DILLON CONSULTING

OTTAWA CATHOLIC SCHOOL BOARD

Transportation Impact Assessment

Proposed Elementary School, 4140 Kelly Farm Drive

September – 22-4196

Certification

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

Signature of individual certifier that s/he meets the above four criteria.

L. Douglas Green, P. Eng.

Table of Contents

Figures

Tables

Appendices

1.0 Screening

1.1 Summary of Development

Municipal Address	4140 Kelly Farm Drive
Description of Location	The site is located within the Leitrim community area. The site is located on the west side of Kelly Farm Drive on the east side of Bradwell Way, approximately 280 metres northwest of Findlay Creek Drive and adjacent to the existing Vimy Ridge Public School.
Land Use Classification	Institutional
Development Size	1 storey elementary school and child care centre. The single storey school is 4,630 m^2 (49,837 sq. ft.) and provides a 275 m^2 childcare facility. The preliminary site plan also shows the potential for 18 portable classrooms.
Number of accesses and locations	The staff parking lot and school bus lay-by would be accessed from Kelly Farm Drive. Bradwell Way would provide bus and parent drop-off/pick-up lay-by areas. The daycare drop-off is located within the staff parking lot.
Phases of development	1
Build-out year	September 2024

1.2 Trip Generation Trigger

The proposed elementary school is anticipated to generate over 60 person trips during the peak hour, therefore the trip generation trigger has been satisfied and a transportation impact assessment is required.

Land Use Type	Minimum Development Size	Yes	No
Single-family homes	40 units		x
Townhomes or apartments	90 units		x
Office	3,500 sq.m.		x
Industrial	5,000 sq.m.		x
Fast-food restaurant or coffee shop	100 sq.m.		x
Destination retail	1,000 sq.m.		x
Gas station or convenience market	75 sq.m.		x
Other	60 person trips or more during weekday peak hours	x	

Since the development satisfies the trip generation trigger, both the design review and network impact components will be addressed in the traffic impact assessment.

2.0 Scoping

2.1 Existing and Planned Conditions

2.1.1 Proposed Development

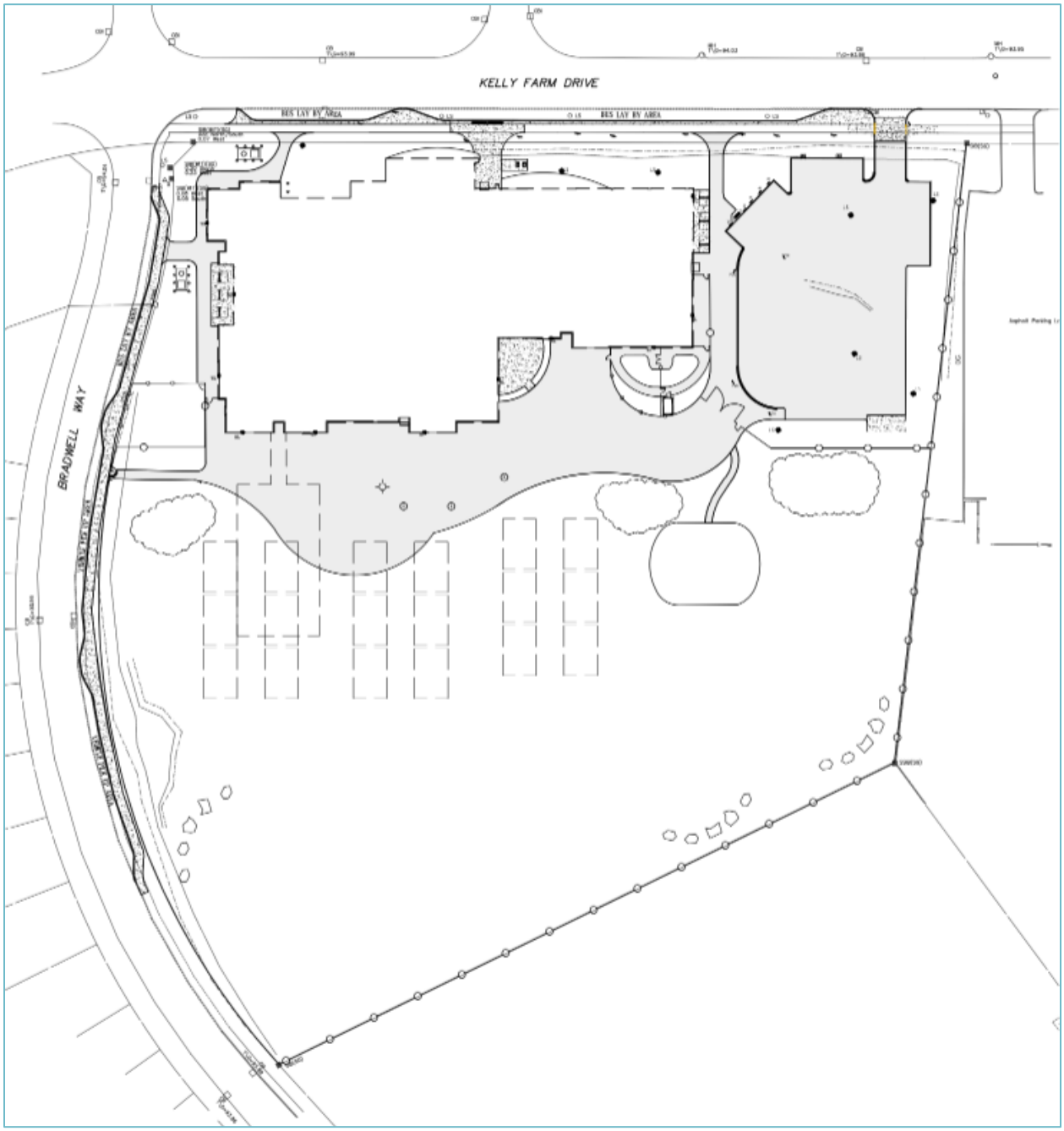
The proposed development is located at 4140 Kelly Farm Drive in the Leitrim community. The site is currently zoned as I1E/H15 Minor Institutional Zone which permits a school and daycare among other types of developments. The school and childcare facility is anticipated to open in September 2024.

The development concept identifies a parking lot for staff and daycare drop-off/pick-ups. Access to the parking lot is planned via a single-lane entrance on Kelly Farm Drive. The development concept proposes on-street school bus lay-bys on Kelly Farm Drive and lay-bys on Bradwell Way for school bus and parent drop-off/pick-up. The bus lay-by area is planned to provide space for up to eleven school buses. Through discussions with the School Board, it is likely that the school will only require six school buses to meet student demands.

Figure 1 illustrates the location of the proposed development and **Figure 2** illustrates the proposed site plan.

Figure 1: Site Location

Figure 2: Proposed Site Plan



Source: Site plan provided by PRTY Architect, dated Sept 28, 2022

2.1.2 Existing Conditions

2.1.2.1 Roads and Traffic Control

The roadways under consideration in the study area are described as follows:

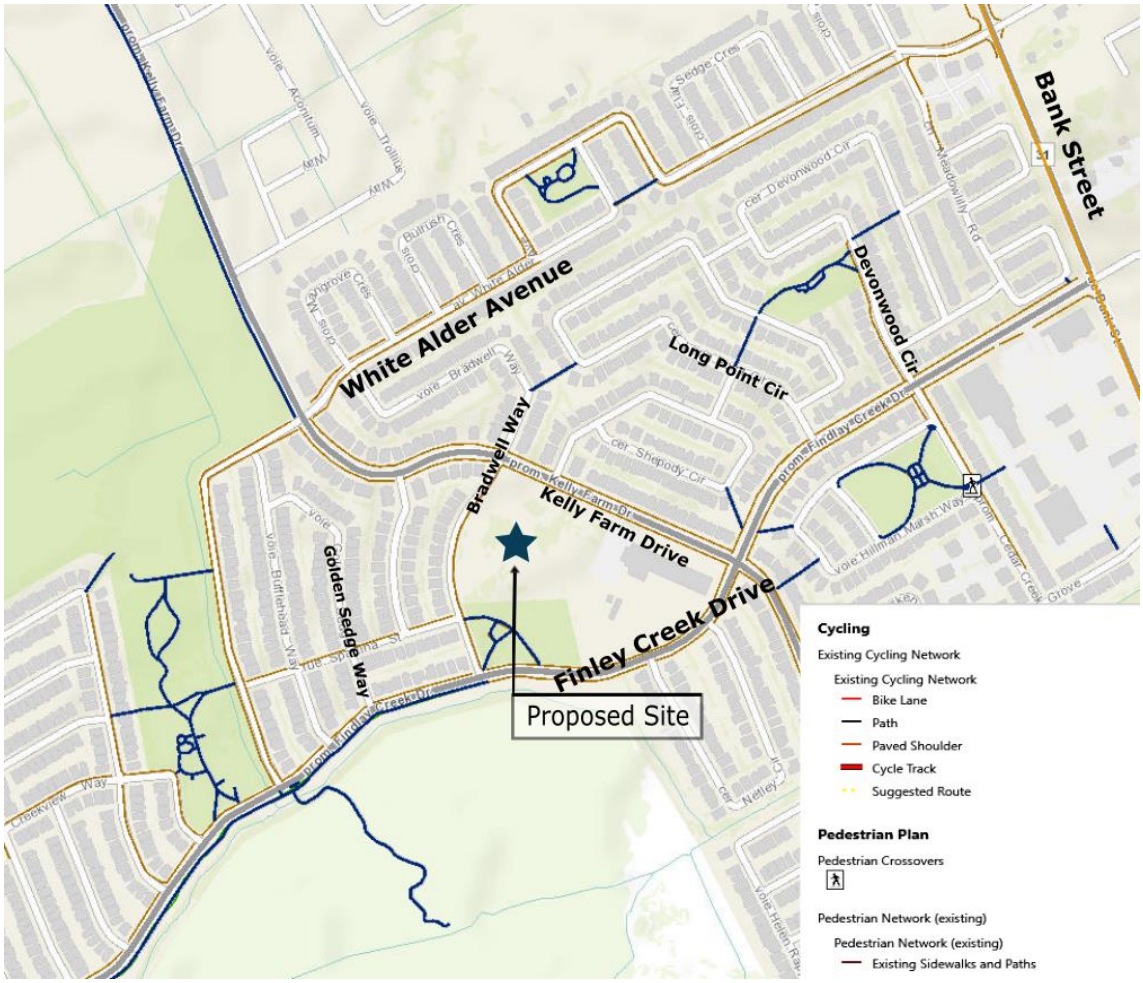
Bank Street	Bank Street is a municipally-owned arterial road running north-south. Bank Street runs from Wellington Street in the north (in downtown Ottawa) to Belmeade Road at the southern limits of the city, extending further south to Highway 401.
Findlay Creek Drive	Findlay Creek Drive is a municipally-owned collector road running east-west from Albion Road in the west, into the subdivision to the east of Bank Street. In the study area, the curb to curb width is approximately 11 metres, providing space for on-street parking and a single lane in each direction. The posted speed limit is 50 km/h, which is reduced to 40 km/h during school days from 7:00 AM to 9:00 AM and from 2:00 PM to 5:00 PM.
Kelly Farm Drive	Kelly Farm Drive is a municipally-owned collector road running north-south. The roadway extends from Leitrim Road in the north to Dun Skipper Drive in the south. The posted speed limit is 40 km/h during school days from 7:00 AM to 9:00 AM and from 2:00 PM to 5:00 PM. The curb to curb width is approximately 11 metres.
Bradwell Way	Bradwell Way is a municipally-owned local road running north-south from White Alder Avenue to Findlay Creek Drive. The posted speed is 40 km/h.
Golden Sedge Way	Golden Sedge Way is a municipally-owned local road running north-south from Bufflehead Way in the north to Findlay Creek Drive. The unposted speed limit is 50 km/h.
Long Point Circle	Long Point Circle is a municipally-owned local road with a posted speed limit of 40 km/h.
White Alder Avenue	White Alder Avenue is a municipally-owned local road running east-west from Bank Street to Findlay Creek Avenue. The posted speed limit is 40 km/h.

2.1.2.2 Walking and Cycling

Figure 3 illustrates the existing pedestrian and cycling facilities in the study area as per the geoOttawa background imagery data, dated May 20, 2022.

The City of Ottawa's 2013 Cycling Plan identifies Bank Street as a spine route. There are no other dedicated cycling routes within the Findlay Creek subdivision study area, however the wide road widths on Findlay Creek Drive and Kelly Farm Drive provide space for comfortable cycling.

Figure 3: Existing Walking and Cycling Facilities



Source: geoOttawa, accessed May 20, 2022

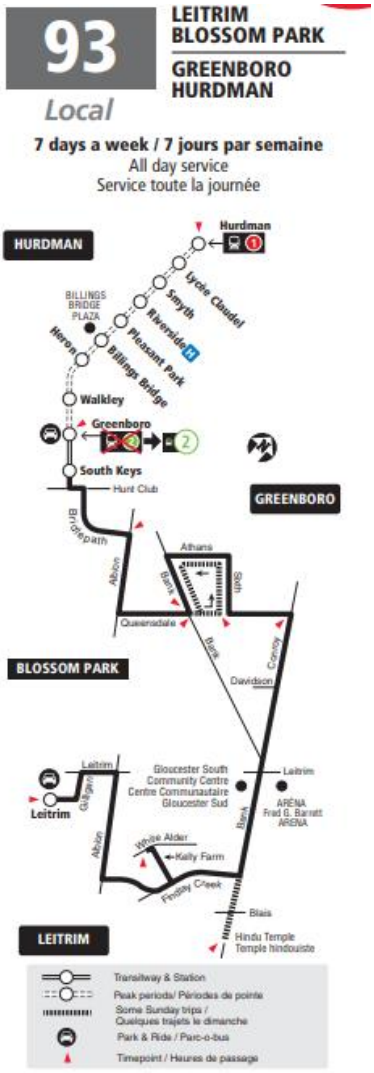
2.1.2.3 Transit

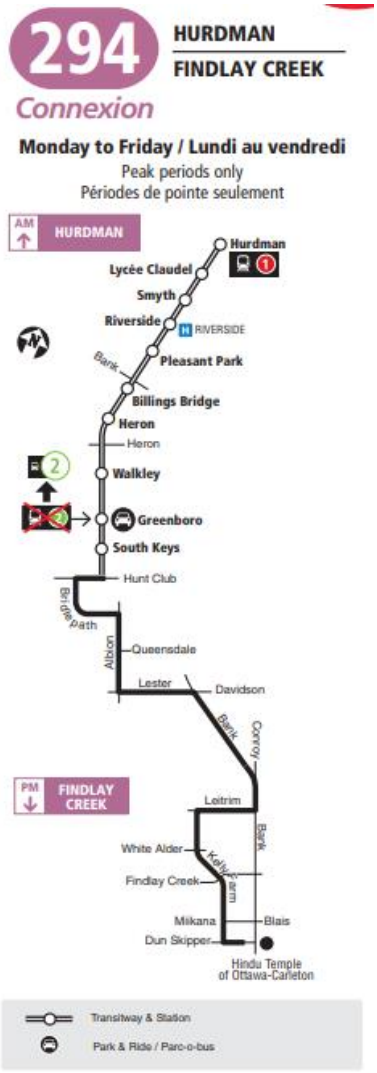
Figure 4 shows the existing transit service near the proposed school, including Route #93 and #294.

Route #93 is a 'Local' route. During the weekday AM peak hour, the route provides 14-minute headways into Ottawa and approximately 30-headways from Ottawa into Findlay Creek. Following the afternoon bell, the route operates on 30-minute headways into Ottawa and 20-30-minute headways into Findlay Creek. The infrequent transit service is likely to be underutilized by school staff.

Route #294 is a 'Connexion' route between Findlay Creek and Hurdman station. It operates outbound from the Leitrim community during the AM peak hour and inbound to the Leitrim community during the PM peak hour. Therefore, it is not useful for school staff.

Figure 4: Existing Transit Service





Source: OC Transpo Website, May 2022

2.1.2.4 Traffic Management Measures

Findlay Creek Drive has a number of season vertical delineator signs that are spaced to reduce vehicle travel speeds. The posted speed limit is reduced to 40 km/h during school times.

Kelly Farm Drive has a number of season vertical delineator signs that are spaced to reduce vehicle travel speeds. The posted speed limit is reduced to 40 km/h during school times. There is a vehicle speed display board facing southbound traffic in proximity to the proposed new school location. **Figure 5** shows Kelly Farm Drive south of the proposed school site. The number of vehicles parked along the roadway at the time of the photo was a result of graduation ceremonies at the Vimy Ridge Public School.

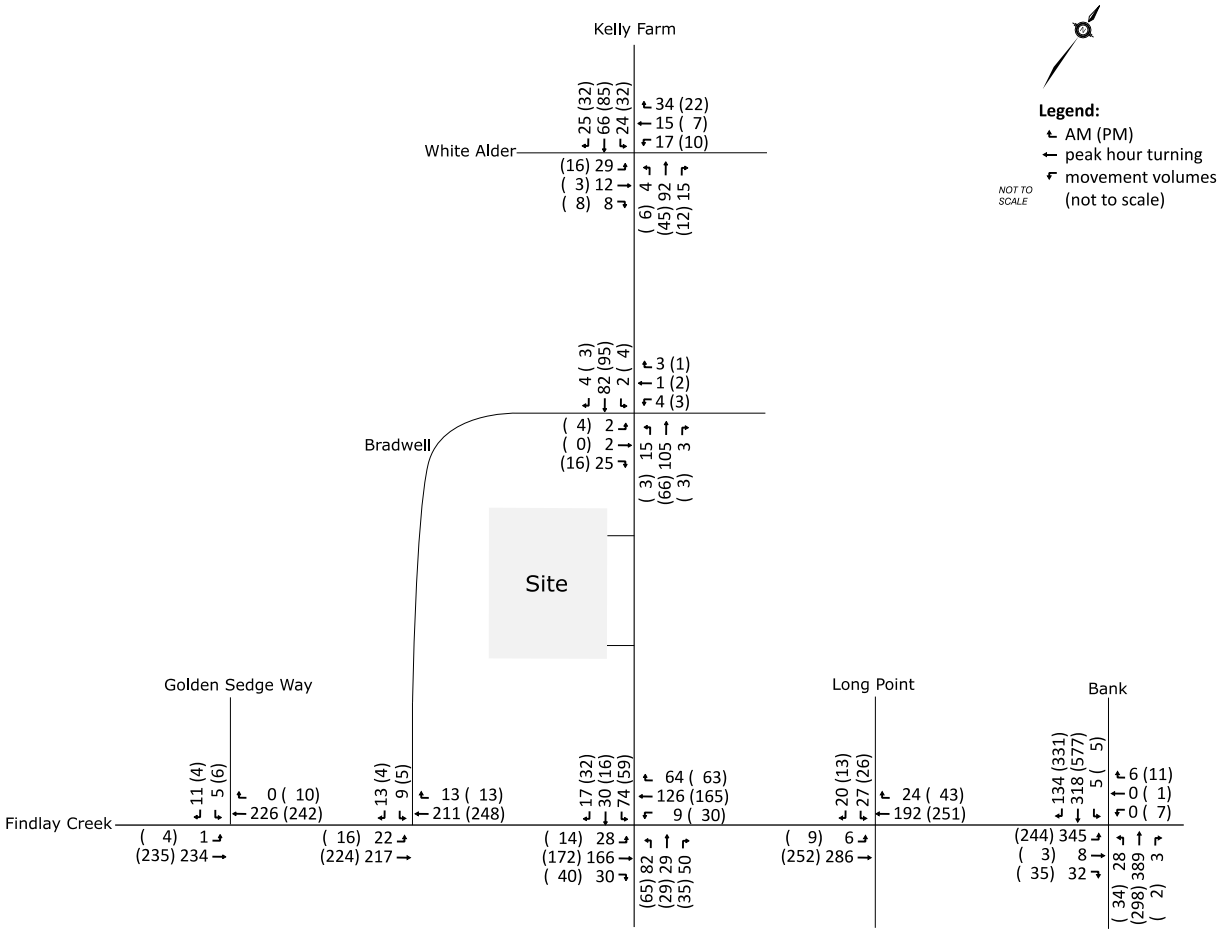
Figure 5: Traffic Management Measures on Kelly Farm Drive

Image Date: June 15, 2022

2.1.2.5 Traffic Volumes

Figure 6 illustrates the existing traffic volumes within the study area. Traffic volumes were collected by the City of Ottawa on Tuesday, June 7, 2022 at all intersections with exception of the Bank Street and Findlay Creek Drive intersection, which was collected on Wednesday, December 4, 2019. **Appendix A** contains the traffic count data.

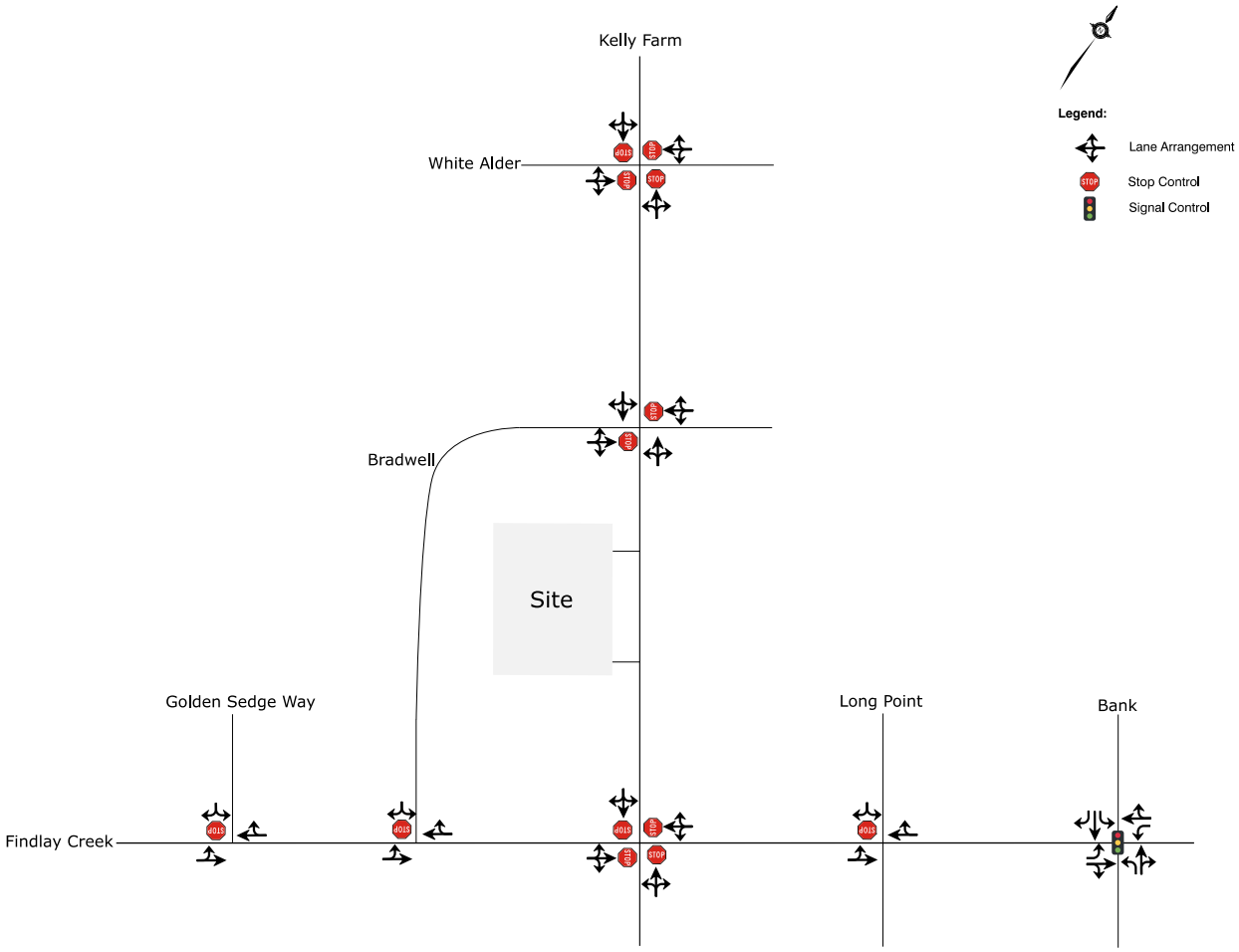
Figure 6: Existing Traffic Volumes (2022)



2.1.2.6 Lane Geometry and Traffic Control

Figure 7 illustrates the existing lane geometry and traffic control within the study area.

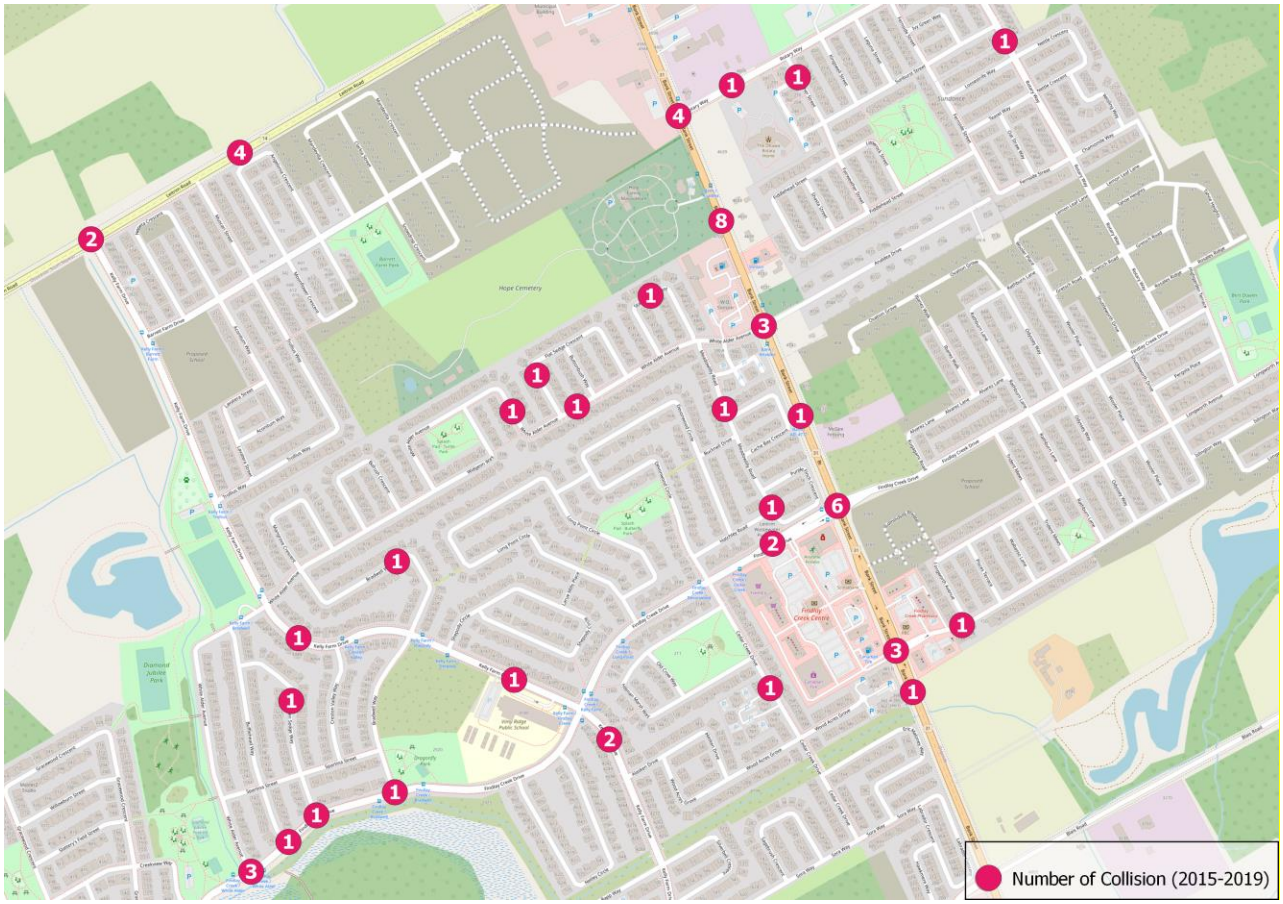
Figure 7: Lane Geometry and Traffic Control



2.1.2.7 Collision History

Figure 8 illustrates the number of collisions in the general vicinity of the site between 2015 and 2019. Many of the locations only show one or two collisions. Since this is a developing area, additional data will be needed to identify if there is a collision pattern. The intersection of Bank Street and Findlay Creek Drive has experienced six collisions over the five-year period between 2015 and 2019 (inclusive).

Figure 8: Number of Collisions (2015-2019)



Source: Open Ottawa, accessed May 3, 2021

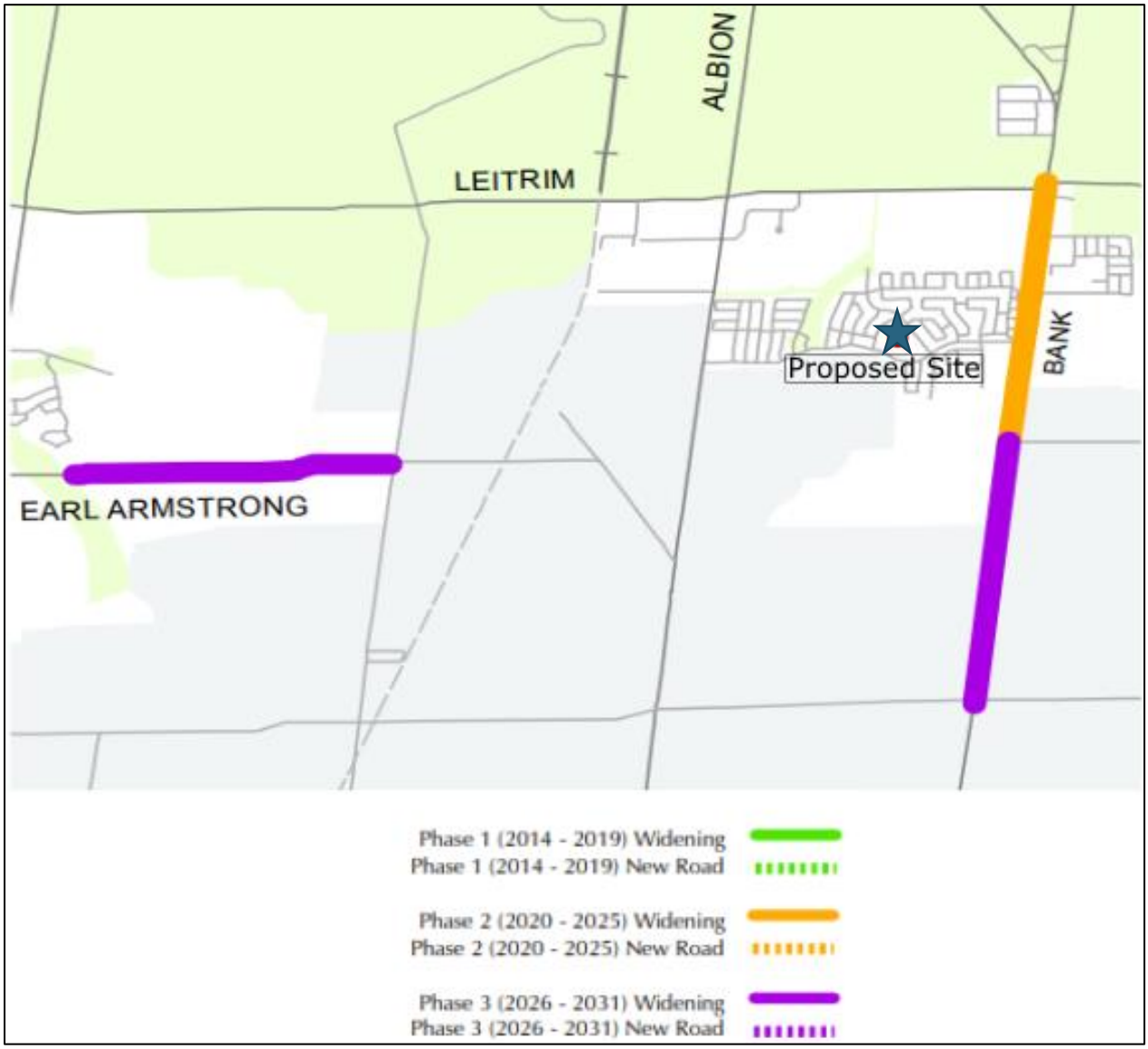
2.1.3 Planned Conditions

2.1.3.1 Road Network Improvements

Figure 9 shows the 2031 'affordable' road network for the study area. A notable change within the study area is the widening of Bank Street in Phase 2 (2020-2025). Dillon completed a traffic analysis for the widening of Bank Street from Leitrim Road to Dun Skipper Road in the fall of 2021, which forecast traffic volumes to a 2031 build-out of the Findlay Creek area. The intersection of Bank Street and Findlay Creek Drive is proposed to have northbound and southbound through lanes, with separate northbound and southbound left and right turn auxiliary lanes.

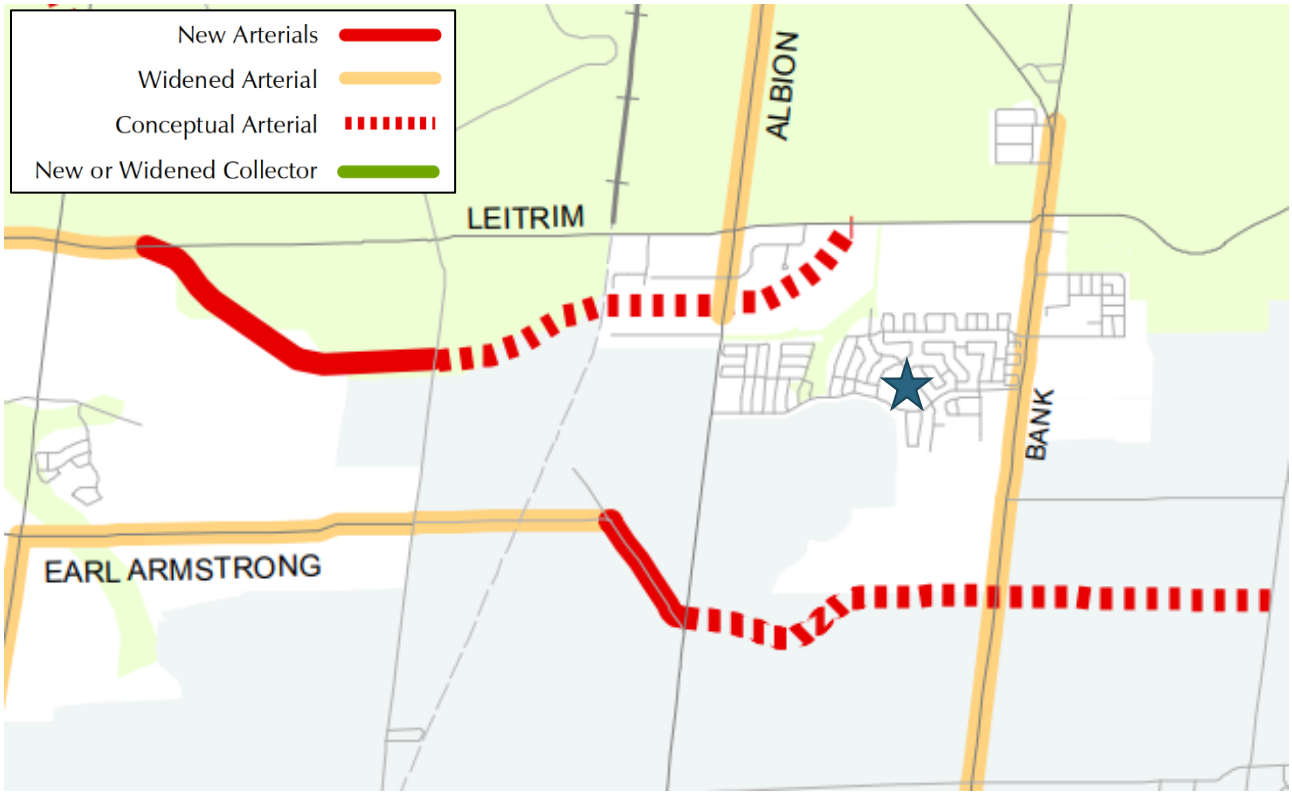
Figure 10 shows the 2031 road network concept which includes the widening of Albion Road and the conceptual realignment of Leitrim Road located in the north of the Leitrim community and the extension of Earl Armstrong Road to the south of the Leitrim community. The timing for these projects is currently unknown.

