analysis.
- However, the previously recommended eastbound right turn slip lane in the south-west quadrant of the roundabout was determined to no longer be required when the TRANS Trip Generation Manual approach to traffic generation was applied.

UPDATED SIDRA ANALYSIS

Mer Bleue Road / Brian Coburn Boulevard Roundabout

Intersection #7 - Brian Coburn / Mer Bleue – 2031 Layout [2-lane BCB without auxiliary right turn lanes]

2031 horizon year



LANE SUMMARY

Site: Future 2031 AM - BCB/Mer Bleue - June 10 TRANS Model volumes

AM PEAK 2031
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	382	3.0	924	0.413	100	9.6	LOS A	2.3	18.3	Full	500	0.0	0.0
Lane 2[d]	509	3.0	1232	0.413	100	5.8	LOS A	2.4	19.0	Full	500	0.0	0.0
Approach	891	3.0		0.413		7.4	LOS A	2.4	19.0				
East: Brian Coburn													
Lane 1[d]	709	3.0	799	0.887	100	11.0	LOS B	6.9	53.4	Full	500	0.0	0.0
Approach	709	3.0		0.887		11.0	LOS B	6.9	53.4				
North: Mer Bleue													
Lane 1	275	3.0	763	0.361	100	10.3	LOS B	1.9	14.6	Full	500	0.0	0.0
Lane 2[d]	386	3.0	1070	0.361	100	5.9	LOS A	2.0	15.6	Full	500	0.0	0.0
Approach	661	3.0		0.361		7.7	LOS A	2.0	15.6				
West: Brian Coburn													
Lane 1[d]	405	3.0	806	0.502	100	10.1	LOS B	2.7	21.2	Full	500	0.0	0.0
Approach	405	3.0		0.502		10.1	LOS B	2.7	21.2				
Intersection	2666	3.0		0.887		8.9	LOS A	6.9	53.4				

LANE SUMMARY

Site: Future 2031 PM - BCB/Mer Bleue - June 10 TRANS Model volumes

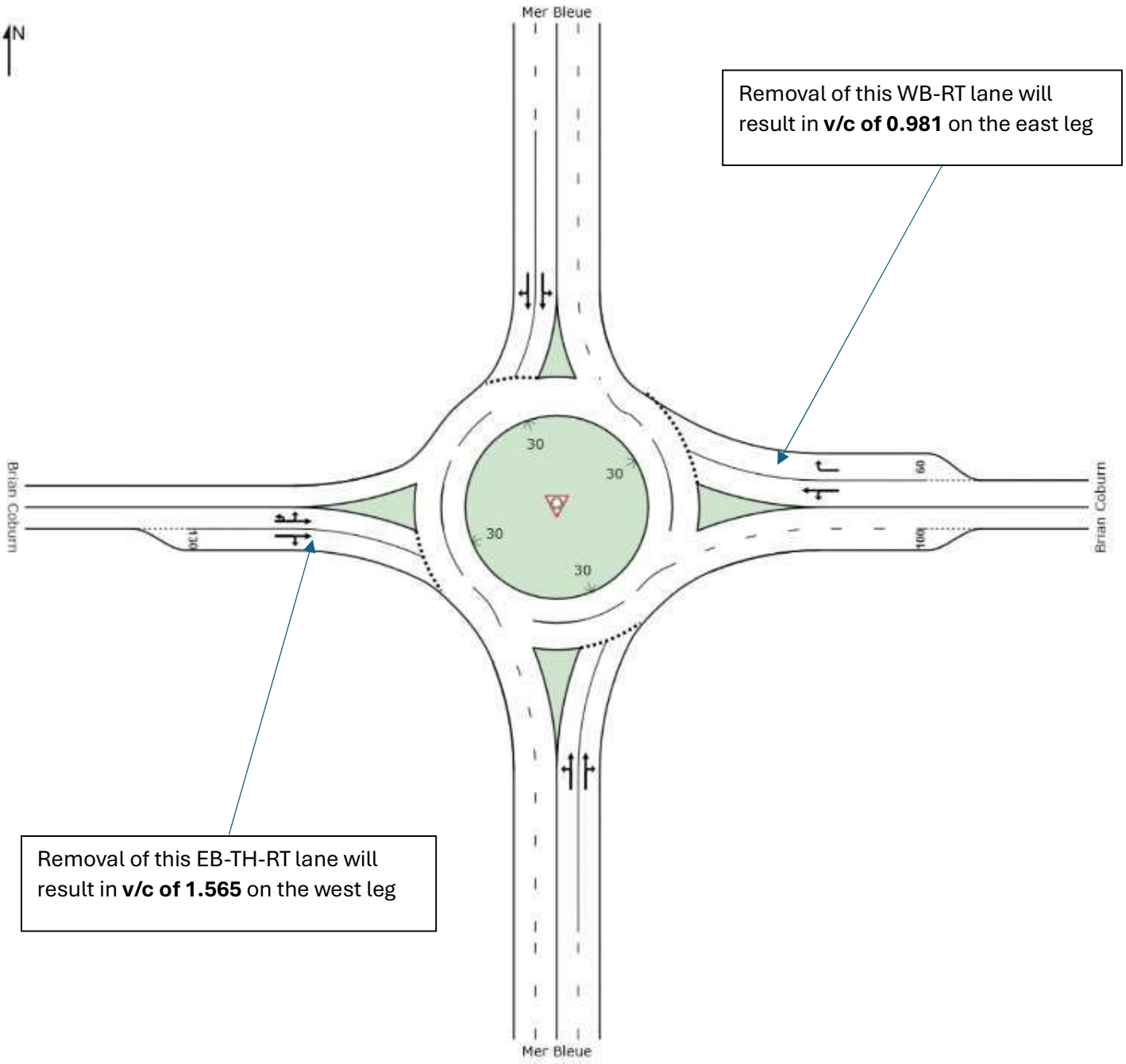
PM PEAK 2031
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	293	3.0	710	0.413	100	9.1	LOS A	2.2	17.2	Full	500	0.0	0.0
Lane 2[d]	422	3.0	1021	0.413	100	6.3	LOS A	2.4	18.7	Full	500	0.0	0.0
Approach	715	3.0		0.413		7.5	LOS A	2.4	18.7				
East: Brian Coburn													
Lane 1[d]	869	3.0	908	0.957	100	14.6	LOS B	12.6	98.1	Full	500	0.0	0.0
Approach	869	3.0		0.957		14.6	LOS B	12.6	98.1				
North: Mer Bleue													
Lane 1	569	3.0	757	0.752	100	14.2	LOS B	7.0	54.3	Full	500	0.0	0.0
Lane 2[d]	786	3.0	1046	0.752	100	8.8	LOS A	7.8	61.0	Full	500	0.0	0.0
Approach	1355	3.0		0.752		11.1	LOS B	7.8	61.0				
West: Brian Coburn													
Lane 1[d]	900	3.0	555	1.621	100	292.1	LOS F	117.5	915.6	Full	500	0.0	27.5
Approach	900	3.0		1.621		292.1	LOS F	117.5	915.6				
Intersection	3839	3.0		1.621		77.1	LOS E	117.5	915.6				