Figure 9: 2031 Affordable Road Network



Source: City of Ottawa 2013 TMP, 2031 Affordable Road Network

Figure 10: 2031 Road Network Concept



Source: City of Ottawa 2013 TMP, 2031 Road Network Concept

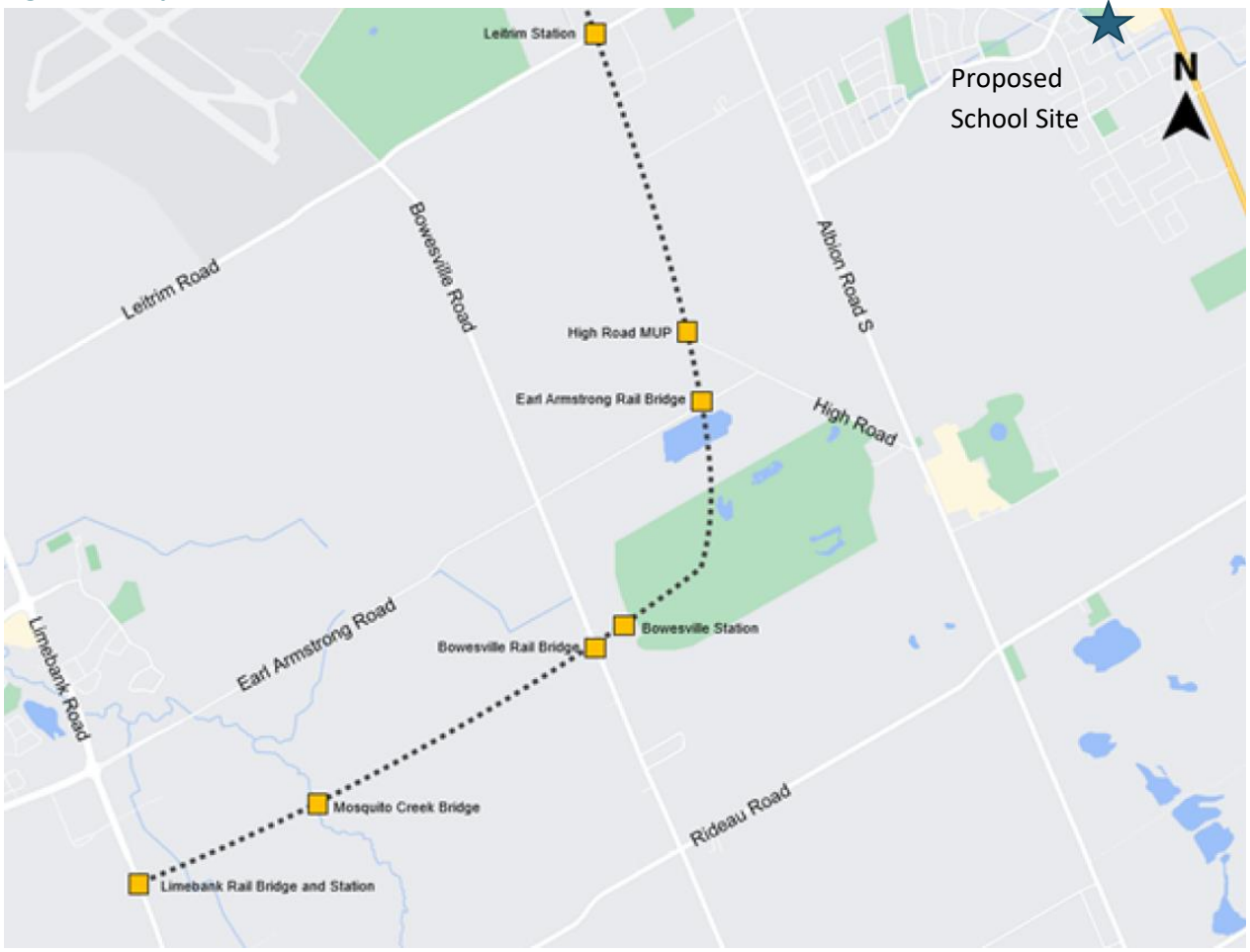
2.1.3.2 Walking and Cycling

There are no planned pedestrian or cycling facilities within the study area.

2.1.3.3 Transit

There are no planned transit projects that will directly impact the Leitrim community. To the west of the Leitrim community, the City of Ottawa is currently constructing a Light Rail Transit (LRT) extension into Riverside South. **Figure 11** illustrates the most recent alignment of the new LRT line.

Figure 11: Rapid Transit Network



Source: https://ottawa.ca/en/planning-development-and-construction/major-projects/stage-2-light-rail-transit-project/o-train-south-extension-0/upcoming-work#q2-2022-lookahead-notice-south-segment

2.1.3.4 Future Background Developments

The City of Ottawa development applications website was reviewed and several developments were identified in the Findlay Creek area. **Figure 12** illustrates the location of these development lands and **Table 1** summarizes the size and build-out horizon of the development lands. **Figure 13** illustrates the land use plan.

As noted in the table, the majority of the development lands were accounted for during the Leitrim Community Master Transportation Study (Leitrim MTS, March 2017). The Leitrim MTS assumed that Bank Street traffic would increase at a rate of 1% per year and it also accounted for the redistribution of traffic on the east side of Bank Street when Rotary Way is extended from Kelly Farm Drive to Bank Street.

There are three development lands (shown as purple polygons) that were not accounted for during the Leitrim MTS. Traffic generated by the 4791 Bank Street, 4639 Bank Street, and 3100 Leitrim Road Findlay Creek Stage 5 developments were not included in the Leitrim MTS 2031 traffic volume forecasts.

Figure 12: Findlay Creek Background Development

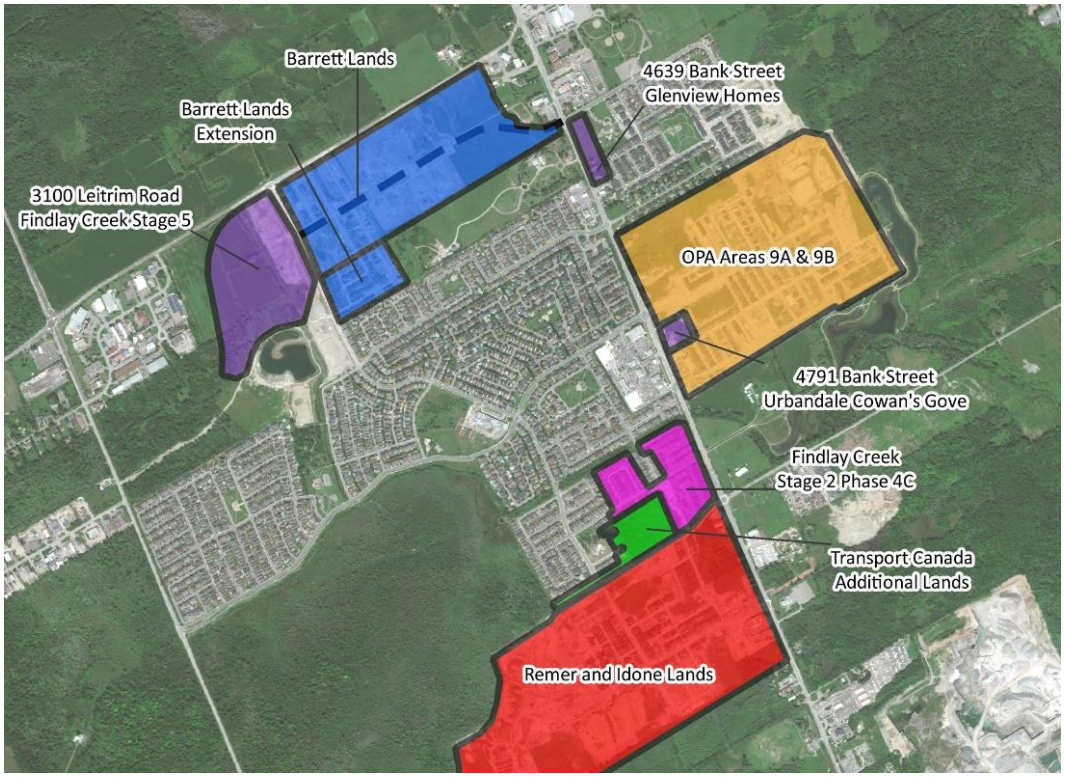
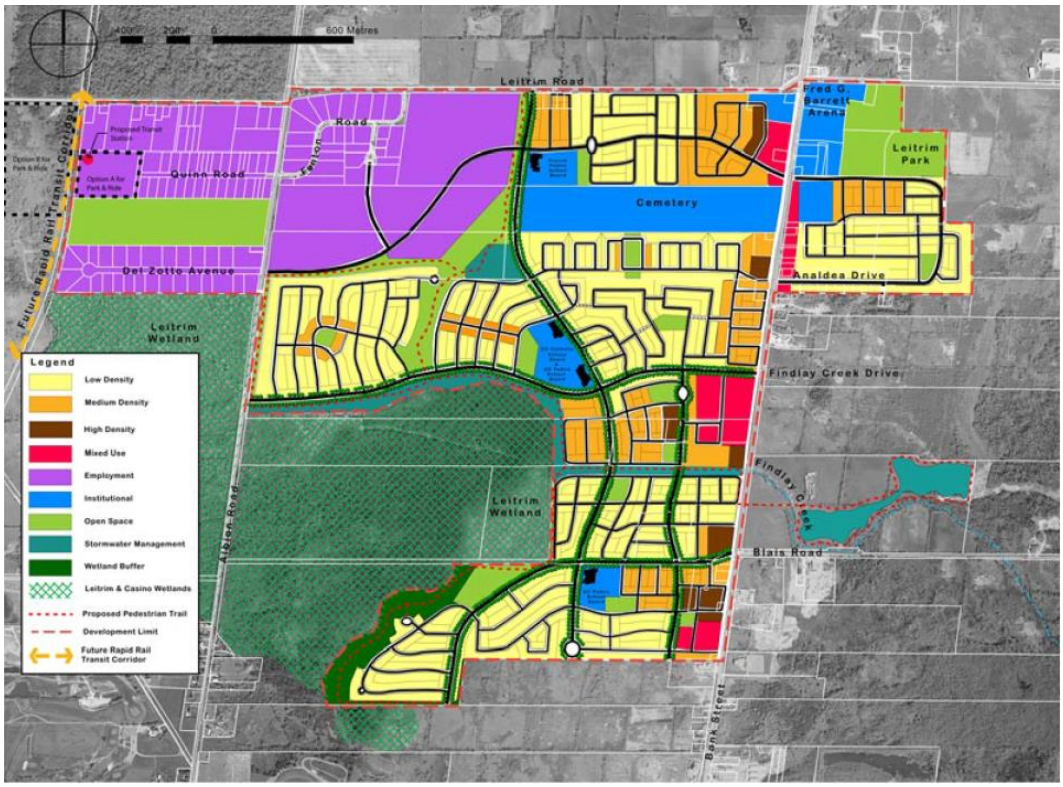


Figure 13: Land Use Plan



Source: Leitrim CDP Update (accessed May 2021)

Table 1: Developments Lands in Findlay Creek between 2015 and 2031

Development	Residential Units	Commercial Units (sq.m.)	Build-out year(s)	Current Status	Source
Barrett Lands	797		2022, 2025, 2031	Under Construction	Leitrim MTS
Remer and Idone Lands	1,155	24,187	2019, 2022, 2025, 2031	Under Construction	Leitrim MTS
4639 Bank Street, Glenview Homes	112		2024	Under Construction	TIA
3100 Leitrim Road, Findlay Creek Stage 5	389		2026	Not Started	TIA
Transport Canada Lands	231		2022-2025	Not Started	Leitrim MTS
OPA 76 Areas 9A and 9B	1,319	15,450	2019, 2022, 2025, 2031	Under Construction	Leitrim MTS
Remaining Findlay Creek	152		2019	Complete	Leitrim MTS
Remaining Lemay and Sundance	158		2019	Complete	Leitrim MTS
Barrett Lands Extension	150		2019, 2022	Complete	Leitrim MTS
Findlay Creek Stage 2, Phase 4C	240		2019, 2022	Complete	Leitrim MTS
4791 Bank Street, Urbandale Cowan's Grove	102		2021	Complete	TIA
Total	**+4,805**	**+39,637**	**All by 2031 horizon**		

2.2 Study Area and Time Periods

The study area includes the following intersections:

- Findlay Creek Drive and Golden Sedge Way;
- Findlay Creek Drive and Bradwell Way;
- Findlay Creek Drive and Kelly Farm Drive;
- Findlay Creek Drive and Long Point Crescent;
- Bradwell Way and Kelly Farm Drive;
- Kelly Farm Drive and White Alder Ave; and,
- Bank Street and Findlay Creek Drive.

The selected time periods for analysis are the weekday AM peak hour between 7:45 AM and 8:45 AM and the PM after school (dismissal) peak hour between 2:30 PM and 3:30 PM, since these hours are directly impacted by school traffic.

The proposed development is anticipated to open in the 2024 school year. However, to simplify the analysis the 2025 and 2030 horizon years will be used to coincide with the general horizon years used for other TIA's and the build-out of the surrounding area.

2.3 Exemptions Review

Table 2 summarizes the exemptions review table from the City of Ottawa's 2017 Transportation Impact Assessment Guidelines. Module 4.2.2 is not included since there are 45 parking spaces provided for 36 staff, therefore the demand is not expected to exceed the supply. There is also provision for an additional 17 parking spaces to be added if the 18 portables are added.

Module 4.6 may be included if the number of vehicle trips generated by the school is forecast to exceed the Area Traffic Management (ATM) thresholds of 2,500 vehicles per day or 300 vehicles during the peak hours.

Table 2: Exemptions Review

Module	Element	Exemption Consideration	Status
4.1 Development Design	4.1.2 Circulation and Access	Only required for site plans	Included
	4.1.3 New Street Networks	Only required for plans of subdivision	Not included
4.2 Parking	4.2.1 Parking Supply	Only required for site plans	Included
	4.2.2 Spillover Parking	Only required for site plans where parking supply is 15% below unconstrained demand	Not included
4.5 Transportation Demand Management	All Elements	Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time	Included
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	Only required when the development relies on Local or Collector streets for access and total volumes exceed ATM capacity thresholds	Included if threshold is met
4.8 Network Concept		Only required when proposed development generates more than 200 person trips during the peak hour in excess of the equivalent volume permitted by established zoning	Not included
4.9 Intersection Design	All Elements	Not required if site generation trigger is not met	Included

3.0 Forecasting

3.1 Development-Generated Travel Demand

Traffic volumes within the study area will consist of trips generated by the proposed school, daycare and trips generated by background developments. The background development trips will consist of trips generated by the lands contained within the Leitrim MTS and additional developments with access to Bank Street.

3.1.1 School Trips

The school and childcare facility trip generation can be calculated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th edition methodology or by using a first principles approach. The school trips were calculated using both approaches for comparison purposes.

Table 3 summarizes the vehicle trip generation for the proposed elementary school and daycare facility based on ITE trip rates.

Table 3: ITE Trip Generation – Vehicle Trips

Land Use (ITE Land Use Code)	Size	AM Peak Hour of Adjacent Street Traffic (i.e. 7:00-9:00 AM)			PM Peak Hour of the School Site (i.e. 2:30-4:30 PM)		
		Inbound	Outbound	Total	Inbound	Outbound	Total
Elementary school (520)	700 Students	280	239	518	145	170	315
Daycare (565)	2,960 sq. ft	17	16	33	0	0	0
Total Auto Trips		**297**	**255**	**551**	**145**	**170**	**315**

A first principles approach was also undertaken to forecast the number of vehicle and person trips that will be generated by the site. When fully constructed, the school is anticipated to have 40 staff members. The school board has indicated that the school will have approximately 2-3 portables within 5-7 years of opening the school. They anticipate that the school may ultimately have a maximum of 700 students, with up to nine portables, fewer than the 18 portables shown on the site plan. It is anticipated that 3-4 school buses will be used initially, with up to six buses in the future, fewer than the 11 buses shown on the site plan. The childcare facility is anticipated to accommodate 39 childcare spaces. The numbered items below document the assumptions and information gathered to form the first principles trip generation approach.

1. The TRANS Trip Generation Manual, 2020, indicates typical student travel mode share as observed within the city of Ottawa, see **Table 4.** The TRANS manual notes that each site exhibits its own unique characteristics, and may differ from site to site. The TRANS trip rates were adjusted to reflect the high number of students that will live within easy walking distance to the school, as indicated in **Table 5**. It was assumed that the walking and cycling trips will be increased compared to the standard rates, with a similar decrease in the auto passenger rates to reflect the residential nature of the catchment area and proximity to the school.

Table 4: Elementary School Transportation Mode Share - TRANS Trip Generation Manual, 2020

School Type	Mode Share					
	Auto Passenger	School Bus	Transit	Walk	Bike	Other
Elementary	22%	48%	6%	20%	2%	2%

Table 5: Elementary School Transportation Mode Share - Revised Split for Findlay Creek Community

School Type	Mode Share					
	Auto Passenger	School Bus	Transit	Walk	Bike	Other
Elementary	15%	48%	6%	24%	5%	2%

2. The school is anticipated to support up to 700 students with 40 staff members, for a total of 740 person trips to the school.
3. It was assumed that on any given day, five percent (5%) of students will be absent (665 students daily). It was anticipated that 100% of the 40 staff members are present.

AM Peak Hour - Student Trips

4. Using the revised TRANS rates for auto passenger, the site will generate 100 auto passenger trips. Canada census data indicates 44% of households have one child, while 56% of households have two or more children. It was assumed that one automobile would carry 1.3 students, therefore approximately 77 automobiles will arrive carrying 100 students.
5. The elementary school will be serviced by six school buses. Assuming the TRANS bus rate is 54%, the school is expected to generate 359 student trips by bus, for an average of 60 students per bus. A typical long school bus can carry up to 72 elementary students, assuming three students per seat.
6. It was assumed that the walking and cycling mode shares were based on the revised TRANS rates; therefore, active modes will account for the following:
    a. Walking (24%) – 159 trips
    b. Cycling (5%) – 33 trips (cycling trips will likely be higher during fair weather)

AM Peak Hour - Staff Trips

7. During the AM peak period, the 40 elementary school staff are anticipated to generate one vehicle trip per employee. Of the proposed 40 staff members, it was assumed that 30 will arrive during the peak hour and the other 10 will arrive before or after the peak hour. To be conservative, it has been assumed that all employee trips are made by automobile since the proposed school is located far from rapid transit.

PM Peak Hour – Student Trips

8. The school is planned to offer after school programs. Through discussion with the school board it was determined that approximately 14% of students would be enrolled within the after school program. Therefore, it was assumed that of the 665 students at the school, 93 students (14%)

remained for after school programs. Therefore, 572 students leave the school after the bell. Assuming a similar automobile rate of 15%, it can be expected that 66 automobiles will pick up 86 students (assuming 1.3 students per vehicle) at the end of school bell.

Child Care Facility Operations

9. During the AM peak hour, approximately 50% (17/39) of childcare drop-offs are anticipated to occur by vehicle. During the PM peak hour of the school (bell time), no trips to or from the childcare facility are expected. Childcare drop-offs/pick-ups are likely to occur over a two-hour window as arrival and departure patterns are based on parent schedules and occur during the peak commuter hours. The childcare facility staff members will arrive before the peak hour of the school and depart after the afternoon peak hour.

Table 6 summarizes the trip generation of the school in terms of person trips based on the first principles approach and TRANS mode shares identified above. The trip generation first principles approach has been carried forward within this report as it more accurately reflects the anticipated operation of the site.

Table 6: Trip Generation – Persons Trips

Location / Activity	AM Peak Hour of Roadway Traffic			PM Peak Hour of School (2:30 – 3:30 PM)			PM Peak Commuter Hour		
	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Staff Parking Lot									
Staff parking (vehicles)	30	0	30	0	30		0	10	10
Childcare drop-off/pick-up (vehicles)	17	16	33	0	0	0	15	18	33
On-Street Lay-bys									
School bus trips (students)	359	0	359	0	309	309	0	0	0
School bus trips (buses)	6	6	12	6	6	12	0	0	0
Student drop-off/pick-up trips (15% of students)	100	0	100	-	86	86	0	56	56
Student drop-off/pick-up trips (vehicles)	77	77	154	66	66	132	43	43	86

Location / Activity	AM Peak Hour of Roadway Traffic			PM Peak Hour of School (2:30 – 3:30 PM)			PM Peak Commuter Hour		
	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Active Transportation[1]									
Walking (assume 24% of students)	160	0	160	0	137		0	22	22
Cycling (assume 5% of students)	33	0	33	0	29		0	5	5
Total Person Trips	682	0	682	0	591		0	93	93
Total Vehicle Trips	124 autos 6 buses	93 autos 6 buses	217 autos 6 buses	66 autos 6 buses	96 autos 6 buses		58 autos	71 autos	114 autos

3.1.1.1 Vehicle Trip Distribution

The distribution of staff trips and student drop-off/pick-up trips have been treated separately. School staff typically live across the region, whereas students will live close to the school in the nearby residential areas. **Figure 14** illustrates the preliminary school boundary.

The proposed school is located in the southern part of Ottawa and therefore the majority of staff are anticipated to live west and north of the site. Based on the review of the background TIA reports, it has been assumed that staff trip distribution would follow the South Nepean District travel patterns. As such, it was assumed that staff would travel as follows:

- 60% - North on Bank Street
- 5% - South on Bank Street
- 35% - West on Leitrim Road

Childcare drop-off/pick-up trips were assumed to originate from within the area south of Leitrim Road within the Findlay Creek community, following the same distribution as the student drop-off/pick-up trips.

- **Table 7** summarizes the assumed trip distribution assumptions. **Appendix B** contains the TRANS Trip Distribution data for the Letrim/South Gloucester area.

[1] Walking & cycling are anticipated to very low or negligible during the PM peak hour (of adjacent roadway traffic) since the school day is long over by the afternoon rush hour. Students participating in the after-school program were assumed to be picked-up.

Figure 14: Preliminary Findlay Creek School Boundary

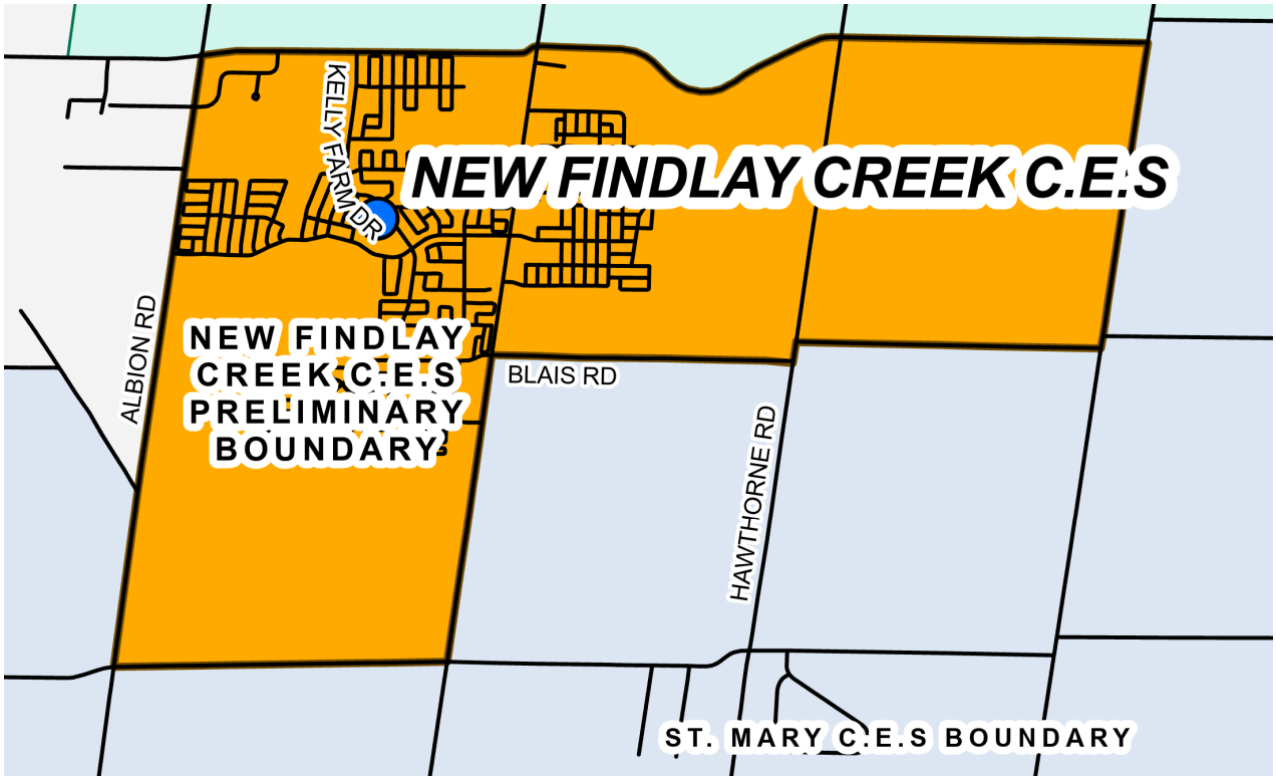


Table 7: Assumed Trip Distribution – Vehicle Trips

Direction Relative to Site	Staff	Student & Childcare drop-off/pick-up (Internal Trips)
North	60%	18%
East	0%	39%
South	5%	32%
West	35%	11%
Total	**100%**	**100%**

3.1.1.2 Trip Assignment

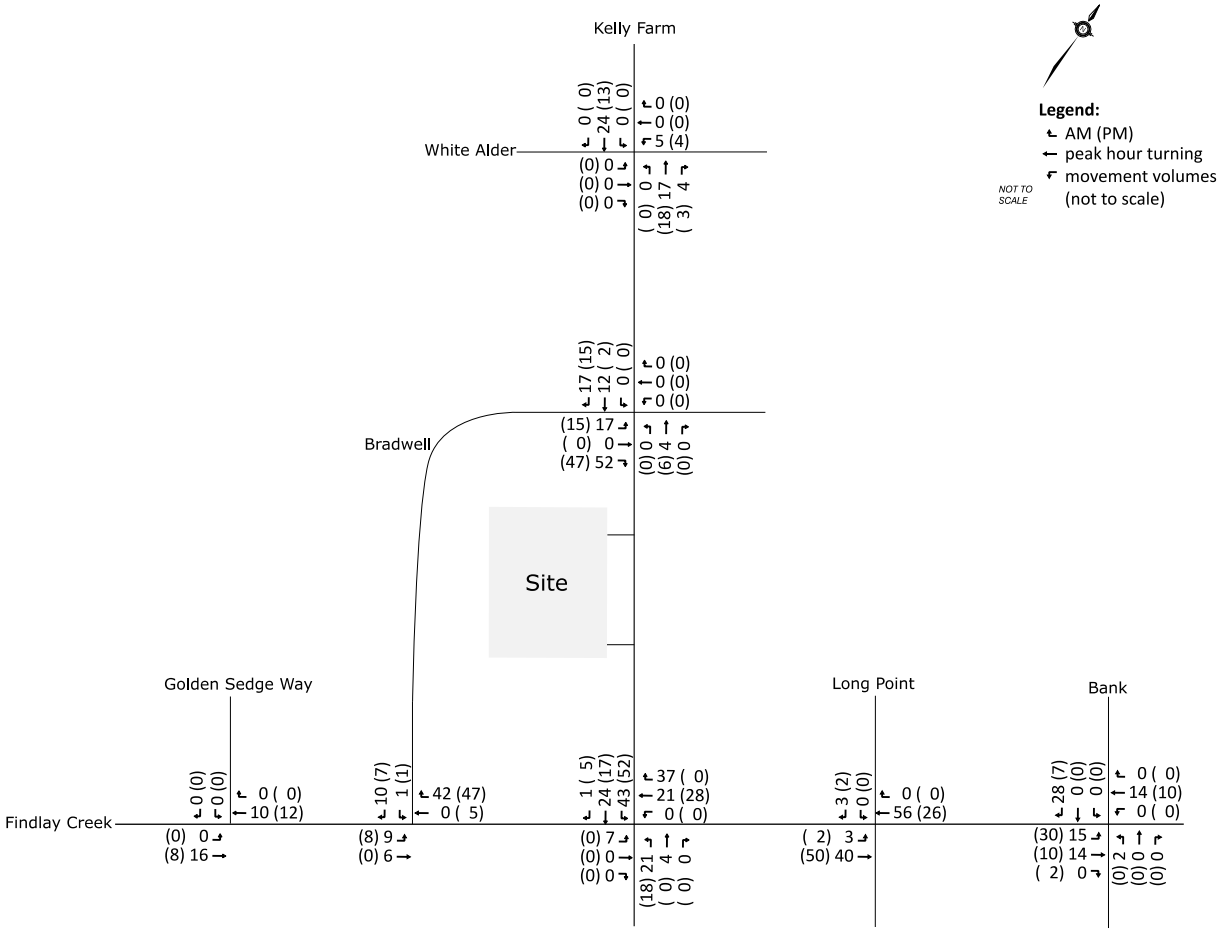
Vehicle trips were assigned to the road network in accordance with the distribution identified in **Table 7**.

It is anticipated that teachers will park in the parking lot off of Kelly Farm Drive. The childcare staff and clients will also use the parking lot. School buses are anticipated to access the southbound bus lay-by on Kelly Farm Drive. The parent drop-off/pick-up will occur on the east side of Bradwell Way.

Student trips were assigned to the road network based on the planned massing of residential housing areas within the preliminary school boundary.

Figure 15 illustrates the forecast site-generated trips.

Figure 15: Site Generated Trips



3.2 Background Network Travel Demand

3.2.1 Transportation Network Plans

The City's 2013 Transportation Master Plan identified the widening of Bank Street from Leitrim Road to Dun Skipper Road. Dillon is currently engaged in providing traffic analysis for the Bank Street widening project, which is in the detailed design stage. There are no other network modifications which will directly impact the study area road network.

3.2.2 Background Traffic Volume Growth

Traffic volumes at the intersection of Bank Street and Findlay Creek Drive are expected to grow as a result of general background growth and specific development growth in the general area. Future 2025 traffic volumes were obtained from the Leitrim MTS. Future 2030 traffic volumes were obtained from Dillon's traffic analysis undertaken for the Bank Street widening project.

Traffic volumes within the Findlay Creek subdivision, once built-out, will no longer grow as there will be no additional development. All development-related growth within Findlay Creek was captured and is documented within the following subsection.

3.2.3 Other Background Developments

The Bank Street Widening traffic analysis considered various background developments as shown in **Figure 12** and summarized in **Table 1**. Of these developments, only the Transport Canada lands, Remer and Idone lands, and 3100 Leitrim Road are expected to increase traffic volume within the study area on Kelly Farm Drive and Findlay Creek Drive.

The Remer and Idone lands are proceeding and much of the subdivision is nearing completion. The Transport Canada lands have not yet started and a planning application has not been made. The two subdivisions are located a minimum of 750 metres south of Findlay Creek Drive with access to Kelly Farm Drive and to Bank Street.

Traffic volume forecasts for the two developments were based on the number of residential units remaining to be occupied, as of June 2022. There are a total of 234 single-family houses and 99 townhomes to be built or occupied within these two subdivisions. The forecast number of trips generated by these lands is summarized in **Table 8.** The trip generation has been based on the TRANS Trip Generation Manual methodology, further information and calculations are contained in **Appendix D**. Based on the Leitrim MTS, it was assumed that 20% of traffic from the Remer and Idone lands would travel on Kelly Farm Drive, and distribute at the Findlay Creek Drive intersection based on existing established trends.

Table 8: Transport Canada Lands and Remer and Idone Lands Trip Generation

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Single Family	37	87	124	87	53	140
Townhouse	11	27	38	24	19	43
Total	**48**	**114**	**162**	**111**	**72**	**183**

The 3100 Leitrim Road development TIA indicated that the majority of traffic would use Leitrim Road for access. The study assumed a nominal traffic volume, 10 vehicles per hour or less, may travel on Kelly Farm Drive south to Findlay Creek Drive by 2030. The Leitrim Road development is not expected to be completed before 2025. The traffic volume assumed in the 3100 Leitrim Road TIA has been distributed within the 2030 background traffic volumes of this study.

3.2.4 Traffic Volumes

Figure 16 and **Figure 17** illustrate the 2025 and 2030 future background traffic volumes**,** respectively.

Figure 16: 2025 Future Background Traffic Volumes

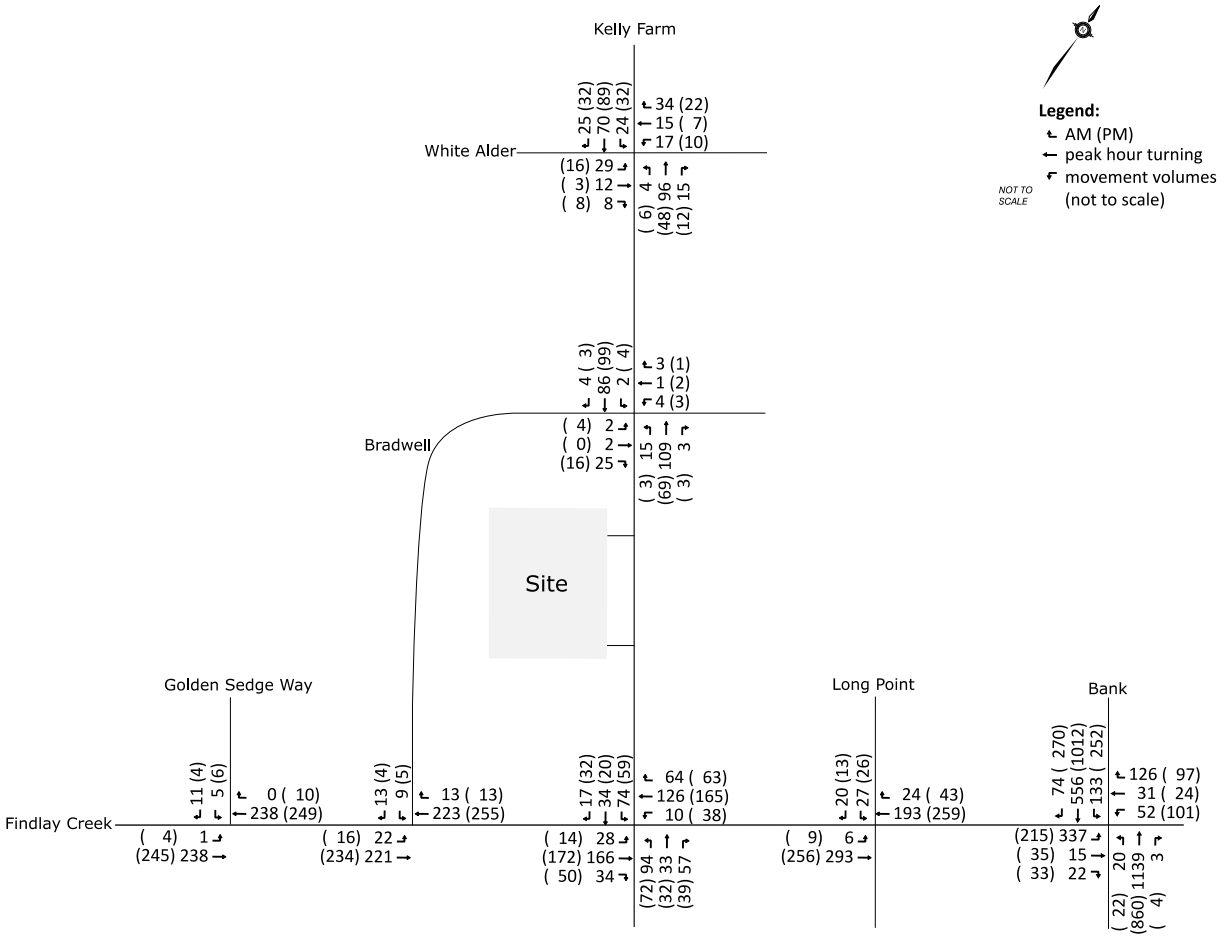
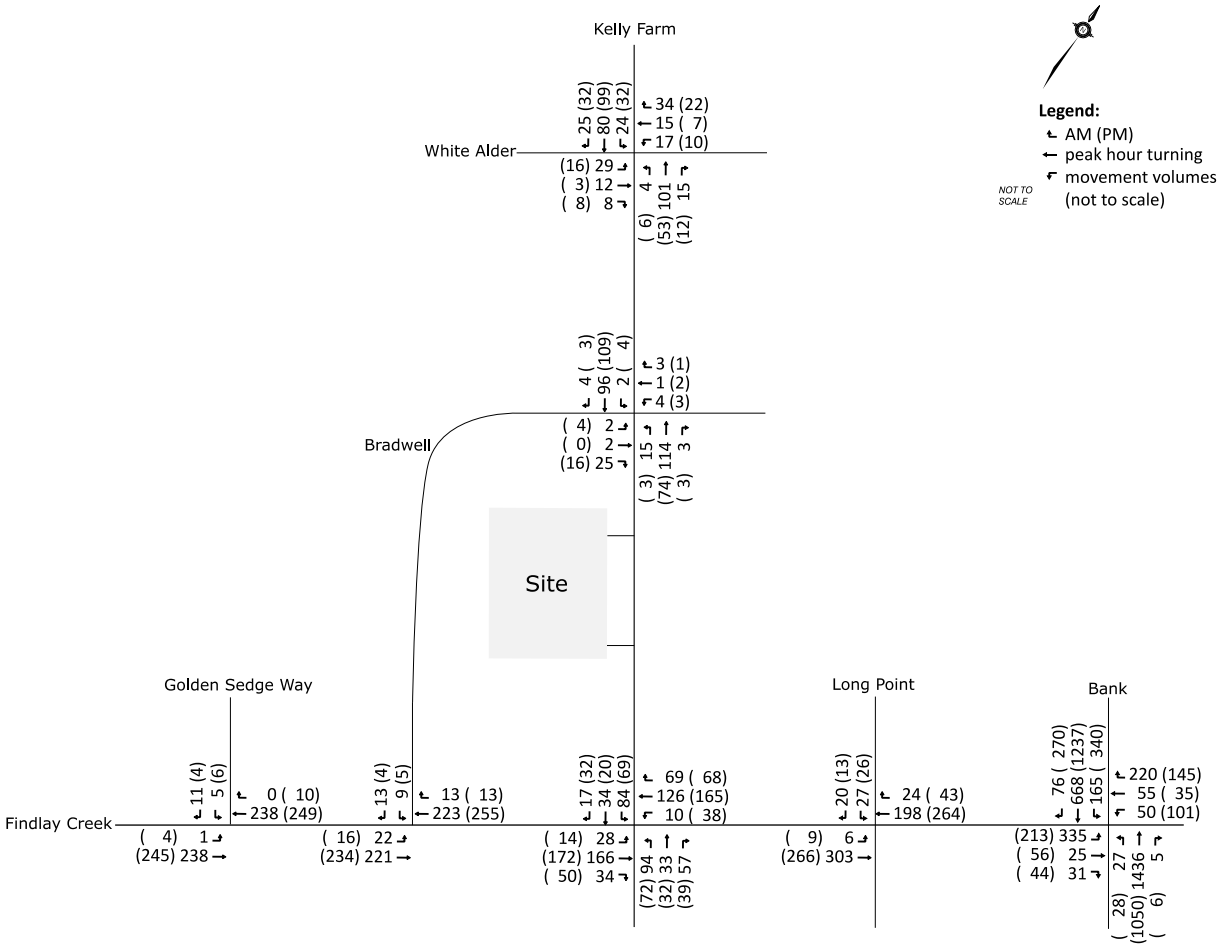


Figure 17: 2030 Background Traffic Volumes



3.3 Demand Rationalization

The proposed development is not anticipated to increase traffic volumes significantly. Traffic volumes along Kelly Farm Drive are not anticipated to exceed capacity. For these reasons demand rationalization was not completed.

3.4 Total Future Traffic Forecasts

Figure 18 and **Figure 19** illustrate the 2025 and 2030 total future traffic volumes, respectively. The total traffic volumes include the school site traffic and the future background traffic.

Figure 18: 2025 Total Traffic Volumes

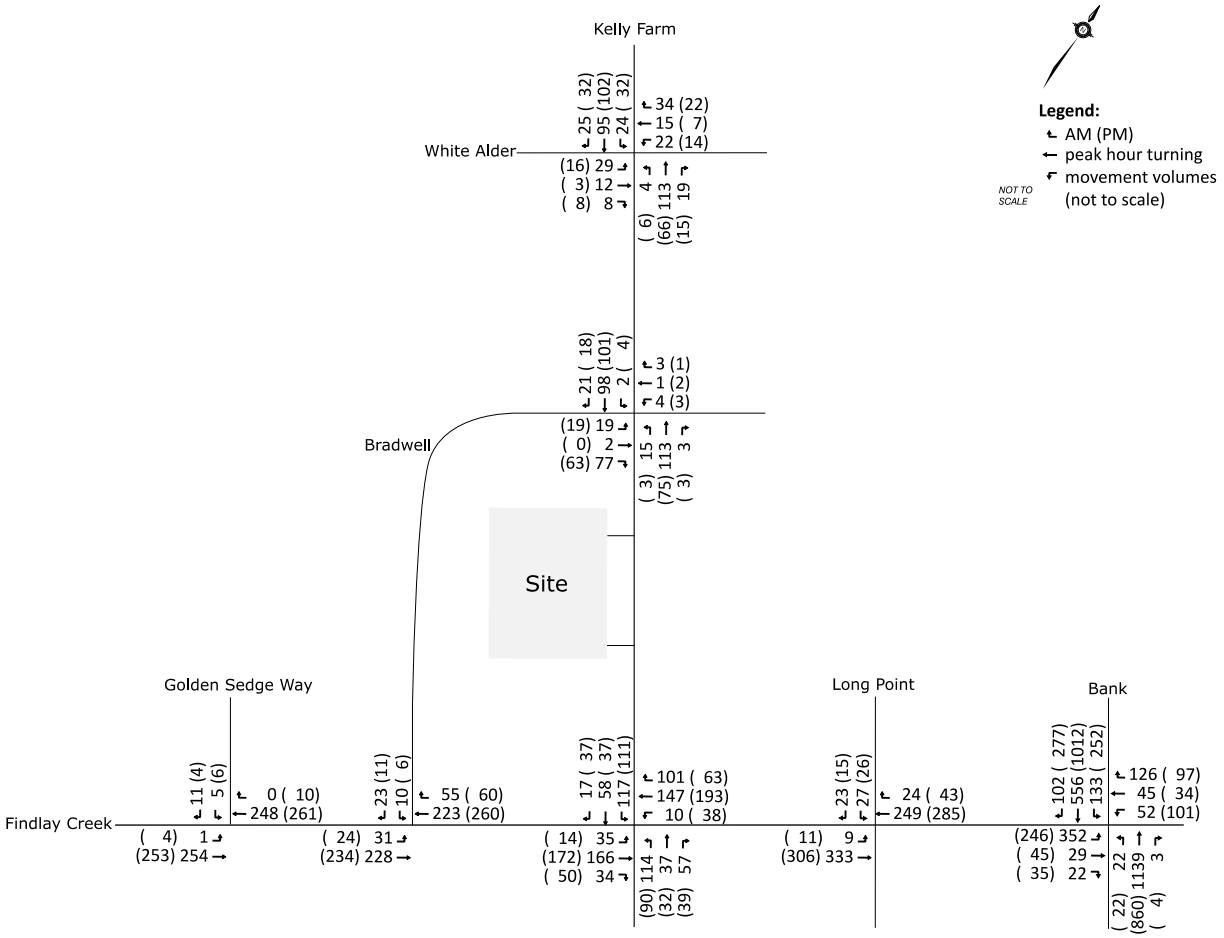
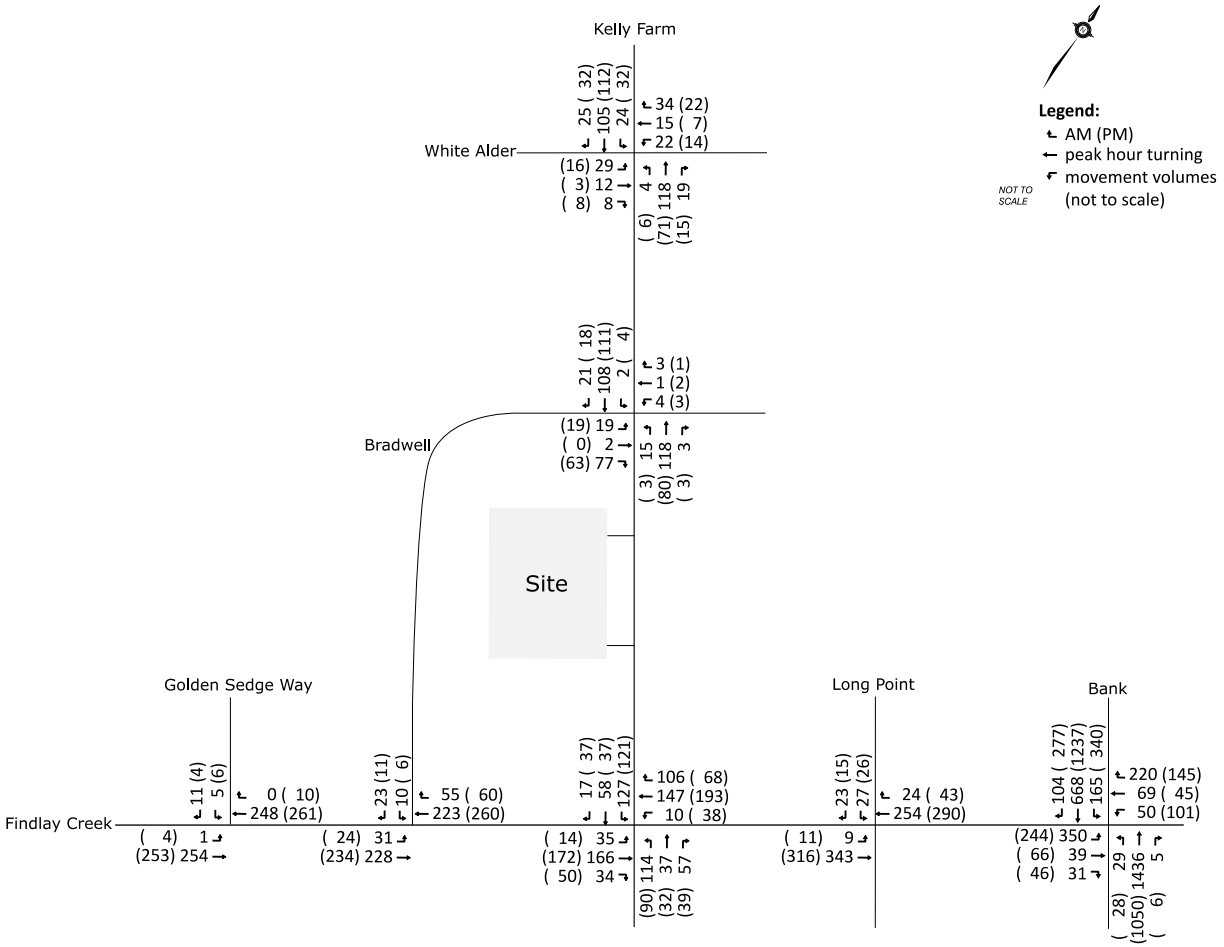


Figure 19: 2030 Total Traffic Volumes



4.0 Analysis

4.1 Development Design

4.1.1 Design for Sustainable Modes

Bicycle facilities – A total of six bike racks with eight rings each are proposed, providing a total of 48 bicycle parking spaces on the east and south sides of the school. Direct and convenient paved surfaces are provided to access the school from the bike parking areas.

Pedestrian access and circulation – The sidewalk and paved surfaces around the school provide direct access from the school bus lay-by to the main school entrance. Paved surfaces around the school also provide direct and convenient access from the staff parking lot, bicycle parking areas, childcare centre, and drop-off/pick-up lay-by area to the school and childcare entrances. The boulevard space will be paved between the sidewalks and the lay-by areas.

Transit facilities – OC Transpo stops are provided on Kelly Farm Drive in front of the site and at the intersection of Kelly Farm Drive and Bradwell Way. The stops are connected by sidewalks on both the north and south sides of the roadway to the school site. A school bus lay-by lane is provided adjacent the school on Kelly Farm Drive. The bus lay-by is connected to the school through pedestrian walkways.

4.1.2 Circulation and Access

An on-street school bus lay-by on Kelly Farm Drive and an on-street parent drop-off/pick-up lay-by on Bradwell Way are provided. The school will have one driveway to Kelly Farm Drive on the west side of the school, which is intended for staff parking and childcare drop-off/pick-up. The staff parking lot also contains the waste bins.

School bus lay-by – The school bus lay-by will provide approximately 140 metres of storage space, capable of servicing eleven full-sized school buses at one time. The school board has indicated there will be up to six school buses used in the future when operating at capacity. Given that all buses are full-sized and present at one time, the lay-by will adequately service the future school bus lay-by demands. The 40 metres of school bus lay-by storage on Bradwell Way should be reallocated to parent drop-off/pick-up activity.

Parent drop-off/pick-up lay-by – The parent drop-off/pick-up lay-by is located on the east side of Bradwell Way. The lay-by parking bay provides storage space for approximately 13 vehicles, with an additional six vehicles from the unused bus lay-by storage. During the morning drop-off period, it is forecast to generate up to 100 vehicles over a 20-minute period, requiring each drop-off space to process (turnover) 5.3 vehicles (100/19) in the 20-minute period in advance of the bell time. Therefore, an average drop-off duration of less than four minutes (20/5.3) per vehicle is required, which is achievable. Parents should be encouraged to drop their students at the curb and continue their trip as opposed to entering the school. Given the location of the parent drop-off, the school should provide an

organized program to safely and efficiently bring the children between the two facilities, otherwise parents may walk their child into the school resulting in a lack of parking turnover in the lay-by area.

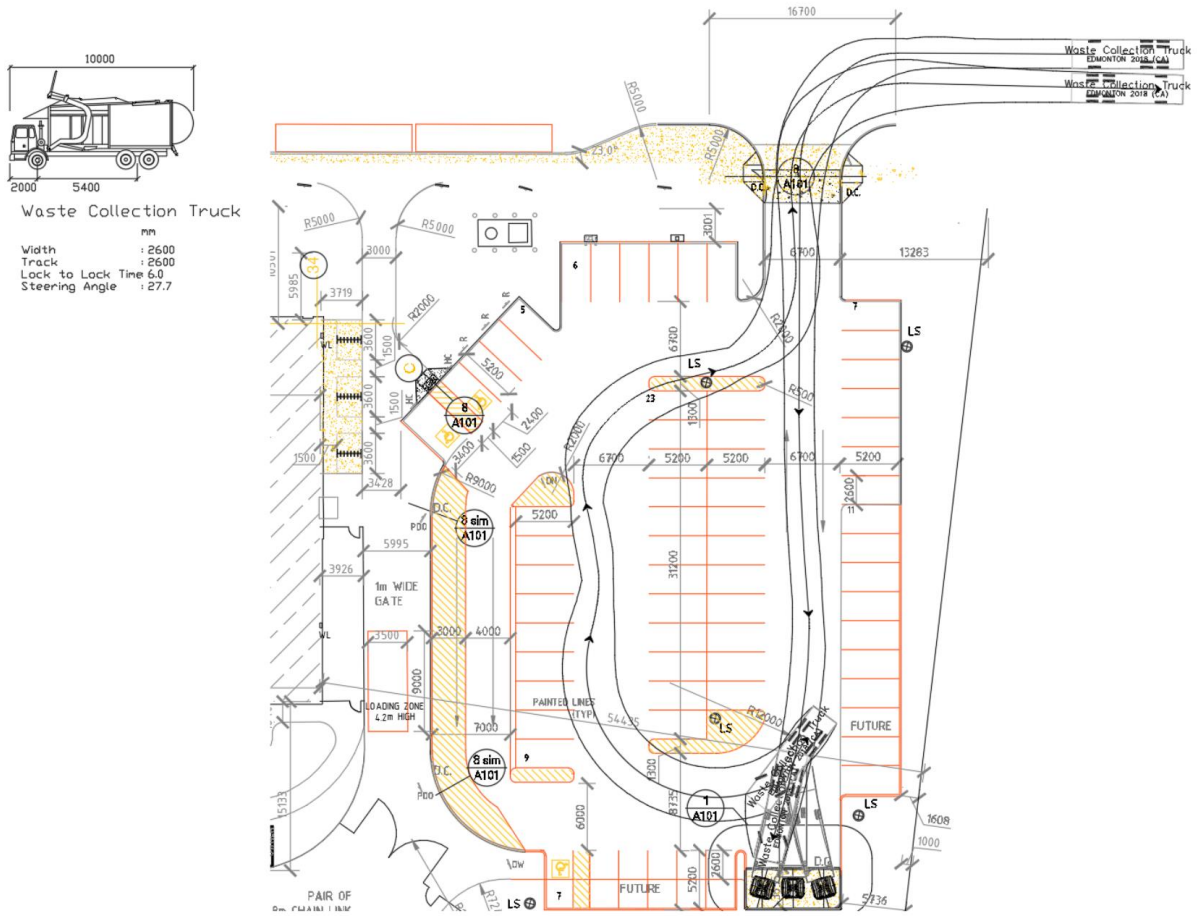
Following the afternoon bell, pick-ups are forecast to occur within a short 15-minute period. The after school pick-up demand is forecast at 66 vehicles, which would require each lay-by space to process (turnover) 3.5 vehicles (66/19) in 15-minutes. The average pick-up duration should not exceed approximately 4.2 minutes. To improve the pick-up operations at the end of the day, the school bus students could be released a few minutes in advance of the other students, which would allow the school buses to clear while providing additional space for parent pick-up short term parking. In addition, the west side of Kelly Farm Drive south to Findlay Creek Drive and on the east side of Findlay Creek Drive can be used for after school parent pick-up areas.

It is strongly recommended that the start and end of day bells are offset by at least 30 minutes from the adjacent Vimy Ridge Public School to avoid overlapping drop-off/pick-up activities.

Waste collection – The staff parking lot will be marked using painted lines. Parking end isles will be painted, therefore waste collection vehicles will be able to easily maneuver through the parking lot on weekends or after the school day has finished.

Figure 20 illustrates the waste collection truck easily maneuver in and out of the site, which was produced using AutoTURN software.

Figure 20: Waste Collection Truck Turning Templates



Childcare drop-off/pick-up area – The childcare drop-off/pick-up area is located within the staff parking lot and has approximately 30 metres designated for a drop-off/pick-up area, which can accommodate approximately five vehicles at a time. There are up to 18 drop-offs/pick-ups that may need to occur within an hour, which would require that each drop-off/pick-up parking space to process four vehicles per hour (18/5). Therefore, drop-offs/pick-ups would need to be less than 15 minutes (60/4). There is adequate short-term parking storage for the childcare drop-off/pick-up activity.

4.2 Parking

4.2.1 Parking Supply

Automobile Parking – As per City of Ottawa Zoning By-law 2008-250 (Sections 101 and 102), the minimum parking space rate is 1.5 parking spaces per classroom and one parking spaces per 50 m^2 of childcare space. The school will have 22 classrooms with up to 18 portables in the future. Therefore, 39 parking spaces[2] are required for the school without portables and 66 parking spaces[3] may be required if

[2] 22 classrooms x 1.5 spaces/classroom + 275 sq.m. daycare x 1 parking space / 50 sq.m daycare = 39 spaces

[3] (22 classrooms + 18 portables) x 1.5 spaces/classroom + 275 sq.m. daycare x 1 parking space / 50 sq.m daycare = 66 spaces

the school reaches its maximum capacity. The site plan shows that 50 parking spaces will be provided at build-out and 67 parking spaces could be provided if the school reaches its maximum capacity. The proposed site plan shows parking supply exceeds the zoning by-law requirement.

Bicycle Parking – As per City of Ottawa Zoning By-law 2016-249 (Section 111), the minimum bicycle parking rate is one bicycle parking space per 100 m^2 of gross floor area. Therefore, 47 bicycle parking spaces[4] are required, the site plan provides 48 spaces with six bicycle parking racks. Therefore, the site plan meets the zoning by-law requirements.

4.3 Boundary Street Design

4.3.1 Mobility

The Multi-Modal Level of Service (MMLOS) was evaluated of Kelly Farm Drive and Bradwell Way to assist with developing a concept that maximizes the achievement of the MMLOS objectives. Since the development is within 300 metres of a school (the site itself), it is subject to MMLOS targets of the school policy area. Note that there are no targets for trucks on a collector roadway within the school policy area, and there are no targets for auto traffic between intersections (there are targets for auto traffic at signalized intersections only, there are no signalized intersections within proximity of the site).

Table 9 presents the MMLOS conditions for roadway segments adjacent the school on Kelly Farm Drive and Bradwell Way. This MMLOS analysis is based on the planned conditions of the roadways once the school is constructed, which includes a mixed (auto and bicycle) travel lane adjacent the parking lay-by and sidewalks on both sides of Kelly Farm Drive. Bradwell Way is provided with a parking lay-by and sidewalk on the east side of the roadway. Kelly Farm Drive has a posted speed limit of 40 km/h and the posted speed limit on Bradwell Way is 30km/h.

The analysis shows that all MMLOS targets are met for cycling and transit modes on Kelly Farm Drive and Bradwell Way. The MMLOS targets for pedestrians are not met and could only be met if the speed limit on Kelly Farm Drive was reduced to 30 km/h and if a boulevard of at least 0.5 metres wide was added beside the sidewalk on Bradwell Way.

[4] 4,647sq.m gross school floor area x 1 bicycle parking space / 100 sq.m = 47 bicycle parking spaces

Table 9: MMLOS Conditions - Segments

Travel Mode	Criteria	Target	Kelly Farm Drive Collector Road (26 D)	Bradwell Way Local Road
Pedestrian LOS	Sidewalk width	A	1.8 metres	2 metres
	Boulevard width		0.5 – 2 metres	0 metres
	AADT < 3000		No (assume 14x multiplier for AM peak hour volumes)	Yes (assume 14x multiplier for AM peak hour volumes)
	On-Street Parking		Yes	Yes
	Operating Speed		> 30 or <50 km/h	> 30 or <50 km/h
	Level of Service		**C**	**B**
Cycling LOS	Type of facility	B	Mixed traffic	Mixed traffic
	Number of travel lanes/direction		1	1
	Operating speed		≤ 40 km/h	≤ 40 km/h
	Level of Service		**A**	**A**
Transit LOS	Type of facility	D	Mixed traffic	Mixed traffic
	Parking/driveway friction		Limited / Low	Limited / Low
	Level of Service		**D**	**D**

4.3.2 Road Safety

The roadway should continue to operate with an acceptable safety performance. Traffic speeds should remain low and traffic volumes should remain similar to the existing condition.

4.4 Access Intersection Design

4.4.1 Location and Design of Driveway

The site driveway is located on Kelly Farm Drive providing a single lane in and out of the site. The site driveway is 6.5 metres wide and provides a clear throat distance of greater than 15 metres from the property line. This meets the requirements of the City of Ottawa Private Approach Bylaw (#2003-447). The driveway is located with clear sightlines and should operate safely.

4.4.2 Intersection Control

The site driveway will be located on a relatively low-volume collector roadway (<5,000 AADT); therefore, stop-control (TWSC) facing traffic exiting the site driveway is appropriate.

4.4.3 Access Intersection Design

Table 10 summarizes the traffic operations for the intersection of Kelly Farm Drive and the site driveway for the weekday AM and PM peak hours in the 2025 and 2030 horizon years. **Appendix E** contains the intersection performance worksheets. Assuming single lane approaches and a stop sign facing traffic exiting the school, the driveway intersection will operate at a LOS A with minimal delay.

Table 10: Site Driveway and Kelly Farm Drive Intersection Operations

Total Future 2025				
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**	**Q95th (m)**
EB LR	9.8 (9.6)	A (A)	0.02 (0.04)	0.5 (1.0)
NB TR	2.4 (0.0)	A (A)	0.04 (0.07)	0.9 (0.0)
SB LT	0.0 (0.0)	A (A)	0.12 (0.11)	0.0 (0.0)
Total Future 2030				
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**	**Q95th (m)**
EB LR	9.9 (9.6)	A (A)	0.02 (0.04)	0.6 (1.0)
NB TR	2.3 (0.0)	A (A)	0.04 (0.07)	0.9 (0.0)
SB LT	0.0 (0.0)	A (A)	0.12 (0.11)	0.0 (0.0)

Note: Results are presented in the format AM (PM) peak hour; Q95th (m) indicates the 95th percentile queues, LOS is an abbreviation for Level-of-Service, EB = eastbound, WB = westbound, SB = southbound; LTR = left, through, right movements for single lane

4.5 Transportation Demand Management

Appendix E contains the TDM checklists. From the TDM checklists, some recommendations are as follows:

- Display relevant transit schedules and route maps at entrances;
- Provide links to OC Transpo and STO information on the school board website; and,
- Provide shower and lockers for staff use (these measures are provided).

The school board should also consider offering preloaded PRESTO cards to encourage commuters to use transit, or provide reimbursement of monthly transit passes for employees.

4.6 Neighbourhood Traffic Management

Kelly Farm Drive is a collector road and Bradwell Way is a local road.

Forecast traffic volumes on Kelly Farm Drive during the weekday AM peak hour north of Bradwell Way are 272 vehicles per hour (vph), or approximately 3,300 vehicles per day (vpd). To the north of Findlay Creek Drive, the forecast two-way traffic volume is 371 vph or approximately 4,450 vpd. The forecast traffic volumes are generally in keeping with the collector roadway designation.

On Bradwell Way just west of Kelly Farm Drive, the forecast AM peak hour traffic volume is 136 vph, or 1,600 vpd. At the south end of Bradwell Way at Findlay Creek Drive, the traffic volumes are forecast at 120 vph, or approximately 1,400 vpd. The forecast traffic volumes are in keeping with a local roadway designation.

Given that the traffic volumes are within their roadway classifications and that the school activity is concentrated over short durations, neighbourhood traffic management is not deemed necessary.

4.7 Transit

The proposed school may generate a very small number of OC Tranpso transit trips and therefore transit service will not be significantly impacted.

Transit service and stop locations are located directly in front of the proposed school on Kelly Farm Drive and at the intersection of Kelly Farm Drive and Bradwell Way.

4.8 Review of Network Concept

A review of the network concept is not included within this study. The network concept review is only required when a proposed development generates more than 200 person trips during the peak hour in excess of the equivalent volume permitted by established zoning. The proposed school is in keeping with the proposed zoning.

4.9 Intersection Design

The following subsections provide a review of the study area intersection traffic operations. The existing, 2025 and 2030 forecast total future traffic conditions have been analysed using Synchro 11 software. The analysis includes the existing lane geometry and traffic control, as shown in **Figure 7**. The level-of-service (LOS) of traffic signal controlled intersections in the City of Ottawa is based on the volume to capacity (v/c) ratio, refer to **Appendix D** for the City of Ottawa LOS definitions.

4.9.1 Findlay Creek Drive and Golden Sedge Way

The intersection is forecast to operate at an acceptable LOS in future, as indicated in **Table 11**. The school impact on the intersection is negligible. Intersection modifications or traffic control modifications are not required to address auto traffic demands.

Table 11: Findlay Creek Drive and Golden Sedge Way Intersection Operations

Existing				
Approach/ Movement	**Delay (s)** AM (PM)	**LOS** AM (PM)	**V/C** AM (PM)	**Q95th (m)** AM (PM)
EB LT	0.0 (0.1)	A (A)	0.00 (0.00)	0.0 (0.1)
WB TR	0.0 (0.0)	A (A)	0.14 (0.16)	0.0 (0.0)
SB LR	10.4 (11.6)	B (B)	0.03 (0.02)	0.6 (0.5)
Total Future 2025				
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**	**Q95th (m)**
EB LT	0.0 (0.1)	A (A)	0.00 (0.00)	0.0 (0.1)
WB TR	0.0 (0.0)	A (A)	0.16 (0.17)	0.0 (0.0)
SB LR	10.7 (11.9)	B (B)	0.03 (0.02)	0.6 (0.5)
Total Future 2030				
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**	**Q95th (m)**
EB LT	0.0 (0.1)	A (A)	0.00 (0.00)	0.0 (0.1)

WB TR	0.0 (0.0)	A (A)	0.16 (0.17)	0.0 (0.0)
SB LR	10.7 (11.9)	B (B)	0.03 (0.02)	0.6 (0.5)

Note: Results are presented in the format AM (PM) peak hour; Q95th (m) indicates the 95th percentile queues, LOS is an abbreviation for Level-of-Service, EB = eastbound, WB = westbound, SB = southbound; LTR = left, through, right movements for single lane

4.9.2 Findlay Creek Drive and Bradwell Way

The intersection is forecast to operate at an acceptable LOS in future, as indicated in **Table 12**. The school impact on the intersection is negligible. Intersection modifications or traffic control modifications are not required to address auto traffic demands.

Table 12: Findlay Creek Drive and Bradwell Way Intersection Operations

Existing				
Approach/ Movement	**Delay (s)** AM (PM)	**LOS** AM (PM)	**V/C** AM (PM)	**Q95th (m)** AM (PM)
EB LT	0.9 (0.6)	A (A)	0.02 (0.01)	0.4 (0.3)
WB TR	0.0 (0.0)	A (A)	0.14 (0.17)	0.0 (0.0)
SB LR	10.9 (11.4)	B (B)	0.04 (0.02)	0.9 (0.4)
Total Future 2025				
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**	**Q95th (m)**
EB LT	1.2 (0.9)	A (A)	0.03 (0.02)	0.7 (0.5)
WB TR	0.0 (0.0)	A (A)	0.18 (0.20)	0.0 (0.0)
SB LR	11.1 (11.4)	B (B)	0.06 (0.03)	1.4 (0.8)
Total Future 2030				
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**	**Q95th (m)**
EB LT	1.2 (0.9)	A (A)	0.03 (0.02)	0.7 (0.5)
WB TR	0.0 (0.0)	A (A)	0.18 (0.20)	0.0 (0.0)
SB LR	11.1 (11.4)	B (B)	0.06 (0.03)	1.4 (0.8)

4.9.3 Findlay Creek Drive and Kelly Farm Drive

The All-Way Stop controlled intersection is forecast to operate at an acceptable LOS in future, as indicated in **Table 13**. The school impact on the intersection is negligible. Intersection modifications or traffic control modifications are not required to address auto traffic demands.

Table 13: Findlay Creek Drive and Kelly Farm Drive Intersection Operations

Existing			
Approach/ Movement	**Delay (s)** AM (PM)	**LOS** AM (PM)	**V/C** AM (PM)
EB LTR	10.7 (10.5)	B (B)	0.34 (0.34)
WB LTR	10.2 (11.0)	B (B)	0.30 (0.39)
NB LTR	10.2 (9.9)	B (A)	0.26 (0.21)
SB LTR	10.0 (9.8)	B (A)	0.20 (0.18)

Total Future 2025			
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**
EB LTR	12.6 (12.1)	B (B)	0.41 (0.39)
WB LTR	12.8 (13.6)	B (B)	0.43 (0.49)
NB LTR	12.3 (11.4)	B (B)	0.37 (0.29)
SB LTR	12.5 (12.0)	B (B)	0.35 (0.34)
Total Future 2030			
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**
EB LTR	12.8 (12.3)	B (B)	0.41 (0.40)
WB LTR	13.0 (14.0)	B (B)	0.45 (0.50)
NB LTR	12.5 (11.5)	B (B)	0.37 (0.29)
SB LTR	12.8 (12.4)	B (B)	0.38 (0.36)

4.9.4 Findlay Creek Drive and Long Point Crescent

The intersection is forecast to operate at an acceptable LOS in future, as indicated in **Table 14**. The school impact on the intersection is negligible. Intersection modifications or traffic control modifications are not required to address auto traffic demands.

Table 14: Findlay Creek Drive and Long Point Crescent Intersection Operations

Existing				
Approach/ Movement	**Delay (s)** AM (PM)	**LOS** AM (PM)	**V/C** AM (PM)	**Q95th (m)** AM (PM)
EB LT	0.2 (0.4)	A (A)	0.01 (0.01)	0.1 (0.2)
WB TR	0.0 (0.0)	A (A)	0.14 (0.19)	0.0 (0.0)
SB LR	11.5 (12.5)	B (B)	0.08 (0.08)	2.2 (2.1)
Total Future 2025				
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**	**Q95th (m)**
EB LT	0.3 (0.4)	A (A)	0.01 (0.01)	0.2 (0.3)
WB TR	0.0 (0.0)	A (A)	0.17 (0.21)	0.0 (0.0)
SB LR	12.5 (13.4)	B (B)	0.10 (0.09)	2.7 (2.4)
Total Future 2030				
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**	**Q95th (m)**
EB LT	0.3 (0.4)	A (A)	0.01 (0.01)	0.2 (0.3)
WB TR	0.0 (0.0)	A (A)	0.18 (0.21)	0.0 (0.0)
SB LR	12.7 (13.5)	B (B)	0.10 (0.09)	2.7 (2.5)

4.9.5 Bradwell Way and Kelly Farm Drive

The intersection is forecast to operate at an acceptable LOS in future, as indicated in **Table 15.** The school impact on the intersection is negligible. Intersection modifications or traffic control modifications are not required to address auto traffic demands.

Table 15: Bradwell Way and Kelly Farm Drive Intersection Operations

Existing				
Approach/ Movement	**Delay (s)** AM (PM)	**LOS** AM (PM)	**V/C** AM (PM)	**Q95th (m)** AM (PM)
EB LTR	9.1 (9.0)	A (A)	0.03 (0.02)	0.9 (0.6)
WB LTR	9.9 (9.8)	A (A)	0.01 (0.01)	0.3 (0.2)
NB LTR	1.0 (0.3)	A (A)	0.01 (0.00)	0.3 (0.1)
SB LTR	0.2 (0.3)	A (A)	0.00 (0.00)	0.0 (0.1)
Total Future 2025				
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**	**Q95th (m)**
EB LTR	9.9 (9.6)	A (A)	0.13 (0.10)	3.5 (2.7)
WB LTR	10.6 (10.4)	B (B)	0.01 (0.01)	0.3 (0.2)
NB LTR	0.9 (0.3)	A (A)	0.01 (0.00)	0.3 (0.1)
SB LTR	0.1 (0.2)	A (A)	0.00 (0.00)	0.0 (0.1)
Total Future 2030				
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**	**Q95th (m)**
EB LTR	10.0 (9.7)	A (A)	0.13 (0.10)	3.5 (2.8)
WB LTR	10.7 (10.5)	B (B)	0.01 (0.01)	0.3 (0.2)
NB LTR	0.9 (0.3)	A (A)	0.01 (0.00)	0.3 (0.1)
SB LTR	0.1 (0.2)	A (A)	0.00 (0.00)	0.0 (0.1)

4.9.6 Kelly Farm Drive and White Alder Avenue

The All-Way Stop controlled intersection is forecast to operate at an acceptable LOS in future, as indicated in **Table 16**. The school impact on the intersection is negligible. Intersection modifications or traffic control modifications are not required to address auto traffic demands.