Intersection #7 - Brian Coburn / Mer Bleue – 2031 Layout [2-lane BCB (3 lanes through the roundabout – 2 EB and 1 WB]

2031 horizon year



LANE SUMMARY

Site: Future 2031 AM - BCB/Mer Bleue - 2 EB lanes, 2 WB approach lanes and 1 WB egress June 10 TRANS Model

AM PEAK 2031
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	411	3.0	928	0.442	100	9.2	LOS A	2.2	17.1	Full	500	0.0	0.0
Lane 2[d]	480	3.0	1085	0.442	100	6.0	LOS A	2.2	17.5	Full	500	0.0	0.0
Approach	891	3.0		0.442		7.5	LOS A	2.2	17.5				
East: Brian Coburn													
Lane 1[d]	510	3.0	1041	0.490	100	6.5	LOS A	2.0	15.6	Full	500	0.0	0.0
Lane 2	199	3.0	738	0.270	100	6.2	LOS A	0.8	6.3	Short	60	0.0	NA
Approach	709	3.0		0.490		6.4	LOS A	2.0	15.6				
North: Mer Bleue													
Lane 1	275	3.0	807	0.341	100	10.2	LOS B	1.7	12.9	Full	500	0.0	0.0
Lane 2[d]	386	3.0	1132	0.341	100	5.9	LOS A	1.8	13.8	Full	500	0.0	0.0
Approach	661	3.0		0.341		7.7	LOS A	1.8	13.8				
West: Brian Coburn													
Lane 1[d]	261	3.0	1016	0.256	100	10.0	LOS B	1.1	8.4	Full	500	0.0	0.0
Lane 2	144	3.0	790	0.182	71[6]	6.2	LOS A	0.7	5.4	Short	130	0.0	NA
Approach	405	3.0		0.256		8.7	LOS A	1.1	8.4				
Intersection	2666	3.0		0.490		7.4	LOS A	2.2	17.5				

LANE SUMMARY

Site: Future 2031 PM - BCB/Mer Bleue - 2 EB lanes, 2 WB approach lanes and 1 WB egress June 10 TRANS Model

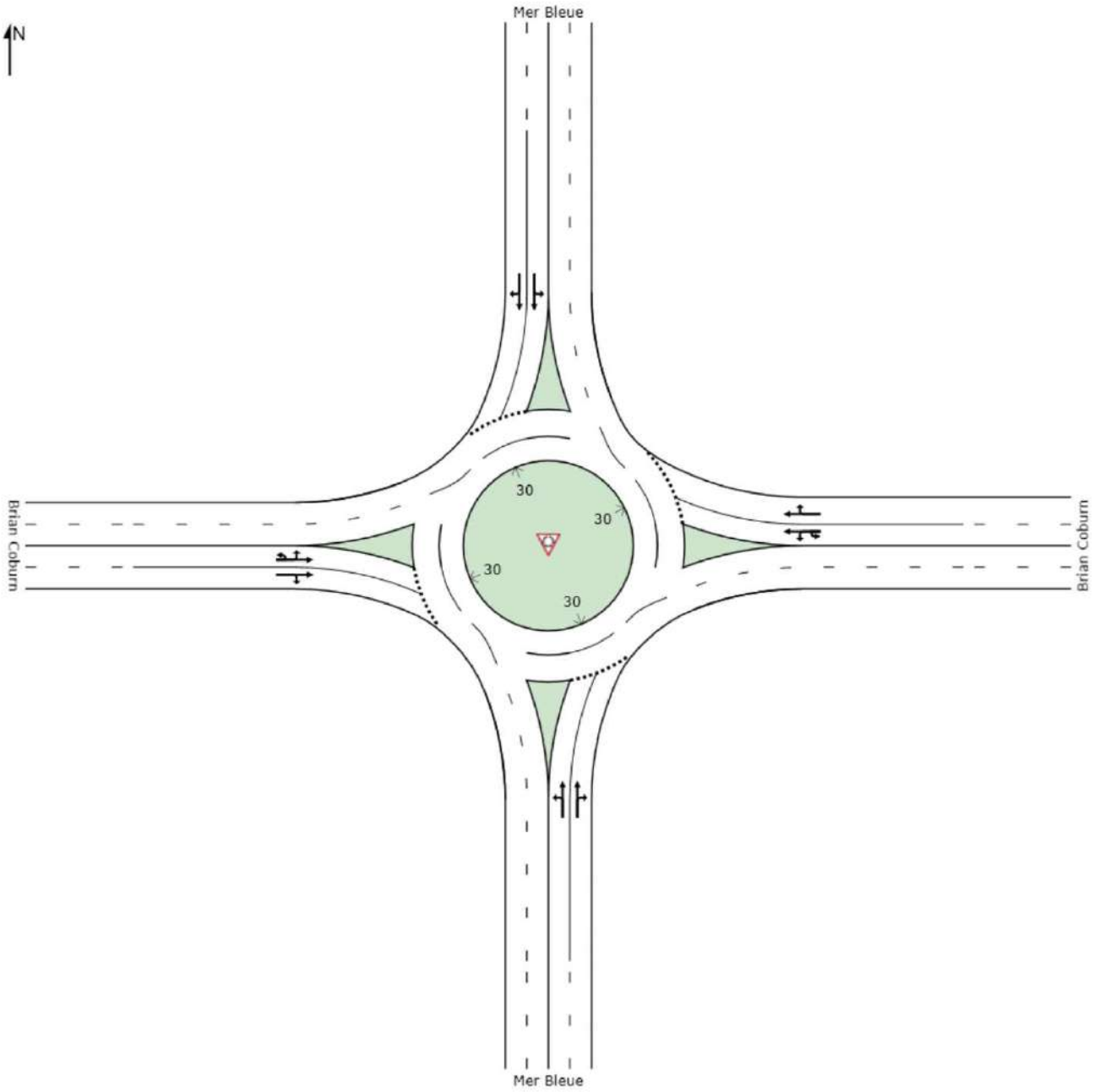
PM PEAK 2031
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	306	3.0	597	0.513	100	9.8	LOS A	2.4	18.3	Full	500	0.0	0.0
Lane 2[d]	409	3.0	796	0.513	100	7.2	LOS A	2.5	19.7	Full	500	0.0	0.0
Approach	715	3.0		0.513		8.3	LOS A	2.5	19.7				
East: Brian Coburn													
Lane 1[d]	574	3.0	1105	0.519	100	6.1	LOS A	2.3	17.8	Full	500	0.0	0.0
Lane 2	295	3.0	849	0.348	100	5.9	LOS A	1.2	9.1	Short	60	0.0	NA
Approach	869	3.0		0.519		6.0	LOS A	2.3	17.8				
North: Mer Bleue													
Lane 1	568	3.0	823	0.691	100	13.1	LOS B	5.7	44.4	Full	500	0.0	0.0
Lane 2[d]	787	3.0	1139	0.691	100	7.6	LOS A	6.3	49.0	Full	500	0.0	0.0
Approach	1355	3.0		0.691		9.9	LOS A	6.3	49.0				
West: Brian Coburn													
Lane 1[d]	598	3.0	763	0.784	100	12.0	LOS B	5.5	43.1	Full	500	0.0	0.0
Lane 2	302	3.0	542	0.558	71[6]	9.1	LOS A	2.7	20.9	Short	130	0.0	NA
Approach	900	3.0		0.784		11.0	LOS B	5.5	43.1				
Intersection	3839	3.0		0.784		9.0	LOS A	6.3	49.0				

Intersection #7 - Brian Coburn / Mer Bleue – 2036 Layout [4-lane BCB without auxiliary right turn lanes]