Table 16: Kelly Farm Drive and White Alder Avenue Intersection Operations

Existing			
Approach/ Movement	**Delay (s)** AM (PM)	**LOS** AM (PM)	**V/C** AM (PM)
EB LTR	8.1 (8.0)	A (A)	0.07 (0.04)
WB LTR	7.7 (7.6)	A (A)	0.08 (0.05)
NB LTR	8.1 (7.7)	A (A)	0.15 (0.08)
SB LTR	8.1 (8.2)	A (A)	0.15 (0.19)
Total Future 2025			
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**
EB LTR	8.3 (8.1)	A (A)	0.07 (0.04)
WB LTR	8.0 (7.8)	A (A)	0.10 (0.06)
NB LTR	8.4 (7.8)	A (A)	0.18 (0.11)
SB LTR	8.5 (8.4)	A (A)	0.19 (0.21)
Total Future 2030			
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**

EB LTR	8.3 (8.1)	A (A)	0.07 (0.04)
WB LTR	8.0 (7.9)	A (A)	0.10 (0.06)
NB LTR	8.5 (7.9)	A (A)	0.19 (0.12)
SB LTR	8.6 (8.5)	A (A)	0.21 (0.23)

4.9.7 Bank Street and Findlay Creek Drive

The intersection of Bank Street and Findlay Creek Drive currently operates at a very good LOS based on the existing traffic volumes, lane geometry and traffic control.

The intersection is forecast to operate over capacity based on the existing lane geometry and traffic signal timing. A detailed design project to address the capacity deficiencies is currently being undertaken by the city. The preliminary detailed design seeks to incorporate protected bicycle crossings however the preliminary findings indicate that the intersection will experience significant challenges as the design attempts to accommodate all users. This report has not identified future intersection improvements at the intersection.

Table 17: Bank Street and Findlay Creek Drive Intersection Operations

Existing			
Approach/ Movement	**Delay (s)** AM (PM)	**LOS** AM (PM)	**V/C** AM (PM)
EB L	59.4 (63.4)	D(D)	0.90 (0.85)
EB TR	27.2 (36.3)	A(A)	0.04 (0.03)
WB L	0 (36.2)	A(A)	0.00 (0.03)
WB TR	26.8 (36.1)	A(A)	0.00 (0.01)
NB L	8.6 (6.2)	A(A)	0.05 (0.08)
NB T	11.8 (7.1)	A(A)	0.39 (0.25)
NB R	8.1 (5.4)	A(A)	0.00 (0.00)
SB L	8.2 (5.5)	A(A)	0.01 (0.01)
SB T	11.1 (9.6)	A(A)	0.34 (0.48)
SB R	8.8 (7.0)	A(A)	0.09 (0.23)
Overall	**24.7 (17.9)**	**A (A)**	**0.56 (0.58)**
Total Future 2025			
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**
EB L	121.9 (84.6)	F (E)	1.12 (0.95)
EB TR	25.2 (34.2)	A (A)	0.07 (0.14)
WB L	25.7 (36.3)	A (A)	0.13 (0.32)
WB TR	27.1 (34.2)	A (A)	0.25 (0.15)
NB L	10.3 (18.1)	A (A)	0.08 (0.30)
NB T	99.3 (17.9)	F (C)	1.15 (0.76)
NB R	9.4 (6.8)	A (A)	0.00 (0.00)
SB L	564.0 (200.8)	F (F)	2.10 (1.34)
SB T	16.8 (26.3)	A (D)	0.59 (0.89)
SB R	10.0 (8.3)	A (A)	0.07 (0.21)
Overall	**96.5 (42.6)**	**F (F)**	**1.74 (1.22)**

Total Future 2030			
Approach/ Movement	**Delay (s)**	**LOS**	**V/C**
EB L	324.1 (132.6)	F (F)	1.60 (1.10)
EB TR	25.4 (34.1)	A (A)	0.09 (0.22)
WB L	25.7 (35.7)	A (A)	0.12 (0.34)
WB TR	30.7 (34.9)	A (A)	0.53 (0.28)
NB L	11.4 (43.2)	A (A)	0.13 (0.54)
NB T	227.8 (33.0)	F (E)	1.44 (0.94)
NB R	9.4 (7.2)	A (A)	0.00 (0.01)
SB L	780.3 (2247.5)	F (F)	2.59 (5.87)
SB T	19.6 (80.1)	B (F)	0.69 (1.10)
SB R	10.0 (8.9)	A (A)	0.07 (0.22)
Overall	**188.1 (264.6)**	**F (F)**	**2.23 (4.45)**

4.9.8 Pedestrian Crossing

Motorists travelling on Findlay Creek Drive approaching the Kelly Farm Drive intersection are presented with school crossing ahead signs in advance of the intersection. It should be noted by the City of Ottawa that school crossing signs are not present at the all-way stop crossing, as illustrated in **Figure 21**. It is recommended that the City of Ottawa review the signage at this intersection.

The Kelly Farm Drive at Bradwell Way intersection is currently signed as a school crossing on the south leg of the intersection as illustrated in **Figure 22**. The proposed school site is forecast to generate an additional 160 students walking trips within Findlay Creek to/from the school each day. Kelly Farm Drive is a collector road with an 11 metre curb-to-curb width in front of the proposed school, and the intersection is located more than 200 metres from the closest traffic control device. The City of Ottawa should monitor the Kelly Farm Drive and Bradwell Way intersection to determine if a pedestrian crossover (PXO) becomes warranted.

Figure 21: Westbound Findlay Creek Drive missing School Crossing Signage at Kelly Farm

Figure 22: Northbound Kelly Farm Drive at Bradwell Way – School Crossing

5.0 Summary/Conclusions

The Ottawa Catholic School Board is proposing to construct a new elementary school and childcare facility at 4140 Kelly Farm Drive in the Leitrim community. The site is located on the southwest corner of the Kelly Farm Drive and Bradwell Way intersection. The proposed single storey elementary school is 4,630 m^2 (49,837 sq. ft.) and will provide a 275 m^2 (2,960 sq. ft) childcare facility. The site plan includes the potential for up to 18 future portable classrooms, although the school board has indicated that they anticipate a maximum of to 9 portables. The school is planned to be fully operational by September 2024. The site zoning permits a school and childcare facility.

The site plan provides appropriate bicycle parking facilities, a total of six bicycle racks are proposed, each capable of supporting eight bicycles, for a total of 48 bicycle parking spaces. Pedestrian access from the public sidewalks are well defined and lead to the school doors. Adequate parking is provided to address the school parking demands and the short-term parking needs of the childcare centre.

The proposed site plan includes a defined parking lay-by area on Kelly Farm Drive to accommodate up to eight school buses, with an additional three school buses in the Bradwell Way lay-by if required. A parent drop-off/pick-up lay-by area is planned on Bradwell Way capable of accommodating up to 19 vehicles (if the school bus does not use the Bradwell Way lay-by), with the design in keeping with the City of Ottawa Local Residential Streets 30 km/h Design Toolbox guidelines.

It is forecast that Kelly Farm Drive and Bradwell Way will meet the MMLOS targets for cycling and transit, however will only achieve a pedestrian LOS C and LOS B, respectively.

The school driveway to Kelly Farm Drive is anticipated to operate at LOS A with minimal delay during the weekday AM and PM peak hours. The intersection should operate under stop-control at the driveway, a formal stop sign is not required however could be provided.

All of the unsignalized intersections within the study area are forecast to operate at a very acceptable LOS to the 2030 future horizon year.

The signalized intersection of Bank Street and Findlay Creek Drive is anticipated to operate over capacity by 2025 based on the existing lane geometry. The city is currently preparing a detailed design for the reconstruction of the intersection to address the forecast capacity issues.

The following are recommended:

1. The City of Ottawa should review the School Crossing and Advance School Crossing signage at the Findlay Creek Drive and Kelly Farm Drive intersection for conformity with OTM Book 6.

2. The City of Ottawa should monitor the Kelly Farm Drive and Bradwell Way intersection, which currently provides a signed school crossing. Over time, the crossing may warrant a pedestrian crossover (PXO).
3. Given the location of the parent drop-off, the school should provide an organized program to safely and efficiently bring the children between the two facilities, otherwise parents may walk their child into the school resulting in a lack of parking turnover in the lay-by area.
4. The school bell times should be offset at least 30 minutes from the adjacent Vimy Ridge Public School to avoid overlapping transportation demands.
5. The following TDM measures are to be provided:
    - Display relevant transit schedules and route maps at school entrances;
    - Provide links to OC Transpo and STO information on the school board website;
    - Provide shower and lockers for staff use (these measures are provided); and,
    - Consider offering preloaded PRESTO cards to encourage commuters to use transit, or provide reimbursement of monthly transit passes for employees.

Appendix A

Traffic Count Data

5571092 - COVID - WHITE ALDER AVE @ KELLY FA... - TMC

Tue Jun 7, 2022
Full Length (2:30 PM-5 PM, 7:30 AM-9:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962158, Location: 45.318765, -75.608157, Site Code: 40315103

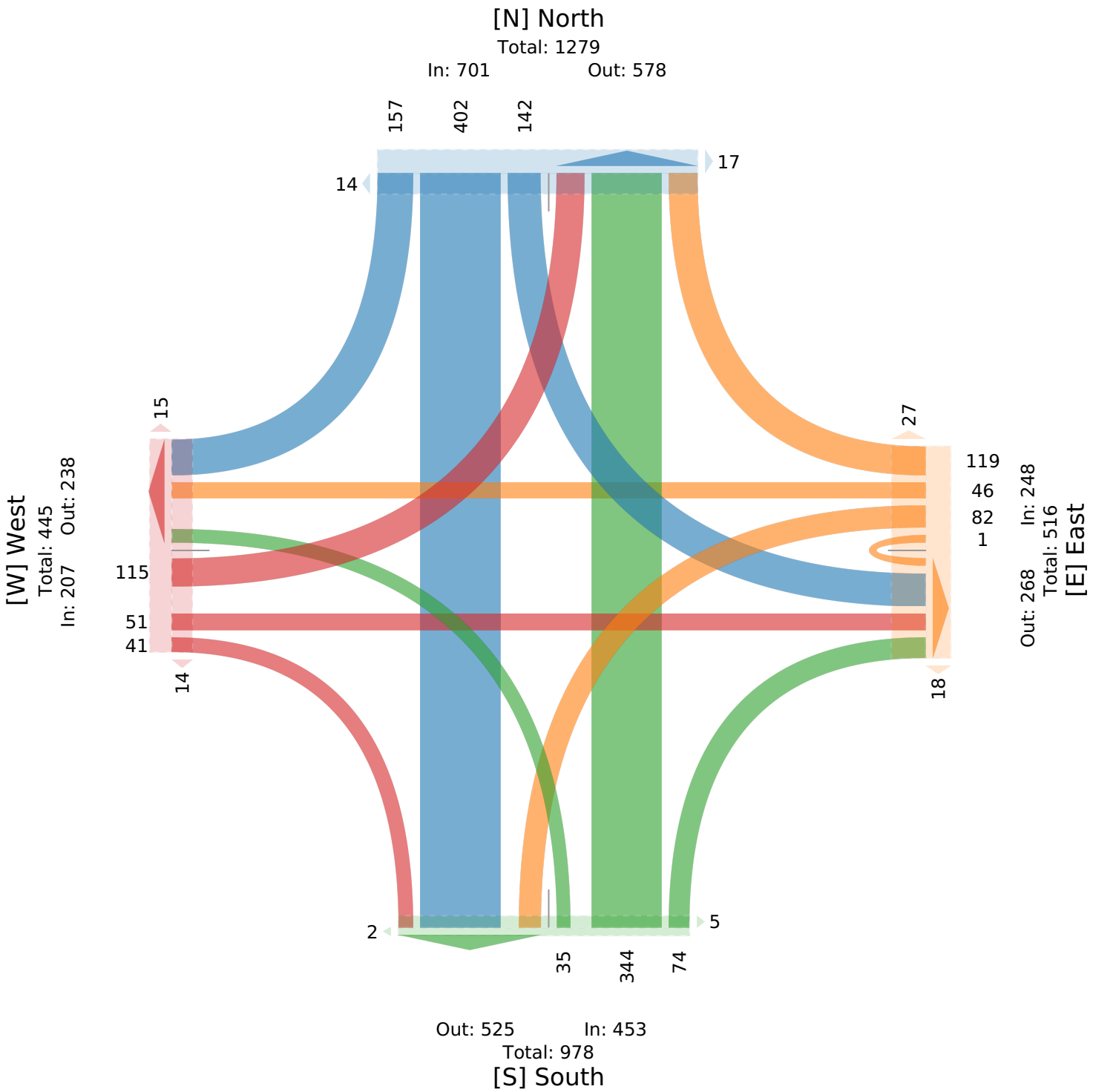
Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA

Leg	North						East						South						West						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2022-06-07 7:30AM	2	8	2	0	**12**	5	8	0	5	0	**13**	5	3	21	4	0	**28**	1	2	2	8	0	**12**	2	**65**
7:45AM	3	16	2	0	**21**	3	7	3	5	0	**15**	2	4	21	0	0	**25**	0	0	1	8	0	**9**	0	**70**
Hourly Total	5	24	4	0	**33**	8	15	3	10	0	**28**	7	7	42	4	0	**53**	1	2	3	16	0	**21**	2	**135**
8:00AM	2	19	8	0	**29**	1	10	3	2	0	**15**	2	6	20	3	0	**29**	1	6	3	7	0	**16**	2	**89**
8:15AM	7	14	8	0	**29**	1	10	6	3	0	**19**	0	1	15	0	0	**16**	2	0	4	6	0	**10**	2	**74**
8:30AM	13	17	6	0	**36**	3	8	3	8	0	**19**	1	4	15	1	0	**20**	0	2	4	8	0	**14**	0	**89**
8:45AM	4	21	6	0	**31**	3	4	0	4	0	**8**	4	3	14	1	0	**18**	0	2	1	10	0	**13**	5	**70**
Hourly Total	26	71	28	0	**125**	8	32	12	17	0	**61**	7	14	64	5	0	**83**	3	10	12	31	0	**53**	9	**322**
9:00AM	5	31	2	0	**38**	1	5	3	10	0	**18**	9	5	26	2	0	**33**	0	6	2	10	0	**18**	1	**107**
9:15AM	6	27	4	0	**37**	2	9	1	5	0	**15**	1	5	31	1	0	**37**	1	1	5	6	0	**12**	4	**101**
Hourly Total	11	58	6	0	**75**	3	14	4	15	0	**33**	10	10	57	3	0	**70**	1	7	7	16	0	**30**	5	**208**
2:30PM	6	16	7	0	**29**	2	8	2	2	0	**12**	0	1	10	2	0	**13**	0	3	1	3	0	**7**	4	**61**
2:45PM	6	25	7	0	**38**	0	5	0	2	0	**7**	5	4	12	0	0	**16**	0	1	1	2	0	**4**	0	**65**
Hourly Total	12	41	14	0	**67**	2	13	2	4	0	**19**	5	5	22	2	0	**29**	0	4	2	5	0	**11**	4	**126**
3:00PM	11	20	8	0	**39**	2	4	3	2	0	**9**	1	3	12	2	0	**17**	0	2	0	8	0	**10**	3	**75**
3:15PM	9	24	11	0	**44**	1	6	2	4	1	**13**	0	4	11	2	0	**17**	0	2	1	3	0	**6**	0	**80**
3:30PM	14	37	8	0	**59**	0	2	4	9	0	**15**	0	4	14	3	0	**21**	0	1	5	5	0	**11**	1	**106**
3:45PM	16	30	10	0	**56**	3	7	5	3	0	**15**	7	8	40	2	0	**50**	2	1	7	14	0	**22**	4	**143**
Hourly Total	50	111	37	0	**198**	6	19	14	18	1	**52**	8	19	77	9	0	**105**	2	6	13	30	0	**49**	8	**404**
4:00PM	12	26	15	0	**53**	2	10	2	3	0	**15**	4	6	23	2	0	**31**	0	3	5	4	0	**12**	1	**111**
4:15PM	13	27	16	0	**56**	1	4	3	3	0	**10**	1	2	12	2	0	**16**	0	1	2	3	0	**6**	0	**88**
4:30PM	12	23	13	0	**48**	1	2	3	5	0	**10**	0	4	15	2	0	**21**	0	2	2	5	0	**9**	0	**88**
4:45PM	16	21	9	0	**46**	0	10	3	7	0	**20**	3	7	32	6	0	**45**	0	6	5	5	0	**16**	0	**127**
Hourly Total	53	97	53	0	**203**	4	26	11	18	0	**55**	8	19	82	12	0	**113**	0	12	14	17	0	**43**	1	**414**
Total	157	402	142	0	**701**	31	119	46	82	1	**248**	45	74	344	35	0	**453**	7	41	51	115	0	**207**	29	**1609**
% Approach	22.4%	57.3%	20.3%	0%	**-**	-	48.0%	18.5%	33.1%	0.4%	**-**	-	16.3%	75.9%	7.7%	0%	**-**	-	19.8%	24.6%	55.6%	0%	**-**	-	**-**
% Total	9.8%	25.0%	8.8%	0%	**43.6%**	-	7.4%	2.9%	5.1%	0.1%	**15.4%**	-	4.6%	21.4%	2.2%	0%	**28.2%**	-	2.5%	3.2%	7.1%	0%	**12.9%**	-	**-**
Lights and Motorcycles	155	381	127	0	**663**	-	109	46	77	1	**233**	-	70	330	12	0	**412**	-	18	50	110	0	**178**	-	1486
% Lights and Motorcycles	98.7%	94.8%	89.4%	0%	**94.6%**	-	91.6%	100%	93.9%	100%	**94.0%**	-	94.6%	95.9%	34.3%	0%	**90.9%**	-	43.9%	98.0%	95.7%	0%	**86.0%**	-	92.4%
Heavy	2	21	14	0	**37**	-	8	0	4	0	**12**	-	4	14	23	0	**41**	-	23	1	5	0	**29**	-	119
% Heavy	1.3%	5.2%	9.9%	0%	**5.3%**	-	6.7%	0%	4.9%	0%	**4.8%**	-	5.4%	4.1%	65.7%	0%	**9.1%**	-	56.1%	2.0%	4.3%	0%	**14.0%**	-	7.4%
Bicycles on Road	0	0	1	0	**1**	-	2	0	1	0	**3**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	4
% Bicycles on Road	0%	0%	0.7%	0%	**0.1%**	-	1.7%	0%	1.2%	0%	**1.2%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.2%
Pedestrians	-	-	-	-	-	30	-	-	-	-	-	44	-	-	-	-	-	7	-	-	-	-	-	26	
% Pedestrians	-	-	-	-	-	96.8%	-	-	-	-	-	97.8%	-	-	-	-	-	100%	-	-	-	-	-	89.7%	-
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	3	
% Bicycles on Crosswalk	-	-	-	-	-	3.2%	-	-	-	-	-	2.2%	-	-	-	-	-	0%	-	-	-	-	-	10.3%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5571092 - COVID - WHITE ALDER AVE @ KELLY FA... - TMC
Tue Jun 7, 2022
Full Length (2:30 PM-5 PM, 7:30 AM-9:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 962158, Location: 45.318765, -75.608157, Site Code: 40315103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA



5571092 - COVID - WHITE ALDER AVE @ KELLY FA... - TMC

Tue Jun 7, 2022
AM Peak (8:30 AM - 9:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962158, Location: 45.318765, -75.608157, Site Code: 40315103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA

Leg	North						East						South						West						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2022-06-07 8:30AM	13	17	6	0	**36**	3	8	3	8	0	**19**	1	4	15	1	0	**20**	0	2	4	8	0	**14**	0	**89**
8:45AM	4	21	6	0	**31**	3	4	0	4	0	**8**	4	3	14	1	0	**18**	0	2	1	10	0	**13**	5	**70**
9:00AM	5	31	2	0	**38**	1	5	3	10	0	**18**	9	5	26	2	0	**33**	0	6	2	10	0	**18**	1	**107**
9:15AM	6	27	4	0	**37**	2	9	1	5	0	**15**	1	5	31	1	0	**37**	1	1	5	6	0	**12**	4	**101**
Total	28	96	18	0	**142**	9	26	7	27	0	**60**	15	17	86	5	0	**108**	1	11	12	34	0	**57**	10	**367**
% Approach	19.7%	67.6%	12.7%	0%	**-**	-	43.3%	11.7%	45.0%	0%	**-**	-	15.7%	79.6%	4.6%	0%	**-**	-	19.3%	21.1%	59.6%	0%	**-**	-	**-**
% Total	7.6%	26.2%	4.9%	0%	**38.7%**	-	7.1%	1.9%	7.4%	0%	**16.3%**	-	4.6%	23.4%	1.4%	0%	**29.4%**	-	3.0%	3.3%	9.3%	0%	**15.5%**	-	**-**
PHF	0.538	0.774	0.750	-	**0.934**	-	0.722	0.583	0.675	-	**0.789**	-	0.850	0.694	0.625	-	**0.730**	-	0.458	0.600	0.850	-	**0.792**	-	0.857
Lights and Motorcycles	28	93	18	0	**139**	-	26	7	25	0	**58**	-	17	81	1	0	**99**	-	7	12	32	0	**51**	-	347
% Lights and Motorcycles	100%	96.9%	100%	0%	**97.9%**	-	100%	100%	92.6%	0%	**96.7%**	-	100%	94.2%	20.0%	0%	**91.7%**	-	63.6%	100%	94.1%	0%	**89.5%**	-	94.6%
Heavy	0	3	0	0	**3**	-	0	0	2	0	**2**	-	0	5	4	0	**9**	-	4	0	2	0	**6**	-	20
% Heavy	0%	3.1%	0%	0%	**2.1%**	-	0%	0%	7.4%	0%	**3.3%**	-	0%	5.8%	80.0%	0%	**8.3%**	-	36.4%	0%	5.9%	0%	**10.5%**	-	5.4%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	9	-	-	-	-	-	15	-	-	-	-	-	1	-	-	-	-	-	9	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	90.0%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	10.0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5571092 - COVID - WHITE ALDER AVE @ KELLY FA... - TMC

Tue Jun 7, 2022

AM Peak (8:30 AM - 9:30 AM)

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 962158, Location: 45.318765, -75.608157, Site Code: 40315103

Provided by: City of Ottawa
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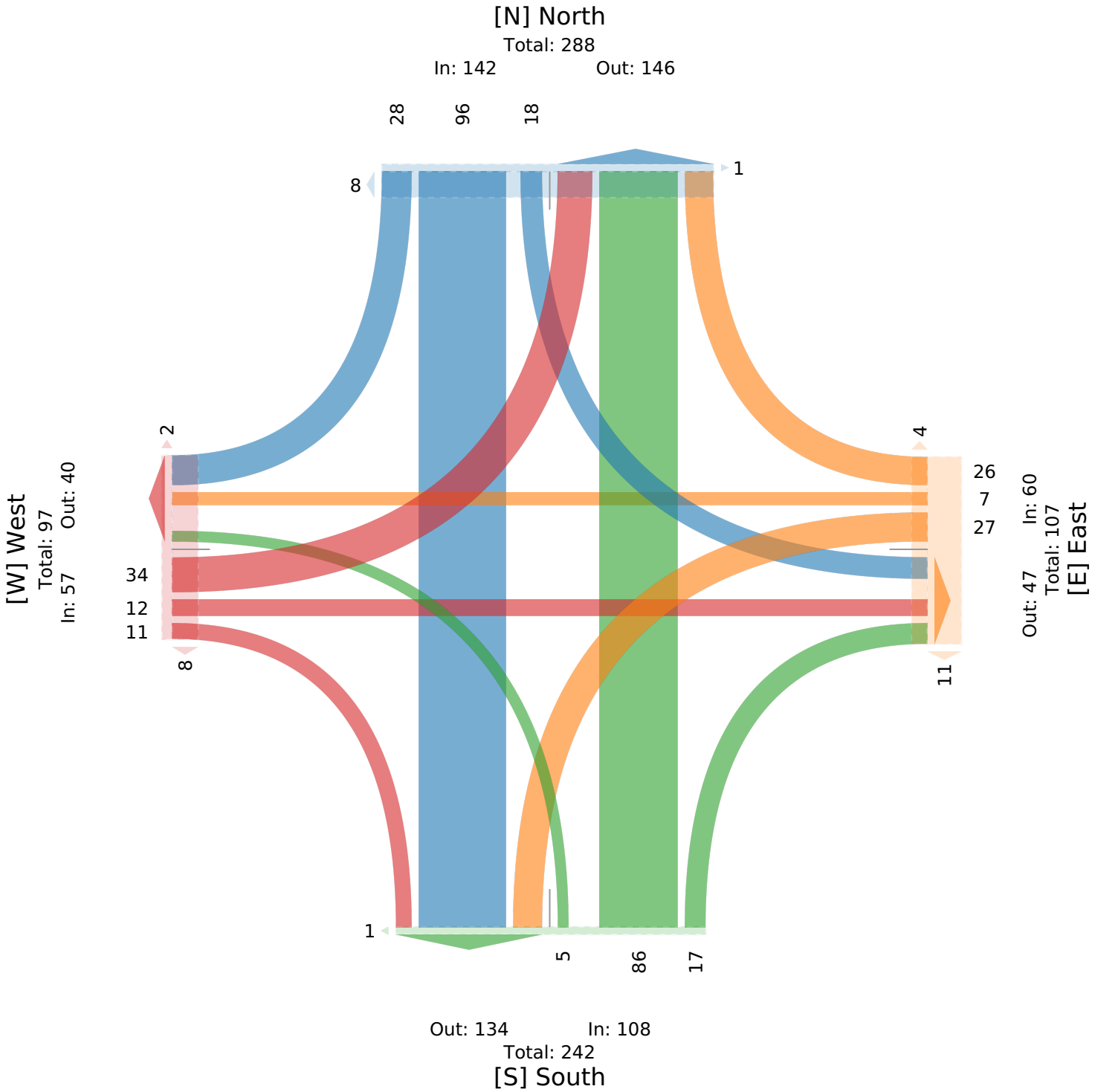


5571092 - COVID - WHITE ALDER AVE @ KELLY FA... - TMC

Tue Jun 7, 2022
PM Peak (3:30 PM - 4:30 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962158, Location: 45.318765, -75.608157, Site Code: 40315103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA

Leg	North						East						South						West						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2022-06-07 3:30PM	14	37	8	0	**59**	0	2	4	9	0	**15**	0	4	14	3	0	**21**	0	1	5	5	0	**11**	1	**106**
3:45PM	16	30	10	0	**56**	3	7	5	3	0	**15**	7	8	40	2	0	**50**	2	1	7	14	0	**22**	4	**143**
4:00PM	12	26	15	0	**53**	2	10	2	3	0	**15**	4	6	23	2	0	**31**	0	3	5	4	0	**12**	1	**111**
4:15PM	13	27	16	0	**56**	1	4	3	3	0	**10**	1	2	12	2	0	**16**	0	1	2	3	0	**6**	0	**88**
Total	55	120	49	0	**224**	6	23	14	18	0	**55**	12	20	89	9	0	**118**	2	6	19	26	0	**51**	6	**448**
% Approach	24.6%	53.6%	21.9%	0%	**-**	-	41.8%	25.5%	32.7%	0%	**-**	-	16.9%	75.4%	7.6%	0%	**-**	-	11.8%	37.3%	51.0%	0%	**-**	-	**-**
% Total	12.3%	26.8%	10.9%	0%	**50.0%**	-	5.1%	3.1%	4.0%	0%	**12.3%**	-	4.5%	19.9%	2.0%	0%	**26.3%**	-	1.3%	4.2%	5.8%	0%	**11.4%**	-	**-**
PHF	0.859	0.811	0.766	-	**0.949**	-	0.575	0.700	0.500	-	**0.917**	-	0.625	0.556	0.750	-	**0.590**	-	0.500	0.679	0.464	-	**0.580**	-	0.783
Lights and Motorcycles	55	113	46	0	**214**	-	21	14	17	0	**52**	-	19	85	5	0	**109**	-	2	19	24	0	**45**	-	420
% Lights and Motorcycles	100%	94.2%	93.9%	0%	**95.5%**	-	91.3%	100%	94.4%	0%	**94.5%**	-	95.0%	95.5%	55.6%	0%	**92.4%**	-	33.3%	100%	92.3%	0%	**88.2%**	-	93.8%
Heavy	0	7	3	0	**10**	-	2	0	1	0	**3**	-	1	4	4	0	**9**	-	4	0	2	0	**6**	-	28
% Heavy	0%	5.8%	6.1%	0%	**4.5%**	-	8.7%	0%	5.6%	0%	**5.5%**	-	5.0%	4.5%	44.4%	0%	**7.6%**	-	66.7%	0%	7.7%	0%	**11.8%**	-	6.3%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	5	-	-	-	-	-	11	-	-	-	-	-	2	-	-	-	-	-	5	
% Pedestrians	-	-	-	-	-	83.3%	-	-	-	-	-	91.7%	-	-	-	-	-	100%	-	-	-	-	-	83.3%	-
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	-	16.7%	-	-	-	-	-	8.3%	-	-	-	-	-	0%	-	-	-	-	-	16.7%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5571092 - COVID - WHITE ALDER AVE @ KELLY FA... - TMC

Tue Jun 7, 2022

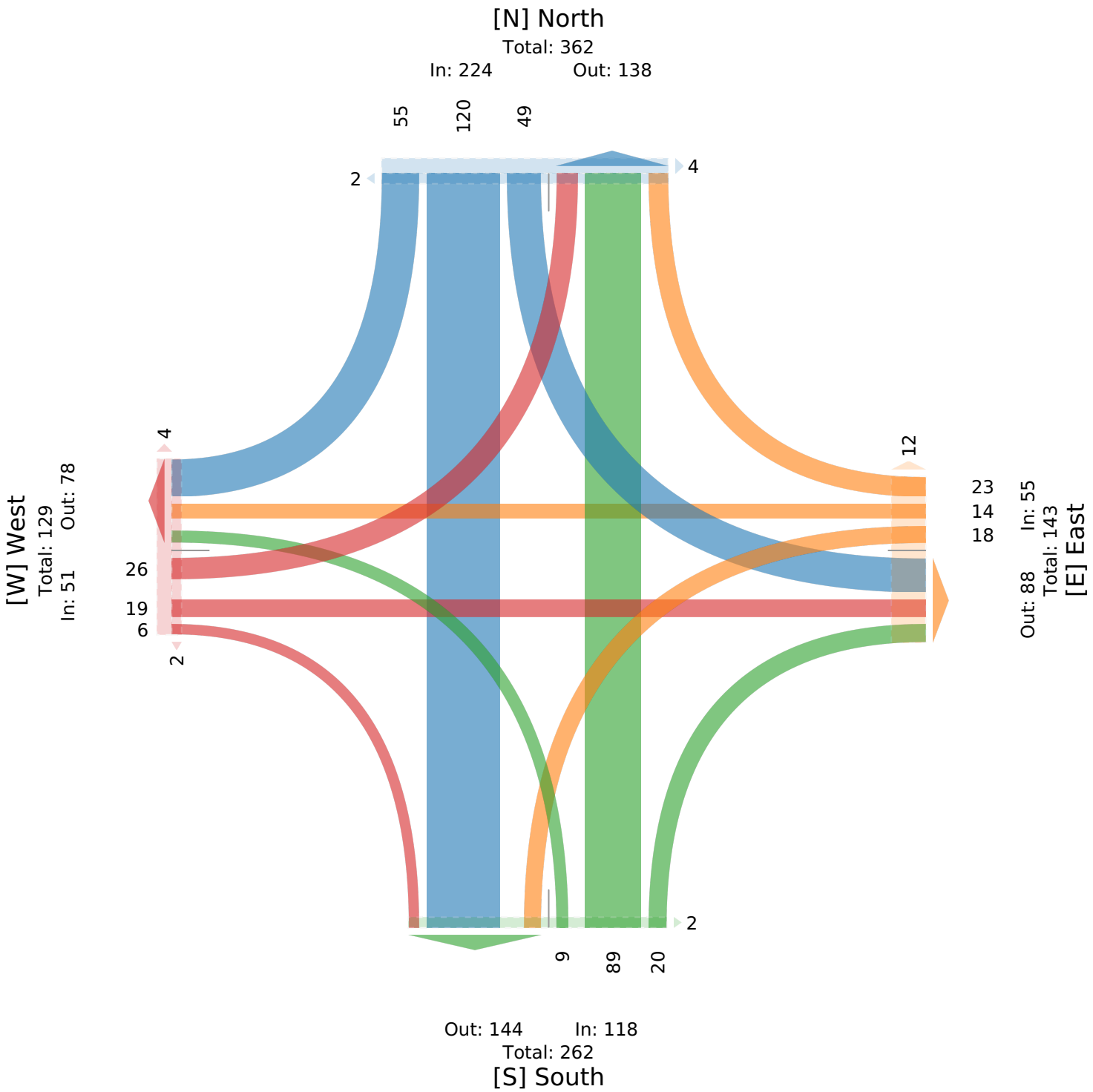
PM Peak (3:30 PM - 4:30 PM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 962158, Location: 45.318765, -75.608157, Site Code: 40315103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA



5571092 - COVID - BRADWELL WAY @ KELLY FARM ... - TMC

Tue Jun 7, 2022
Full Length (7:30 AM-9:30 AM, 2:30 PM-5 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962150, Location: 45.31821, -75.60458, Site Code: 40314103

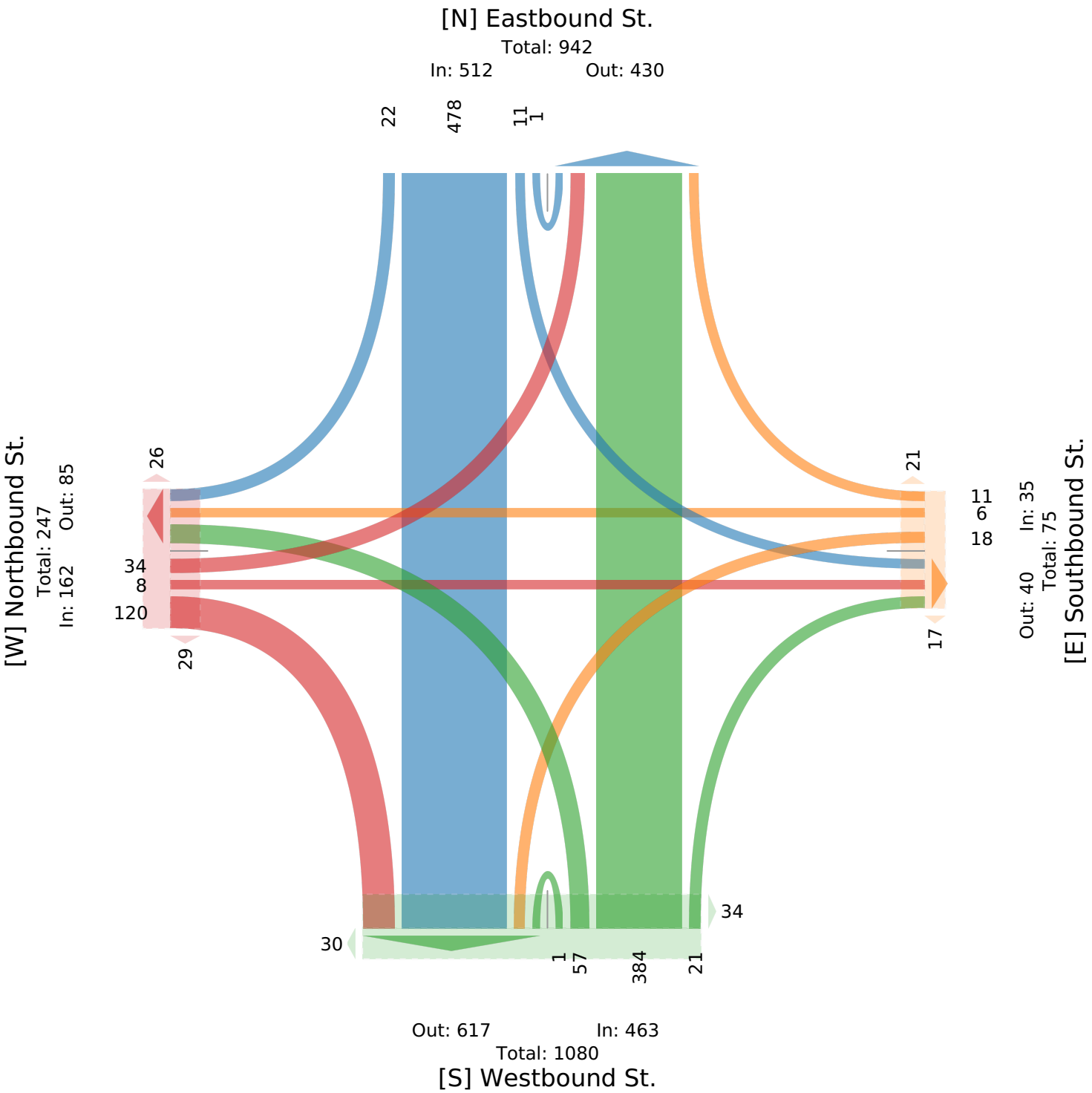
Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA

Leg	Eastbound St.						Southbound St.						Westbound St.						Northbound St.						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2022-06-07 7:30AM	0	14	0	0	**14**	0	4	1	0	0	**5**	1	0	22	3	0	**25**	1	1	1	0	0	**2**	0	**46**
7:45AM	0	19	0	0	**19**	0	1	0	1	0	**2**	1	0	17	6	0	**23**	5	0	0	0	0	**0**	4	**44**
Hourly Total	0	33	0	0	**33**	0	5	1	1	0	**7**	2	0	39	9	0	**48**	6	1	1	0	0	**2**	4	**90**
8:00AM	0	24	1	0	**25**	0	0	2	2	0	**4**	2	2	16	0	0	**18**	3	3	1	1	0	**5**	3	**52**
8:15AM	2	17	0	0	**19**	0	1	0	1	0	**2**	0	1	12	8	0	**21**	9	15	1	1	0	**17**	1	**59**
8:30AM	2	22	1	0	**25**	0	1	0	0	0	**1**	0	0	13	1	0	**14**	0	7	0	0	0	**7**	0	**47**
8:45AM	2	26	0	0	**28**	0	1	0	1	0	**2**	2	1	17	0	0	**18**	2	7	1	0	0	**8**	5	**56**
Hourly Total	6	89	2	0	**97**	0	3	2	4	0	**9**	4	4	58	9	0	**71**	14	32	3	2	0	**37**	9	**214**
9:00AM	2	46	0	0	**48**	0	0	0	1	0	**1**	10	0	25	6	0	**31**	15	20	1	5	0	**26**	9	**106**
9:15AM	1	34	0	0	**35**	0	1	0	1	0	**2**	2	2	35	7	0	**44**	5	16	1	4	0	**21**	4	**102**
Hourly Total	3	80	0	0	**83**	0	1	0	2	0	**3**	12	2	60	13	0	**75**	20	36	2	9	0	**47**	13	**208**
2:30PM	1	20	1	0	**22**	0	0	0	1	0	**1**	1	1	17	0	0	**18**	0	1	0	0	0	**1**	1	**42**
2:45PM	1	26	1	0	**28**	0	0	1	0	0	**1**	4	1	15	1	0	**17**	0	3	0	2	0	**5**	1	**51**
Hourly Total	2	46	2	0	**50**	0	0	1	1	0	**2**	5	2	32	1	0	**35**	0	4	0	2	0	**6**	2	**93**
3:00PM	1	21	1	0	**23**	0	0	0	2	0	**2**	2	1	19	1	0	**21**	2	4	0	0	0	**4**	0	**50**
3:15PM	0	28	1	0	**29**	0	1	1	1	0	**3**	0	1	15	1	0	**17**	0	8	0	2	0	**10**	6	**59**
3:30PM	2	44	0	0	**46**	0	1	0	2	0	**3**	0	1	16	3	0	**20**	0	12	2	4	0	**18**	6	**87**
3:45PM	3	31	1	0	**35**	0	0	0	2	0	**2**	11	2	42	5	0	**49**	20	16	0	12	0	**28**	15	**114**
Hourly Total	6	124	3	0	**133**	0	2	1	7	0	**10**	13	5	92	10	0	**107**	22	40	2	18	0	**60**	27	**310**
4:00PM	1	25	1	1	**28**	0	0	0	1	0	**1**	0	1	24	5	0	**30**	2	2	0	1	0	**3**	0	**62**
4:15PM	3	22	1	0	**26**	0	0	0	1	0	**1**	1	2	16	3	1	**22**	0	2	0	0	0	**2**	0	**51**
4:30PM	0	31	0	0	**31**	0	0	1	0	0	**1**	0	3	15	1	0	**19**	0	1	0	0	0	**1**	0	**52**
4:45PM	1	28	2	0	**31**	0	0	0	1	0	**1**	1	2	48	6	0	**56**	0	2	0	2	0	**4**	0	**92**
Hourly Total	5	106	4	1	**116**	0	0	1	3	0	**4**	2	8	103	15	1	**127**	2	7	0	3	0	**10**	0	**257**
Total	22	478	11	1	**512**	0	11	6	18	0	**35**	38	21	384	57	1	**463**	64	120	8	34	0	**162**	55	**1172**
% Approach	4.3%	93.4%	2.1%	0.2%	**-**	-	31.4%	17.1%	51.4%	0%	**-**	-	4.5%	82.9%	12.3%	0.2%	**-**	-	74.1%	4.9%	21.0%	0%	**-**	-	**-**
% Total	1.9%	40.8%	0.9%	0.1%	**43.7%**	-	0.9%	0.5%	1.5%	0%	**3.0%**	-	1.8%	32.8%	4.9%	0.1%	**39.5%**	-	10.2%	0.7%	2.9%	0%	**13.8%**	-	**-**
Lights and Motorcycles	22	434	11	1	**468**	-	11	5	17	0	**33**	-	20	343	53	1	**417**	-	116	6	34	0	**156**	-	1074
% Lights and Motorcycles	100%	90.8%	100%	100%	**91.4%**	-	100%	83.3%	94.4%	0%	**94.3%**	-	95.2%	89.3%	93.0%	100%	**90.1%**	-	96.7%	75.0%	100%	0%	**96.3%**	-	91.6%
Heavy	0	44	0	0	**44**	-	0	0	0	0	**0**	-	0	41	4	0	**45**	-	4	1	0	0	**5**	-	94
% Heavy	0%	9.2%	0%	0%	**8.6%**	-	0%	0%	0%	0%	**0%**	-	0%	10.7%	7.0%	0%	**9.7%**	-	3.3%	12.5%	0%	0%	**3.1%**	-	8.0%
Bicycles on Road	0	0	0	0	**0**	-	0	1	1	0	**2**	-	1	0	0	0	**1**	-	0	1	0	0	**1**	-	4
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	16.7%	5.6%	0%	**5.7%**	-	4.8%	0%	0%	0%	**0.2%**	-	0%	12.5%	0%	0%	**0.6%**	-	0.3%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	32	-	-	-	-	-	59	-	-	-	-	-	50	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	84.2%	-	-	-	-	-	92.2%	-	-	-	-	-	90.9%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	6	-	-	-	-	-	5	-	-	-	-	-	5	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	15.8%	-	-	-	-	-	7.8%	-	-	-	-	-	9.1%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5571092 - COVID - BRADWELL WAY @ KELLY FARM ... - TMC
Tue Jun 7, 2022
Full Length (7:30 AM-9:30 AM, 2:30 PM-5 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962150, Location: 45.31821, -75.60458, Site Code: 40314103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA



5571092 - COVID - BRADWELL WAY @ KELLY FARM ... - TMC

Tue Jun 7, 2022
AM Peak (8:30 AM - 9:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962150, Location: 45.31821, -75.60458, Site Code: 40314103

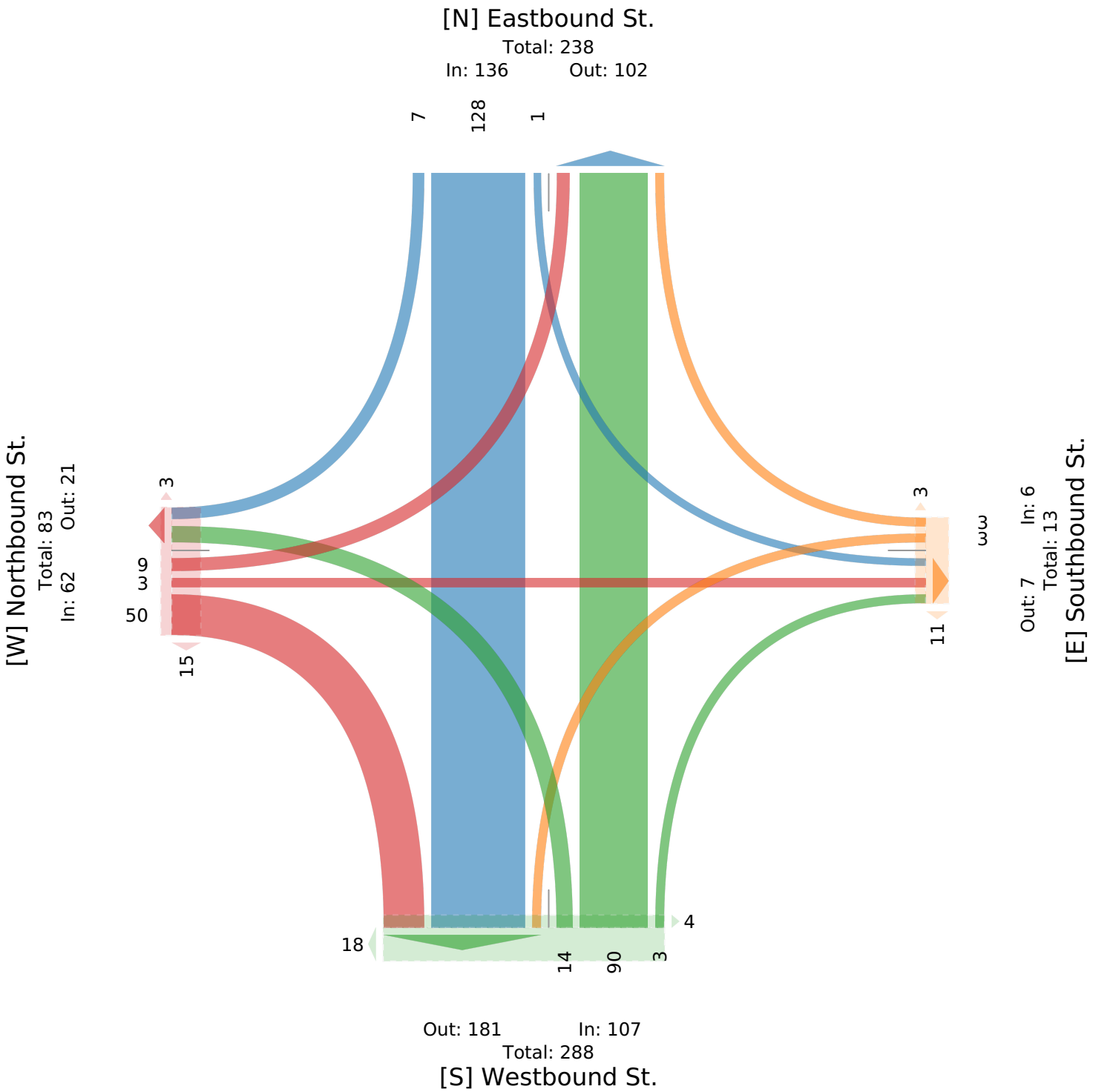
Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA

Leg / Direction	Eastbound St. Southbound						Southbound St. Westbound						Westbound St. Northbound						Northbound St. Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2022-06-07 8:30AM	2	22	1	0	**25**	0	1	0	0	0	**1**	0	0	13	1	0	**14**	0	7	0	0	0	**7**	0	**47**
8:45AM	2	26	0	0	**28**	0	1	0	1	0	**2**	2	1	17	0	0	**18**	2	7	1	0	0	**8**	5	**56**
9:00AM	2	46	0	0	**48**	0	0	0	1	0	**1**	10	0	25	6	0	**31**	15	20	1	5	0	**26**	9	**106**
9:15AM	1	34	0	0	**35**	0	1	0	1	0	**2**	2	2	35	7	0	**44**	5	16	1	4	0	**21**	4	**102**
Total	7	128	1	0	**136**	0	3	0	3	0	**6**	14	3	90	14	0	**107**	22	50	3	9	0	**62**	18	**311**
% Approach	5.1%	94.1%	0.7%	0%	**-**	-	50.0%	0%	50.0%	0%	**-**	-	2.8%	84.1%	13.1%	0%	**-**	-	80.6%	4.8%	14.5%	0%	**-**	-	**-**
% Total	2.3%	41.2%	0.3%	0%	**43.7%**	-	1.0%	0%	1.0%	0%	**1.9%**	-	1.0%	28.9%	4.5%	0%	**34.4%**	-	16.1%	1.0%	2.9%	0%	**19.9%**	-	**-**
PHF	0.875	0.696	0.250	-	**0.708**	-	0.750	-	0.750	-	**0.750**	-	0.375	0.643	0.500	-	**0.608**	-	0.625	0.500	0.450	-	**0.610**	-	0.738
Lights and Motorcycles	7	119	1	0	**127**	-	3	0	3	0	**6**	-	3	80	13	0	**96**	-	49	1	9	0	**59**	-	288
% Lights and Motorcycles	100%	93.0%	100%	0%	**93.4%**	-	100%	0%	100%	0%	**100%**	-	100%	88.9%	92.9%	0%	**89.7%**	-	98.0%	33.3%	100%	0%	**95.2%**	-	92.6%
Heavy	0	9	0	0	**9**	-	0	0	0	0	**0**	-	0	10	1	0	**11**	-	1	1	0	0	**2**	-	22
% Heavy	0%	7.0%	0%	0%	**6.6%**	-	0%	0%	0%	0%	**0%**	-	0%	11.1%	7.1%	0%	**10.3%**	-	2.0%	33.3%	0%	0%	**3.2%**	-	7.1%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	1	0	0	**1**	-	1
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	33.3%	0%	0%	**1.6%**	-	0.3%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	11	-	-	-	-	-	19	-	-	-	-	-	14	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	78.6%	-	-	-	-	-	86.4%	-	-	-	-	-	77.8%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	3	-	-	-	-	-	4	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	21.4%	-	-	-	-	-	13.6%	-	-	-	-	-	22.2%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5571092 - COVID - BRADWELL WAY @ KELLY FARM ... - TMC
Tue Jun 7, 2022
AM Peak (8:30 AM - 9:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962150, Location: 45.31821, -75.60458, Site Code: 40314103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA



5571092 - COVID - BRADWELL WAY @ KELLY FARM ... - TMC

Tue Jun 7, 2022
PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962150, Location: 45.31821, -75.60458, Site Code: 40314103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA

Leg	Eastbound St.						Southbound St.						Westbound St.						Northbound St.						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2022-06-07 3:15PM	0	28	1	0	**29**	0	1	1	1	0	**3**	0	1	15	1	0	**17**	0	8	0	2	0	**10**	6	**59**
3:30PM	2	44	0	0	**46**	0	1	0	2	0	**3**	0	1	16	3	0	**20**	0	12	2	4	0	**18**	6	**87**
3:45PM	3	31	1	0	**35**	0	0	0	2	0	**2**	11	2	42	5	0	**49**	20	16	0	12	0	**28**	15	**114**
4:00PM	1	25	1	1	**28**	0	0	0	1	0	**1**	0	1	24	5	0	**30**	2	2	0	1	0	**3**	0	**62**
Total	6	128	3	1	**138**	0	2	1	6	0	**9**	11	5	97	14	0	**116**	22	38	2	19	0	**59**	27	**322**
% Approach	4.3%	92.8%	2.2%	0.7%	**-**	-	22.2%	11.1%	66.7%	0%	**-**	-	4.3%	83.6%	12.1%	0%	**-**	-	64.4%	3.4%	32.2%	0%	**-**	-	-
% Total	1.9%	39.8%	0.9%	0.3%	**42.9%**	-	0.6%	0.3%	1.9%	0%	**2.8%**	-	1.6%	30.1%	4.3%	0%	**36.0%**	-	11.8%	0.6%	5.9%	0%	**18.3%**	-	-
PHF	0.500	0.727	0.750	0.250	**0.750**	-	0.500	0.250	0.750	-	**0.750**	-	0.625	0.577	0.700	-	**0.592**	-	0.594	0.250	0.396	-	**0.527**	-	0.706
Lights and Motorcycles	6	112	3	1	**122**	-	2	1	6	0	**9**	-	5	88	12	0	**105**	-	37	2	19	0	**58**	-	294
% Lights and Motorcycles	100%	87.5%	100%	100%	**88.4%**	-	100%	100%	100%	0%	**100%**	-	100%	90.7%	85.7%	0%	**90.5%**	-	97.4%	100%	100%	0%	**98.3%**	-	91.3%
Heavy	0	16	0	0	**16**	-	0	0	0	0	**0**	-	0	9	2	0	**11**	-	1	0	0	0	**1**	-	28
% Heavy	0%	12.5%	0%	0%	**11.6%**	-	0%	0%	0%	0%	**0%**	-	0%	9.3%	14.3%	0%	**9.5%**	-	2.6%	0%	0%	0%	**1.7%**	-	8.7%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	10	-	-	-	-	-	21	-	-	-	-	-	26	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	- 90.9%	-	-	-	-	-	- 95.5%	-	-	-	-	-	- 96.3%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	9.1%	-	-	-	-	-	4.5%	-	-	-	-	-	3.7%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5571092 - COVID - BRADWELL WAY @ KELLY FARM ... - TMC

Tue Jun 7, 2022

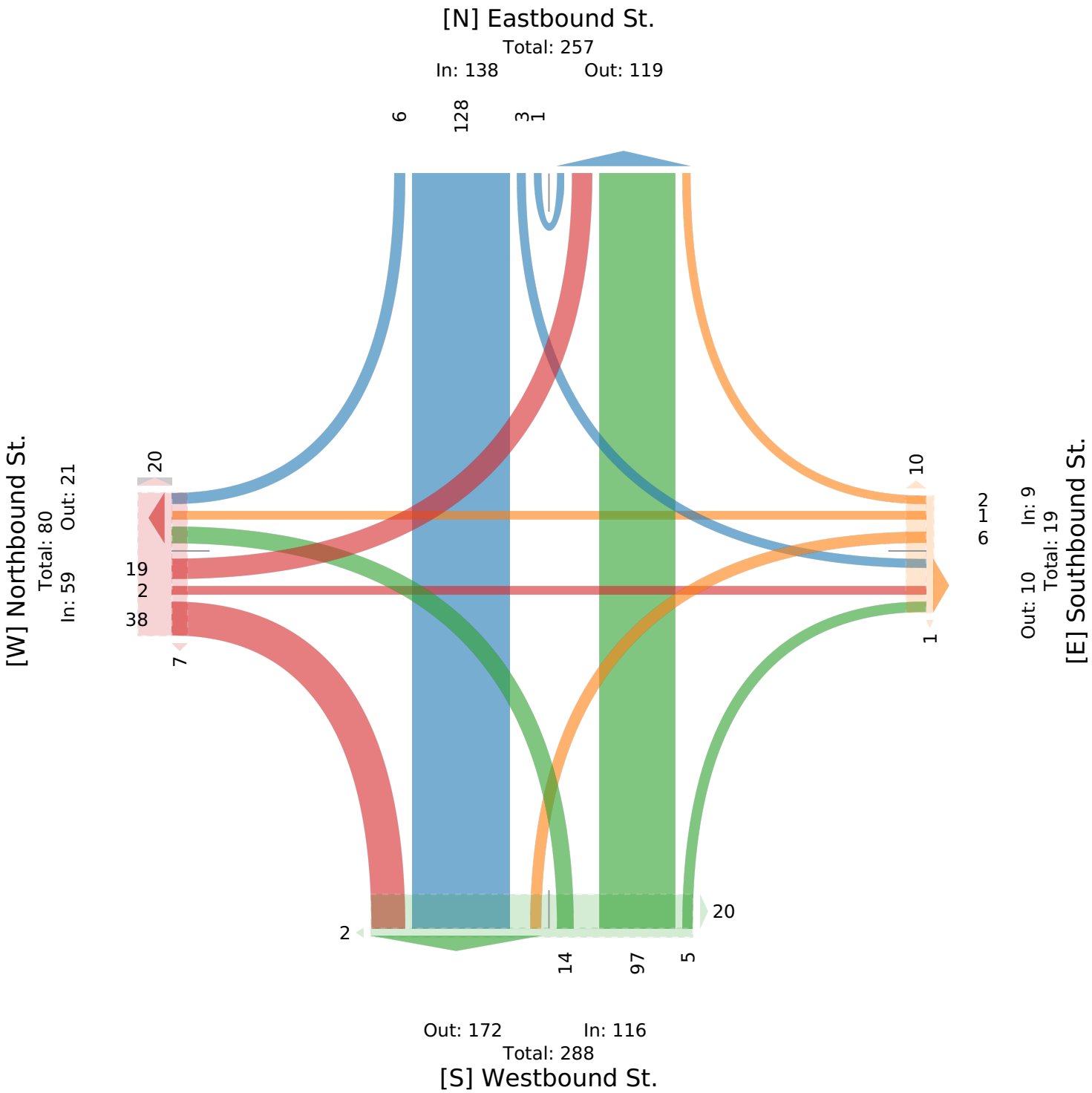
PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 962150, Location: 45.31821, -75.60458, Site Code: 40314103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA



5571092 - COVID - GOLDEN SEDGE WAY @ FINDLAY... - TMC

Tue Jun 7, 2022
Full Length (7:30 AM-9:30 AM, 2:30 PM-5 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962149, Location: 45.314963, -75.606975, Site Code: 40313103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA

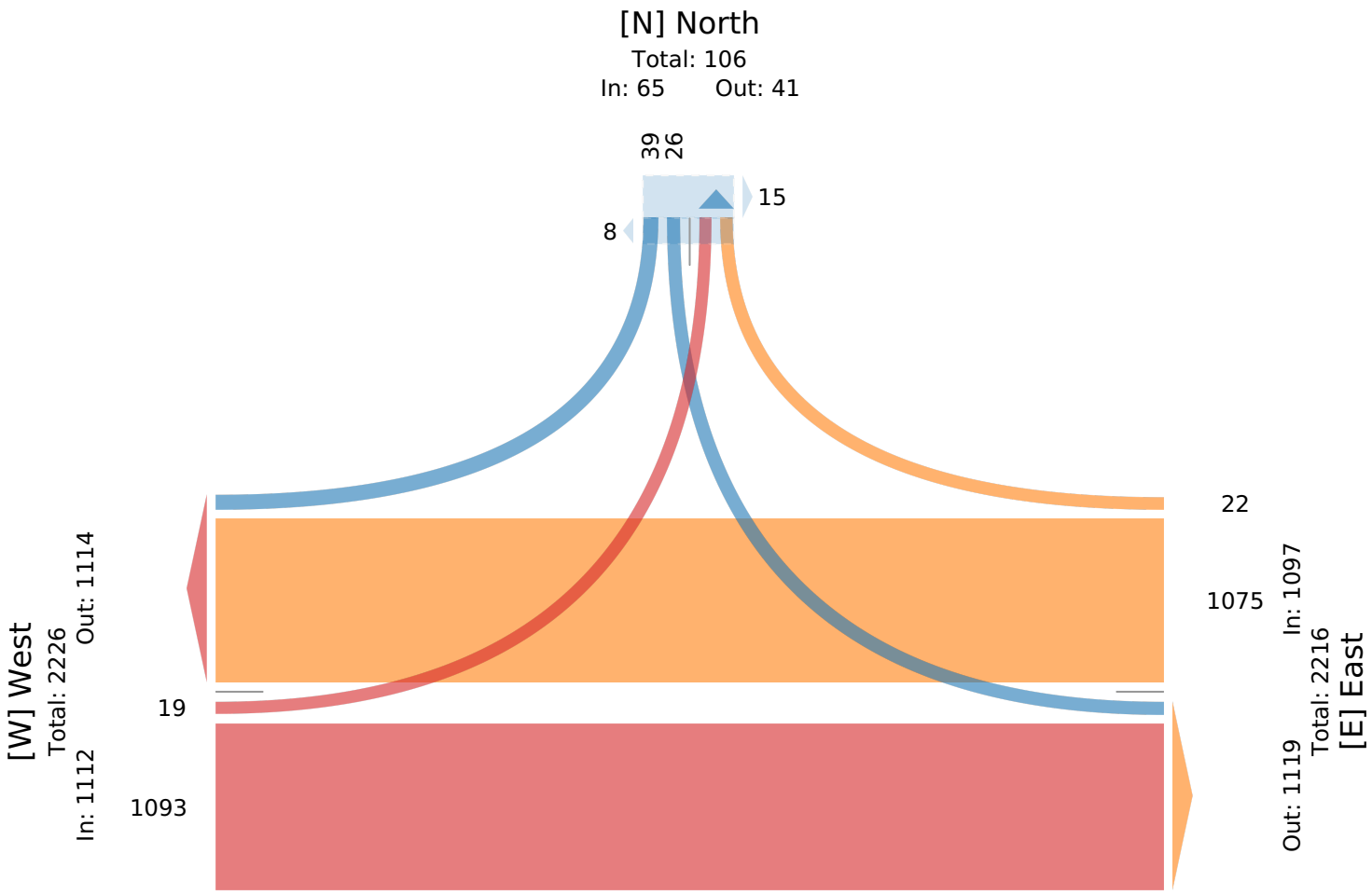
Leg Direction	North Southbound					East Westbound					West Eastbound					
Time	R	L	U	App	Ped*	R	T	U	App	Ped*	T	L	U	App	Ped*	Int
2022-06-07 7:30AM	3	1	0	**4**	2	0	64	0	**64**	0	33	0	0	**33**	0	**101**
7:45AM	2	1	0	**3**	0	0	61	0	**61**	0	53	0	0	**53**	0	**117**
Hourly Total	5	2	0	**7**	2	0	125	0	**125**	0	86	0	0	**86**	0	**218**
8:00AM	0	0	0	**0**	1	0	56	0	**56**	0	50	1	0	**51**	0	**107**
8:15AM	2	2	0	**4**	1	0	71	0	**71**	0	60	0	0	**60**	0	**135**
8:30AM	7	2	0	**9**	0	0	47	0	**47**	0	68	0	0	**68**	0	**124**
8:45AM	4	0	0	**4**	0	3	54	0	**57**	0	66	3	0	**69**	0	**130**
Hourly Total	13	4	0	**17**	2	3	228	0	**231**	0	244	4	0	**248**	0	**496**
9:00AM	2	3	0	**5**	5	2	63	0	**65**	0	65	1	0	**66**	0	**136**
9:15AM	3	1	0	**4**	3	1	63	0	**64**	0	42	0	0	**42**	0	**110**
Hourly Total	5	4	0	**9**	8	3	126	0	**129**	0	107	1	0	**108**	0	**246**
2:30PM	2	2	0	**4**	1	3	47	0	**50**	0	58	0	0	**58**	0	**112**
2:45PM	1	1	0	**2**	0	1	53	0	**54**	0	68	0	0	**68**	0	**124**
Hourly Total	3	3	0	**6**	1	4	100	0	**104**	0	126	0	0	**126**	0	**236**
3:00PM	1	3	0	**4**	1	1	53	0	**54**	0	55	2	0	**57**	0	**115**
3:15PM	0	0	0	**0**	2	3	50	0	**53**	0	54	2	0	**56**	0	**109**
3:30PM	0	4	0	**4**	1	2	53	0	**55**	0	87	2	0	**89**	0	**148**
3:45PM	8	3	0	**11**	4	5	91	0	**96**	0	60	1	0	**61**	0	**168**
Hourly Total	9	10	0	**19**	8	11	247	0	**258**	0	256	7	0	**263**	0	**540**
4:00PM	1	3	0	**4**	0	0	53	0	**53**	0	81	3	0	**84**	0	**141**
4:15PM	1	0	0	**1**	0	1	60	0	**61**	0	62	3	0	**65**	0	**127**
4:30PM	2	0	0	**2**	1	0	53	0	**53**	0	59	0	0	**59**	0	**114**
4:45PM	0	0	0	**0**	1	0	83	0	**83**	0	72	1	0	**73**	0	**156**
Hourly Total	4	3	0	**7**	2	1	249	0	**250**	0	274	7	0	**281**	0	**538**
Total	39	26	0	**65**	23	22	1075	0	**1097**	0	1093	19	0	**1112**	0	**2274**
% Approach	60.0%	40.0%	0%	**-**	-	2.0%	98.0%	0%	**-**	-	98.3%	1.7%	0%	**-**	-	-
% Total	1.7%	1.1%	0%	**2.9%**	-	1.0%	47.3%	0%	**48.2%**	-	48.1%	0.8%	0%	**48.9%**	-	-
Lights and Motorcycles	39	24	0	**63**	-	21	1028	0	**1049**	-	1056	18	0	**1074**	-	2186
% Lights and Motorcycles	100%	92.3%	0%	**96.9%**	-	95.5%	95.6%	0%	**95.6%**	-	96.6%	94.7%	0%	**96.6%**	-	96.1%
Heavy	0	2	0	**2**	-	0	46	0	**46**	-	36	1	0	**37**	-	85
% Heavy	0%	7.7%	0%	**3.1%**	-	0%	4.3%	0%	**4.2%**	-	3.3%	5.3%	0%	**3.3%**	-	3.7%
Bicycles on Road	0	0	0	**0**	-	1	1	0	**2**	-	1	0	0	**1**	-	3
% Bicycles on Road	0%	0%	0%	**0%**	-	4.5%	0.1%	0%	**0.2%**	-	0.1%	0%	0%	**0.1%**	-	0.1%
Pedestrians	-	-	-	-	22	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	95.7%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	4.3%	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5571092 - COVID - GOLDEN SEDGE WAY @ FINDLAY... - TMC

Tue Jun 7, 2022
Full Length (7:30 AM-9:30 AM, 2:30 PM-5 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962149, Location: 45.314963, -75.606975, Site Code: 40313103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA



5571092 - COVID - GOLDEN SEDGE WAY @ FINDLAY... - TMC

Tue Jun 7, 2022
AM Peak (8:15 AM - 9:15 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962149, Location: 45.314963, -75.606975, Site Code: 40313103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA

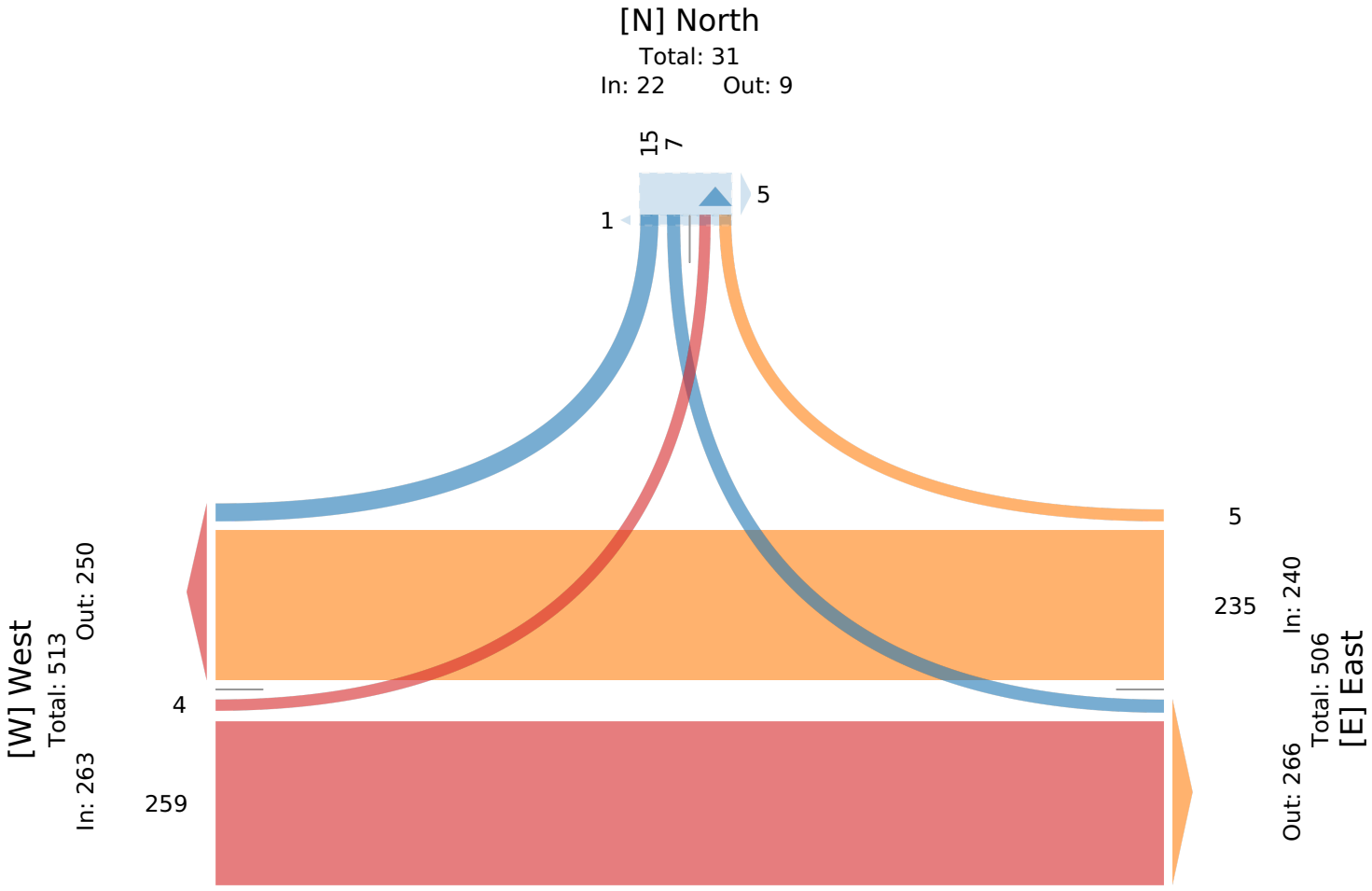
Leg Direction	North Southbound					East Westbound					West Eastbound					
Time	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	**Int**
2022-06-07 8:15AM	2	2	0	**4**	1	0	71	0	**71**	0	60	0	0	**60**	0	**135**
8:30AM	7	2	0	**9**	0	0	47	0	**47**	0	68	0	0	**68**	0	**124**
8:45AM	4	0	0	**4**	0	3	54	0	**57**	0	66	3	0	**69**	0	**130**
9:00AM	2	3	0	**5**	5	2	63	0	**65**	0	65	1	0	**66**	0	**136**
Total	15	7	0	**22**	6	5	235	0	**240**	0	259	4	0	**263**	0	**525**
% Approach	68.2%	31.8%	0%	**-**	-	2.1%	97.9%	0%	**-**	-	98.5%	1.5%	0%	**-**	-	**-**
% Total	2.9%	1.3%	0%	**4.2%**	-	1.0%	44.8%	0%	**45.7%**	-	49.3%	0.8%	0%	**50.1%**	-	**-**
PHF	0.536	0.583	-	**0.611**	-	0.417	0.827	-	**0.845**	-	0.952	0.333	-	**0.953**	-	0.965
Lights and Motorcycles	15	6	0	**21**	-	5	223	0	**228**	-	252	4	0	**256**	-	505
% Lights and Motorcycles	100%	85.7%	0%	**95.5%**	-	100%	94.9%	0%	**95.0%**	-	97.3%	100%	0%	**97.3%**	-	96.2%
Heavy	0	1	0	**1**	-	0	12	0	**12**	-	7	0	0	**7**	-	20
% Heavy	0%	14.3%	0%	**4.5%**	-	0%	5.1%	0%	**5.0%**	-	2.7%	0%	0%	**2.7%**	-	3.8%
Bicycles on Road	0	0	0	**0**	-	0	0	0	**0**	-	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	6	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5571092 - COVID - GOLDEN SEDGE WAY @ FINDLAY... - TMC

Tue Jun 7, 2022
AM Peak (8:15 AM - 9:15 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962149, Location: 45.314963, -75.606975, Site Code: 40313103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA



5571092 - COVID - GOLDEN SEDGE WAY @ FINDLAY... - TMC

Tue Jun 7, 2022
PM Peak (3:30 PM - 4:30 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962149, Location: 45.314963, -75.606975, Site Code: 40313103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA

Leg Direction	North Southbound					East Westbound					West Eastbound					
Time	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	**Int**
2022-06-07 3:30PM	0	4	0	**4**	1	2	53	0	**55**	0	87	2	0	**89**	0	**148**
3:45PM	8	3	0	**11**	4	5	91	0	**96**	0	60	1	0	**61**	0	**168**
4:00PM	1	3	0	**4**	0	0	53	0	**53**	0	81	3	0	**84**	0	**141**
4:15PM	1	0	0	**1**	0	1	60	0	**61**	0	62	3	0	**65**	0	**127**
Total	10	10	0	**20**	5	8	257	0	**265**	0	290	9	0	**299**	0	**584**
% Approach	50.0%	50.0%	0%	**-**	-	3.0%	97.0%	0%	**-**	-	97.0%	3.0%	0%	**-**	-	**-**
% Total	1.7%	1.7%	0%	**3.4%**	-	1.4%	44.0%	0%	**45.4%**	-	49.7%	1.5%	0%	**51.2%**	-	**-**
PHF	0.313	0.625	-	**0.455**	-	0.400	0.703	-	**0.688**	-	0.833	0.750	-	**0.840**	-	0.868
Lights and Motorcycles	10	10	0	**20**	-	8	249	0	**257**	-	280	8	0	**288**	-	565
% Lights and Motorcycles	100%	100%	0%	**100%**	-	100%	96.9%	0%	**97.0%**	-	96.6%	88.9%	0%	**96.3%**	-	96.7%
Heavy	0	0	0	**0**	-	0	7	0	**7**	-	10	1	0	**11**	-	18
% Heavy	0%	0%	0%	**0%**	-	0%	2.7%	0%	**2.6%**	-	3.4%	11.1%	0%	**3.7%**	-	3.1%
Bicycles on Road	0	0	0	**0**	-	0	1	0	**1**	-	0	0	0	**0**	-	1
% Bicycles on Road	0%	0%	0%	**0%**	-	0%	0.4%	0%	**0.4%**	-	0%	0%	0%	**0%**	-	0.2%
Pedestrians	-	-	-	-	4	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	80.0%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	20.0%	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5571092 - COVID - GOLDEN SEDGE WAY @ FINDLAY... - TMC

Tue Jun 7, 2022

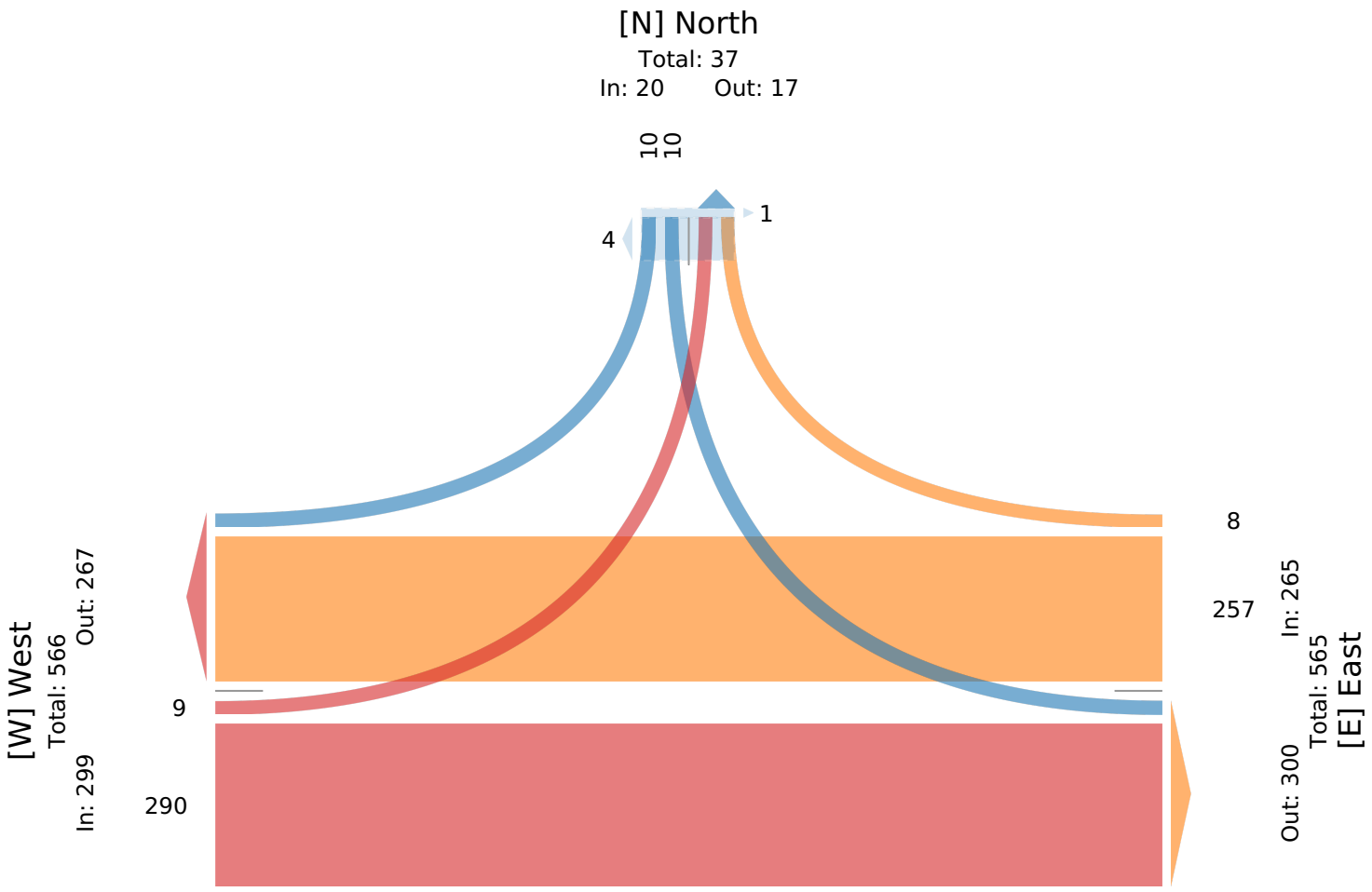
PM Peak (3:30 PM - 4:30 PM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 962149, Location: 45.314963, -75.606975, Site Code: 40313103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA



5571092 - COVID - LONG POINT CIR @ FINDLAY C... - TMC

Tue Jun 7, 2022
Full Length (7:30 AM-9:30 AM, 2:30 PM-5 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962134, Location: 45.318414, -75.598857, Site Code: 40310103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA

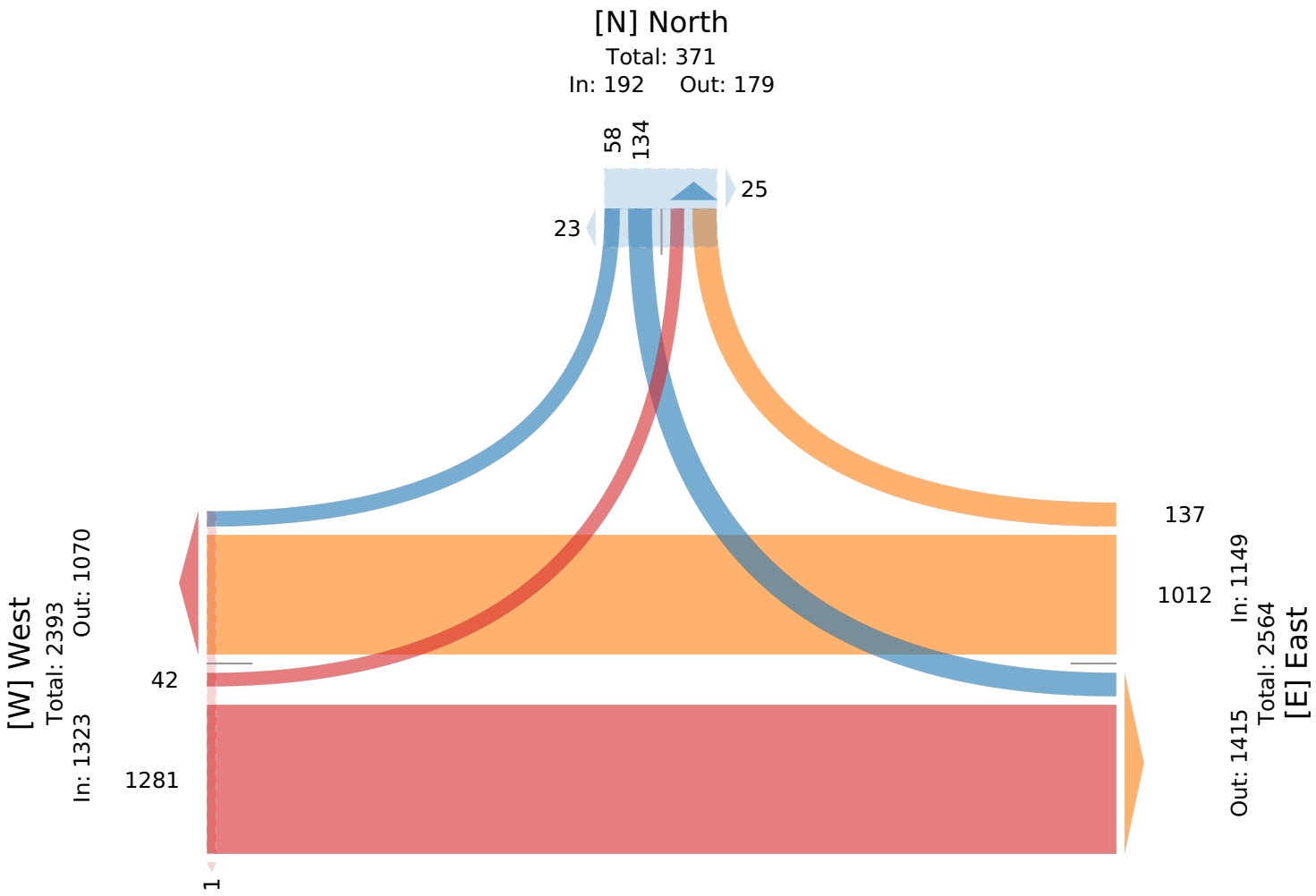
Leg Direction	North Southbound					East Westbound					West Eastbound					
Time	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	**Int**
2022-06-07 7:30AM	7	7	0	**14**	0	0	37	0	**37**	0	55	2	0	**57**	0	**108**
7:45AM	6	7	0	**13**	0	3	46	0	**49**	0	73	2	0	**75**	0	**137**
Hourly Total	13	14	0	**27**	0	3	83	0	**86**	0	128	4	0	**132**	0	**245**
8:00AM	10	6	0	**16**	2	8	48	0	**56**	0	75	1	0	**76**	1	**148**
8:15AM	1	10	0	**11**	2	7	48	0	**55**	0	62	0	0	**62**	0	**128**
8:30AM	3	4	0	**7**	0	6	50	0	**56**	0	81	3	0	**84**	0	**147**
8:45AM	4	5	0	**9**	3	8	60	0	**68**	0	63	0	0	**63**	0	**140**
Hourly Total	18	25	0	**43**	7	29	206	0	**235**	0	281	4	0	**285**	1	**563**
9:00AM	1	9	0	**10**	12	5	58	0	**63**	0	72	0	0	**72**	0	**145**
9:15AM	1	10	0	**11**	2	3	43	0	**46**	0	79	2	0	**81**	0	**138**
Hourly Total	2	19	0	**21**	14	8	101	0	**109**	0	151	2	0	**153**	0	**283**
2:30PM	4	4	0	**8**	2	4	56	0	**60**	0	65	5	0	**70**	0	**138**
2:45PM	4	6	0	**10**	3	14	58	0	**72**	0	73	1	0	**74**	0	**156**
Hourly Total	8	10	0	**18**	5	18	114	0	**132**	0	138	6	0	**144**	0	**294**
3:00PM	4	8	0	**12**	2	7	69	0	**76**	0	56	2	0	**58**	0	**146**
3:15PM	1	8	0	**9**	0	18	68	0	**86**	0	58	1	0	**59**	0	**154**
3:30PM	0	9	0	**9**	12	13	56	0	**69**	0	65	5	0	**70**	0	**148**
3:45PM	3	11	0	**14**	7	13	50	0	**63**	0	89	1	0	**90**	0	**167**
Hourly Total	8	36	0	**44**	21	51	243	0	**294**	0	268	9	0	**277**	0	**615**
4:00PM	2	6	0	**8**	0	10	48	0	**58**	0	68	6	0	**74**	0	**140**
4:15PM	1	8	0	**9**	0	5	71	0	**76**	0	84	2	0	**86**	0	**171**
4:30PM	4	9	0	**13**	0	6	73	0	**79**	0	83	5	0	**88**	0	**180**
4:45PM	2	7	0	**9**	1	7	73	0	**80**	0	80	4	0	**84**	0	**173**
Hourly Total	9	30	0	**39**	1	28	265	0	**293**	0	315	17	0	**332**	0	**664**
Total	58	134	0	**192**	48	137	1012	0	**1149**	0	1281	42	0	**1323**	1	**2664**
% Approach	30.2%	69.8%	0%	**-**	-	11.9%	88.1%	0%	**-**	-	96.8%	3.2%	0%	**-**	-	-
% Total	2.2%	5.0%	0%	**7.2%**	-	5.1%	38.0%	0%	**43.1%**	-	48.1%	1.6%	0%	**49.7%**	-	-
Lights and Motorcycles	58	131	0	**189**	-	134	961	0	**1095**	-	1232	38	0	**1270**	-	2554
% Lights and Motorcycles	100%	97.8%	0%	**98.4%**	-	97.8%	95.0%	0%	**95.3%**	-	96.2%	90.5%	0%	**96.0%**	-	95.9%
Heavy	0	3	0	**3**	-	3	51	0	**54**	-	49	4	0	**53**	-	110
% Heavy	0%	2.2%	0%	**1.6%**	-	2.2%	5.0%	0%	**4.7%**	-	3.8%	9.5%	0%	**4.0%**	-	4.1%
Bicycles on Road	0	0	0	**0**	-	0	0	0	**0**	-	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	43	-	-	-	-	0	-	-	-	-	1	
% Pedestrians	-	-	-	-	89.6%	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	5	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	10.4%	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5571092 - COVID - LONG POINT CIR @ FINDLAY C... - TMC

Tue Jun 7, 2022
Full Length (7:30 AM-9:30 AM, 2:30 PM-5 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962134, Location: 45.318414, -75.598857, Site Code: 40310103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA



5571092 - COVID - LONG POINT CIR @ FINDLAY C... - TMC

Tue Jun 7, 2022
AM Peak (8:30 AM - 9:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962134, Location: 45.318414, -75.598857, Site Code: 40310103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA

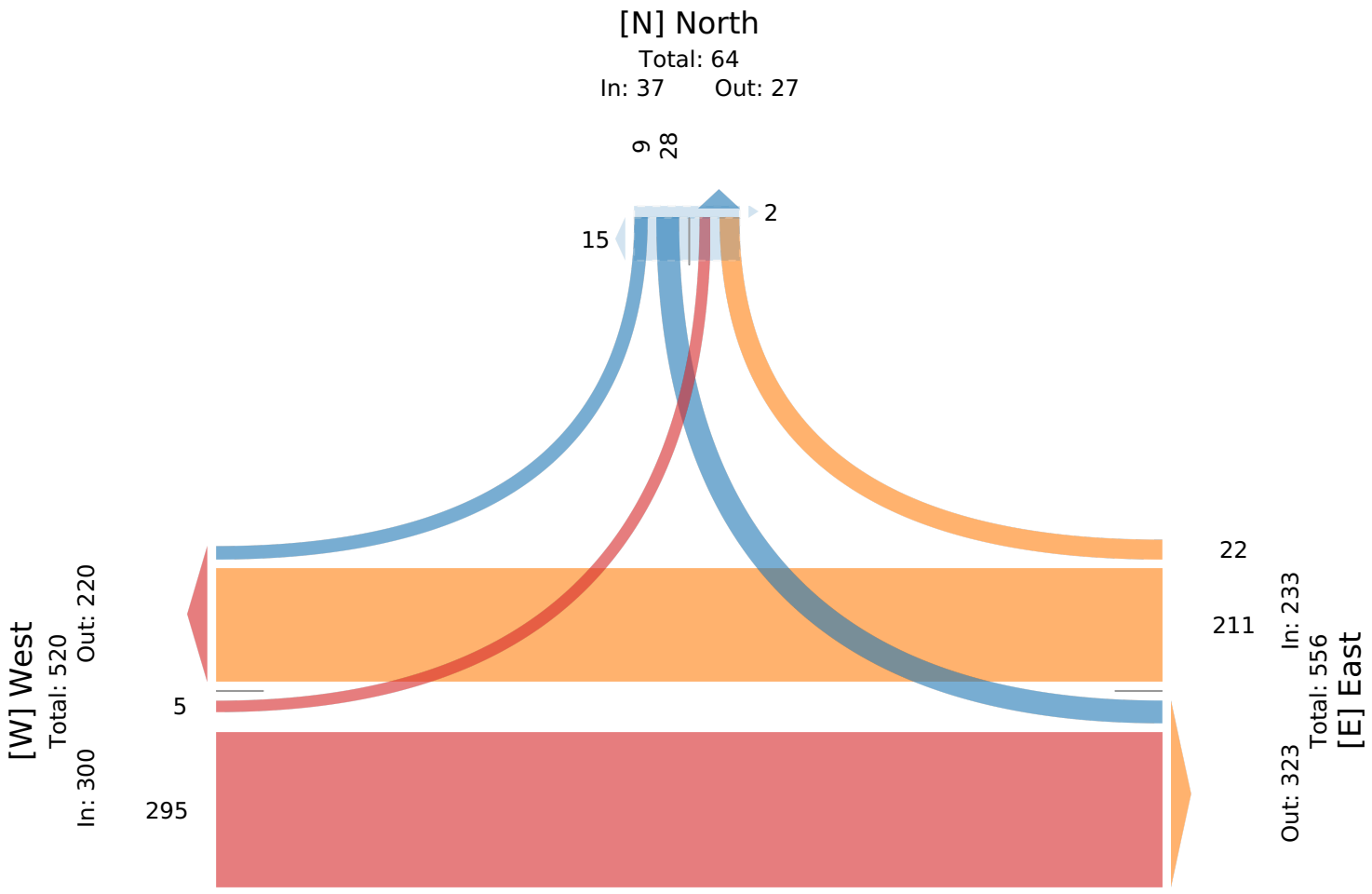
Leg Direction	North Southbound					East Westbound					West Eastbound					
Time	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	**Int**
2022-06-07 8:30AM	3	4	0	**7**	0	6	50	0	**56**	0	81	3	0	**84**	0	**147**
8:45AM	4	5	0	**9**	3	8	60	0	**68**	0	63	0	0	**63**	0	**140**
9:00AM	1	9	0	**10**	12	5	58	0	**63**	0	72	0	0	**72**	0	**145**
9:15AM	1	10	0	**11**	2	3	43	0	**46**	0	79	2	0	**81**	0	**138**
Total	9	28	0	**37**	17	22	211	0	**233**	0	295	5	0	**300**	0	**570**
% Approach	24.3%	75.7%	0%	**-**	-	9.4%	90.6%	0%	**-**	-	98.3%	1.7%	0%	**-**	-	-
% Total	1.6%	4.9%	0%	**6.5%**	-	3.9%	37.0%	0%	**40.9%**	-	51.8%	0.9%	0%	**52.6%**	-	-
PHF	0.563	0.700	-	**0.841**	-	0.688	0.879	-	**0.857**	-	0.910	0.417	-	**0.893**	-	0.969
Lights and Motorcycles	9	28	0	**37**	-	22	199	0	**221**	-	282	5	0	**287**	-	545
% Lights and Motorcycles	100%	100%	0%	**100%**	-	100%	94.3%	0%	**94.8%**	-	95.6%	100%	0%	**95.7%**	-	95.6%
Heavy	0	0	0	**0**	-	0	12	0	**12**	-	13	0	0	**13**	-	25
% Heavy	0%	0%	0%	**0%**	-	0%	5.7%	0%	**5.2%**	-	4.4%	0%	0%	**4.3%**	-	4.4%
Bicycles on Road	0	0	0	**0**	-	0	0	0	**0**	-	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	14	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	82.4%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	3	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	17.6%	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5571092 - COVID - LONG POINT CIR @ FINDLAY C... - TMC

Tue Jun 7, 2022
AM Peak (8:30 AM - 9:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962134, Location: 45.318414, -75.598857, Site Code: 40310103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA



5571092 - COVID - LONG POINT CIR @ FINDLAY C... - TMC

Tue Jun 7, 2022
PM Peak (4 PM - 5 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 962134, Location: 45.318414, -75.598857, Site Code: 40310103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA

Leg Direction	North Southbound					East Westbound					West Eastbound					
Time	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	**Int**
2022-06-07 4:00PM	2	6	0	**8**	0	10	48	0	**58**	0	68	6	0	**74**	0	**140**
4:15PM	1	8	0	**9**	0	5	71	0	**76**	0	84	2	0	**86**	0	**171**
4:30PM	4	9	0	**13**	0	6	73	0	**79**	0	83	5	0	**88**	0	**180**
4:45PM	2	7	0	**9**	1	7	73	0	**80**	0	80	4	0	**84**	0	**173**
Total	9	30	0	**39**	1	28	265	0	**293**	0	315	17	0	**332**	0	**664**
% Approach	23.1%	76.9%	0%	**-**	-	9.6%	90.4%	0%	**-**	-	94.9%	5.1%	0%	**-**	-	**-**
% Total	1.4%	4.5%	0%	**5.9%**	-	4.2%	39.9%	0%	**44.1%**	-	47.4%	2.6%	0%	**50.0%**	-	**-**
PHF	0.563	0.833	-	**0.750**	-	0.700	0.908	-	**0.916**	-	0.938	0.708	-	**0.943**	-	0.922
Lights and Motorcycles	9	29	0	**38**	-	28	254	0	**282**	-	306	17	0	**323**	-	643
% Lights and Motorcycles	100%	96.7%	0%	**97.4%**	-	100%	95.8%	0%	**96.2%**	-	97.1%	100%	0%	**97.3%**	-	96.8%
Heavy	0	1	0	**1**	-	0	11	0	**11**	-	9	0	0	**9**	-	21
% Heavy	0%	3.3%	0%	**2.6%**	-	0%	4.2%	0%	**3.8%**	-	2.9%	0%	0%	**2.7%**	-	3.2%
Bicycles on Road	0	0	0	**0**	-	0	0	0	**0**	-	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5571092 - COVID - LONG POINT CIR @ FINDLAY C... - TMC

Tue Jun 7, 2022

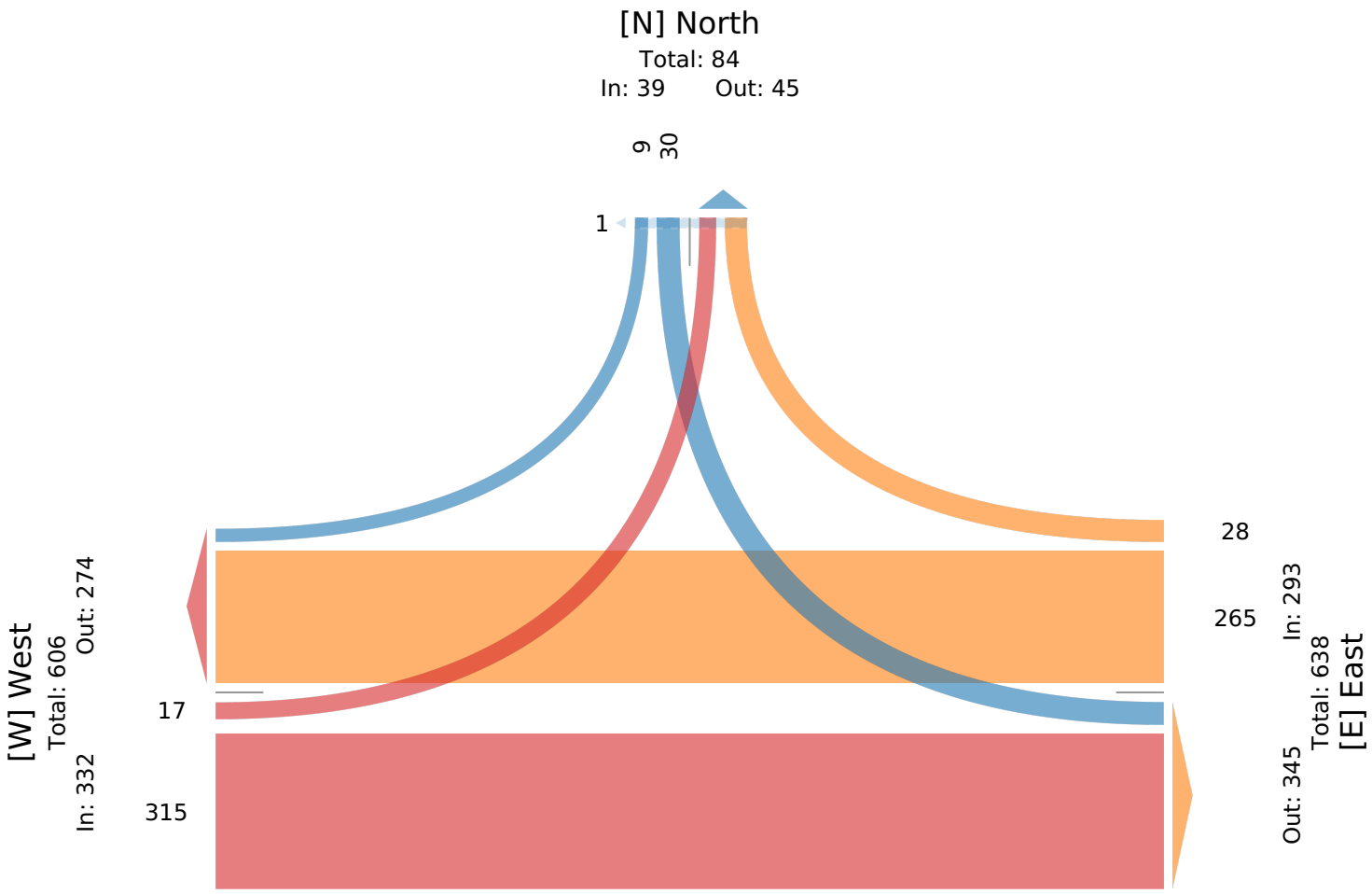
PM Peak (4 PM - 5 PM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 962134, Location: 45.318414, -75.598857, Site Code: 40310103

Provided by: City of Ottawa
100 Constellation Dr,
Nepean, ON, K2G 5J9, CA



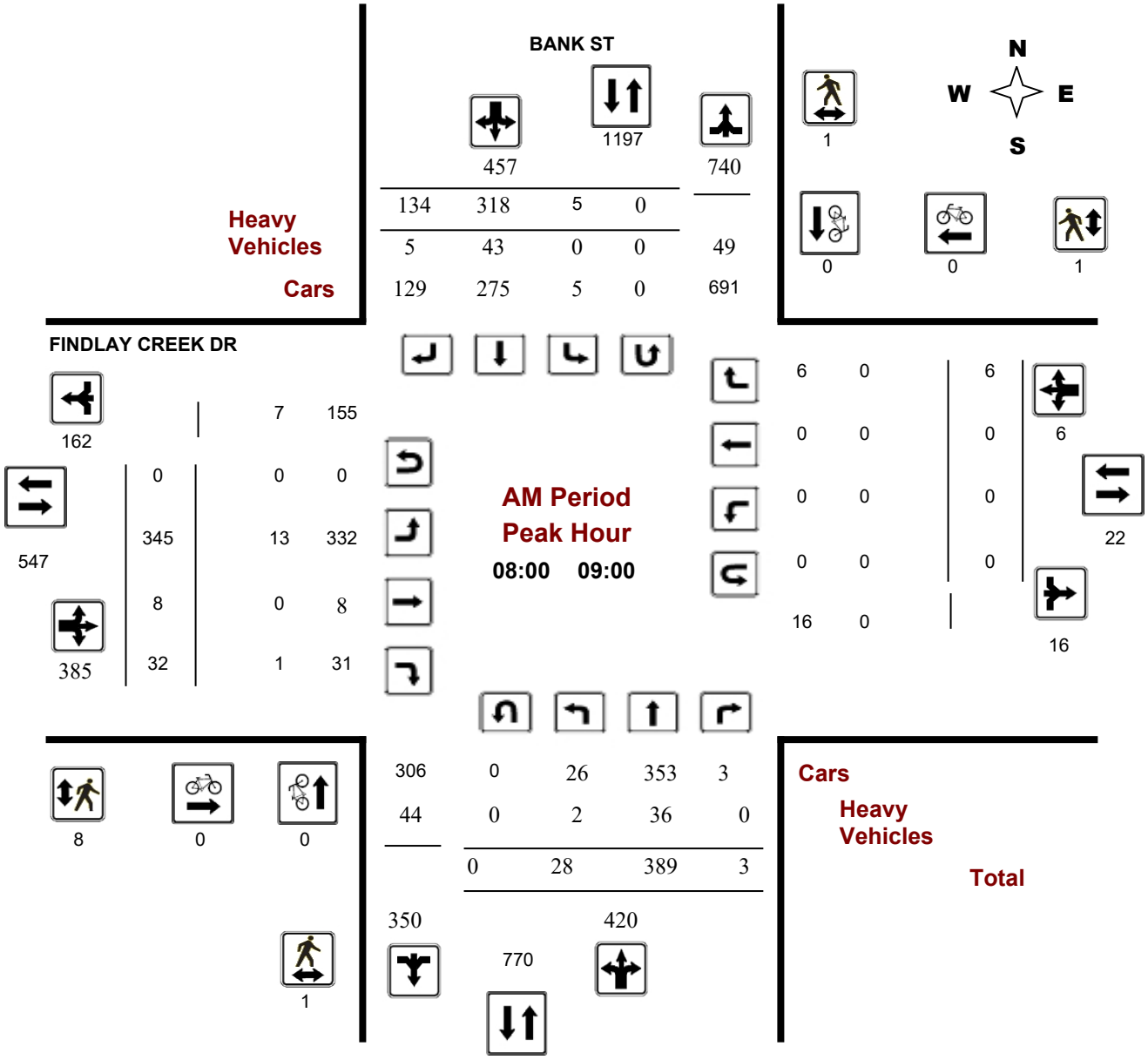
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

FINDLAY CREEK DR @ BANK ST

Survey Date: Wednesday, December 04, 2019 **WO No:** 39205

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



Comments

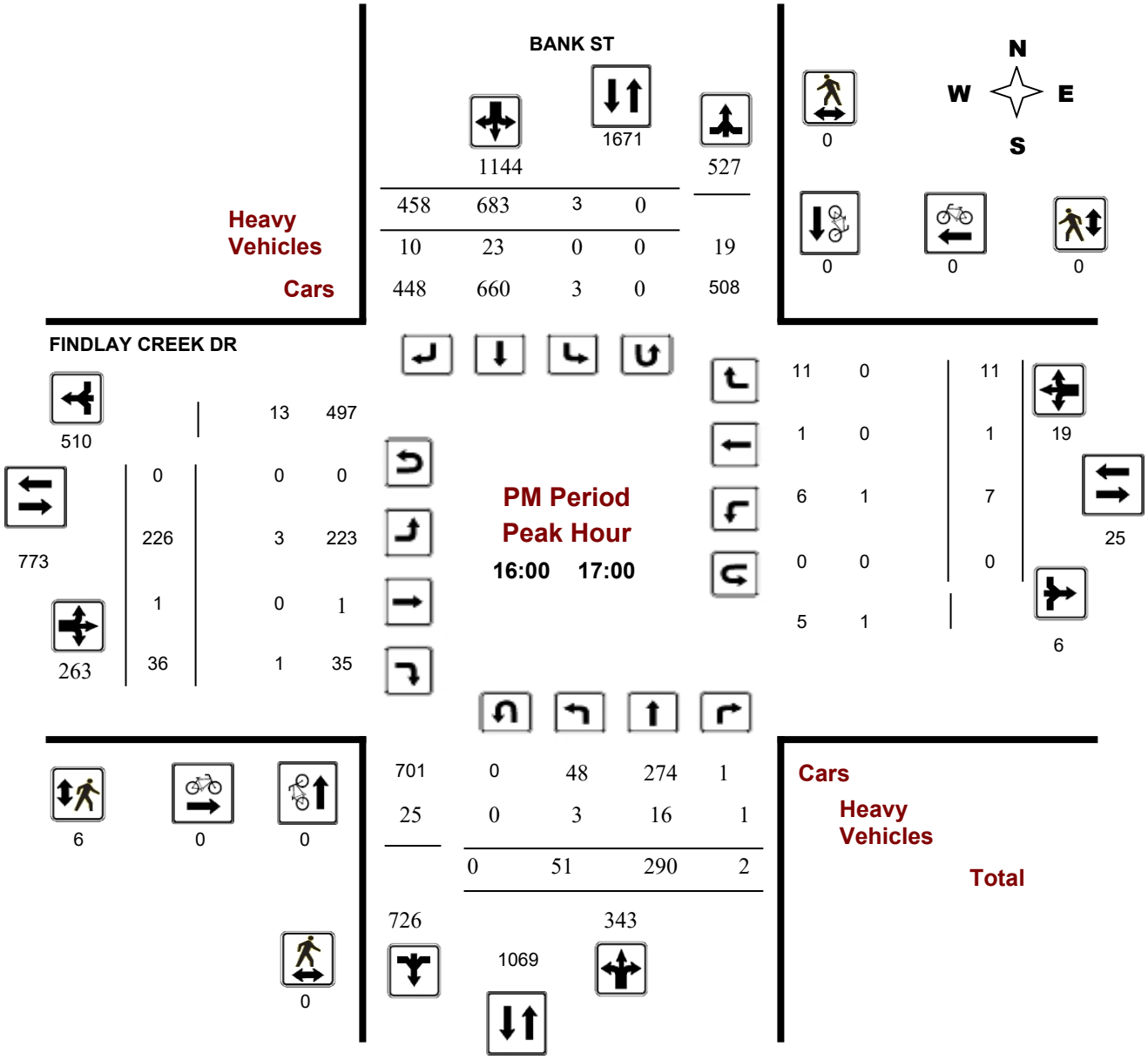
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

FINDLAY CREEK DR @ BANK ST

Survey Date: Wednesday, December 04, 2019 **WO No:** 39205

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

FINDLAY CREEK DR @ BANK ST

Survey Date: Wednesday, December 04, 2019 **WO No:** 39205

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, December 04, 2019

Total Observed U-Turns

Northbound: 1 Southbound: 2

Eastbound: 1 Westbound: 0

AADT Factor

1.00

	BANK ST								FINDLAY CREEK DR									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	15	406	1	**422**	14	289	73	**376**	**798**	372	4	22	**398**	0	1	4	**5**	**403**	**1201**
08:00 09:00	28	389	3	**420**	5	318	134	**457**	**877**	345	8	32	**385**	0	0	6	**6**	**391**	**1268**
09:00 10:00	14	358	3	**375**	2	261	104	**367**	**742**	237	5	20	**262**	2	3	6	**11**	**273**	**1015**
11:30 12:30	19	330	5	**354**	4	370	266	**640**	**994**	247	7	21	**275**	9	3	8	**20**	**295**	**1289**
12:30 13:30	22	272	9	**303**	6	377	209	**592**	**895**	220	3	23	**246**	7	1	12	**20**	**266**	**1161**
15:00 16:00	34	298	2	**334**	5	577	331	**913**	**1247**	240	2	33	**275**	7	1	10	**18**	**293**	**1540**
16:00 17:00	51	290	2	**343**	3	683	458	**1144**	**1487**	226	1	36	**263**	7	1	11	**19**	**282**	**1769**
17:00 18:00	39	285	0	**324**	3	521	382	**906**	**1230**	210	0	20	**230**	0	1	3	**4**	**234**	**1464**
Sub Total	222	2628	25	**2875**	42	3396	1957	**5395**	**8270**	2097	30	207	**2334**	32	11	60	**103**	**2437**	**10707**
U Turns	1			**1**	2			**2**	**3**	**1**			**1**	0			**0**	**1**	**4**
Total	223	2628	25	**2876**	44	3396	1957	**5397**	**8273**	2098	30	207	**2335**	32	11	60	**103**	**2438**	**10711**
EQ 12Hr	310	3653	35	**3998**	61	4720	2720	**7501**	**11499**	2916	42	288	**3246**	44	15	83	**142**	**3388**	**14887**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	310	3653	35	**3998**	61	4720	2720	**7501**	**11499**	2916	42	288	**3246**	44	15	83	**142**	**3388**	**14887**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	406	4785	46	**5237**	80	6183	3563	**9826**	**15063**	3820	55	377	**4252**	58	20	109	**187**	**4439**	**19502**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Appendix B