2036 horizon year



LANE SUMMARY

Site: Future 2036 AM - 4-lane BCB/Mer Bleue v2 June 10 TRANS Model volumes

AM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	507	3.0	846	0.598	100	10.1	LOS B	3.6	28.2	Full	500	0.0	0.0
Lane 2[d]	608	3.0	1017	0.598	100	7.2	LOS A	3.8	29.5	Full	500	0.0	0.0
Approach	1115	3.0		0.598		8.5	LOS A	3.8	29.5				
East: Brian Coburn													
Lane 1	314	3.0	630	0.499	100	9.0	LOS A	2.0	15.4	Full	500	0.0	0.0
Lane 2[d]	430	3.0	861	0.499	100	6.4	LOS A	2.1	16.6	Full	500	0.0	0.0
Approach	744	3.0		0.499		7.5	LOS A	2.1	16.6				
North: Mer Bleue													
Lane 1	361	3.0	779	0.463	100	9.8	LOS A	2.2	17.4	Full	500	0.0	0.0
Lane 2[d]	443	3.0	958	0.463	100	6.5	LOS A	2.3	18.2	Full	500	0.0	0.0
Approach	804	3.0		0.463		8.0	LOS A	2.3	18.2				
West: Brian Coburn													
Lane 1[d]	288	3.2	955	0.301	100	11.8	LOS B	1.3	9.8	Full	500	0.0	0.0
Lane 2	236	3.0	783	0.301	100	6.5	LOS A	1.2	9.4	Full	500	0.0	0.0
Approach	524	3.1		0.301		9.4	LOS A	1.3	9.8				
Intersection	3187	3.0		0.598		8.3	LOS A	3.8	29.5				

LANE SUMMARY

Site: Future 2036 PM - 4-lane BCB/Mer Bleue v2 June 10 TRANS Model volumes

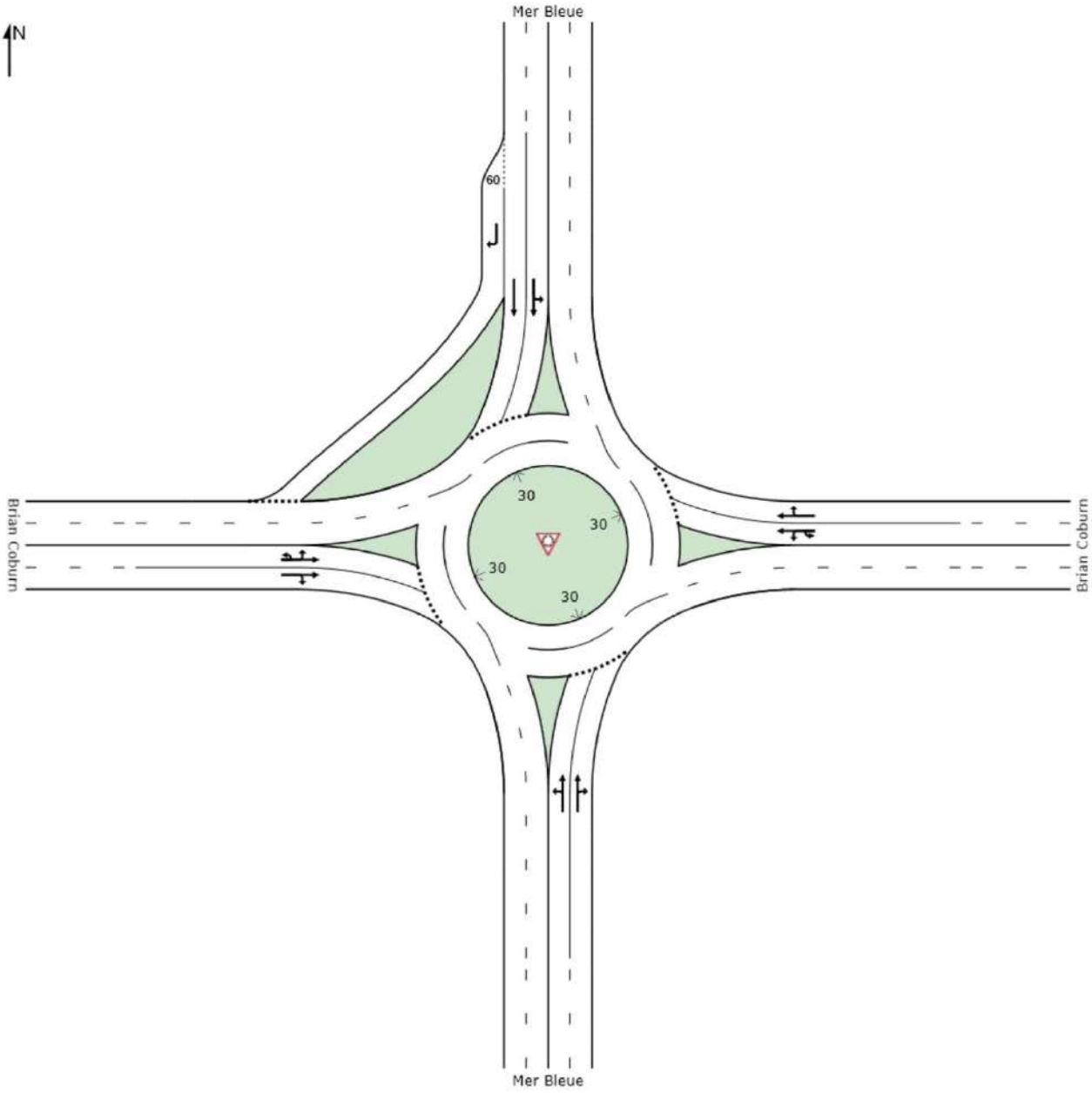
PM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	371	3.0	514	0.722	100	12.0	LOS B	3.9	30.1	Full	500	0.0	0.0
Lane 2[d]	513	3.0	711	0.722	100	8.8	LOS A	4.3	33.4	Full	500	0.0	0.0
Approach	884	3.0		0.722		10.1	LOS B	4.3	33.4				
East: Brian Coburn													
Lane 1	396	3.0	619	0.639	100	11.1	LOS B	3.4	26.3	Full	500	0.0	0.0
Lane 2[d]	523	3.0	818	0.639	100	7.9	LOS A	3.7	28.5	Full	500	0.0	0.0
Approach	918	3.0		0.639		9.3	LOS A	3.7	28.5				
North: Mer Bleue													
Lane 1	768	3.0	769	0.998	100	30.3	LOS C	19.1	149.0	Full	500	0.0	0.0
Lane 2[d]	938	3.0	941	0.998	100	25.0	LOS C	21.5	167.4	Full	500	0.0	0.0
Approach	1706	3.0		0.998		27.4	LOS C	21.5	167.4				
West: Brian Coburn													
Lane 1	430	3.2	435	0.989	100	34.9	LOS C	10.1	78.6	Full	500	0.0	0.0
Lane 2[d]	615	3.0	621	0.989	100	24.7	LOS C	12.1	94.1	Full	500	0.0	0.0
Approach	1045	3.1		0.989		28.9	LOS C	12.1	94.1				
Intersection	4553	3.0		0.998		20.7	LOS C	21.5	167.4				

Intersection #7 - Brian Coburn / Mer Bleue – 2036 Layout [with auxiliary SB-RT right turn lane]

2036 horizon year – with SB-RT



LANE SUMMARY

Site: Future 2036 AM - 4-lane BCB/Mer Bleue v2 June 10 TRANS Model volumes - SB-RT added

AM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	507	3.0	848	0.597	100	10.1	LOS B	3.6	28.1	Full	500	0.0	0.0
Lane 2[d]	608	3.0	1019	0.597	100	7.2	LOS A	3.8	29.3	Full	500	0.0	0.0
Approach	1115	3.0		0.597		8.5	LOS A	3.8	29.3				
East: Brian Coburn													
Lane 1	314	3.0	630	0.499	100	9.0	LOS A	2.0	15.4	Full	500	0.0	0.0
Lane 2[d]	430	3.0	861	0.499	100	6.4	LOS A	2.1	16.6	Full	500	0.0	0.0
Approach	744	3.0		0.499		7.5	LOS A	2.1	16.6				
North: Mer Bleue													
Lane 1	276	3.0	909	0.303	100	9.3	LOS A	1.2	9.6	Full	500	0.0	0.0
Lane 2[d]	383	3.0	1264	0.303	100	5.4	LOS A	1.3	10.4	Full	500	0.0	0.0
Lane 3	145	3.0	1300	0.112	37[5]	5.0	LOS A	0.4	3.3	Short	60	0.0	NA
Approach	804	3.0		0.303		6.6	LOS A	1.3	10.4				
West: Brian Coburn													
Lane 1[d]	288	3.2	972	0.296	100	11.8	LOS B	1.2	9.5	Full	500	0.0	0.0
Lane 2	236	3.0	797	0.296	100	6.5	LOS A	1.2	9.1	Full	500	0.0	0.0
Approach	524	3.1		0.296		9.4	LOS A	1.2	9.5				
Intersection	3187	3.0		0.597		7.9	LOS A	3.8	29.3				

LANE SUMMARY

Site: Future 2036 PM - 4-lane BCB/Mer Bleue v2 June 10 TRANS Model volumes - SB-RT added