TRANS Trip Distribution

South Gloucester / Leitrim

Demographic Characteristics

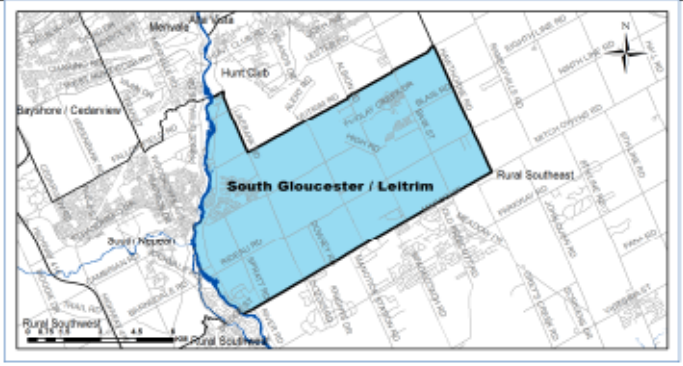
Population	17,600	Actively Travelled	14,190
Employed Population	8,910	Number of Vehicles	11,080
Households	6,240	Area (km²)	78.9

Occupation

Status (age 5+)	Male	Female	Total
Full Time Employed	4,550	3,630	8,180
Part Time Employed	130	590	730
Student	2,160	2,130	4,290
Retiree	720	770	1,490
Unemployed	90	220	320
Homemaker	20	540	560
Other	80	120	200
Total:	7,750	8,010	15,760

Traveller Characteristics	Male	Female	Total
Transit Pass Holders	790	1,070	1,850
Licensed Drivers	5,790	5,940	11,730
Telecommuters	60	10	70
Trips made by residents	20,810	24,430	45,240

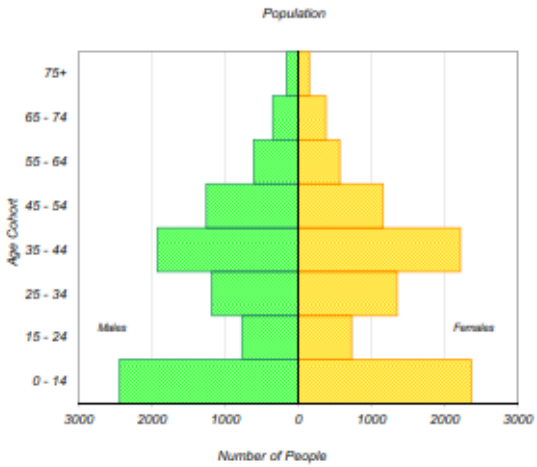
Selected Indicators	
Daily Trips per Person (age 5+)	2.87
Vehicles per Person	0.63
Number of Persons per Household	2.82
Daily Trips per Household	7.25
Vehicles per Household	1.78
Workers per Household	1.43
Population Density (Pop/km2)	220

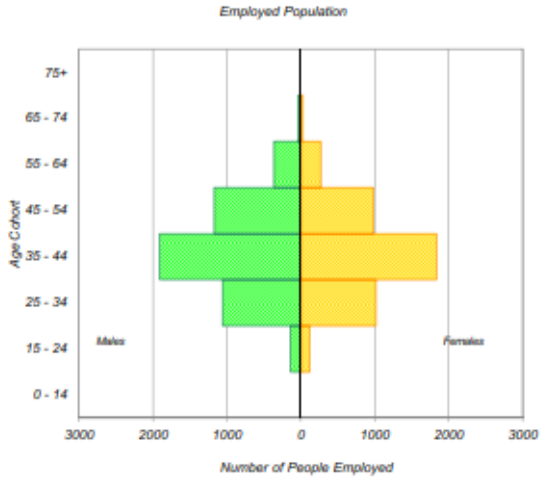


Household Size		
1 person	880	14%
2 persons	1,870	30%
3 persons	1,170	19%
4 persons	1,630	26%
5+ persons	690	11%
Total:	6,240	100%

Households by Vehicle Availability		
0 vehicles	40	1%
1 vehicle	2,080	33%
2 vehicles	3,510	56%
3 vehicles	510	8%
4+ vehicles	100	2%
Total:	6,240	100%

Households by Dwelling Type		
Single-detached	3,300	53%
Semi-detached	770	12%
Townhouse	2,010	32%
Apartment/Condo	150	2%
Total:	6,240	100%



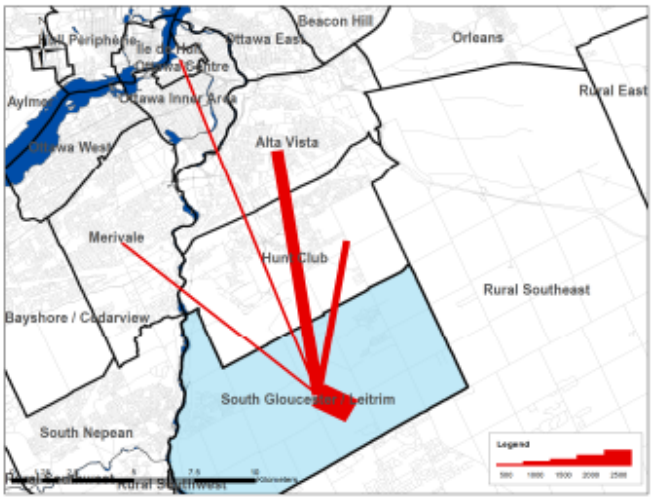


* In 2005 data was only collected for household members aged 11+ therefore these results cannot be compared to the 2011 data.

Travel Patterns

Top Five Destinations of Trips from South Gloucester / Leitrim

AM Peak Period



Summary of Trips to and from South Gloucester / Leitrim

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

Districts	Destinations of Trips From District	% Total	Origins of Trips To District	% Total
Ottawa Centre	930	9%	0	0%
Ottawa Inner Area	530	5%	250	4%
Ottawa East	240	2%	40	1%
Beacon Hill	240	2%	30	0%
Alta Vista	1,970	18%	160	2%
Hunt Club	1,100	10%	870	13%
Merivale	770	7%	340	5%
Ottawa West	290	3%	0	0%
Bayshore / Cedarview	170	2%	70	1%
Orléans	50	0%	170	3%
Rural East	0	0%	10	0%
Rural Southeast	210	2%	570	8%
South Gloucester / Leitrim	3,680	34%	3,680	55%
South Nepean	310	3%	100	1%
Rural Southwest	120	1%	220	3%
Kanata / Stittsville	140	1%	60	1%
Rural West	40	0%	60	1%
Île de Hull	90	1%	0	0%
Hull Périphérie	10	0%	20	0%
Plateau	0	0%	20	0%
Aylmer	0	0%	0	0%
Rural Northwest	20	0%	10	0%
Pointe Gatineau	10	0%	30	0%
Gatineau Est	0	0%	0	0%
Rural Northeast	20	0%	0	0%
Buckingham / Masson-Angers	0	0%	20	0%
Ontario Sub-Total:	10,790	99%	6,630	99%
Québec Sub-Total:	150	1%	100	1%
Total:	10,940	100%	6,730	100%

Trips by Trip Purpose

24 Hours	From District		To District		Within District	
Work or related	6,300	29%	3,270	15%	700	6%
School	1,640	8%	840	4%	1,930	16%
Shopping	1,830	8%	720	3%	700	6%
Leisure	2,730	13%	1,990	9%	660	6%
Medical	440	2%	120	1%	120	1%
Pick-up / drive passenger	1,610	7%	970	4%	1,720	14%
Return Home	6,020	28%	13,110	60%	5,320	44%
Other	1,160	5%	680	3%	850	7%
Total:	21,730	100%	21,700	100%	12,000	100%

AM Peak (06:30 - 08:59)	From District		To District		Within District	
Work or related	4,650	64%	1,740	57%	420	11%
School	1,310	18%	810	27%	1,580	43%
Shopping	60	1%	40	1%	10	0%
Leisure	140	2%	50	2%	0	0%
Medical	80	1%	0	0%	0	0%
Pick-up / drive passenger	780	11%	180	6%	900	25%
Return Home	100	1%	120	4%	330	9%
Other	150	2%	110	4%	430	12%
Total:	7,270	100%	3,050	100%	3,670	100%

PM Peak (15:30 - 17:59)	From District		To District		Within District	
Work or related	140	3%	150	2%	40	1%
School	30	1%	0	0%	80	2%
Shopping	270	6%	170	2%	210	6%
Leisure	840	19%	420	6%	140	4%
Medical	50	1%	0	0%	30	1%
Pick-up / drive passenger	310	7%	360	5%	400	12%
Return Home	2,400	54%	5,990	82%	2,350	69%
Other	400	9%	200	3%	150	4%
Total:	4,440	100%	7,290	100%	3,400	100%

Peak Period (%)	Total:	% of 24 Hours	Within District (%)
24 Hours	55,430		22%
AM Peak Period	13,990	25%	26%
PM Peak Period	15,130	27%	22%

Trips by Primary Travel Mode

24 Hours	From District		To District		Within District	
Auto Driver	14,990	69%	14,970	69%	5,210	43%
Auto Passenger	3,870	18%	3,650	17%	3,120	26%
Transit	1,630	8%	1,740	8%	200	2%
Bicycle	90	0%	100	0%	20	0%
Walk	40	0%	40	0%	2,680	22%
Other	1,110	5%	1,200	6%	770	6%
Total:	21,730	100%	21,700	100%	12,000	100%

AM Peak (06:30 - 08:59)	From District		To District		Within District	
Auto Driver	4,640	64%	2,070	68%	1,540	42%
Auto Passenger	1,260	17%	210	7%	1,140	31%
Transit	860	12%	100	3%	60	2%
Bicycle	70	1%	20	1%	10	0%
Walk	20	0%	0	0%	620	17%
Other	420	6%	640	21%	300	8%
Total:	7,270	100%	3,040	100%	3,670	100%

PM Peak (15:30 - 17:59)	From District		To District		Within District	
Auto Driver	3,100	70%	4,920	67%	1,510	44%
Auto Passenger	1,020	23%	1,120	15%	860	25%
Transit	150	3%	790	11%	50	1%
Bicycle	20	0%	80	1%	0	0%
Walk	10	0%	0	0%	850	25%
Other	130	3%	390	5%	130	4%
Total:	4,430	100%	7,300	100%	3,400	100%

Avg Vehicle Occupancy	From District	To District	Within District
24 Hours	1.26	1.24	1.60
AM Peak Period	1.27	1.10	1.74
PM Peak Period	1.33	1.23	1.57

Transit Modal Split	From District	To District	Within District
24 Hours	8%	9%	2%
AM Peak Period	13%	4%	2%
PM Peak Period	4%	12%	2%

Appendix C

Background Development Trip Generation

	Dwelling Units	TRANS Person Trips (Peak Period) AM	TRANS Person Trips (Peak Period) PM	Peak Period Trips AM	Peak Period Trips PM
Single Family	234	2.05	2.48	480	580
TownHouse	99	1.35	1.58	134	156

Single Family	Time Period AM	Time Period PM	Peak Period Person Trips Generated AM	Peak Period Person Trips Generated PM	Peak Hour Adjustment AM	Peak Hour Adjustment PM	Peak Hour Trips AM	Peak Hour Trips PM	Directional Split AM In	Directional Split PM In	SF Trips AM In	SF Trips AM Out	SF Trips AM Total	SF Trips PM IN	SF Trips PM Out	SF Trips PM Total
Auto Mode Share	0.54	0.55	259	319	0.48	0.44	124	140	0.3	0.62	37	87	124	87	53	140
Auto Passanger	0.24	0.25	115	145	0.48	0.44	55	64	0.3	0.62	17	39	56	40	24	64
Transit	0.12	0.09	58	52	0.55	0.47	32	24	0.3	0.62	10	22	32	15	9	24
Cycling	0.01	0.01	5	6	0.58	0.48	3	3	0.3	0.62	1	2	3	2	1	3
Walking	0.09	0.1	43	58	0.58	0.52	25	30	0.3	0.62	8	18	26	19	11	30
	1	1	480	580			239	261								

Town Homes	Time Period AM	Time Period PM	Peak Period Person Trips Generated AM	Peak Period Person Trips Generated PM	Peak Hour Adjustment AM	Peak Hour Adjustment PM	Peak Hour Trips AM	Peak Hour Trips PM	Directional Split AM In	Directional Split PM In	TH Trips AM In	TH Trips AM Out	TH Trips AM Total	TH Trips PM IN	TH Trips PM Out	TH Trips PM Total
Auto Mode Share	0.59	0.62	79	97	0.48	0.44	38	43	0.3	0.56	11	27	38	24	19	43
Auto Passanger	0.2	0.18	27	28	0.48	0.44	13	12	0.3	0.56	4	9	13	7	5	12
Transit	0.16	0.17	21	27	0.55	0.47	12	13	0.3	0.56	4	8	12	7	6	13
Cycling	0.01	0.01	1	2	0.58	0.48	1	1	0.3	0.56	0	1	1	1	0	1
Walking	0.04	0.03	5	5	0.58	0.52	3	3	0.3	0.56	1	2	3	2	1	3
	1	1.01	133	159			67	72			20	47	67	41	31	72

Appendix D

Intersection Performance Results

Synchro Output

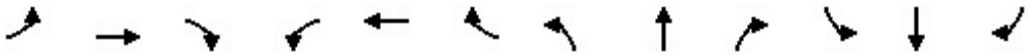
CAPACITY ANALYSIS AT SIGNALIZED INTERSECTIONS

To assist in clarifying the arithmetic analysis associated with traffic engineering, it is often useful to refer to "Level of Service". The term Level of Service implies a qualitative measure of traffic flow at an intersection. It is dependent upon vehicle delay and vehicle queue lengths at the approaches. The Level of Service is usually calculated in terms of the ratio between traffic volumes and approach capacity, or "V/C" ratio.

The City of Ottawa has adopted criteria that directly relate the volume to capacity (V/C) ratio of a signalized intersection to a level of service (LOS) rating.

The following table describes the categories and characteristics of each level:

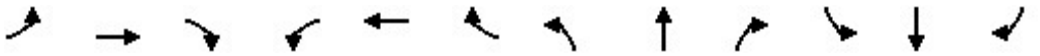
Level of Service	Features	V/C Ratio
A	At this level of service, almost no signal phase is fully utilized by traffic. Very seldom does a vehicle wait longer than one red indication. The approach appears open, turning movements are easily made and drivers have freedom of operation.	0-0.60
B	At this level, an occasional signal phase is fully utilized and many phases approach full use. Many drivers begin to feel somewhat restricted within platoons of vehicles approaching the intersection.	0.61-0.70
C	At this level, the operation is stable though with more frequent fully utilized signal phases. Drivers feel more restricted and occasionally may have to wait more than one red signal indication, and queues may develop behind turning vehicles. This level is normally employed in urban intersection design.	0.71-0.80
D	At this level, the motorist experiences increasing restriction and instability of flow. There are substantial delays to approaching vehicles during short peaks within the peak period, but there are enough cycles with lower demand to permit occasional clearance of developing queues and prevent excessive backups.	0.81-0.90
E	At this level, capacity is reached. There are long queues of vehicles waiting upstream of the intersection, and delays to vehicles may extend to several signal cycles.	0.91-1.00
F	At this level, saturation occurs, with vehicle demand exceeding the available capacity.	> 1.00



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	29	12	8	17	15	34	4	92	15	24	66	25
Future Volume (vph)	29	12	8	17	15	34	4	92	15	24	66	25
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
Hourly flow rate (vph)	32	13	9	18	16	37	4	100	16	26	72	27

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	54	71	120	125
Volume Left (vph)	32	18	4	26
Volume Right (vph)	9	37	16	27
Hadj (s)	0.19	-0.24	0.06	0.04
Departure Headway (s)	4.7	4.3	4.4	4.4
Degree Utilization, x	0.07	0.08	0.15	0.15
Capacity (veh/h)	708	780	787	787
Control Delay (s)	8.1	7.7	8.1	8.1
Approach Delay (s)	8.1	7.7	8.1	8.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.0			
Level of Service	A			
Intersection Capacity Utilization	25.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	25	4	1	3	15	105	3	2	82	4
Future Volume (Veh/h)	2	2	25	4	1	3	15	105	3	2	82	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	2	2	27	4	1	3	16	114	3	2	89	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	246	244	91	270	244	116	93			117		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	246	244	91	270	244	116	93			117		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	99	100	100	99			100		
cM capacity (veh/h)	702	654	950	659	653	942	1514			1484		

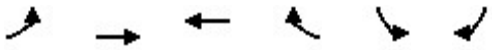
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	31	8	133	95
Volume Left	2	4	16	2
Volume Right	27	3	3	4
cSH	903	742	1514	1484
Volume to Capacity	0.03	0.01	0.01	0.00
Queue Length 95th (m)	0.9	0.3	0.3	0.0
Control Delay (s)	9.1	9.9	1.0	0.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.1	9.9	1.0	0.2
Approach LOS	A	A		

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	23.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	121	111	0
Future Volume (Veh/h)	0	0	0	121	111	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	132	121	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	253	121	121			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	253	121	121			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	740	936	1479			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	132	121
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.08	0.07
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

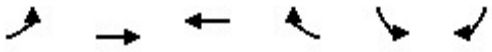
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	9.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	234	226	0	5	11
Future Volume (Veh/h)	1	234	226	0	5	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	254	246	0	5	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	246				502	246
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	246				502	246
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	100				99	98
cM capacity (veh/h)	1332				498	798

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	255	246	17
Volume Left	1	0	5
Volume Right	0	0	12
cSH	1332	1700	678
Volume to Capacity	0.00	0.14	0.03
Queue Length 95th (m)	0.0	0.0	0.6
Control Delay (s)	0.0	0.0	10.4
Lane LOS	A		B
Approach Delay (s)	0.0	0.0	10.4
Approach LOS			B

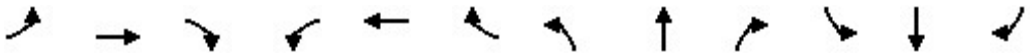
Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		23.1%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	22	217	211	13	9	13
Future Volume (Veh/h)	22	217	211	13	9	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	236	229	14	10	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	243				520	236
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	243				520	236
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	98				98	98
cM capacity (veh/h)	1335				492	808

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	260	243	24
Volume Left	24	0	10
Volume Right	0	14	14
cSH	1335	1700	637
Volume to Capacity	0.02	0.14	0.04
Queue Length 95th (m)	0.4	0.0	0.9
Control Delay (s)	0.9	0.0	10.9
Lane LOS	A		B
Approach Delay (s)	0.9	0.0	10.9
Approach LOS			B

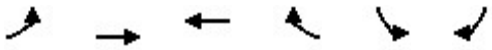
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	37.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	28	166	30	9	126	64	82	29	50	74	30	17
Future Volume (vph)	28	166	30	9	126	64	82	29	50	74	30	17
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
Hourly flow rate (vph)	30	180	33	10	137	70	89	32	54	80	33	18

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	243	217	175	131
Volume Left (vph)	30	10	89	80
Volume Right (vph)	33	70	54	18
Hadj (s)	0.00	-0.10	0.00	0.22
Departure Headway (s)	5.1	5.0	5.3	5.6
Degree Utilization, x	0.34	0.30	0.26	0.20
Capacity (veh/h)	661	666	609	580
Control Delay (s)	10.7	10.2	10.2	10.0
Approach Delay (s)	10.7	10.2	10.2	10.0
Approach LOS	B	B	B	B

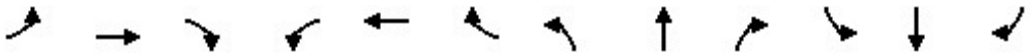
Intersection Summary				
Delay	10.3			
Level of Service	B			
Intersection Capacity Utilization	38.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	286	192	24	27	20
Future Volume (Veh/h)	6	286	192	24	27	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	311	209	26	29	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	235				547	222
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	235				547	222
tC, single (s)	4.3				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	99				94	97
cM capacity (veh/h)	1249				499	823

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	318	235	51
Volume Left	7	0	29
Volume Right	0	26	22
cSH	1249	1700	601
Volume to Capacity	0.01	0.14	0.08
Queue Length 95th (m)	0.1	0.0	2.2
Control Delay (s)	0.2	0.0	11.5
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	11.5
Approach LOS			B

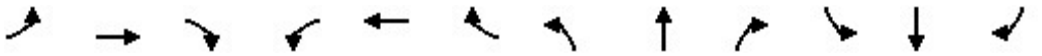
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	29.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	313	0	0	212	0	0	0	0	0	0	0
Future Volume (vph)	0	313	0	0	212	0	0	0	0	0	0	0
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
Hourly flow rate (vph)	0	340	0	0	230	0	0	0	0	0	0	0

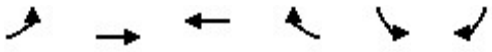
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	340	230	0	0
Volume Left (vph)	0	0	0	0
Volume Right (vph)	0	0	0	0
Hadj (s)	0.07	0.05	0.00	0.00
Departure Headway (s)	4.2	4.3	5.1	5.1
Degree Utilization, x	0.40	0.27	0.00	0.00
Capacity (veh/h)	848	821	635	635
Control Delay (s)	9.9	8.9	8.1	8.1
Approach Delay (s)	9.9	8.9	0.0	0.0
Approach LOS	A	A	A	A

Intersection Summary				
Delay	9.5			
Level of Service	A			
Intersection Capacity Utilization	19.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	345	8	32	0	0	6	28	389	3	5	318	134
Future Volume (vph)	345	8	32	0	0	6	28	389	3	5	318	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.88			0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1634			1615		1687	1743	1615	1805	1667	1553
Flt Permitted	0.75	1.00			1.00		0.51	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	1376	1634			1615		902	1743	1615	857	1667	1553
Peak-hour factor, PHF	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)	375	9	35	0	0	7	30	423	3	5	346	146
RTOR Reduction (vph)	0	24	0	0	5	0	0	0	1	0	0	56
Lane Group Flow (vph)	375	20	0	0	2	0	30	423	2	5	346	90
Heavy Vehicles (%)	4%	0%	3%	0%	0%	0%	7%	9%	0%	0%	14%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	33.2	33.2			33.2		67.8	67.8	67.8	67.8	67.8	67.8
Effective Green, g (s)	33.2	33.2			33.2		67.8	67.8	67.8	67.8	67.8	67.8
Actuated g/C Ratio	0.30	0.30			0.30		0.62	0.62	0.62	0.62	0.62	0.62
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	415	493			487		555	1074	995	528	1027	957
v/s Ratio Prot		0.01			0.00			c0.24			0.21	
v/s Ratio Perm	c0.27						0.03		0.00	0.01		0.06
v/c Ratio	0.90	0.04			0.00		0.05	0.39	0.00	0.01	0.34	0.09
Uniform Delay, d1	36.9	27.1			26.8		8.4	10.7	8.1	8.1	10.2	8.6
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	22.5	0.0			0.0		0.2	1.1	0.0	0.0	0.9	0.2
Delay (s)	59.4	27.2			26.8		8.6	11.8	8.1	8.2	11.1	8.8
Level of Service	E	C			C		A	B	A	A	B	A
Approach Delay (s)		56.0			26.8			11.5			10.4	
Approach LOS		E			C			B			B	

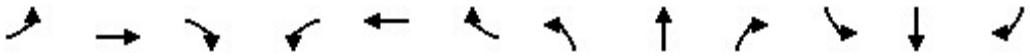
Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0				0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1623				1023	1085

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

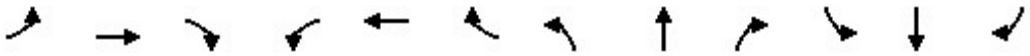
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	16	3	8	10	7	22	6	45	12	32	85	32
Future Volume (vph)	16	3	8	10	7	22	6	45	12	32	85	32
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
Hourly flow rate (vph)	17	3	9	11	8	24	7	49	13	35	92	35

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	29	43	69	162
Volume Left (vph)	17	11	7	35
Volume Right (vph)	9	24	13	35
Hadj (s)	0.31	-0.07	0.05	0.06
Departure Headway (s)	4.8	4.4	4.3	4.2
Degree Utilization, x	0.04	0.05	0.08	0.19
Capacity (veh/h)	704	767	811	838
Control Delay (s)	8.0	7.6	7.7	8.2
Approach Delay (s)	8.0	7.6	7.7	8.2
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.0			
Level of Service	A			
Intersection Capacity Utilization	24.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	16	3	2	1	3	66	3	4	95	3
Future Volume (Veh/h)	4	0	16	3	2	1	3	66	3	4	95	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	4	0	17	3	2	1	3	72	3	4	103	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	194	194	104	209	194	74	106			75		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	194	194	104	209	194	74	106			75		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.5			2.2		
p0 queue free %	99	100	98	100	100	100	100			100		
cM capacity (veh/h)	765	702	956	737	702	994	1313			1537		

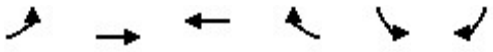
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	21	6	78	110
Volume Left	4	3	3	4
Volume Right	17	1	3	3
cSH	912	757	1313	1537
Volume to Capacity	0.02	0.01	0.00	0.00
Queue Length 95th (m)	0.6	0.2	0.1	0.1
Control Delay (s)	9.0	9.8	0.3	0.3
Lane LOS	A	A	A	A
Approach Delay (s)	9.0	9.8	0.3	0.3
Approach LOS	A	A		

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	16.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	106	114	0
Future Volume (Veh/h)	0	0	0	106	114	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	115	124	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	239	124	124			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	239	124	124			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	754	932	1475			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	115	124
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.07	0.07
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

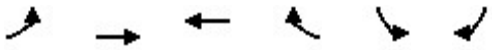
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	9.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	235	242	10	6	4
Future Volume (Veh/h)	4	235	242	10	6	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	255	263	11	7	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	274				532	268
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	274				532	268
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1301				482	775

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	259	274	11
Volume Left	4	0	7
Volume Right	0	11	4
cSH	1301	1700	559
Volume to Capacity	0.00	0.16	0.02
Queue Length 95th (m)	0.1	0.0	0.5
Control Delay (s)	0.1	0.0	11.6
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	11.6
Approach LOS			B

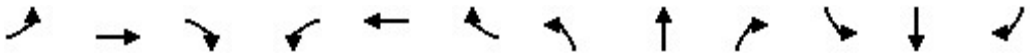
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	25.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	224	248	13	5	4
Future Volume (Veh/h)	16	224	248	13	5	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	243	270	14	5	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	284				554	277
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	284				554	277
tC, single (s)	4.1				6.4	6.5
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.5
p0 queue free %	99				99	99
cM capacity (veh/h)	1290				490	710

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	260	284	9
Volume Left	17	0	5
Volume Right	0	14	4
cSH	1290	1700	568
Volume to Capacity	0.01	0.17	0.02
Queue Length 95th (m)	0.3	0.0	0.4
Control Delay (s)	0.6	0.0	11.4
Lane LOS	A		B
Approach Delay (s)	0.6	0.0	11.4
Approach LOS			B

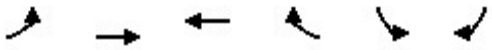
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	14	172	40	30	165	63	65	29	35	59	16	32
Future Volume (vph)	14	172	40	30	165	63	65	29	35	59	16	32
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
Hourly flow rate (vph)	15	187	43	33	179	68	71	32	38	64	17	35

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	245	280	141	116
Volume Left (vph)	15	33	71	64
Volume Right (vph)	43	68	38	35
Hadj (s)	-0.04	-0.03	0.00	0.07
Departure Headway (s)	5.0	5.0	5.4	5.5
Degree Utilization, x	0.34	0.39	0.21	0.18
Capacity (veh/h)	675	688	590	580
Control Delay (s)	10.5	11.0	9.9	9.8
Approach Delay (s)	10.5	11.0	9.9	9.8
Approach LOS	B	B	A	A

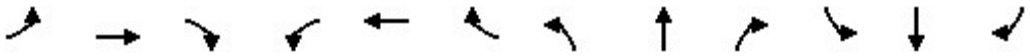
Intersection Summary				
Delay	10.5			
Level of Service	B			
Intersection Capacity Utilization	37.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	252	251	43	26	13
Future Volume (Veh/h)	9	252	251	43	26	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	274	273	47	28	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	320				590	296
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	320				590	296
tC, single (s)	4.4				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.5				3.6	3.3
p0 queue free %	99				94	98
cM capacity (veh/h)	1084				456	748

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	284	320	42
Volume Left	10	0	28
Volume Right	0	47	14
cSH	1084	1700	524
Volume to Capacity	0.01	0.19	0.08
Queue Length 95th (m)	0.2	0.0	2.1
Control Delay (s)	0.4	0.0	12.5
Lane LOS	A		B
Approach Delay (s)	0.4	0.0	12.5
Approach LOS			B

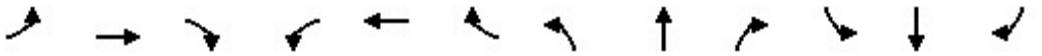
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	278	0	0	292	0	0	0	0	0	0	0
Future Volume (vph)	0	278	0	0	292	0	0	0	0	0	0	0
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
Hourly flow rate (vph)	0	302	0	0	317	0	0	0	0	0	0	0

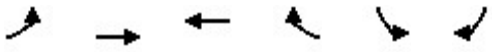
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	302	317	0	0
Volume Left (vph)	0	0	0	0
Volume Right (vph)	0	0	0	0
Hadj (s)	0.07	0.07	0.00	0.00
Departure Headway (s)	4.3	4.3	5.2	5.2
Degree Utilization, x	0.36	0.38	0.00	0.00
Capacity (veh/h)	830	826	618	618
Control Delay (s)	9.7	9.8	8.2	8.2
Approach Delay (s)	9.7	9.8	0.0	0.0
Approach LOS	A	A	A	A

Intersection Summary				
Delay	9.7			
Level of Service	A			
Intersection Capacity Utilization	18.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	3	35	7	1	11	34	298	2	5	577	331
Future Volume (vph)	244	3	35	7	1	11	34	298	2	5	577	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1515		1583	1637		1656	1810	1077	1805	1827	1568
Flt Permitted	0.75	1.00		0.73	1.00		0.35	1.00	1.00	0.54	1.00	1.00
Satd. Flow (perm)	1382	1515		1217	1637		613	1810	1077	1029	1827	1568
Peak-hour factor, PHF	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)	265	3	38	8	1	12	37	324	2	5	627	360
RTOR Reduction (vph)	0	29	0	0	9	0	0	0	1	0	0	108
Lane Group Flow (vph)	265	12	0	8	4	0	37	324	1	5	627	252
Heavy Vehicles (%)	3%	33%	6%	14%	0%	0%	9%	5%	50%	0%	4%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	27.1	27.1		27.1	27.1		83.9	83.9	83.9	83.9	83.9	83.9
Effective Green, g (s)	27.1	27.1		27.1	27.1		83.9	83.9	83.9	83.9	83.9	83.9
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.70	0.70	0.70	0.70	0.70	0.70
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	312	342		274	369		428	1265	753	719	1277	1096
v/s Ratio Prot		0.01			0.00			0.18			c0.34	
v/s Ratio Perm	c0.19			0.01			0.06		0.00	0.00		0.16
v/c Ratio	0.85	0.03		0.03	0.01		0.09	0.26	0.00	0.01	0.49	0.23
Uniform Delay, d1	44.5	36.2		36.2	36.0		5.8	6.6	5.4	5.5	8.3	6.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.9	0.0		0.0	0.0		0.4	0.5	0.0	0.0	1.4	0.5
Delay (s)	63.4	36.3		36.2	36.1		6.2	7.1	5.4	5.5	9.6	7.0
Level of Service	E	D		D	D		A	A	A	A	A	A
Approach Delay (s)		59.8			36.1			7.0			8.6	
Approach LOS		E			D			A			A	

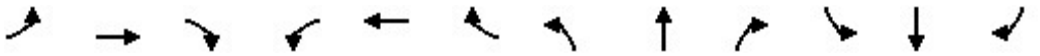
Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0				0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1623				1023	1085

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	29	12	8	22	15	34	4	113	19	24	95	25
Future Volume (vph)	29	12	8	22	15	34	4	113	19	24	95	25
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
Hourly flow rate (vph)	32	13	9	24	16	37	4	123	21	26	103	27

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	54	77	148	156
Volume Left (vph)	32	24	4	26
Volume Right (vph)	9	37	21	27
Hadj (s)	0.19	-0.17	0.04	0.03
Departure Headway (s)	4.9	4.5	4.4	4.4
Degree Utilization, x	0.07	0.10	0.18	0.19
Capacity (veh/h)	679	739	779	777
Control Delay (s)	8.3	8.0	8.4	8.5
Approach Delay (s)	8.3	8.0	8.4	8.5
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.3			
Level of Service	A			
Intersection Capacity Utilization	30.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	2	77	4	1	3	15	113	3	2	98	21
Future Volume (Veh/h)	19	2	77	4	1	3	15	113	3	2	98	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	21	2	84	4	1	3	16	123	3	2	107	23
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	282	280	118	364	290	124	130			126		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	282	280	118	364	290	124	130			126		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	91	99	100	100	99			100		
cM capacity (veh/h)	665	624	917	535	616	932	1468			1473		

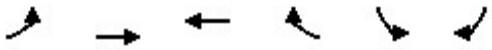
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	107	8	142	132
Volume Left	21	4	16	2
Volume Right	84	3	3	23
cSH	847	649	1468	1473
Volume to Capacity	0.13	0.01	0.01	0.00
Queue Length 95th (m)	3.5	0.3	0.3	0.0
Control Delay (s)	9.9	10.6	0.9	0.1
Lane LOS	A	B	A	A
Approach Delay (s)	9.9	10.6	0.9	0.1
Approach LOS	A	B		

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	26.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	12	48	125	170	10
Future Volume (Veh/h)	4	12	48	125	170	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	13	52	136	185	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	430	190	196			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	430	190	196			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	98	96			
cM capacity (veh/h)	564	856	1389			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	17	188	196
Volume Left	4	52	0
Volume Right	13	0	11
cSH	763	1389	1700
Volume to Capacity	0.02	0.04	0.12
Queue Length 95th (m)	0.5	0.9	0.0
Control Delay (s)	9.8	2.4	0.0
Lane LOS	A	A	
Approach Delay (s)	9.8	2.4	0.0
Approach LOS	A		

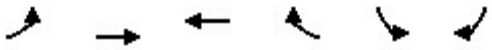
Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	254	248	0	5	11
Future Volume (Veh/h)	1	254	248	0	5	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	276	270	0	5	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	270				548	270
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	270				548	270
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	100				99	98
cM capacity (veh/h)	1305				467	774

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	277	270	17
Volume Left	1	0	5
Volume Right	0	0	12
cSH	1305	1700	649
Volume to Capacity	0.00	0.16	0.03
Queue Length 95th (m)	0.0	0.0	0.6
Control Delay (s)	0.0	0.0	10.7
Lane LOS	A		B
Approach Delay (s)	0.0	0.0	10.7
Approach LOS			B

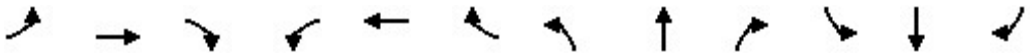
Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		24.2%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	228	223	55	10	23
Future Volume (Veh/h)	31	228	223	55	10	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	248	242	60	11	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	302				588	272
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	302				588	272
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	97				98	97
cM capacity (veh/h)	1253				446	772

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	282	302	36
Volume Left	34	0	11
Volume Right	0	60	25
cSH	1253	1700	631
Volume to Capacity	0.03	0.18	0.06
Queue Length 95th (m)	0.7	0.0	1.4
Control Delay (s)	1.2	0.0	11.1
Lane LOS	A		B
Approach Delay (s)	1.2	0.0	11.1
Approach LOS			B

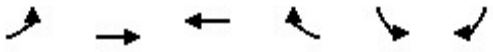
Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	166	34	10	147	101	114	37	57	117	58	17
Future Volume (vph)	35	166	34	10	147	101	114	37	57	117	58	17
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
Hourly flow rate (vph)	38	180	37	11	160	110	124	40	62	127	63	18

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	255	281	226	208
Volume Left (vph)	38	11	124	127
Volume Right (vph)	37	110	62	18
Hadj (s)	0.00	-0.15	0.02	0.24
Departure Headway (s)	5.7	5.6	5.9	6.1
Degree Utilization, x	0.41	0.43	0.37	0.35
Capacity (veh/h)	572	594	548	528
Control Delay (s)	12.6	12.8	12.3	12.5
Approach Delay (s)	12.6	12.8	12.3	12.5
Approach LOS	B	B	B	B

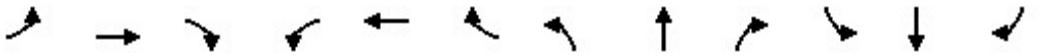
Intersection Summary				
Delay	12.6			
Level of Service	B			
Intersection Capacity Utilization	46.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	333	249	24	27	23
Future Volume (Veh/h)	9	333	249	24	27	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	362	271	26	29	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	297				666	284
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	297				666	284
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	99				93	97
cM capacity (veh/h)	1209				424	760

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	372	297	54
Volume Left	10	0	29
Volume Right	0	26	25
cSH	1209	1700	533
Volume to Capacity	0.01	0.17	0.10
Queue Length 95th (m)	0.2	0.0	2.7
Control Delay (s)	0.3	0.0	12.5
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	12.5
Approach LOS			B

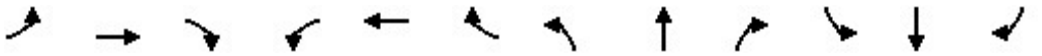
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	349	5	0	257	0	6	0	0	0	0	6
Future Volume (vph)	6	349	5	0	257	0	6	0	0	0	0	6
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
Hourly flow rate (vph)	7	379	5	0	279	0	7	0	0	0	0	7

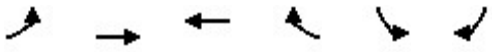
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	391	279	7	7
Volume Left (vph)	7	0	7	0
Volume Right (vph)	5	0	0	7
Hadj (s)	0.08	0.05	0.49	-0.60
Departure Headway (s)	4.3	4.4	5.9	4.8
Degree Utilization, x	0.47	0.34	0.01	0.01
Capacity (veh/h)	826	801	545	653
Control Delay (s)	11.0	9.6	8.9	7.8
Approach Delay (s)	11.0	9.6	8.9	7.8
Approach LOS	B	A	A	A

Intersection Summary				
Delay	10.4			
Level of Service	B			
Intersection Capacity Utilization	35.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	352	29	22	52	45	126	22	1139	3	133	556	102
Future Volume (vph)	352	29	22	52	45	126	22	1139	3	133	556	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	1741		1805	1690		1656	1845	1615	1805	1759	1524
Flt Permitted	0.57	1.00		0.72	1.00		0.31	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1033	1741		1369	1690		542	1845	1615	118	1759	1524
Peak-hour factor, PHF	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)	383	32	24	57	49	137	24	1238	3	145	604	111
RTOR Reduction (vph)	0	16	0	0	43	0	0	0	1	0	0	46
Lane Group Flow (vph)	383	40	0	57	143	0	24	1238	2	145	604	65
Heavy Vehicles (%)	5%	0%	5%	0%	0%	0%	9%	3%	0%	0%	8%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	36.5	36.5		36.5	36.5		64.5	64.5	64.5	64.5	64.5	64.5
Effective Green, g (s)	36.5	36.5		36.5	36.5		64.5	64.5	64.5	64.5	64.5	64.5
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.59	0.59	0.59	0.59	0.59	0.59
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	342	577		454	560		317	1081	946	69	1031	893
v/s Ratio Prot		0.02			0.08			0.67			0.34	
v/s Ratio Perm	c0.37			0.04			0.04		0.00	c1.23		0.04
v/c Ratio	1.12	0.07		0.13	0.25		0.08	1.15	0.00	2.10	0.59	0.07
Uniform Delay, d1	36.8	25.1		25.6	26.8		9.8	22.8	9.4	22.8	14.3	9.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	85.1	0.1		0.1	0.2		0.5	76.6	0.0	541.2	2.4	0.2
Delay (s)	121.9	25.2		25.7	27.1		10.3	99.3	9.4	564.0	16.8	10.0
Level of Service	F	C		C	C		B	F	A	F	B	A
Approach Delay (s)		109.5			26.8			97.4			108.2	
Approach LOS		F			C			F			F	

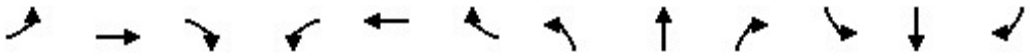
Intersection Summary			
HCM 2000 Control Delay	96.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.74		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	111.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0				0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1623				1023	1085

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

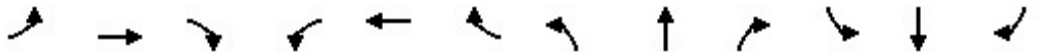
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	16	3	8	14	7	22	6	66	15	32	102	32
Future Volume (vph)	16	3	8	14	7	22	6	66	15	32	102	32
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
Hourly flow rate (vph)	17	3	9	15	8	24	7	72	16	35	111	35

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	29	47	95	181
Volume Left (vph)	17	15	7	35
Volume Right (vph)	9	24	16	35
Hadj (s)	0.31	-0.01	0.02	0.07
Departure Headway (s)	4.9	4.5	4.3	4.3
Degree Utilization, x	0.04	0.06	0.11	0.21
Capacity (veh/h)	683	735	809	828
Control Delay (s)	8.1	7.8	7.8	8.4
Approach Delay (s)	8.1	7.8	7.8	8.4
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.2			
Level of Service	A			
Intersection Capacity Utilization	25.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	0	63	3	2	1	3	75	3	4	101	18
Future Volume (Veh/h)	19	0	63	3	2	1	3	75	3	4	101	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	21	0	68	3	2	1	3	82	3	4	110	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	220	219	120	286	228	84	130			85		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	220	219	120	286	228	84	130			85		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.5			2.2		
p0 queue free %	97	100	93	100	100	100	100			100		
cM capacity (veh/h)	736	679	921	619	672	981	1285			1524		

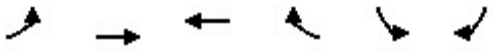
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	89	6	88	134
Volume Left	21	3	3	4
Volume Right	68	1	3	20
cSH	869	679	1285	1524
Volume to Capacity	0.10	0.01	0.00	0.00
Queue Length 95th (m)	2.7	0.2	0.1	0.1
Control Delay (s)	9.6	10.4	0.3	0.2
Lane LOS	A	B	A	A
Approach Delay (s)	9.6	10.4	0.3	0.2
Approach LOS	A	B		

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	19.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	24	0	109	167	0
Future Volume (Veh/h)	6	24	0	109	167	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	26	0	118	182	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	300	182	182			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	300	182	182			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	97	100			
cM capacity (veh/h)	696	866	1405			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	33	118	182
Volume Left	7	0	0
Volume Right	26	0	0
cSH	823	1700	1700
Volume to Capacity	0.04	0.07	0.11
Queue Length 95th (m)	1.0	0.0	0.0
Control Delay (s)	9.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.6	0.0	0.0
Approach LOS	A		

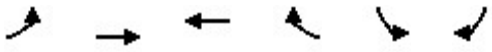
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	18.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	253	261	10	6	4
Future Volume (Veh/h)	4	253	261	10	6	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	275	284	11	7	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	295				572	290
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	295				572	290
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1278				456	754

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	279	295	11
Volume Left	4	0	7
Volume Right	0	11	4
cSH	1278	1700	532
Volume to Capacity	0.00	0.17	0.02
Queue Length 95th (m)	0.1	0.0	0.5
Control Delay (s)	0.1	0.0	11.9
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	11.9
Approach LOS			B

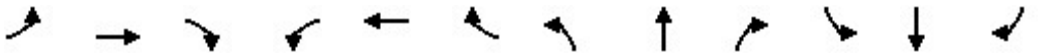
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	26.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	234	260	60	6	11
Future Volume (Veh/h)	24	234	260	60	6	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	254	283	65	7	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	348				622	316
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	348				622	316
tC, single (s)	4.1				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	98				98	98
cM capacity (veh/h)	1200				444	709

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	280	348	19
Volume Left	26	0	7
Volume Right	0	65	12
cSH	1200	1700	581
Volume to Capacity	0.02	0.20	0.03
Queue Length 95th (m)	0.5	0.0	0.8
Control Delay (s)	0.9	0.0	11.4
Lane LOS	A		B
Approach Delay (s)	0.9	0.0	11.4
Approach LOS			B

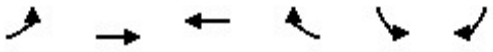
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	14	172	50	38	193	63	90	32	39	111	37	37
Future Volume (vph)	14	172	50	38	193	63	90	32	39	111	37	37
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
Hourly flow rate (vph)	15	187	54	41	210	68	98	35	42	121	40	40

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	256	319	175	201
Volume Left (vph)	15	41	98	121
Volume Right (vph)	54	68	42	40
Hadj (s)	-0.06	0.00	0.02	0.14
Departure Headway (s)	5.5	5.5	6.0	6.0
Degree Utilization, x	0.39	0.49	0.29	0.34
Capacity (veh/h)	598	613	533	538
Control Delay (s)	12.1	13.6	11.4	12.0
Approach Delay (s)	12.1	13.6	11.4	12.0
Approach LOS	B	B	B	B

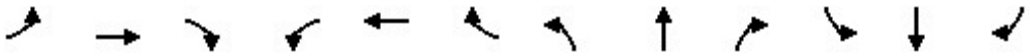
Intersection Summary				
Delay	12.5			
Level of Service	B			
Intersection Capacity Utilization	46.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	306	285	43	26	15
Future Volume (Veh/h)	11	306	285	43	26	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	333	310	47	28	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	357				690	334
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	357				690	334
tC, single (s)	4.4				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.5				3.6	3.3
p0 queue free %	99				93	98
cM capacity (veh/h)	1071				397	713

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	345	357	44
Volume Left	12	0	28
Volume Right	0	47	16
cSH	1071	1700	473
Volume to Capacity	0.01	0.21	0.09
Queue Length 95th (m)	0.3	0.0	2.4
Control Delay (s)	0.4	0.0	13.4
Lane LOS	A		B
Approach Delay (s)	0.4	0.0	13.4
Approach LOS			B

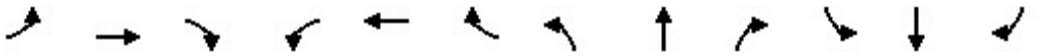
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	324	3	0	317	0	4	0	0	0	0	4
Future Volume (vph)	4	324	3	0	317	0	4	0	0	0	0	4
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
Hourly flow rate (vph)	4	352	3	0	345	0	4	0	0	0	0	4

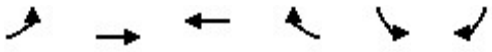
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	359	345	4	4
Volume Left (vph)	4	0	4	0
Volume Right (vph)	3	0	0	4
Hadj (s)	0.08	0.07	0.57	-0.60
Departure Headway (s)	4.3	4.4	6.0	4.8
Degree Utilization, x	0.43	0.42	0.01	0.01
Capacity (veh/h)	816	810	531	642
Control Delay (s)	10.6	10.4	9.1	7.9
Approach Delay (s)	10.6	10.4	9.1	7.9
Approach LOS	B	B	A	A

Intersection Summary				
Delay	10.5			
Level of Service	B			
Intersection Capacity Utilization	30.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	246	45	35	101	34	97	22	860	4	252	1012	277
Future Volume (vph)	246	45	35	101	34	97	22	860	4	252	1012	277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1703	1711		1787	1689		1583	1863	1292	1805	1863	1553
Flt Permitted	0.60	1.00		0.70	1.00		0.07	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	1076	1711		1318	1689		120	1863	1292	310	1863	1553
Peak-hour factor, PHF	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)	267	49	38	110	37	105	24	935	4	274	1100	301
RTOR Reduction (vph)	0	24	0	0	78	0	0	0	1	0	0	88
Lane Group Flow (vph)	267	63	0	110	64	0	24	935	3	274	1100	213
Heavy Vehicles (%)	6%	2%	6%	1%	0%	0%	14%	2%	25%	0%	2%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	31.3	31.3		31.3	31.3		79.7	79.7	79.7	79.7	79.7	79.7
Effective Green, g (s)	31.3	31.3		31.3	31.3		79.7	79.7	79.7	79.7	79.7	79.7
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.66	0.66	0.66	0.66	0.66	0.66
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	280	446		343	440		79	1237	858	205	1237	1031
v/s Ratio Prot		0.04			0.04			0.50			0.59	
v/s Ratio Perm	c0.25			0.08			0.20		0.00	c0.88		0.14
v/c Ratio	0.95	0.14		0.32	0.15		0.30	0.76	0.00	1.34	0.89	0.21
Uniform Delay, d1	43.6	34.0		35.8	34.1		8.5	13.6	6.8	20.1	16.5	7.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	41.0	0.1		0.5	0.2		9.6	4.3	0.0	180.7	9.8	0.5
Delay (s)	84.6	34.2		36.3	34.2		18.1	17.9	6.8	200.8	26.3	8.3
Level of Service	F	C		D	C		B	B	A	F	C	A
Approach Delay (s)		72.2			35.1			17.9			51.6	
Approach LOS		E			D			B			D	

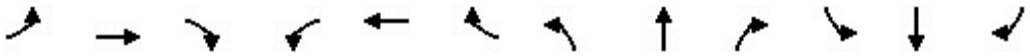
Intersection Summary			
HCM 2000 Control Delay	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0				0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1623				1023	1085

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

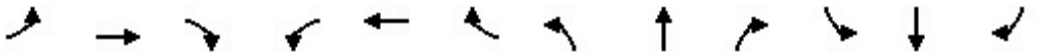
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	29	12	8	22	15	34	4	118	19	24	105	25
Future Volume (vph)	29	12	8	22	15	34	4	118	19	24	105	25
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
Hourly flow rate (vph)	32	13	9	24	16	37	4	128	21	26	114	27

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	54	77	153	167
Volume Left (vph)	32	24	4	26
Volume Right (vph)	9	37	21	27
Hadj (s)	0.19	-0.17	0.04	0.04
Departure Headway (s)	4.9	4.5	4.4	4.4
Degree Utilization, x	0.07	0.10	0.19	0.21
Capacity (veh/h)	672	730	776	775
Control Delay (s)	8.3	8.0	8.5	8.6
Approach Delay (s)	8.3	8.0	8.5	8.6
Approach LOS	A	A	A	A

Intersection Summary				
Delay		8.4		
Level of Service		A		
Intersection Capacity Utilization		30.7%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	2	77	4	1	3	15	118	3	2	108	21
Future Volume (Veh/h)	19	2	77	4	1	3	15	118	3	2	108	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	21	2	84	4	1	3	16	128	3	2	117	23
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	298	296	128	379	306	130	140			131		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	298	296	128	379	306	130	140			131		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	91	99	100	100	99			100		
cM capacity (veh/h)	650	612	906	522	604	926	1456			1467		

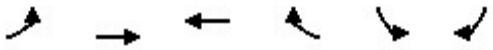
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	107	8	147	142
Volume Left	21	4	16	2
Volume Right	84	3	3	23
cSH	834	637	1456	1467
Volume to Capacity	0.13	0.01	0.01	0.00
Queue Length 95th (m)	3.5	0.3	0.3	0.0
Control Delay (s)	10.0	10.7	0.9	0.1
Lane LOS	A	B	A	A
Approach Delay (s)	10.0	10.7	0.9	0.1
Approach LOS	A	B		

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	28.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	12	48	130	180	10
Future Volume (Veh/h)	4	12	48	130	180	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	13	52	141	196	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	446	202	207			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	446	202	207			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	98	96			
cM capacity (veh/h)	552	844	1376			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	17	193	207
Volume Left	4	52	0
Volume Right	13	0	11
cSH	751	1376	1700
Volume to Capacity	0.02	0.04	0.12
Queue Length 95th (m)	0.6	0.9	0.0
Control Delay (s)	9.9	2.3	0.0
Lane LOS	A	A	
Approach Delay (s)	9.9	2.3	0.0
Approach LOS	A		

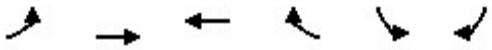
Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	254	248	0	5	11
Future Volume (Veh/h)	1	254	248	0	5	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	276	270	0	5	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	270				548	270
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	270				548	270
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	100				99	98
cM capacity (veh/h)	1305				467	774

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	277	270	17
Volume Left	1	0	5
Volume Right	0	0	12
cSH	1305	1700	649
Volume to Capacity	0.00	0.16	0.03
Queue Length 95th (m)	0.0	0.0	0.6
Control Delay (s)	0.0	0.0	10.7
Lane LOS	A		B
Approach Delay (s)	0.0	0.0	10.7
Approach LOS			B

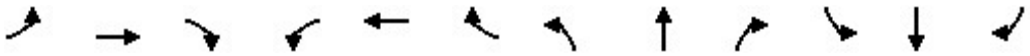
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	24.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	228	223	55	10	23
Future Volume (Veh/h)	31	228	223	55	10	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	248	242	60	11	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	302				588	272
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	302				588	272
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	97				98	97
cM capacity (veh/h)	1253				446	772

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	282	302	36
Volume Left	34	0	11
Volume Right	0	60	25
cSH	1253	1700	631
Volume to Capacity	0.03	0.18	0.06
Queue Length 95th (m)	0.7	0.0	1.4
Control Delay (s)	1.2	0.0	11.1
Lane LOS	A		B
Approach Delay (s)	1.2	0.0	11.1
Approach LOS			B

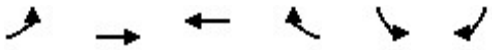
Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	166	34	10	147	106	114	37	57	127	58	17
Future Volume (vph)	35	166	34	10	147	106	114	37	57	127	58	17
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
Hourly flow rate (vph)	38	180	37	11	160	115	124	40	62	138	63	18

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	255	286	226	219
Volume Left (vph)	38	11	124	138
Volume Right (vph)	37	115	62	18
Hadj (s)	0.00	-0.15	0.02	0.23
Departure Headway (s)	5.8	5.6	5.9	6.2
Degree Utilization, x	0.41	0.45	0.37	0.38
Capacity (veh/h)	565	589	542	526
Control Delay (s)	12.8	13.0	12.5	12.8
Approach Delay (s)	12.8	13.0	12.5	12.8
Approach LOS	B	B	B	B

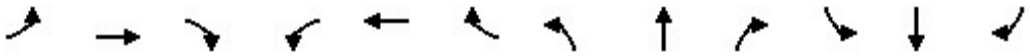
Intersection Summary				
Delay	12.8			
Level of Service	B			
Intersection Capacity Utilization	47.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	343	254	24	27	23
Future Volume (Veh/h)	9	343	254	24	27	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	373	276	26	29	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	302				682	289
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	302				682	289
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	99				93	97
cM capacity (veh/h)	1204				415	755

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	383	302	54
Volume Left	10	0	29
Volume Right	0	26	25
cSH	1204	1700	524
Volume to Capacity	0.01	0.18	0.10
Queue Length 95th (m)	0.2	0.0	2.7
Control Delay (s)	0.3	0.0	12.7
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	12.7
Approach LOS			B

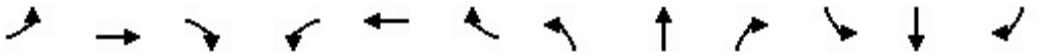
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	359	5	0	262	0	6	0	0	0	0	6
Future Volume (vph)	6	359	5	0	262	0	6	0	0	0	0	6
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
Hourly flow rate (vph)	7	390	5	0	285	0	7	0	0	0	0	7

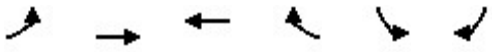
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	402	285	7	7
Volume Left (vph)	7	0	7	0
Volume Right (vph)	5	0	0	7
Hadj (s)	0.08	0.05	0.49	-0.60
Departure Headway (s)	4.3	4.4	5.9	4.8
Degree Utilization, x	0.48	0.35	0.01	0.01
Capacity (veh/h)	825	799	541	647
Control Delay (s)	11.2	9.7	9.0	7.8
Approach Delay (s)	11.2	9.7	9.0	7.8
Approach LOS	B	A	A	A

Intersection Summary				
Delay	10.6			
Level of Service	B			
Intersection Capacity Utilization	35.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	350	39	31	50	69	220	29	1436	5	165	668	104
Future Volume (vph)	350	39	31	50	69	220	29	1436	5	165	668	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1719	1749		1805	1683		1687	1845	1615	1805	1792	1524
Flt Permitted	0.40	1.00		0.71	1.00		0.23	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	719	1749		1344	1683		410	1845	1615	118	1792	1524
Peak-hour factor, PHF	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)	380	42	34	54	75	239	32	1561	5	179	726	113
RTOR Reduction (vph)	0	23	0	0	20	0	0	0	2	0	0	47
Lane Group Flow (vph)	380	53	0	54	294	0	32	1561	3	179	726	66
Heavy Vehicles (%)	5%	0%	3%	0%	0%	0%	7%	3%	0%	0%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	36.5	36.5		36.5	36.5		64.5	64.5	64.5	64.5	64.5	64.5
Effective Green, g (s)	36.5	36.5		36.5	36.5		64.5	64.5	64.5	64.5	64.5	64.5
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.59	0.59	0.59	0.59	0.59	0.59
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	238	580		445	558		240	1081	946	69	1050	893
v/s Ratio Prot		0.03			0.17			0.85			0.41	
v/s Ratio Perm	c0.53			0.04			0.08		0.00	c1.52		0.04
v/c Ratio	1.60	0.09		0.12	0.53		0.13	1.44	0.00	2.59	0.69	0.07
Uniform Delay, d1	36.8	25.3		25.6	29.8		10.2	22.8	9.4	22.8	15.8	9.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	287.4	0.1		0.1	0.9		1.2	205.1	0.0	757.6	3.7	0.2
Delay (s)	324.1	25.4		25.7	30.7		11.4	227.8	9.4	780.3	19.6	10.0
Level of Service	F	C		C	C		B	F	A	F	B	A
Approach Delay (s)		274.4			29.9			222.8			152.3	
Approach LOS		F			C			F			F	

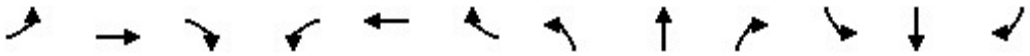
Intersection Summary			
HCM 2000 Control Delay	188.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.23		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	136.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0				0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1623				1023	1085

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

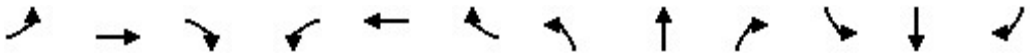
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	16	3	8	14	7	22	6	71	15	32	112	32
Future Volume (vph)	16	3	8	14	7	22	6	71	15	32	112	32
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
Hourly flow rate (vph)	17	3	9	15	8	24	7	77	16	35	122	35

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	29	47	100	192
Volume Left (vph)	17	15	7	35
Volume Right (vph)	9	24	16	35
Hadj (s)	0.31	-0.01	0.02	0.06
Departure Headway (s)	4.9	4.6	4.3	4.3
Degree Utilization, x	0.04	0.06	0.12	0.23
Capacity (veh/h)	676	727	807	828
Control Delay (s)	8.1	7.9	7.9	8.5
Approach Delay (s)	8.1	7.9	7.9	8.5
Approach LOS	A	A	A	A

Intersection Summary				
Delay		8.2		
Level of Service		A		
Intersection Capacity Utilization		26.3%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	0	63	3	2	1	3	80	3	4	111	18
Future Volume (Veh/h)	19	0	63	3	2	1	3	80	3	4	111	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	21	0	68	3	2	1	3	87	3	4	121	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	236	235	131	302	244	88	141			90		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	236	235	131	302	244	88	141			90		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.5			2.2		
p0 queue free %	97	100	93	100	100	100	100			100		
cM capacity (veh/h)	718	666	908	603	659	975	1272			1518		

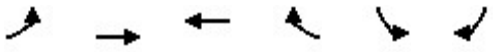
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	89	6	93	145
Volume Left	21	3	3	4
Volume Right	68	1	3	20
cSH	855	664	1272	1518
Volume to Capacity	0.10	0.01	0.00	0.00
Queue Length 95th (m)	2.8	0.2	0.1	0.1
Control Delay (s)	9.7	10.5	0.3	0.2
Lane LOS	A	B	A	A
Approach Delay (s)	9.7	10.5	0.3	0.2
Approach LOS	A	B		

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	20.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	24	0	114	177	0
Future Volume (Veh/h)	6	24	0	114	177	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	26	0	124	192	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	316	192	192			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	316	192	192			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	97	100			
cM capacity (veh/h)	681	855	1394			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	33	124	192
Volume Left	7	0	0
Volume Right	26	0	0
cSH	811	1700	1700
Volume to Capacity	0.04	0.07	0.11
Queue Length 95th (m)	1.0	0.0	0.0
Control Delay (s)	9.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.6	0.0	0.0
Approach LOS	A		

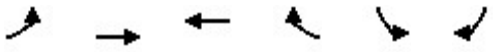
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	253	261	10	6	4
Future Volume (Veh/h)	4	253	261	10	6	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	275	284	11	7	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	295				572	290
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	295				572	290
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1278				456	754

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	279	295	11
Volume Left	4	0	7
Volume Right	0	11	4
cSH	1278	1700	532
Volume to Capacity	0.00	0.17	0.02
Queue Length 95th (m)	0.1	0.0	0.5
Control Delay (s)	0.1	0.0	11.9
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	11.9
Approach LOS			B

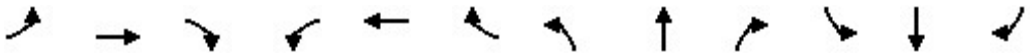
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	26.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	234	260	60	6	11
Future Volume (Veh/h)	24	234	260	60	6	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	254	283	65	7	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	348				622	316
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	348				622	316
tC, single (s)	4.1				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	98				98	98
cM capacity (veh/h)	1200				444	709

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	280	348	19
Volume Left	26	0	7
Volume Right	0	65	12
cSH	1200	1700	581
Volume to Capacity	0.02	0.20	0.03
Queue Length 95th (m)	0.5	0.0	0.8
Control Delay (s)	0.9	0.0	11.4
Lane LOS	A		B
Approach Delay (s)	0.9	0.0	11.4
Approach LOS			B

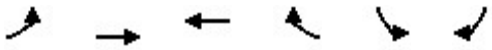
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	14	172	50	38	193	68	90	32	39	121	37	37
Future Volume (vph)	14	172	50	38	193	68	90	32	39	121	37	37
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
Hourly flow rate (vph)	15	187	54	41	210	74	98	35	42	132	40	40

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	256	325	175	212
Volume Left (vph)	15	41	98	132
Volume Right (vph)	54	74	42	40
Hadj (s)	-0.06	-0.01	0.02	0.14
Departure Headway (s)	5.6	5.5	6.0	6.0
Degree Utilization, x	0.40	0.50	0.29	0.36
Capacity (veh/h)	588	609	526	535
Control Delay (s)	12.3	14.0	11.5	12.4
Approach Delay (s)	12.3	14.0	11.5	12.4
Approach LOS	B	B	B	B

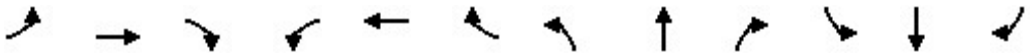
Intersection Summary				
Delay	12.7			
Level of Service	B			
Intersection Capacity Utilization	47.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	316	290	43	26	15
Future Volume (Veh/h)	11	316	290	43	26	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	343	315	47	28	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	362				706	338
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	362				706	338
tC, single (s)	4.4				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.5				3.6	3.3
p0 queue free %	99				93	98
cM capacity (veh/h)	1066				389	708

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	355	362	44
Volume Left	12	0	28
Volume Right	0	47	16
cSH	1066	1700	465
Volume to Capacity	0.01	0.21	0.09
Queue Length 95th (m)	0.3	0.0	2.5
Control Delay (s)	0.4	0.0	13.5
Lane LOS	A		B
Approach Delay (s)	0.4	0.0	13.5
Approach LOS			B

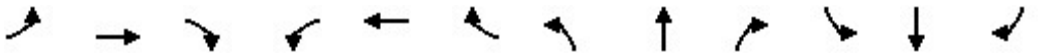
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	334	3	0	322	0	4	0	0	0	0	4
Future Volume (vph)	4	334	3	0	322	0	4	0	0	0	0	4
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
Hourly flow rate (vph)	4	363	3	0	350	0	4	0	0	0	0	4

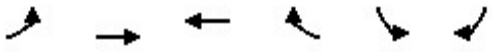
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	370	350	4	4
Volume Left (vph)	4	0	4	0
Volume Right (vph)	3	0	0	4
Hadj (s)	0.08	0.07	0.57	-0.60
Departure Headway (s)	4.4	4.4	6.0	4.9
Degree Utilization, x	0.45	0.42	0.01	0.01
Capacity (veh/h)	815	808	516	637
Control Delay (s)	10.8	10.5	9.1	7.9
Approach Delay (s)	10.8	10.5	9.1	7.9
Approach LOS	B	B	A	A

Intersection Summary				
Delay	10.7			
Level of Service	B			
Intersection Capacity Utilization	31.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	66	46	101	45	145	28	1050	6	340	1237	277
Future Volume (vph)	244	66	46	101	45	145	28	1050	6	340	1237	277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1703	1734		1787	1682		1626	1863	1380	1805	1863	1553
Flt Permitted	0.50	1.00		0.64	1.00		0.05	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)	888	1734		1204	1682		87	1863	1380	97	1863	1553
Peak-hour factor, PHF	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)	265	72	50	110	49	158	30	1141	7	370	1345	301
RTOR Reduction (vph)	0	21	0	0	79	0	0	0	2	0	0	74
Lane Group Flow (vph)	265	101	0	110	128	0	30	1141	5	370	1345	227
Heavy Vehicles (%)	6%	2%	4%	1%	0%	0%	11%	2%	17%	0%	2%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	32.5	32.5		32.5	32.5		78.5	78.5	78.5	78.5	78.5	78.5
Effective Green, g (s)	32.5	32.5		32.5	32.5		78.5	78.5	78.5	78.5	78.5	78.5
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.65	0.65	0.65	0.65	0.65	0.65
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	240	469		326	455		56	1218	902	63	1218	1015
v/s Ratio Prot		0.06			0.08			0.61			0.72	
v/s Ratio Perm	c0.30			0.09			0.34		0.00	c3.82		0.15
v/c Ratio	1.10	0.22		0.34	0.28		0.54	0.94	0.01	5.87	1.10	0.22
Uniform Delay, d1	43.8	33.9		35.1	34.5		11.0	18.5	7.2	20.8	20.8	8.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	88.8	0.2		0.6	0.3		32.1	14.5	0.0	2226.8	59.3	0.5
Delay (s)	132.6	34.1		35.7	34.9		43.2	33.0	7.2	2247.5	80.1	8.9
Level of Service	F	C		D	C		D	C	A	F	F	A
Approach Delay (s)		101.5			35.2			33.1			467.2	
Approach LOS		F			D			C			F	

Intersection Summary			
HCM 2000 Control Delay	264.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	4.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	113.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0				0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1623				1023	1085

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix E

TDM Measures

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

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☒
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☒
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☒
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☒
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☒

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

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☒ Bicycle parking is located at north and south ends of school.
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☒
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☒
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	☒
BETTER	2.1.5	Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☐ N/A for school
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	☐ N/A for school
	2.3	**Shower & change facilities**	
BASIC	2.3.1	Provide shower and change facilities for the use of active commuters	☒ Shower provided for staff.
BETTER	2.3.2	In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	☒
	2.4	**Bicycle repair station**	
BETTER	2.4.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐ N/A for school

	TDM-supportive design & infrastructure measures: *Non-residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐ N/A, shelter already provided
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐ N/A, shelter already provided
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐ N/A for school
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐ N/A for school
	4.2	**Carpool parking**	
BASIC	4.2.1	Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools	☐ N/A for school
BETTER	4.2.2	At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	☐ N/A for school
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces *(see Zoning By-law Section 94)*	☐ N/A for school
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐ N/A for school

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☐ N/A parking meets zoning requirements
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐ N/A for school
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐ N/A for school
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐ N/A for school
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)	☐ N/A for school
	7.	**OTHER**	
	7.1	**On-site amenities to minimize off-site trips**	
BETTER	7.1.1	Provide on-site amenities to minimize mid-day or mid-commute errands	☐ N/A for school

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

Legend

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

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

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

		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
	1.	**TDM PROGRAM MANAGEMENT**	
	1.1	**Program coordinator**	
BASIC ★	1.1.1	Designate an internal coordinator, or contract with an external coordinator	☐ N/A for school
	1.2	**Travel surveys**	
BETTER	1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐ N/A for school
	2.	**WALKING AND CYCLING**	
	2.1	**Information on walking/cycling routes & destinations**	
BASIC	2.1.1	Display local area maps with walking/cycling access routes and key destinations at major entrances	☐ N/A for school
	2.2	**Bicycle skills training**	
		Commuter travel	
BETTER ★	2.2.1	Offer on-site cycling courses for commuters, or subsidize off-site courses	☐ N/A for school
	2.3	**Valet bike parking**	
		Visitor travel	
BETTER	2.3.1	Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games)	☐ N/A for school

		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		3. TRANSIT	
		3.1 Transit information	
BASIC	3.1.1	Display relevant transit schedules and route maps at entrances	☒ Recommended
BASIC	3.1.2	Provide online links to OC Transpo and STO information	☒ Recommended
BETTER	3.1.3	Provide real-time arrival information display at entrances	☐ N/A for school
		3.2 Transit fare incentives	
		Commuter travel	
BETTER	3.2.1	Offer preloaded PRESTO cards to encourage commuters to use transit	☒ Recommended
BETTER ★	3.2.2	Subsidize or reimburse monthly transit pass purchases by employees	☒ Recommended
		Visitor travel	
BETTER	3.2.3	Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	☐ N/A for school
		3.3 Enhanced public transit service	
		Commuter travel	
BETTER	3.3.1	Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	☐ N/A for school
		Visitor travel	
BETTER	3.3.2	Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	☐ N/A for school
		3.4 Private transit service	
		Commuter travel	
BETTER	3.4.1	Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	☐ N/A for school
		Visitor travel	
BETTER	3.4.2	Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	☐ N/A for school

		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
	4.	**RIDESHARING**	
	4.1	**Ridematching service**	
		Commuter travel	
BASIC ★	4.1.1	Provide a dedicated ridematching portal at OttawaRideMatch.com	☐ N/A for school
	4.2	**Carpool parking price incentives**	
		Commuter travel	
BETTER	4.2.1	Provide discounts on parking costs for registered carpools	☐ N/A for school
	4.3	**Vanpool service**	
		Commuter travel	
BETTER	4.3.1	Provide a vanpooling service for long-distance commuters	☐ N/A for school
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Bikeshare stations & memberships**	
BETTER	5.1.1	Contract with provider to install on-site bikeshare station for use by commuters and visitors	☐ N/A for school
		Commuter travel	
BETTER	5.1.2	Provide employees with bikeshare memberships for local business travel	☐ N/A for school
	5.2	**Carshare vehicles & memberships**	
		Commuter travel	
BETTER	5.2.1	Contract with provider to install on-site carshare vehicles and promote their use by tenants	☐ N/A for school
BETTER	5.2.2	Provide employees with carshare memberships for local business travel	☐ N/A for school
	6.	**PARKING**	
	6.1	**Priced parking**	
		Commuter travel	
BASIC ★	6.1.1	Charge for long-term parking (daily, weekly, monthly)	☐ N/A for school
BASIC	6.1.2	Unbundle parking cost from lease rates at multi-tenant sites	☐ N/A for school
		Visitor travel	
BETTER	6.1.3	Charge for short-term parking (hourly)	☐ N/A for school

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