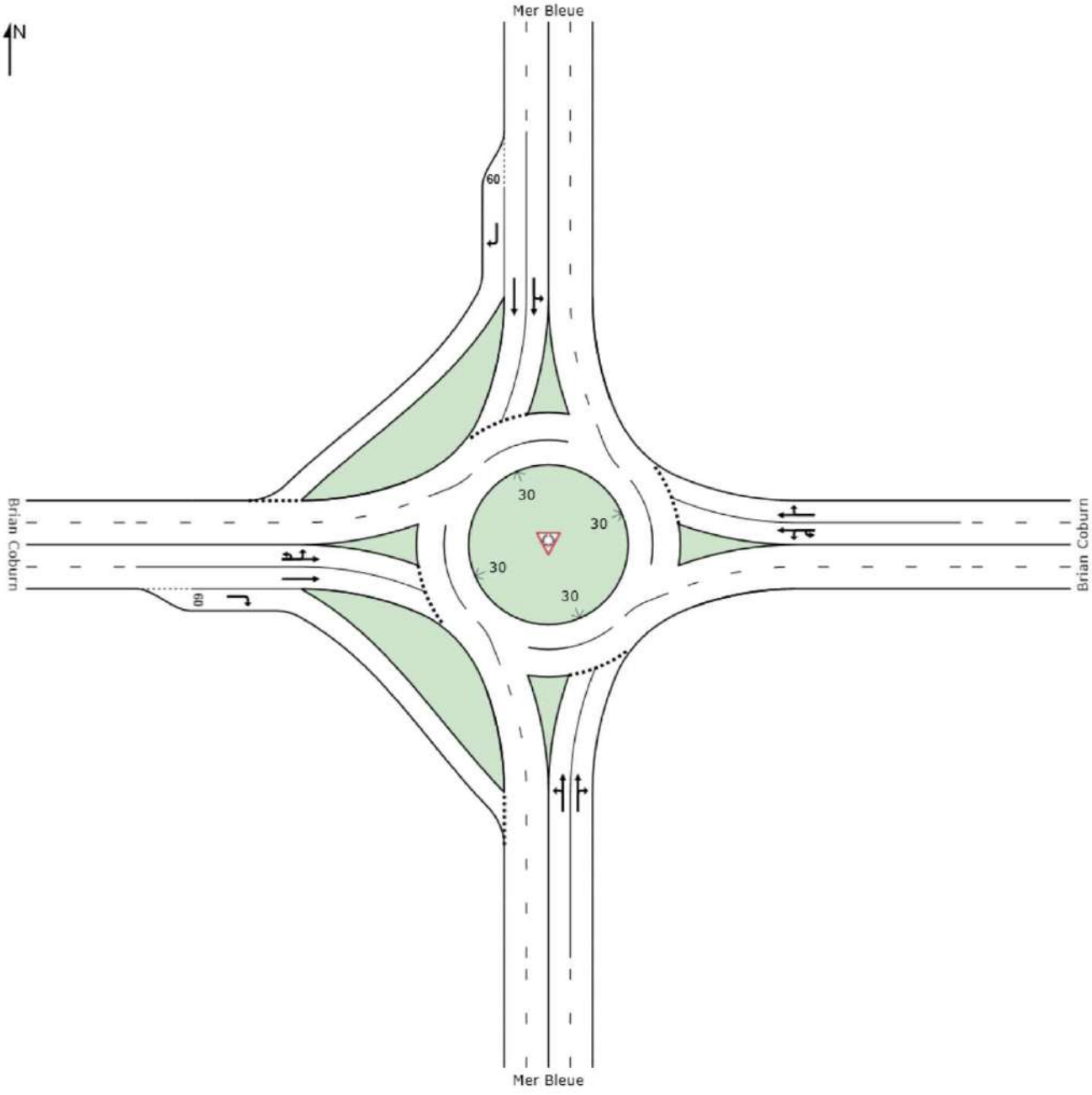
PM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	371	3.0	527	0.704	100	11.7	LOS B	3.7	28.8	Full	500	0.0	0.0
Lane 2[d]	513	3.0	729	0.704	100	8.6	LOS A	4.1	31.8	Full	500	0.0	0.0
Approach	884	3.0		0.704		9.9	LOS A	4.1	31.8				
East: Brian Coburn													
Lane 1	396	3.0	621	0.637	100	11.1	LOS B	3.4	26.1	Full	500	0.0	0.0
Lane 2[d]	523	3.0	821	0.637	100	7.9	LOS A	3.6	28.3	Full	500	0.0	0.0
Approach	918	3.0		0.637		9.3	LOS A	3.6	28.3				
North: Mer Bleue													
Lane 1	533	3.0	895	0.595	100	10.9	LOS B	3.6	28.4	Full	500	0.0	0.0
Lane 2[d]	736	3.0	1238	0.595	100	6.3	LOS A	4.0	31.0	Full	500	0.0	0.0
Lane 3	437	3.0	1293	0.338	57[5]	5.2	LOS A	1.6	12.6	Short	60	0.0	NA
Approach	1706	3.0		0.595		7.5	LOS A	4.0	31.0				
West: Brian Coburn													
Lane 1	430	3.2	496	0.867	100	20.4	LOS C	5.7	44.3	Full	500	0.0	0.0
Lane 2[d]	615	3.0	709	0.867	100	11.9	LOS B	6.4	50.1	Full	500	0.0	0.0
Approach	1045	3.1		0.867		15.4	LOS B	6.4	50.1				
Intersection	4553	3.0		0.867		10.1	LOS B	6.4	50.1				

Intersection #7 - Brian Coburn / Mer Bleue – 2036 Layout [with auxiliary SB-RT and EB-RT right turn lanes]

2036 horizon year – with SB-RT and EB-RT



LANE SUMMARY

Site: Future 2036 AM - 4-lane BCB/Mer Bleue v2 June 10 TRANS Model volumes - SB-RT and EB-RT added

AM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	507	3.0	854	0.593	100	10.1	LOS B	3.6	27.7	Full	500	0.0	0.0
Lane 2[d]	608	3.0	1025	0.593	100	7.1	LOS A	3.7	28.8	Full	500	0.0	0.0
Approach	1115	3.0		0.593		8.5	LOS A	3.7	28.8				
East: Brian Coburn													
Lane 1	314	3.0	632	0.497	100	9.0	LOS A	2.0	15.3	Full	500	0.0	0.0
Lane 2[d]	430	3.0	864	0.497	100	6.4	LOS A	2.1	16.5	Full	500	0.0	0.0
Approach	744	3.0		0.497		7.5	LOS A	2.1	16.5				
North: Mer Bleue													
Lane 1	276	3.0	909	0.303	100	9.3	LOS A	1.2	9.6	Full	500	0.0	0.0
Lane 2[d]	383	3.0	1264	0.303	100	5.4	LOS A	1.3	10.4	Full	500	0.0	0.0
Lane 3	145	3.0	1301	0.111	100	5.0	LOS A	0.4	3.3	Short	60	0.0	NA
Approach	804	3.0		0.303		6.6	LOS A	1.3	10.4				
West: Brian Coburn													
Lane 1[d]	289	3.2	1278	0.226	100	11.1	LOS B	0.9	7.2	Full	500	0.0	0.0
Lane 2	209	3.0	926	0.226	100	5.9	LOS A	0.9	6.8	Full	500	0.0	0.0
Lane 3	26	3.0	1348	0.019	100	4.9	LOS A	0.1	0.5	Short	60	0.0	NA
Approach	524	3.1		0.226		8.7	LOS A	0.9	7.2				
Intersection	3187	3.0		0.593		7.8	LOS A	3.7	28.8				

LANE SUMMARY

Site: Future 2036 PM - 4-lane BCB/Mer Bleue v2 June 10 TRANS Model volumes - SB-RT and EB-RT added

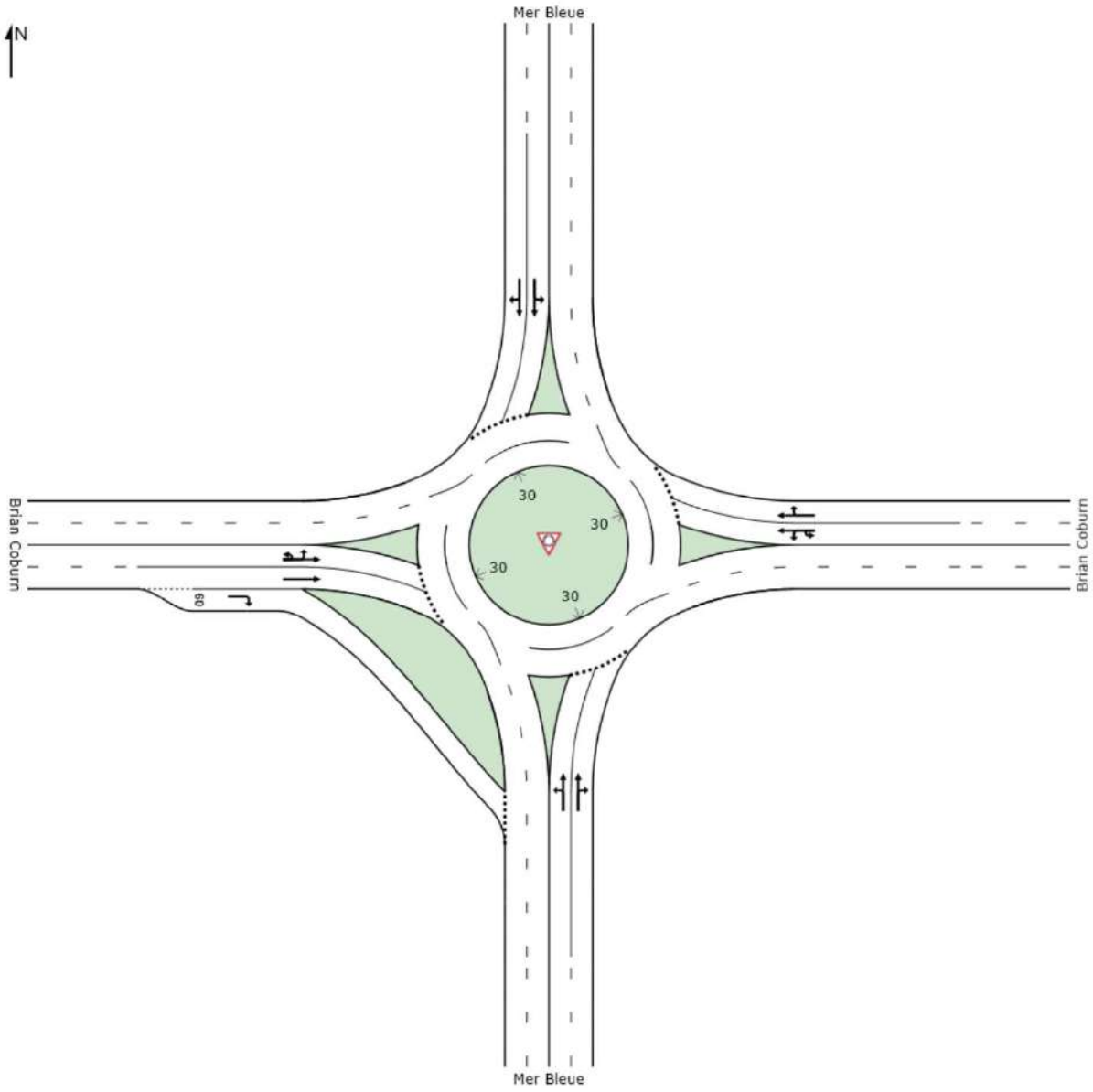
PM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	371	3.0	554	0.670	100	11.3	LOS B	3.4	26.4	Full	500	0.0	0.0
Lane 2[d]	513	3.0	766	0.670	100	8.3	LOS A	3.7	29.0	Full	500	0.0	0.0
Approach	884	3.0		0.670		9.6	LOS A	3.7	29.0				
East: Brian Coburn													
Lane 1	396	3.0	625	0.632	100	11.0	LOS B	3.3	25.8	Full	500	0.0	0.0
Lane 2[d]	523	3.0	827	0.632	100	7.9	LOS A	3.6	27.9	Full	500	0.0	0.0
Approach	918	3.0		0.632		9.2	LOS A	3.6	27.9				
North: Mer Bleue													
Lane 1	533	3.0	896	0.594	100	10.9	LOS B	3.6	28.3	Full	500	0.0	0.0
Lane 2[d]	736	3.0	1239	0.594	100	6.3	LOS A	4.0	31.0	Full	500	0.0	0.0
Lane 3	437	3.0	1294	0.338	100	5.2	LOS A	1.6	12.6	Short	60	0.0	NA
Approach	1706	3.0		0.594		7.5	LOS A	4.0	31.0				
West: Brian Coburn													
Lane 1	358	3.2	635	0.564	100	14.0	LOS B	2.7	20.7	Full	500	0.0	0.0
Lane 2[d]	574	3.0	1016	0.564	100	6.5	LOS A	3.1	23.8	Full	500	0.0	0.0
Lane 3	113	3.0	1111	0.102	100	5.2	LOS A	0.4	3.1	Short	60	0.0	NA
Approach	1045	3.1		0.564		8.9	LOS A	3.1	23.8				
Intersection	4553	3.0		0.670		8.6	LOS A	4.0	31.0				

Intersection #7 - Brian Coburn / Mer Bleue – 2036 Layout [with auxiliary EB-RT right turn lane]

2036 horizon year – with EB-RT



LANE SUMMARY

Site: Future 2036 AM - 4-lane BCB/Mer Bleue v2 June 10 TRANS Model volumes - EB-RT added

AM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	507	3.0	852	0.595	100	10.1	LOS B	3.6	27.8	Full	500	0.0	0.0
Lane 2[d]	608	3.0	1023	0.595	100	7.1	LOS A	3.7	29.0	Full	500	0.0	0.0
Approach	1115	3.0		0.595		8.5	LOS A	3.7	29.0				
East: Brian Coburn													
Lane 1	314	3.0	632	0.498	100	9.0	LOS A	2.0	15.3	Full	500	0.0	0.0
Lane 2[d]	430	3.0	863	0.498	100	6.4	LOS A	2.1	16.5	Full	500	0.0	0.0
Approach	744	3.0		0.498		7.5	LOS A	2.1	16.5				
North: Mer Bleue													
Lane 1	361	3.0	780	0.463	100	9.8	LOS A	2.2	17.4	Full	500	0.0	0.0
Lane 2[d]	443	3.0	958	0.463	100	6.5	LOS A	2.3	18.2	Full	500	0.0	0.0
Approach	804	3.0		0.463		8.0	LOS A	2.3	18.2				
West: Brian Coburn													
Lane 1[d]	289	3.2	1257	0.230	100	11.1	LOS B	1.0	7.6	Full	500	0.0	0.0
Lane 2	209	3.0	911	0.230	100	5.9	LOS A	0.9	7.1	Full	500	0.0	0.0
Lane 3	26	3.0	1332	0.020	100	4.9	LOS A	0.1	0.6	Short	60	0.0	NA
Approach	524	3.1		0.230		8.7	LOS A	1.0	7.6				
Intersection	3187	3.0		0.595		8.2	LOS A	3.7	29.0				

LANE SUMMARY

Site: Future 2036 PM - 4-lane BCB/Mer Bleue v2 June 10 TRANS Model volumes - EB-RT added

PM PEAK 2036
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Mer Bleue													
Lane 1	371	3.0	540	0.687	100	11.5	LOS B	3.5	27.6	Full	500	0.0	0.0
Lane 2[d]	513	3.0	746	0.687	100	8.5	LOS A	3.9	30.4	Full	500	0.0	0.0
Approach	884	3.0		0.687		9.7	LOS A	3.9	30.4				
East: Brian Coburn													
Lane 1	396	3.0	623	0.635	100	11.1	LOS B	3.3	26.0	Full	500	0.0	0.0
Lane 2[d]	523	3.0	823	0.635	100	7.9	LOS A	3.6	28.1	Full	500	0.0	0.0
Approach	918	3.0		0.635		9.3	LOS A	3.6	28.1				
North: Mer Bleue													
Lane 1	768	3.0	770	0.997	100	30.1	LOS C	19.0	148.2	Full	500	0.0	0.0
Lane 2[d]	938	3.0	941	0.997	100	24.8	LOS C	21.4	166.4	Full	500	0.0	0.0
Approach	1706	3.0		0.997		27.2	LOS C	21.4	166.4				
West: Brian Coburn													
Lane 1	358	3.2	556	0.644	100	15.1	LOS B	3.3	25.5	Full	500	0.0	0.0
Lane 2[d]	574	3.0	890	0.644	100	7.4	LOS A	3.8	29.9	Full	500	0.0	0.0
Lane 3	113	3.0	1020	0.111	100	5.5	LOS A	0.5	3.7	Short	60	0.0	NA
Approach	1045	3.1		0.644		9.8	LOS A	3.8	29.9				
Intersection	4553	3.0		0.997		16.2	LOS B	21.4	166.4				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach