

TRANSPORTATION IMPACT ASSESSMENT (DRAFT) STEP 2 – SCOPING REPORT 2663 INNES ROAD



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1.0 INTRODUCTION

McIntosh Perry was retained by Caber Group to prepare a Transportation Impact Assessment for the proposed new mixed-use building which will include office space as well as 21 units within four storeys. The proposed development is to be located at 2663 Innes Road, Ottawa. The proposed development is expected to include a mix of residential, and office land uses. The Site is located on the north side of Innes Road, approximately 130 m to the east of the intersection of Innes Rod and Bearbrook Road. This study is prepared in support of the site plan application permit and is submitted to the City of Ottawa for their review and approval.

This study will review and address the characterisation of site conditions, documenting the existing and planned network conditions in the vicinity of the development and provide a summary of the expected site transportation conditions as per the City of Ottawa Transportation Impact Assessment (TIA) Guidelines 2017.

2.0 SCREENING FORM

The following section describes the initial assessment of the proposed development with respect to the Transportation Impact Assessment (TIA) Screening Form and will provide reasoning for potential triggers. The TIA screening form is attached in [Appendix A](#).

2.1 Trip Generation Triggers

The proposed development includes the redevelopment of the existing site located at 2663 Innes Road. The proposed development is anticipated to include the construction of a four-storey building consisting of 21 residential units and 274 m² (32,946 ft²) of office space. The development-generated trips were estimated per the rates provided within the Institute of Transportation (ITE) Trip Generation Manual, 11th Edition. This review resulted in 13 trips during the am peak hour and 16 person trips during the pm peak hour. As such, the criteria for the trip generation trigger has not been met, as it falls short of the 60-trip threshold.

2.2 Location Trigger

This section of Innes of Road designated as a Transit Priority Corridor (Isolated Measures), however, the proposed development will utilize an existing site access. The proposed development is located on a section of Innes Road that is designated as an Arterial Mainstreet per Schedule 2 of the City of Ottawa Official Plan. As such, the location trigger has been met.

2.3 Safety Trigger

Innes Road, within the vicinity of the site has a posted speed limit of 50 km/h. The roadway is relatively on tangent with minimal horizontal and vertical curvature. The site is located within 300 m of the signalized intersection of Innes Road and Bearbrook Road and adjacent to a left turn auxiliary lane for a commercial access. The proposed site is anticipated to make use of the existing site access onto Innes Rod. Within 500 m of the proposed development, a total of 14 collisions occurred at the intersection of Innes Road at Bearbrook Road (2.8 collision per year), 8 (1.6 collision per year) at the commercial access west of the site, and 10 (2

collisions per year) at the intersection of Innes Road and Orient Park Drive/Innes Parkway. Due to the number of yearly collisions, the criteria for a safety trigger has been met.

3.0 DESCRIPTION OF PROPOSED DEVELOPMENT

The proposed development will be located at 2663 Innes Road in the City of Ottawa. The site is currently occupied by a single family home and will be redeveloped for the proposed development. The proposed site is located approximately 130 m from the intersection of Innes Road and Bearbrook Road. The Site is located within lands zoned Arterial Mainstreet AM11 under The City of Ottawa Zoning By-Law 2008-250. The zone permits a variety of non-residential uses such as recreational, health and fitness, service uses, and multiple residential uses such as mid and low rise apartment dwellings.

The proposed development will include one four-storey building consisting of 21 residential units and 274 m² (32,946 ft²) of office space. The build-out date is expected to be 2023. The proposed development is anticipated to provide 28 vehicle parking spaces and 10 bicycle parking spaces. *Figure 3.1* illustrates the proposed development with a detailed site plan provided in *Appendix B*.

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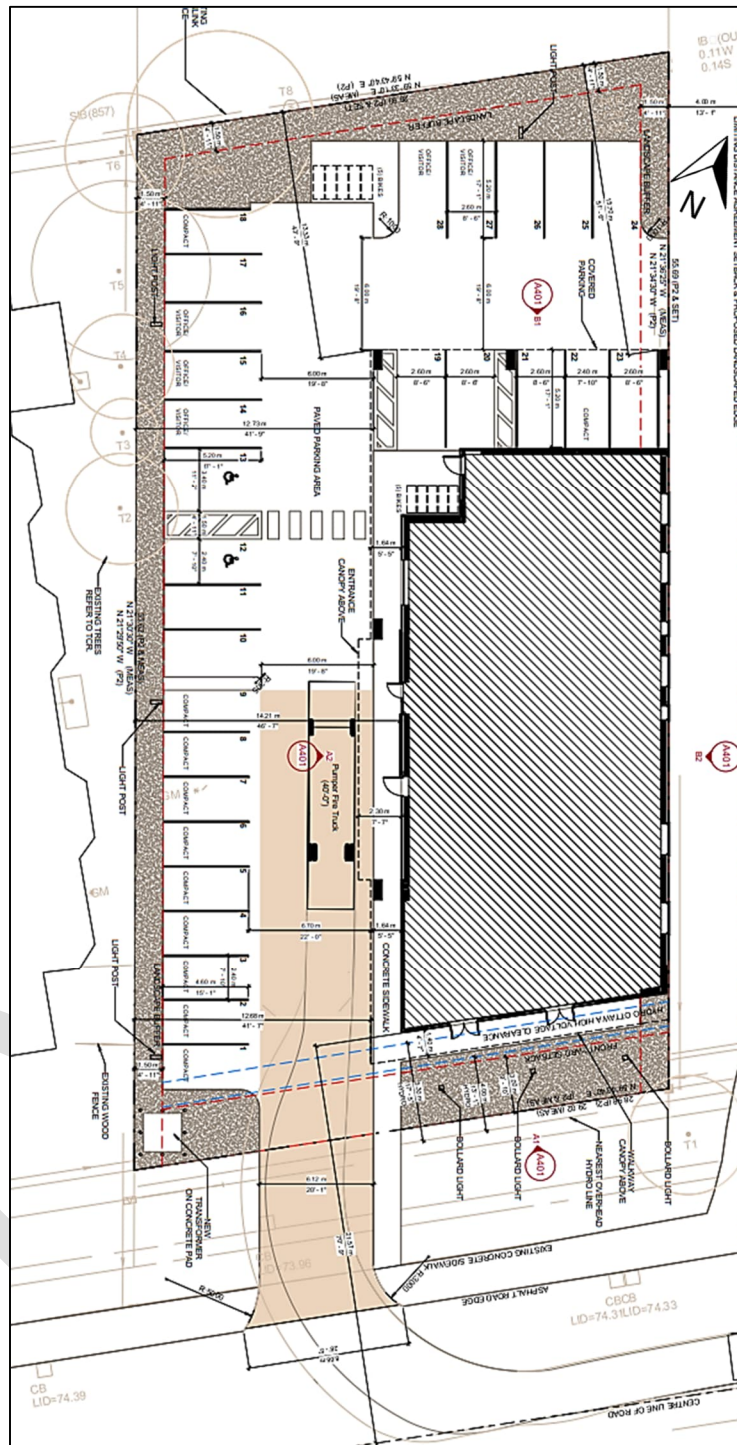


Figure 3.1 Proposed Development

Figure 3.2 illustrates the surrounding area of the proposed development.

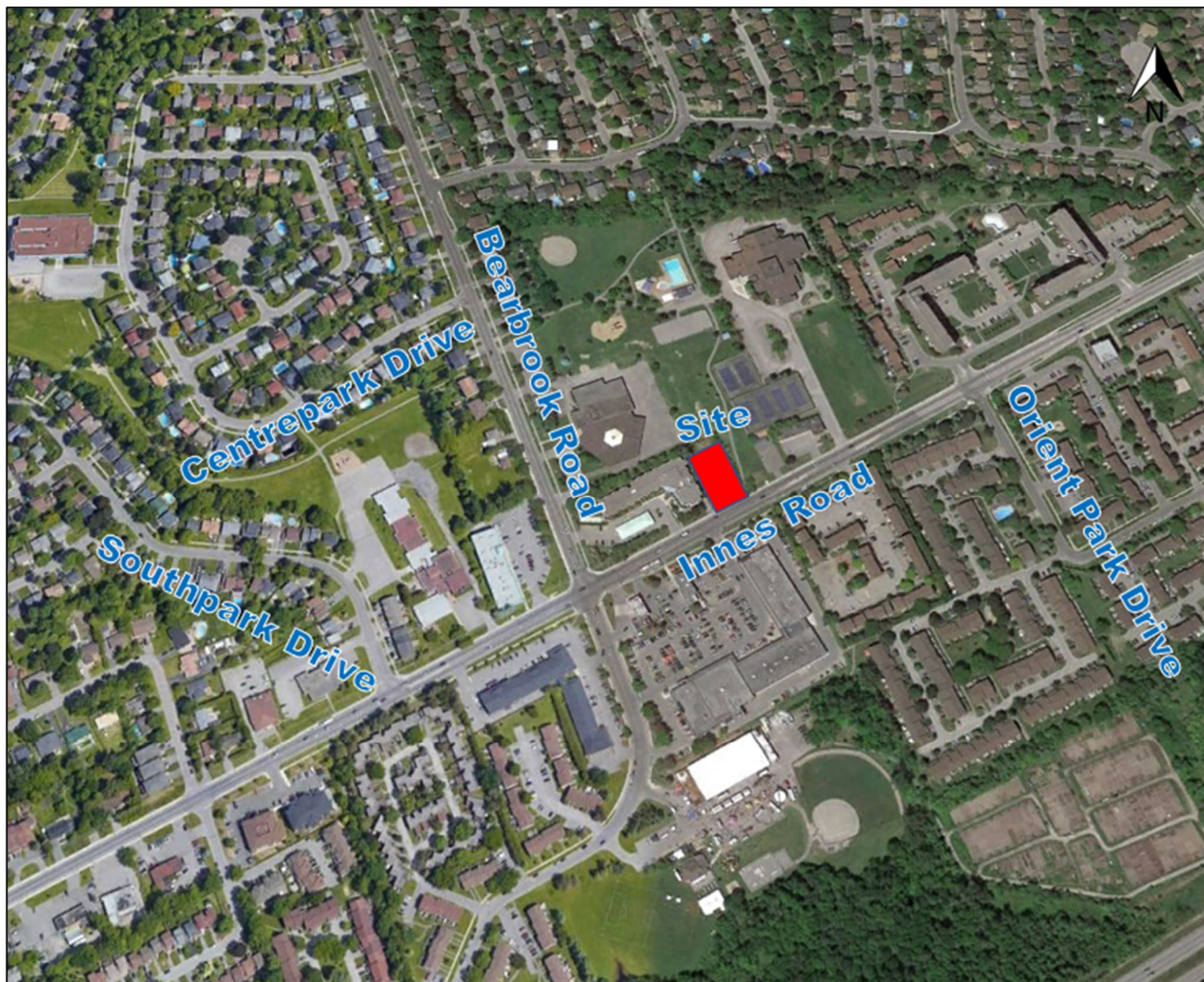


Figure 3.2 Proposed Development Location

4.0 EXISTING CONDITIONS

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

4.1 Roadways

The following section outlines the existing study area roadways, obtained from the City of Ottawa Official Plan, Annex 1 – Road Classification and Right-of-Way.

Innes Road, within the vicinity of the subject site is a two-lane undivided urban collector roadway. The roadway has a 26 m right-of-way and a posted speed limit of 50 km/h. Innes Road runs east-west. Currently there are concrete sidewalks, curbs and gutters on both sides of the roadway.

Bearbrook Road within the vicinity of the subject site is a two-lane undivided urban collector roadway. The roadway has a 26 m right-of-way and a posted speed limit of 40 km/h within the vicinity of the proposed development. Bearbrook Road runs north-south with concrete sidewalks and curbs on both sides of the roadway.

Orient Park Drive, within the vicinity of the proposed development is a two-lane undivided urban local roadway that mainly services a residential neighbourhood. The roadway has a 6 m right-of-way and a posted speed limit of 40 km/h. Southpark Drive overall runs from east-west, however within the vicinity of the proposed development and for this TIA, Orient Park Drive will be reviewed as running from north-west as it does at the intersection of Orient Park Drive and Innes Road. Orient Park Drive has concrete curbs on both sides of the roadway and a concrete sidewalk on the east/north side of the roadway.

4.2 Intersections

The following section documents the existing study intersections including their control type, lane configurations, turning restrictions, and any other relevant data. The following four intersections were identified for this study:

- Innes Road and Bearbrook Road/Glen Park Drive, signalized;
- Innes Road and Orient Park Drive, signalized;

4.2.1 Innes Rod and Bearbrook Road

Innes Road and Bearbrook Road, illustrated in Figure 4.1, is a four legged is a four leg, signalized intersection, located to the south of the proposed development. The intersection has protected pedestrian crossings at all four of the approaches. There are designated bike lanes in both the eastbound and westbound lanes, and to the north of the intersections on both sides of the roadway.



Figure 4.1 Innes Road and Bearbrook Road

4.2.2 Innes Road and Orient Park Drive

Innes Rod and Orient Park Drive, illustrated in Figure 4.2, is a four leg, signalized intersection, located to the east of the proposed development. The intersection has protected pedestrian crossings at all four of the approaches. There are designated bike lanes in both the eastbound and westbound directions.

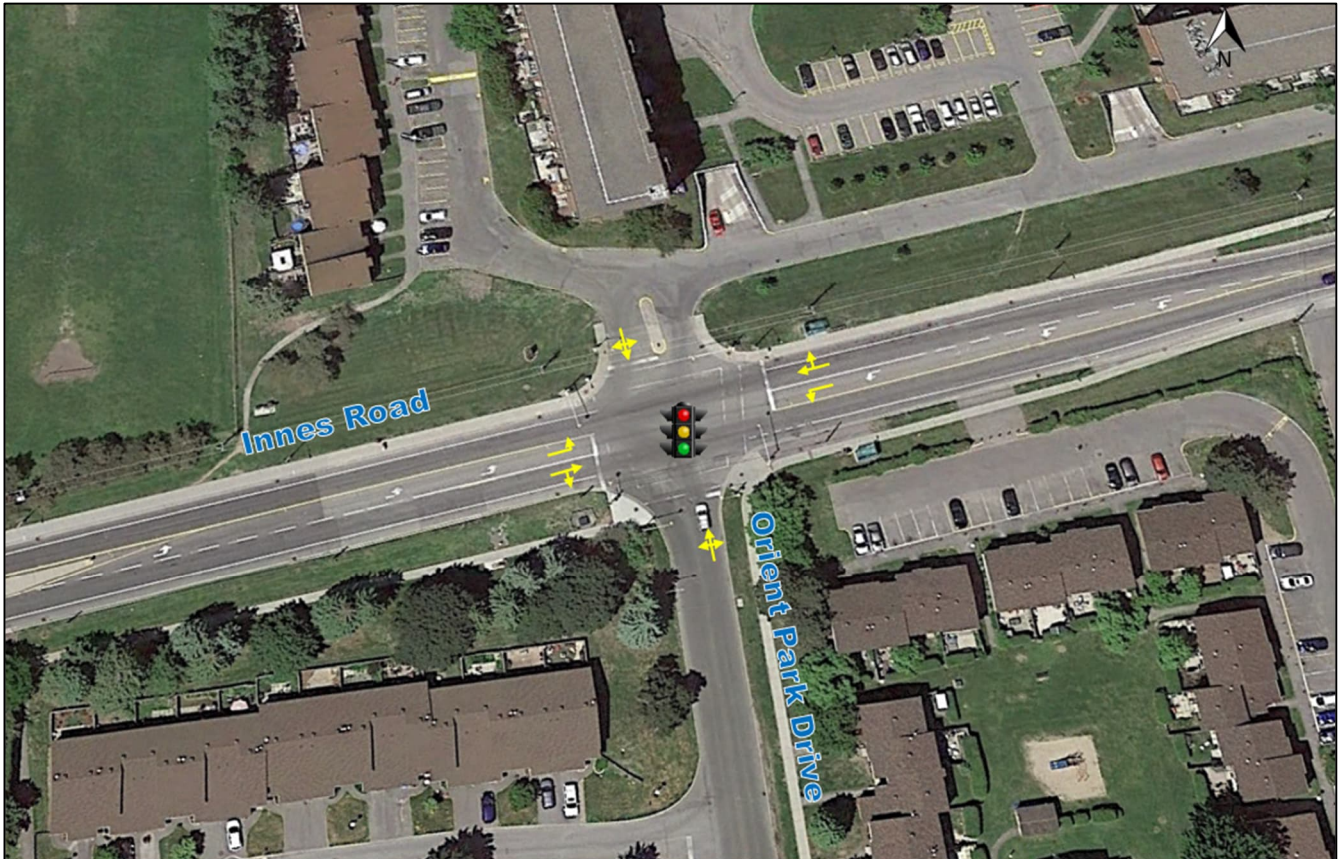


Figure 4.2 Innes Road and Orient Park Drive

4.3 Existing Driveways

The following section documents the existing driveway entrance within a 200 m of the proposed site access. *Figure 4.3* illustrates the driveways within the vicinity of the proposed site.



Figure 4.3 Existing Driveways

As shown in *Figure 4.3*, there are a total of 18 existing access within 200 m of the proposed development on boundary roadways. The majority of the entrances belong to other business and services along Innes Road and Bearbrook Road with 1 driveway belonging to a private residential property.

4.4 Existing Multi-Use Pathways

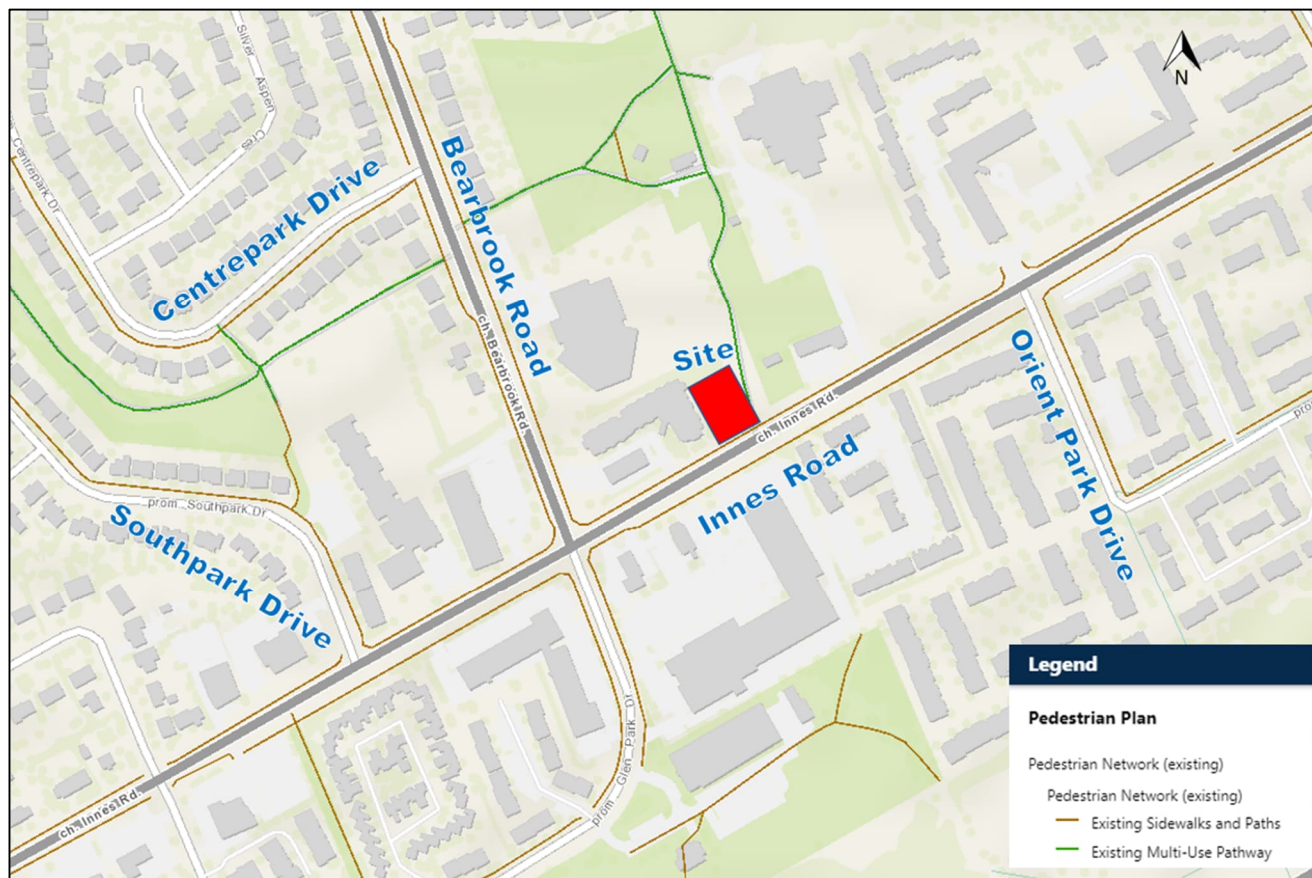


Figure 4.4 Existing Multi-use Pathways

As shown in the *Figure 4.4*, there currently is a multi use pathway that is adjacent to the east of the proposed development that continues to the north connecting the residential neighbourhoods north of the site. There is a large network of sidewalks along all roadways within the vicinity of the proposed development such as both sides of Innes Road and Bearbrook Road, the north/east side of Orient Park Drive, the south/west side of Centrepark Drive, and the west side of Southpark as discussed in *Section 4.1*.

4.5 Existing Transit Network

The following section documents the existing transit networks within the surrounding area. *Figure 4.5* illustrates the existing bus routes within the study area of the proposed site. A detailed map of the transit network can be found in *Appendix C*.

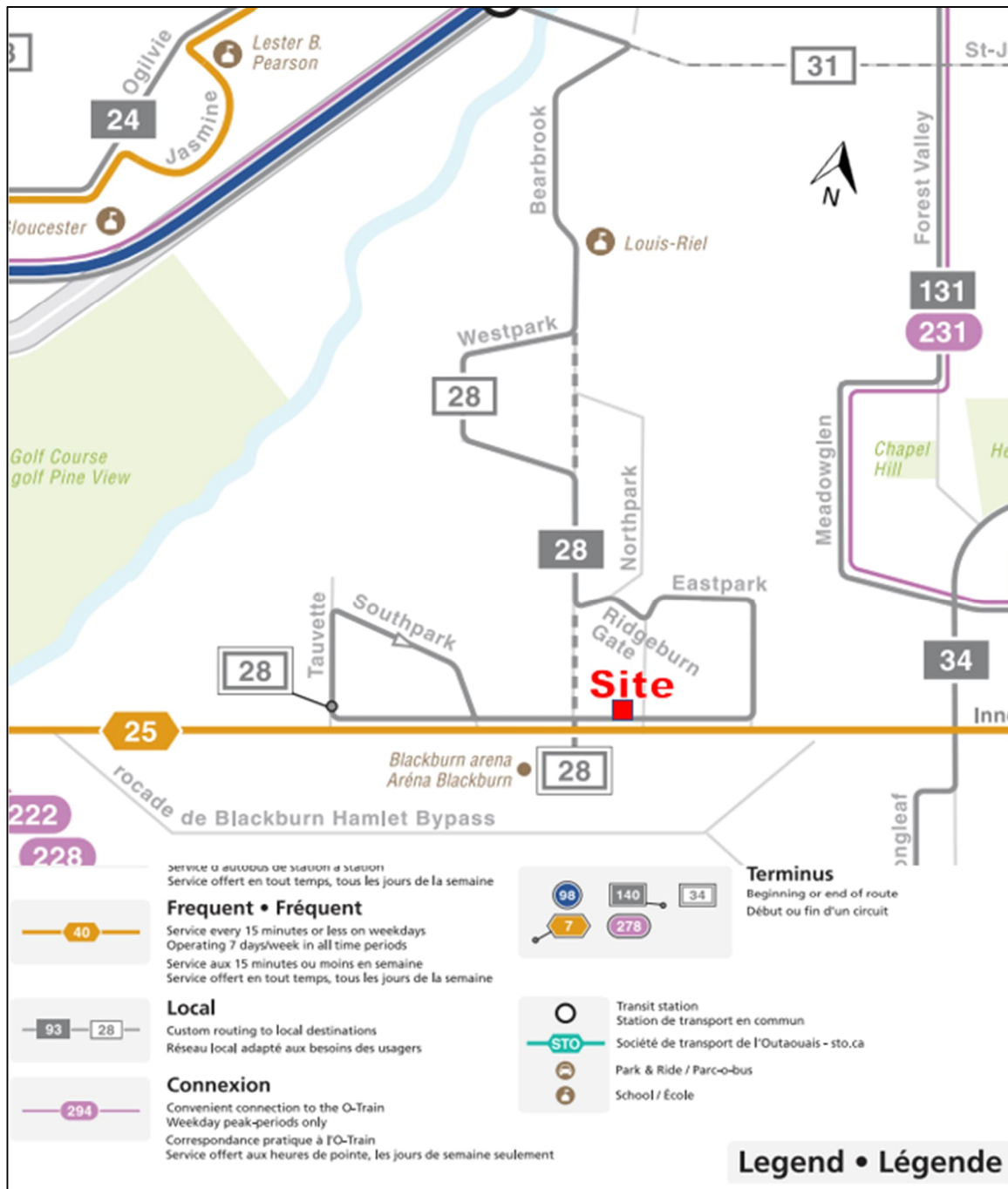


Figure 4.5 Existing Transit Routes

Currently there are 2 transit routes that service the proposed development directly on Innes Road within 75 m of the proposed development:

- Route 25: Provides service from Millennium Park in Orleans to Montreal Road and Carson's Road, operating approximately every 15 minutes, with a stop located directly east of the proposed site (Signed Sidewalk Stop); and,
- Route 28: Provides service from Blair station to the Blackburn Arena, operating approximately every 30 mins, with a stop located directly east of the proposed site (Signed Sidewalk Stop).

Figure 4.6 illustrates the location of the transit stops, which route is associated with the stop within the vicinity of the proposed development.

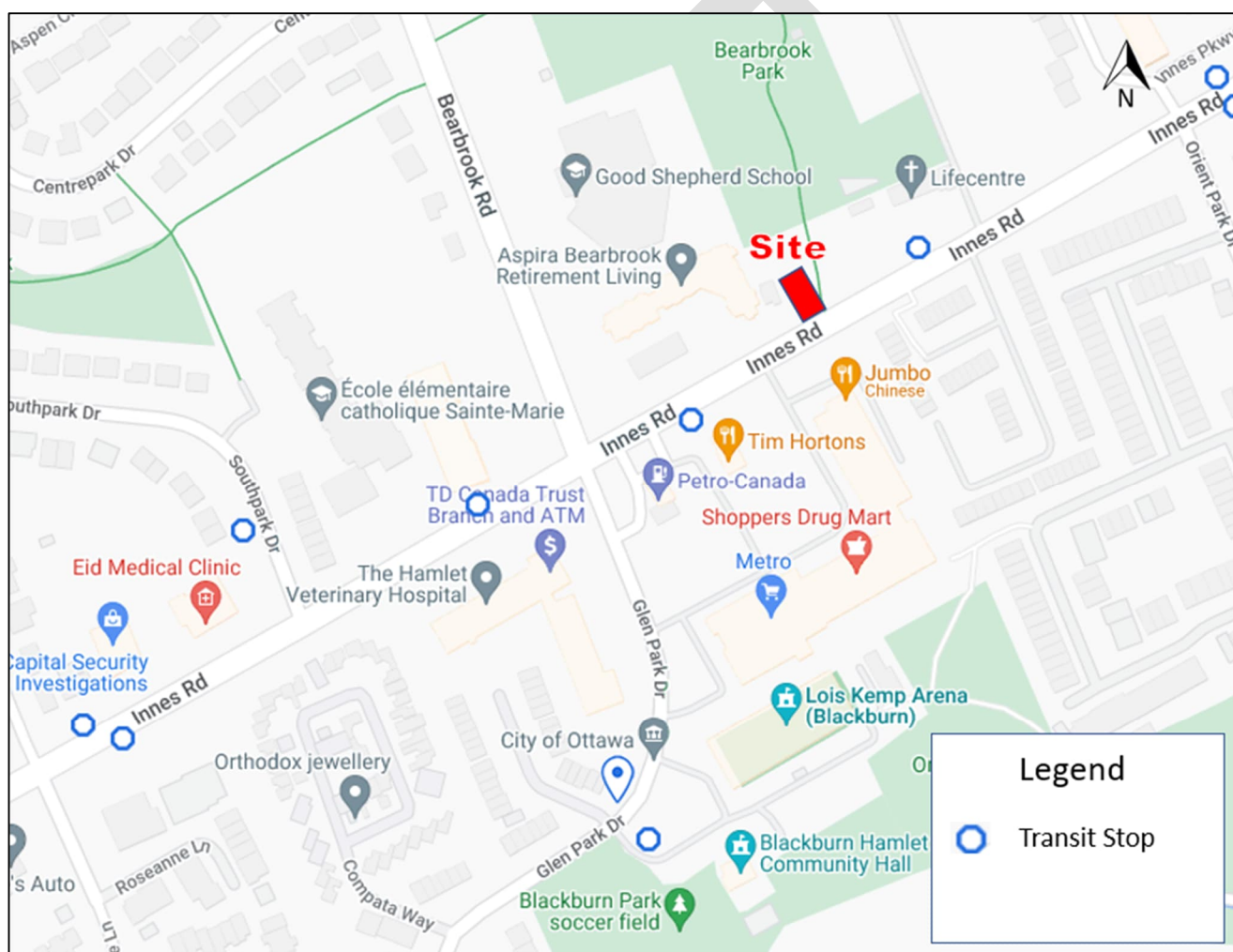


Figure 4.6 Transit Stop Locations

As seen in Figure 4.6, there are two bus stops directly north of the proposed development. Both of these bus stops are located on landscaped boulevards of adjacent businesses and as such may cause some difficulties accessing the bus stops during the winter months.

4.6 Existing Traffic Management Measures

Along Bearbrook Road, directly north of the intersection of Bearbrook Road and Innes Road there is “Community Safety Zone” signage, a reduction of speed limit to 40 km/h and a municipal speed traffic camera all in front of Good Shepherd School. There are no existing traffic calming measures along Innes Road.

4.7 Existing Peak Hour Travel Demand by Mode

The proposed site is located in Ottawa’s outer suburbs area, Orleans. Transit mode shares based on the City of Ottawa Transportation Master Plan (TMP) leaving the area to other areas of Ottawa accounted for 24% of morning peak period trips in 2011. The 2031 target for transit mode shares leaving is 26%. The 2011 transit mode shares of the morning peak trips arriving to the area is 9% where the target 2031 rate is 13%.

The observed 2011, 24-hour mode shares from the 2011 O-D Trans Survey for the Orleans area, where the development is located, is summarized in Table 4.1 O-D survey information can be found in *Appendix C*.

Table 4.1 O-D Survey Transportation Mode Shares

Mode	From District (%)	To District (%)	Average (%)
Auto Drive	60	61	60
Auto Passenger	15	15	15
Transit	22	22	22
bicycle	1	0	1
Walk	0	0	0
Other	2	2	2

Based on this survey the Orleans area was shown to have the following mode shares; 15 % of auto passenger, 22% transit, 1 % bicycle, 0 % walking and 2 % other. It should be noted that the other category accounts for trips such as taxis, school buses, motorcycle and scooters. As such, for the purposes of modelling traffic conditions and projections of future conditions, the percentages of “other” trips will be distributed to auto driver, resulting in 61% auto driver trips.

4.8 Existing Collision History

Collision data was provided by the city for the years 2015-2019. The data was reviewed for boundary roads within 500 m of the proposed development “the study area”, as identified in *Section 4.0*. The data was divided into 7 sections, Table 4.2 illustrates the data.

- Innes Road at Orient Park Drive;
- Innes Road between Orient Park Drive and Bearbrook Road;
- Innes Road at Bearbrook Road;

- Innes Road between Bearbrook Road and Southpark Drive;
- Innes Road at Southpark Drive;
- Bearbrook Road between Innes Road and Centrepark Drive; and,
- Bearbrook Road at Centrepark Drive.

Table 4.2 Collision data

Location	Collisions								
	2015	2016	2017	2018	2019	Total	Cyclist	Pedestrian	Fatalities
Innes Road at Orient Park Drive	3	1	0	3	3	10	0	2	0
Innes Road between Orient Park Drive and Bearbrook Road	3	2	2	2	3	12	1	0	0
Innes Road at Bearbrook Road	3	2	4	2	3	14	0	0	0
Innes Road between Bearbrook Road and Southpark Drive	0	1	0	0	0	1	0	0	0
Innes Road at Southpark Drive	1	1	0	2	1	5	1	1	0
Bearbrook Road between Innes Road and Centrepark Drive	0	0	0	0	0	0	0	0	0
Bearbrook Road at Centrepark Drive	0	0	1	1	1	3	0	0	0
Total	10	7	7	10	11	45	2	3	0

Figure 4.7 illustrates the collision data based on location within 500 m of the proposed development.



Figure 4.7 Collision Data by Location

As illustrated, a total of 14 collisions occurred at the intersection of Innes Road at Bearbrook Road (2.8 collisions per year), 12 (2.4 collisions per year) along Innes Road between Bearbrook Road and Orient Park Drive, 10 (2 collisions per year) at the intersection of Innes Road and Orient Park Drive/Innes Parkway, 5 collisions at the intersection of Innes Road and Southpark Drive (1 collision per year), and 1 collision at both the intersection of Bearbrook Drive and Centrepark and along Innes Road between Bearbrook Drive and Southpark Drive (0.2 collisions per year). These collision rates are considered acceptable and do not indicate a history of safety concerns.

2 total pedestrian collisions occurred within the study area, 1 at the intersection of Innes Road and Orient Park Drive and 1 at the intersection of Innes Road and Southpark Drive. The pedestrian collision at the intersection of Innes Road and Orient Park Drive involved 2 pedestrians and a vehicle in 2019 during the daylight with good driving conditions. Whereas the other collision involving a pedestrian occurred at the intersection of Innes Road and Southpark Drive, at night while there was loose snow on the ground in 2018.

Both Bicycle collisions involved a cyclist and two vehicles in both cases that were performing turning movements.

4.9 Existing Traffic Volumes

MP obtained 8-hour (7:00-10:00, 11:30-13:00, and 15:00-18:00) Traffic Movement Counts (TMC) data from the City of Ottawa for the following Intersections:

- Innes Road and Bearbrook Road/Glen Park Drive, (Wednesday, December 5th, 2018);
- Innes Road and Orient Park Drive, (Wednesday, December 19th, 2018)

MP used a growth factor of 1.5% annually, non-compounding to adjust volumes to 2023 (existing conditions). This factor was determined based on the City of Ottawa Transportation Master Plan, which states that the City of Ottawa is expected to increase its population from 922,00 to 1.14 million residents from 2011 to 2031, this results in an annual growth rate of 1.1%. Since traffic growth is a function of both population and employment growth, a growth rate of 1.5% was used to ensure that both background growths are taken into account. MP then balanced the counts at the study intersections. *Figure 4.8* illustrates the existing conditions volumes. TMC and signal timing data can be found in *Appendix C*.

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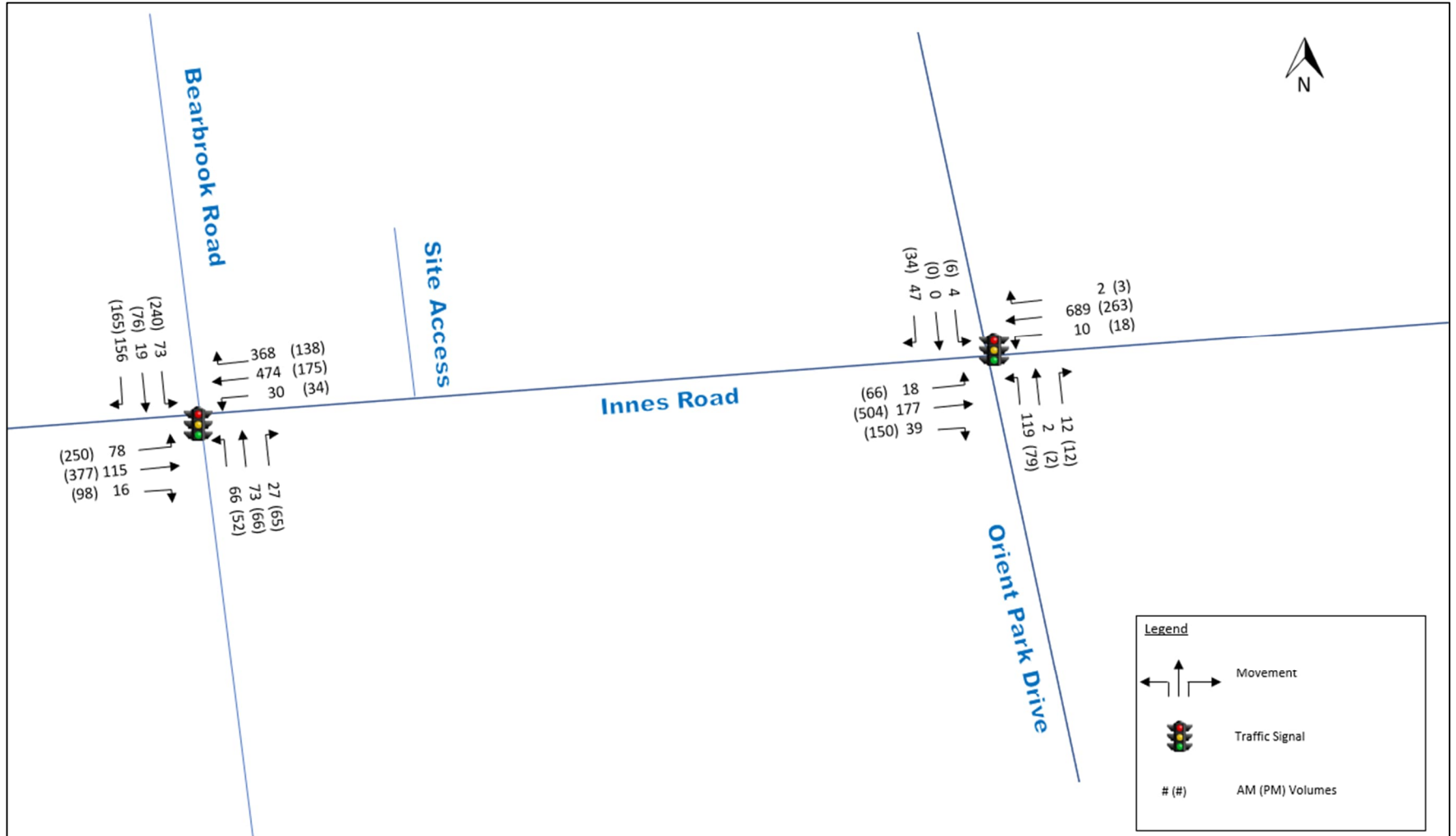


Figure 4.8 Existing Conditions Traffic Movement Volumes

4.10 Existing Traffic Operations

Level of Service (LOS) is a qualitative measure of the operating conditions, based on lane configuration, signal operation/phasing. LOS criteria for signalized and unsignalized intersection based on the Multi Modal Level of Service (MMLOS) Guidelines, are illustrated in Table 4.3.

Table 4.3 Definition of LOS for Intersections

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

Existing traffic operations analysis for the intersection of Innes Road and Bearbrook Road, and Innes Road and Orient Park Drive were performed using Synchro 11 software. Signal timing information was provided by The City of Ottawa. Table 4.4 summarizes the Synchro 11 output results for existing conditions.

(This section intentionally left blank.)

Table 4.4 Existing Conditions – Synchro 11 output

Movement	AM Peak Hour			PM Peak Hour		
	LOS	V/c	Delay (s)	LOS	V/c	Delay (s)
Innes Road and Bearbrook Road						
EBL	E	0.91	100	B	0.70	29
EBTR	A	0.18	11	B	0.69	21
WBL	A	0.06	7	A	0.15	11
WBTR	F	1.13	90	A	0.46	11
NBL	A	0.19	18	A	0.15	15
NBTR	A	0.17	13	A	0.21	9
SBL	A	0.18	18	D	0.57	23
SBTR	A	0.30	5	A	0.36	7
Innes Road and Orient Park Drive						
EBL	A	0.10	14	A	0.06	9
EBTR	A	0.27	13	A	0.24	9
WBL	A	0.02	8	A	0.02	8
WBTR	C	0.80	22	B	0.66	17
NBLTR	A	0.41	25	A	0.31	20
SBLTR	A	0.12	8	A	0.09	7
NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, L = Left-turn, T = Through, R = Right-turn						

During the am peak hour all movements at both intersections operate well with an LOS of C or better, a v/c of 0.80 or less and a max delay of 25 seconds with the exception of the eastbound left turn and the westbound through right turn lane at the intersection of Innes Road and Bearbrook Road. The eastbound left turn movement operates at an LOS of E and a v/c of 0.91 where the westbound through right turn movement operates at an LOS of F with a v/c of 1.13, showing that the westbound movement is operating passed max capacity during the am peak hour.

During the pm peak hour, all movement at both intersections operate well with a LOS of B or better, a max v/c of 0.70 and a mac delay of 29 seconds.

Synchro 11 reports can be found in [Appendix D](#).

4.10.1 Model Calibration

As our analysis uses one 8-hour count, it can only provide a snapshot of the whole year operations at study intersection. As such the counts provided may not be a full representation of the operations and volumes within the network. As there are movements present in the am peak hour that are failing and at a v/c over 1 model calibration was done. Model calibration was used to have existing conditions that operate at satisfactory levels without any failures as is expected of existing conditions.

MP performed the following calibration measures:

- Growth rate for westbound through movement volumes was removed during the am peak hour;
- Growth rate for eastbound left turn movement was removed during the am peak hour;
- A -2.0 second lost time adjustment was applied to the westbound through movement; and,
- Ideal saturated flow rate was increased to 2100 for the westbound through movement.

Calibrated Synchro 11 outputs are summarized in Table 4.5.

Table 4.5 2023 Existing Conditions – Calibrated

Movement	AM Peak Hour			PM Peak Hour		
	LOS	V/c	Delay (s)	LOS	V/c	Delay (s)
Innes Road and Bearbrook Road						
EBL	D	0.84	83	B	0.70	29
EBTR	A	0.18	11	B	0.69	21
WBL	A	0.06	7	A	0.15	11
WBTR	D	0.89	24	A	0.46	11
NBL	A	0.19	18	A	0.15	15
NBTR	A	0.17	13	A	0.21	9
SBL	A	0.18	18	D	0.57	23
SBTR	A	0.30	5	A	0.36	7
Innes Road and Orient Park Drive						
EBL	A	0.10	14	A	0.06	9
EBTR	A	0.27	13	A	0.24	9
WBL	A	0.02	8	A	0.02	8
WBTR	C	0.80	22	B	0.66	17
NBLTR	A	0.41	25	A	0.31	20
SBLTR	A	0.12	8	A	0.09	7
NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, L = Left-turn, T = Through, R = Right-turn						

After calibration to the 2023 existing conditions all movements operate a LOS of D, a v/c of 0.89 and a delay of 83 seconds or better at all intersections and peak hours within the study area.

5.0 PLANNED CONDITIONS

5.1 Roadway Network Modifications

According to the City of Ottawa Transportation Master Plan, no roadway modifications are planned on boundary roads within the vicinity of the proposed development. However, Blackburn Hamlet Bypass is anticipated to be widened from 4 to 6 lanes from the intersection of Innes road and Blackburn Hamlet to Navan Road, and Innes road from Jeanne d'Arc Boulevard to Blackburn Hamlet Bypass will include transit signal priority and queue jump lanes.

5.2 Other Study Area Developments

Within the vicinity of the proposed development there is currently one other site plan control application located at 98 and 100 Bearbrook Drive, that includes 9-storey mid-rise apartment with a total of 168 residential units (159 apartment units and nine townhouse units) comprising a 14,674 gross floor area (GFA), with 209 motor vehicle parking spaces (25 surface and 184 underground) and 84 bicycle parking spaces (42 surface and 43 underground). It is anticipated that the development will be completed in 2023 and will generate 39 vehicle trips during the am peak hour and 40 vehicle trips during the pm peak hour. Distribution and Assignment will be reviewed in Step 3 – Forecasting Report.

6.0 STUDY AREA AND TIME PERIODS

6.1 Study Area

The proposed study area is limited to the following intersection:

- Innes Road and Bearbrook Road/Glen Park Drive;
- Innes Road and Orient Park Drive;

6.2 Time Periods

The proposed time periods for the analysis are:

- AM Peak (8:00-9:00) hour of adjacent roadways, and;
- PM Peak (15:45-16:45) hour of adjacent roadways.

6.3 Horizon Years

As the proposed development is anticipated to be built in one stage by the end of 2023, the existing conditions will correspond with the buildout year background traffic scenario. The proposed horizon years for analysis are:

- Existing Conditions (2023);
- Buildout year - Total Future (2024) conditions and,
- Horizon Background (2029) and Total Horizon Traffic (2029) Conditions.

7.0 EXEMPTION REVIEW

Table 7.1 summarizes the exemptions review in accordance with the City of Ottawa TIA Guidelines.

Table 7.1 Exemptions Review

Module	Element	Exempted	Reasoning
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	No	Not exempted due to being a Site Plan
	4.1.3 New Street Networks	Yes	The development is not a subdivision
4.2 Parking	4.2.1 Parking Supply	No	Not exempted due to being a Site Plan
	4.2.2 Spillover Parking	Yes	The development is not anticipated to be in deficit by 15% of unconstrained demand
Network Impact Component			
4.5 Transportation Demand Management	All elements	Yes	The development is expected to have less than 60 employees
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbours	Yes	The development uses a collector roadway as a boundary street, however, is not anticipated to exceed ATM capacity threshold
4.8 Network Concept		Yes	It is assumed that the mixed-use residential development will not generate more than 200 new person trips during peak hour

8.0 SUMMARY

The following summarizes the findings and assumptions developed within this Step 2 – Scoping Report:

- The proposed development will include one four-story building consisting of 21 residential units and 274 m² (32,946 ft²) of office space;
- Build-out of the proposed development is anticipated to be complete by end of year 2023;
- Based on the 2011 Trans O-D survey, the Orleans area was shown to have the following mode shares; 15 % of auto passenger, 15 % of auto passenger, 22% transit, 1 % bicycle, 0 % walking and 2 % other, resulting in 61% automobile drivers;
- 45 total collision were reported within the study area during the years 2015-2019, with 2 collisions including pedestrians and 3 collision including cyclists;
- All movements operate well with a LOS C or better during both the am and pm peak hour with the exception of the eastbound left turn and the westbound through right turn lane at the intersection of Innes Road and Bearbrook Road during the am peak hour. All movement operate at acceptable Levels of Service with the exception of the westbound through lane that is operating at capacity.
- After calibration of the model all movements operate a LOS of D, a v/c of 0.89 and a delay of 83 seconds or better at all intersections and peak hours within the study area.
- There are no planned roadway modifications within the study area.
- The study years include the existing conditions (2023), total conditions for the buildout year 2023, and, background and total conditions for the 5-year horizon of 2028.

APPENDIX A – Screening Form

DETRANSPORTATION IMPACT ASSESSMENT STEP 1 – SCREENING FORM



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1.0 SCREENING FORM

The following section describes the initial assessment of the proposed development with respect to the City of Ottawa Transportation Impact Assessment (TIA) Screening Form and will provide reasoning for potential TIA triggers. The TIA Screening Form is attached in **Attachment A** with the site plan attached in **Appendix B**.

1.1 Trip Generation Triggers

The proposed development includes the redevelopment of the existing site located at 2663 Innes Road. The proposed development is anticipated to include the construction of a four-storey building consisting of 20 residential units and 3,018.51 ft² of office space. The development-generated trips were estimated per the rates provided within the Institute of Transportation (ITE) Trip Generation Manual, 11th Edition. The estimated development-generated trips are summarized in **Table 1.1**. As illustrated, a total of 13 trips are anticipated during the AM peak hour and 16 during the PM peak hour. As such, development-generated trips are expected to fall well under the 60-trip trigger.

Table 1.1: Development-Generated Trips

Site Component	Density	Item	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Multifamily Housing (Low-Rise) ITE Land Use Code: 220	20 Units	Directional Distribution	24%	76%	100%	63%	37%	100%
		(Average Rate)	0.10	0.30	0.40	0.32	0.19	0.51
		Gross Trips	2	6	8	6	4	10
Small Office Building (<10,000 Sq.ft.) ITE Land Use Code: 712	3,018.51 Sq.ft.	Directional Distribution	82%	18%	100%	34%	66%	100%
		(Average Rate)	1.37	0.3	1.67	0.43	0.83	1.26
		Gross Trips	4	1	5	2	4	6
Total Trips			6	7	13	8	8	16

1.2 Location Trigger

This section of Innes of Road designated as a Transit Priority Corridor (Isolated Measures), however, the proposed development will utilize an existing site access. The proposed development however, is located on a section of Innes Road that is designated as an Arterial Mainstreet per Schedule 2 of the City of Ottawa Official Plan. As such, the location trigger can be considered to be met.

1.3 Safety Triggers

Innes Road, within the vicinity of the site has a posted speed limit of 50 km/h. The roadway is relatively straight with minimal horizontal and vertical curvature. While the site is located within 300 m of the signalized intersection of Innes Road and Bearbrook Road and adjacent to a left turn auxiliary lane for a commercial access, no new driveways are proposed.

Figure 1-1, illustrates the 5-year collision history (2015 – 2019) within 500 m of the site. As illustrated, a total of 14 collisions occurred at the intersection of Innes Road at Bearbrook Road (2.8 collisions per year), 8 (1.6 collisions per year) at the commercial access west of the site, and 10 (2 collisions per year) at the intersection of Innes Road and Orient Park Drive/Innes Parkway. These collision rates are considered acceptable and do not indicate a history of safety concerns.

Based on the above discussion, the criteria for the safety trigger is not met.

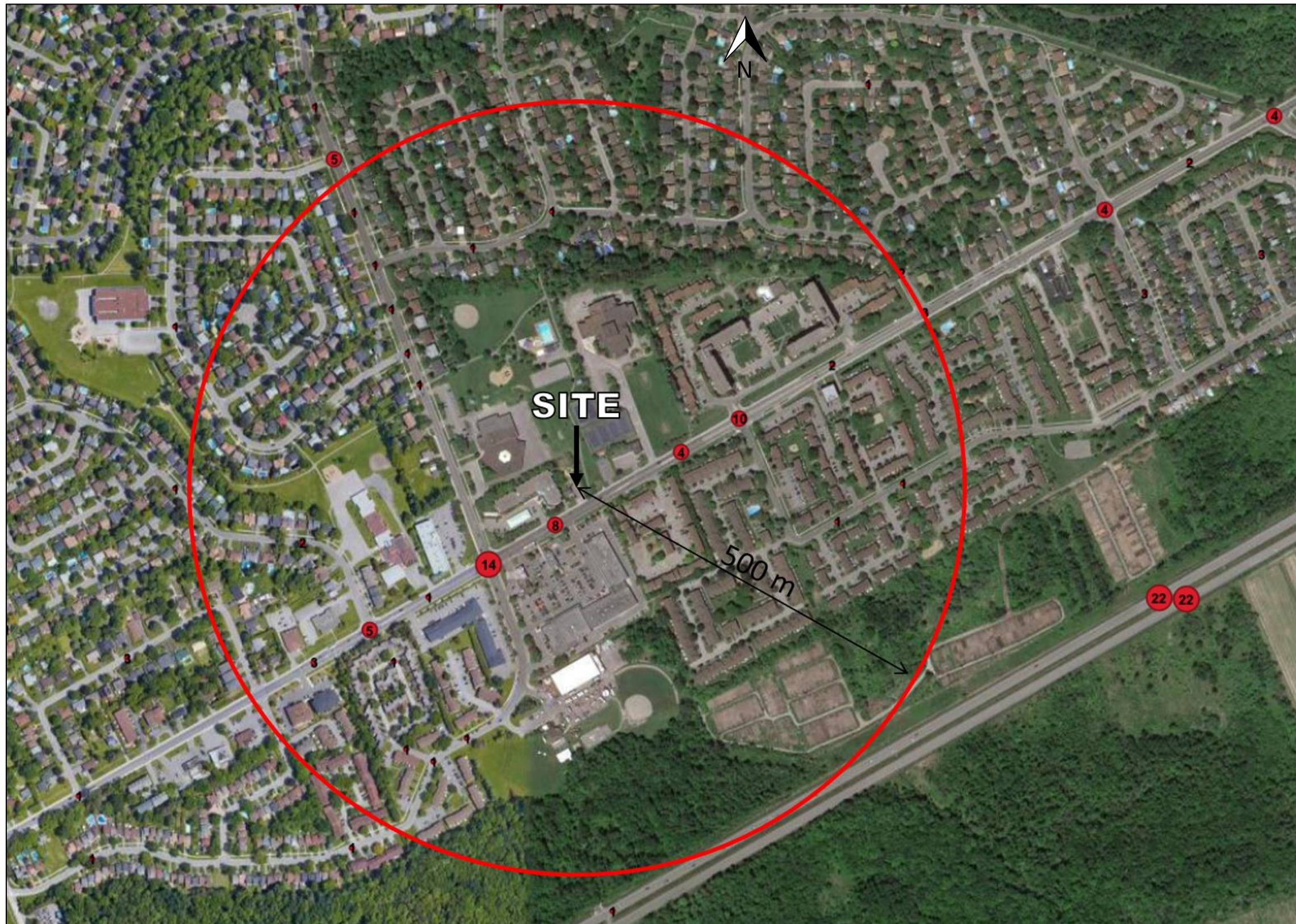


Figure 1-1: Area Collision Frequency (2015 to 2019)

ATTACHMENT A – TIA SCREENING FORM

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	2663 Innes Road
Description of Location	North side of Innes Road, east of Bearbrook Road
Land Use Classification	Mixed-Use (Residential + Office Space)
Development Size (units)	1 Four-Storey building
Development Size (m ²)	16,636.06 ft² Total GFA (20 Residential Units + 3,018.51 ft² Office Space)
Number of Accesses and Locations	One existing access on Innes Road
Phase of Development	One
Buildout Year	2023

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

2. Trip Generation Trigger

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

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

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

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

3. Location Triggers

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

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

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

4. Safety Triggers

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

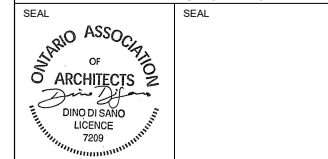
If any of the above questions were answered with ‘Yes,’ the Safety Trigger is satisfied.

5. Summary

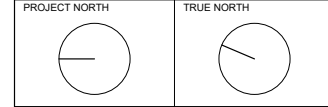
	Yes	No
Does the development satisfy the Trip Generation Trigger?		NO
Does the development satisfy the Location Trigger?	YES	
Does the development satisfy the Safety Trigger?		NO

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

APPENDIX B – Site Plan



GENERAL NOTES
 DO NOT SCALE DRAWINGS.
 CONTRACTOR TO VERIFY ALL DIMENSIONS & CONDITIONS
 AND REPORT ANY DISCREPANCIES.

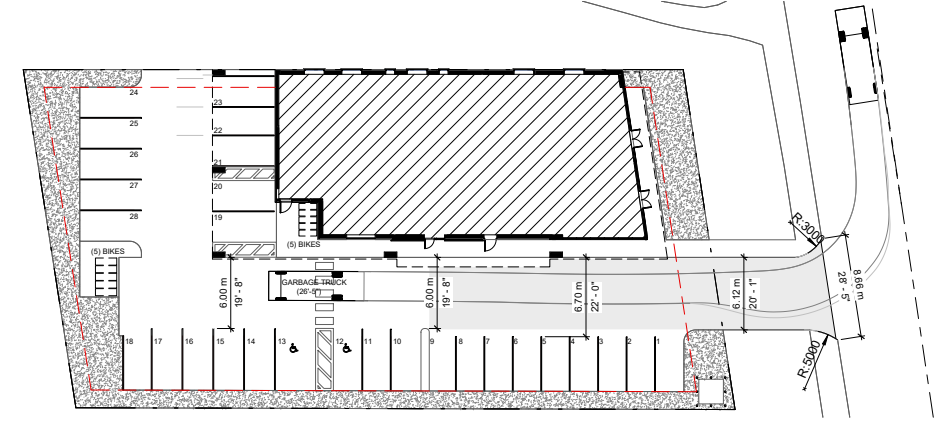


A 2022-12-21 ISSUED FOR SITE PLAN APPLICATION	
No.	DATE DESCRIPTION
REVISIONS	
PROJECT	
4-Storey Mixed Use Building	
2663 Innes Road Ottawa, Ontario	
IDEA #	CLIENT #
22541	
SHEET NAME	
SITE PLAN	
DATE	SCALE
2022-12-21	AS NOTED.
CHECKED BY	DRAWN BY
SHEET No.	A101

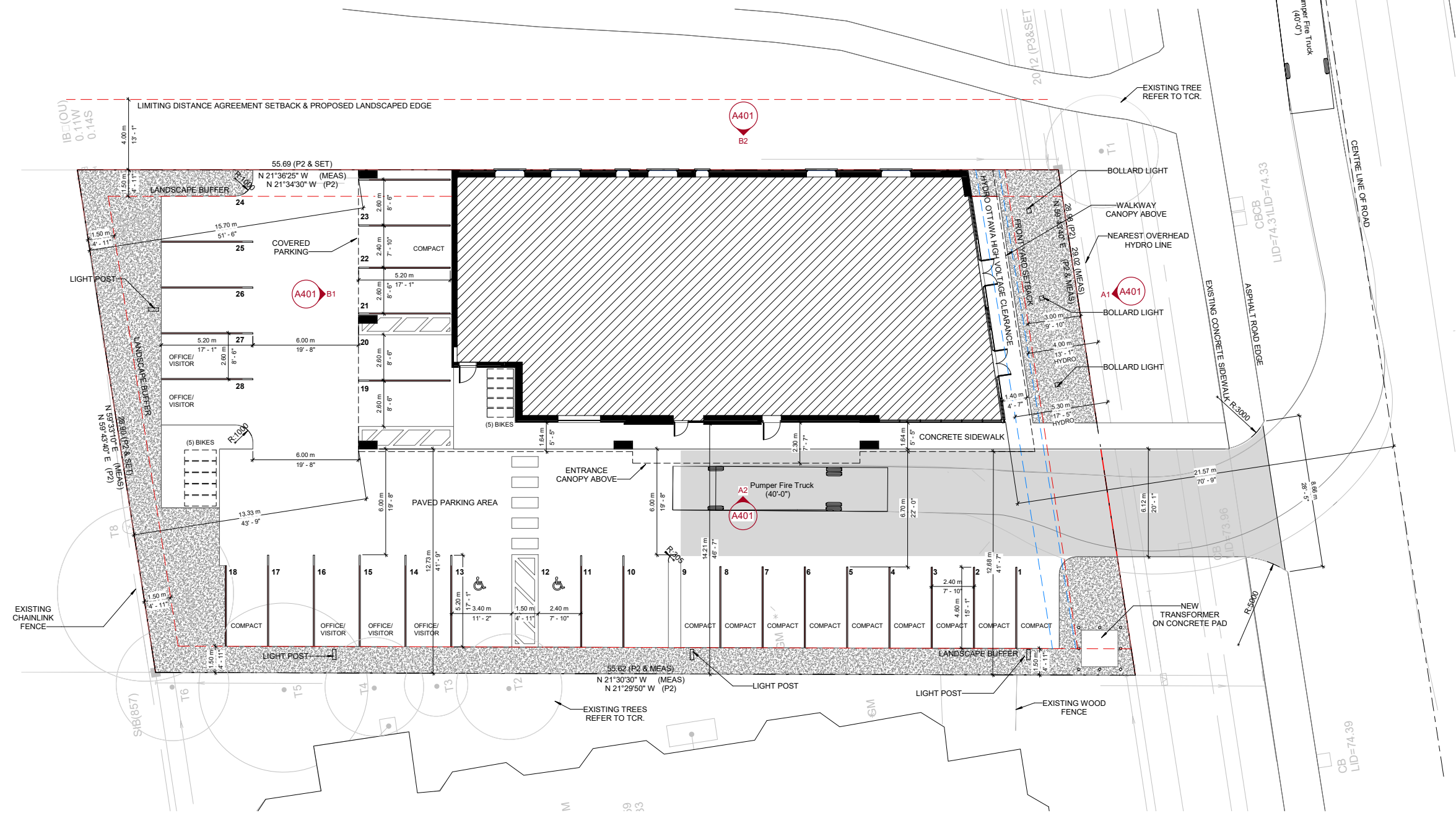
SITE PLANNING INFO
 LOT AREA = 1,592.45 sq.m. (17,141 sq.ft.)
 MINIMUM LOT AREA = NO MINIMUM
 MINIMUM LOT WIDTH = NO MINIMUM
 MINIMUM FRONT YARD SETBACK = 3m
 MINIMUM INTERIOR SIDE YARD SETBACK = NO MINIMUM
 MINIMUM REAR YARD SETBACK = NO MINIMUM
 BUILDING AREA = 603 sq.m. (6,491 sq.ft.)
 PARKING LOT AREA = 633.5 sq.m. (6,819 sq.ft.)
 LANDSCAPED AREA = 220.8 sq.m. (sq.ft.) / 35 % OF PARKING LOT AREA (15% OF PARKING AREA REQUIRED)
 GROSS FLOOR AREA = 2,121 sq.m. (22,830 sq.ft.)
 GROSS FLOOR AREA DWELLING UNITS ONLY = 1,201 sq.m. (12,927 sq.ft.)
 MAXIMUM FLOOR SPACE INDEX = NONE
 AMENITY AREA REQUIRED = 10% GFA OF DWELLING UNITS + 108 sq.m. (per Section 137 (5), column II) = 228 sq.m.
 AMENITY AREA PROVIDED = 231 sq.m. (2,486 sq.ft.) @ NORTH LANDSCAPE BUFFER, ROOF & BASEMENT ROOMS
 APPROXIMATE BUILDING HEIGHT = 4 STOREYS @ 17.90m (MAX. BLDG HEIGHT = 30m)
 FIRST FLOOR HEIGHT & GLAZING = 4.5m FIRST FLOOR HEIGHT, MINIMUM 50% GLAZING @ GROUND FLOOR FACADE
 TOTAL PARKING REQUIRED = 24, PROVIDED = 28
 ACCESSIBLE PARKING REQUIRED = 2, PROVIDED = 2
 BICYCLE PARKING REQUIRED = 10, PROVIDED = 10

DWELLING UNIT AND OFFICE AREAS

NAME	AREA	
	m ²	ft ²
LEVEL 01		
1-BED	53.34	574.14
1-BED + DEN	69.28	745.88
OFFICE #1	65.59	706.05
OFFICE #2	89.15	959.62
LEVEL 02		
1-BED	56.71	610.46
1-BED + DEN	68.48	737.09
2-BED	81.50	877.30
2-BED	80.88	870.60
LAW OFFICE	118.98	1280.66
LEVEL 03		
1-BED	56.71	610.46
1-BED	56.71	610.46
1-BED	51.65	555.97
1-BED + DEN	68.61	738.49
2-BED	80.51	866.56
2-BED	81.52	877.50
LEVEL 04		
1-BED	56.71	610.46
1-BED	51.56	554.99
1-BED	56.37	606.75
1-BED + DEN	68.27	734.90
2-BED	81.52	877.50
2-BED	81.12	873.15
TOTAL UNITS: 21	1475.19	15878.78



2 GARBAGE COLLECTION ACCESS
 A101 1:300



A1 SITE PLAN
 A101 1:125

APPENDIX C – TRAFFIC DATA

Turning Movement Count - Study Results

INNES RD @ BEARBROOK RD/GLEN PARK DR E

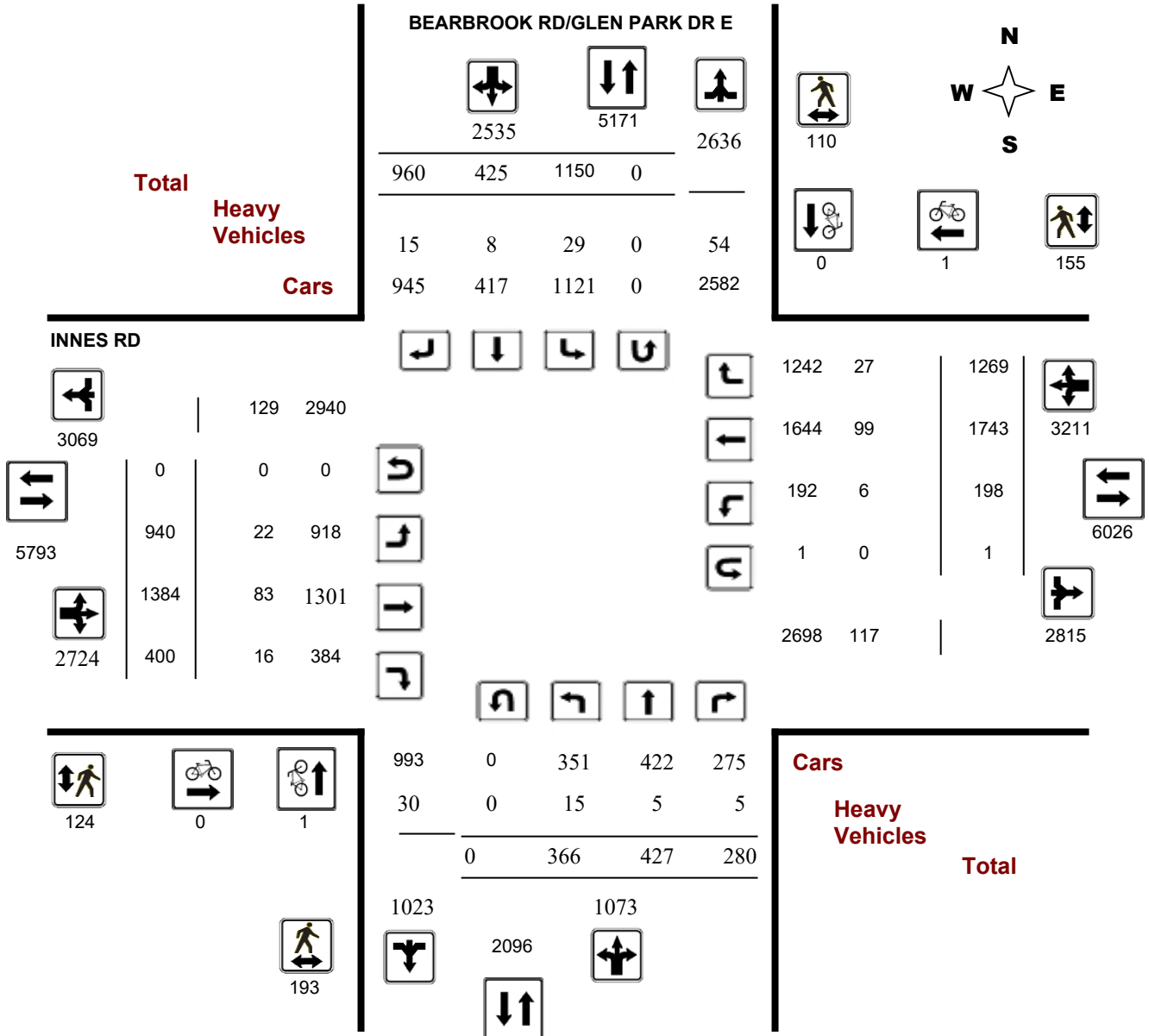
Survey Date: Wednesday, December 05, 2018

WO No: 38184

Start Time: 07:00

Device: Miovision

Full Study Diagram



Turning Movement Count - Study Results

INNES RD @ BEARBROOK RD/GLEN PARK DR E

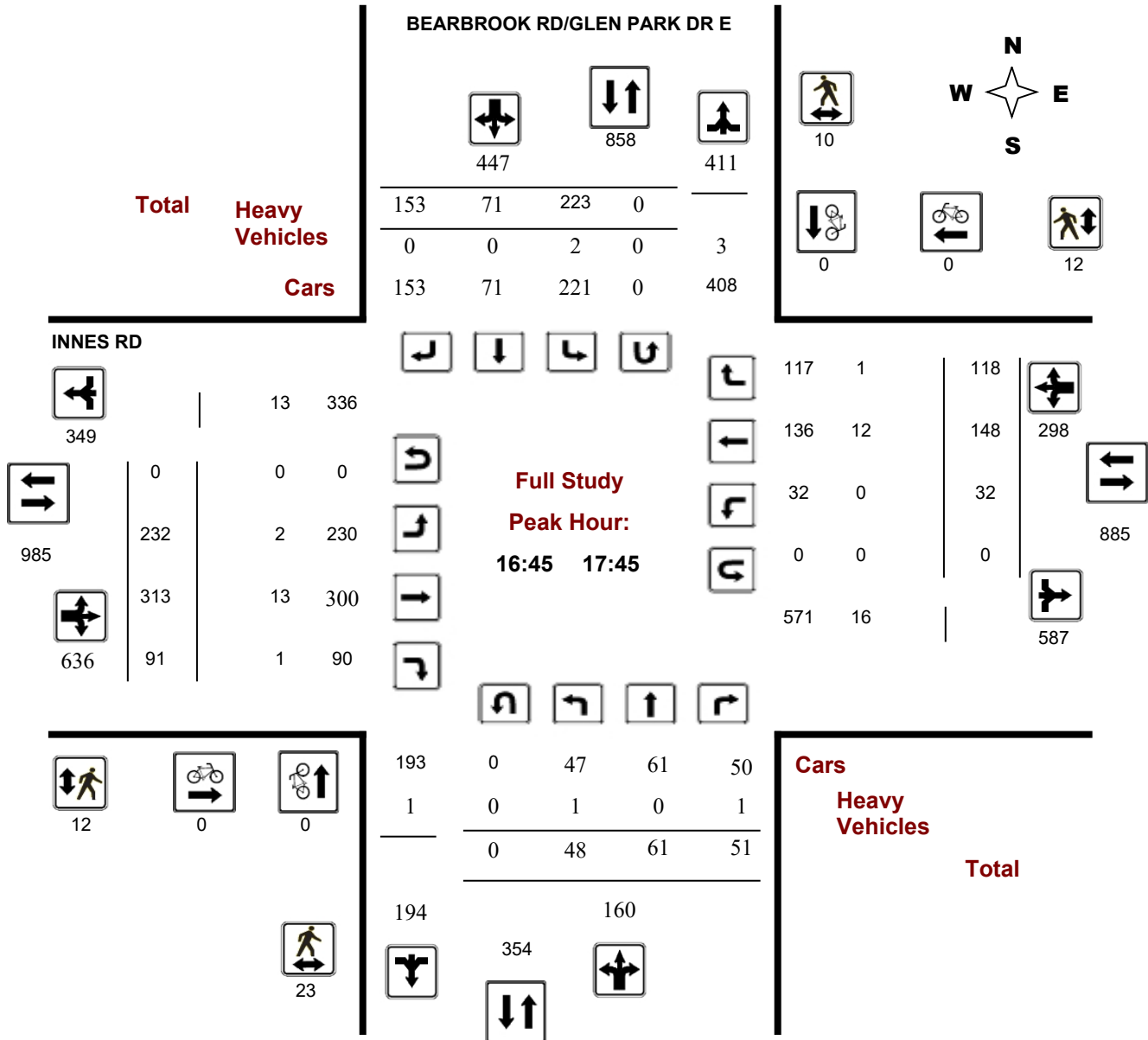
Survey Date: Wednesday, December 05, 2018

WO No: 38184

Start Time: 07:00

Device: Miovision

Full Study Peak Hour Diagram



Turning Movement Count - Peak Hour Diagram

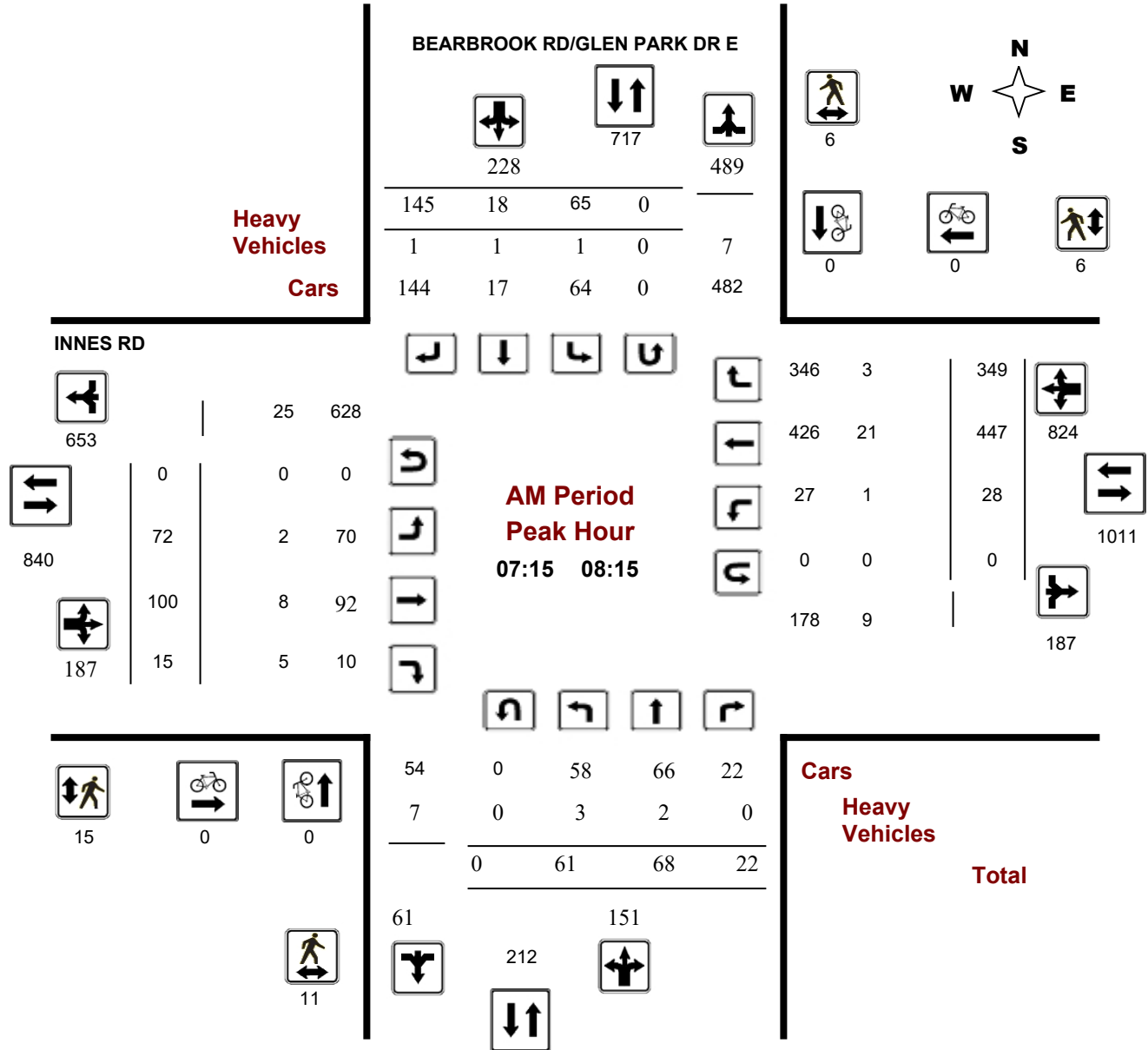
INNES RD @ BEARBROOK RD/GLEN PARK DR E

Survey Date: Wednesday, December 05, 2018

Start Time: 07:00

WO No: 38184

Device: Miovision



Comments

Turning Movement Count - Peak Hour Diagram

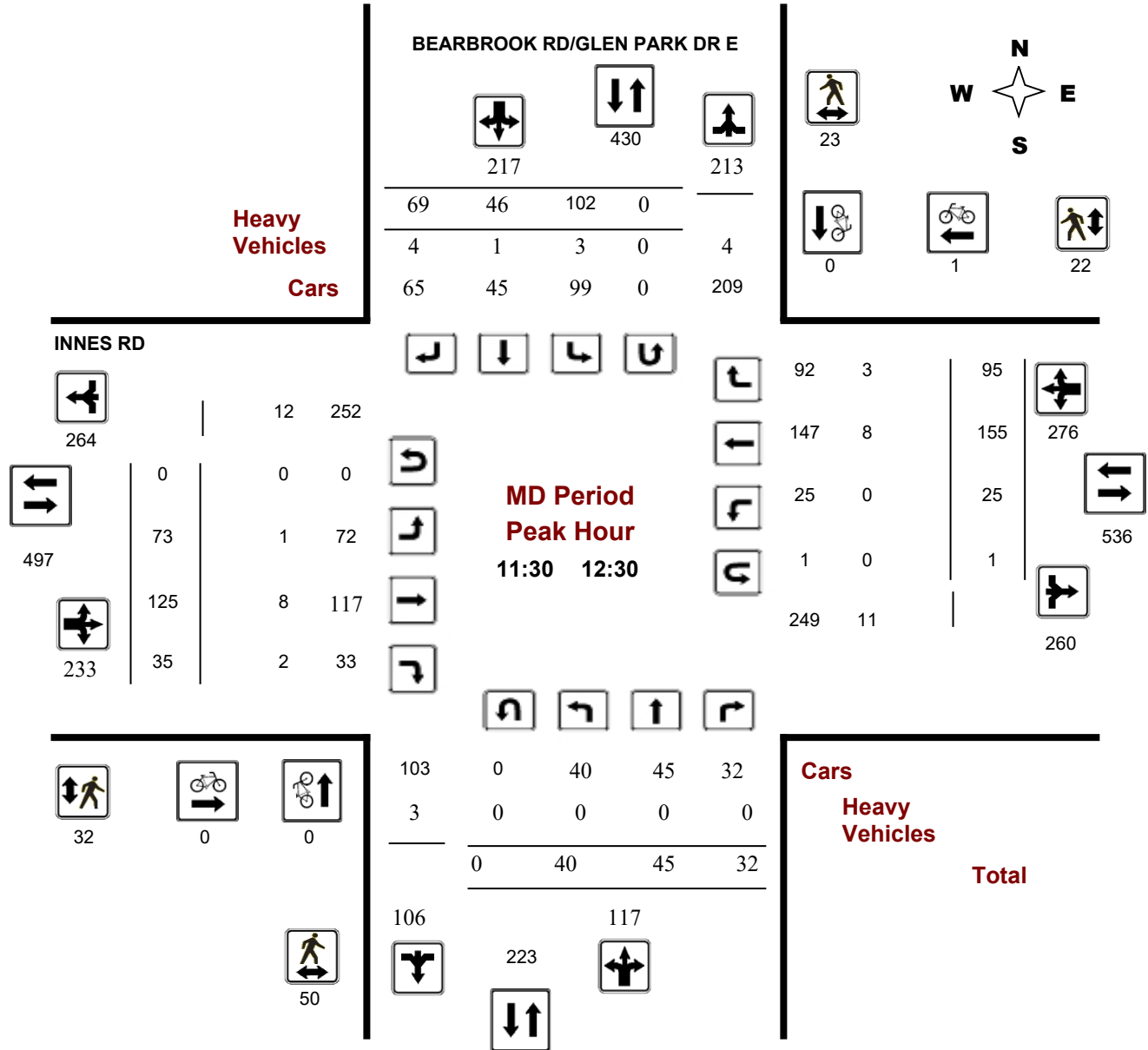
INNES RD @ BEARBROOK RD/GLEN PARK DR E

Survey Date: Wednesday, December 05, 2018

Start Time: 07:00

WO No: 38184

Device: Miovision



Comments

Turning Movement Count - Peak Hour Diagram

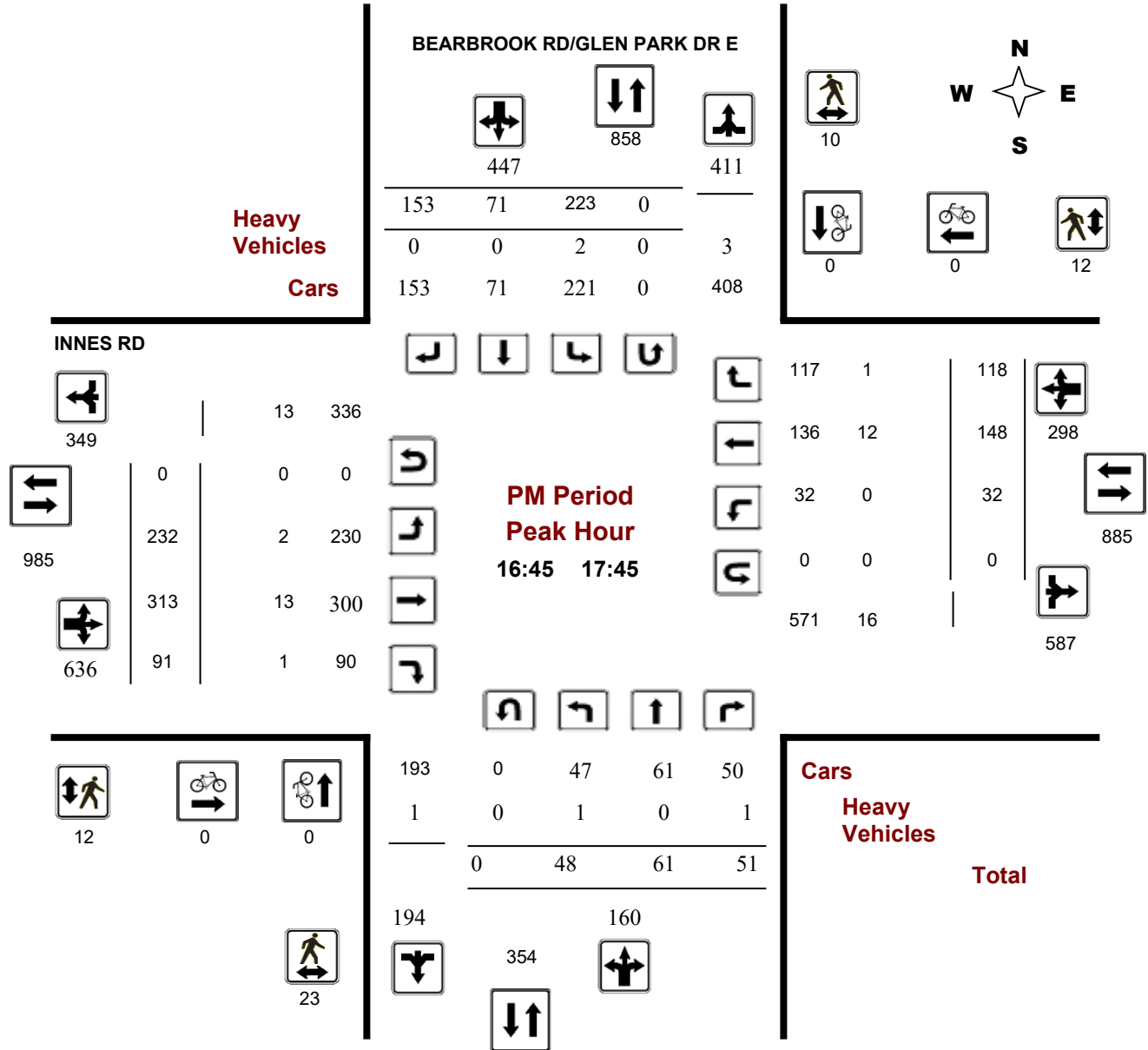
INNES RD @ BEARBROOK RD/GLEN PARK DR E

Survey Date: Wednesday, December 05, 2018

Start Time: 07:00

WO No: 38184

Device: Miovision



Comments



Transportation Services - Traffic Services

Turning Movement Count - Study Results

INNES RD @ BEARBROOK RD/GLEN PARK DR E

Survey Date: Wednesday, December 05, 2018

WO No: 38184

Start Time: 07:00

Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, December 05, 2018

Total Observed U-Turns
 Northbound: 0 Southbound: 0
 Eastbound: 0 Westbound: 1

AADT Factor
 1.00

BEARBROOK RD/GLEN PARK DR E

INNES RD

Period	Northbound					Southbound					Eastbound					Westbound					Grand Total
	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT			
07:00 08:00	52	53	24	129	61	16	137	214	343	73	87	16	176	27	454	327	808	984	1327		
08:00 09:00	40	44	19	103	115	25	144	284	387	100	121	22	243	24	316	303	643	886	1273		
09:00 10:00	44	35	23	102	129	65	121	315	417	88	97	27	212	22	194	129	345	557	974		
11:30 12:30	40	45	32	117	102	46	69	217	334	73	125	35	233	25	155	95	275	508	842		
12:30 13:30	48	41	36	125	83	42	77	202	327	61	144	47	252	17	144	72	233	485	812		
15:00 16:00	46	76	50	172	207	80	128	415	587	143	206	69	418	26	171	114	311	729	1316		
16:00 17:00	54	66	49	169	228	84	149	461	630	179	282	85	546	29	162	96	287	833	1463		
17:00 18:00	42	67	47	156	225	67	135	427	583	223	322	99	644	28	147	133	308	952	1535		
Sub Total	366	427	280	1073	1150	425	960	2535	3608	940	1384	400	2724	198	1743	1269	3210	5934	9542		
U Turns	0			0	0			0	0	0			0	1			1	1	1		
Total	366	427	280	1073	1150	425	960	2535	3608	940	1384	400	2724	199	1743	1269	3211	5935	9543		
EQ 12Hr	509	594	389	1492	1598	591	1334	3523	5015	1307	1924	556	3787	277	2423	1764	4464	8251	13266		
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.																	1.39				
AVG 12Hr	509	594	389	1492	1598	591	1334	3523	5015	1307	1924	556	3787	277	2423	1764	4464	8251	13266		
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.																	1.00				
AVG 24Hr	667	778	510	1955	2093	774	1748	4615	6570	1712	2520	728	4960	363	3174	2311	5848	10808	17378		
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.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

INNES RD @ BEARBROOK RD/GLEN PARK DR E

Survey Date: Wednesday, December 05, 2018

WO No: 38184

Start Time: 07:00

Device: Miovision

Full Study 15 Minute Increments

BEARBROOK RD/GLEN PARK DR

INNES RD

Northbound Southbound Eastbound Westbound

Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 07:15	5	2	5	12	14	2	21	37	49	20	16	3	39	2	98	56	156	195	244
07:15 07:30	17	21	7	45	13	4	42	59	104	14	22	2	38	9	129	85	223	261	365
07:30 07:45	17	15	6	38	12	3	35	50	88	20	22	4	46	10	125	88	223	269	357
07:45 08:00	13	15	6	34	22	7	39	68	102	19	27	7	53	6	102	98	206	259	361
08:00 08:15	14	17	3	34	18	4	29	51	85	19	29	2	50	3	91	78	172	222	307
08:15 08:30	14	10	3	27	33	4	39	76	103	29	28	3	60	7	85	109	201	261	364
08:30 08:45	7	7	5	19	33	10	39	82	101	27	29	9	65	7	66	68	141	206	307
08:45 09:00	5	10	8	23	31	7	37	75	98	25	35	8	68	7	74	48	129	197	295
09:00 09:15	8	7	13	28	46	15	44	105	133	35	31	7	73	7	45	52	104	177	310
09:15 09:30	14	11	3	28	28	25	28	81	109	20	17	8	45	9	53	37	99	144	253
09:30 09:45	10	11	3	24	29	20	32	81	105	21	21	6	48	1	56	24	81	129	234
09:45 10:00	12	6	4	22	26	5	17	48	70	12	28	6	46	5	40	16	61	107	177
11:30 11:45	10	15	9	34	19	13	22	54	88	15	31	8	54	3	41	31	75	129	217
11:45 12:00	10	4	3	17	27	13	19	59	76	23	26	7	56	12	40	25	77	133	209
12:00 12:15	8	16	12	36	23	12	18	53	89	14	38	9	61	5	24	18	47	108	197
12:15 12:30	12	10	8	30	33	8	10	51	81	21	30	11	62	6	50	21	77	139	220
12:30 12:45	13	10	9	32	19	4	17	40	72	16	38	12	66	4	35	18	57	123	195
12:45 13:00	14	10	12	36	20	16	19	55	91	16	46	10	72	4	33	16	53	125	216
13:00 13:15	10	7	10	27	23	9	20	52	79	17	30	13	60	3	39	25	67	127	206
13:15 13:30	11	14	5	30	21	13	21	55	85	12	30	12	54	6	37	13	56	110	195
15:00 15:15	14	16	15	45	48	23	24	95	140	30	48	18	96	7	45	20	72	168	308
15:15 15:30	13	17	16	46	50	20	26	96	142	29	48	19	96	8	39	30	77	173	315
15:30 15:45	7	26	10	43	40	7	45	92	135	44	52	15	111	3	40	43	86	197	332
15:45 16:00	12	17	9	38	69	30	33	132	170	40	58	17	115	8	47	21	76	191	361
16:00 16:15	16	15	10	41	61	21	28	110	151	30	64	28	122	3	49	26	78	200	351
16:15 16:30	16	19	18	53	57	27	44	128	181	45	76	20	141	10	39	23	72	213	394
16:30 16:45	10	18	9	37	49	21	28	98	135	48	59	19	126	7	35	21	63	189	324
16:45 17:00	12	14	12	38	61	15	49	125	163	56	83	18	157	9	39	26	74	231	394
17:00 17:15	16	16	15	47	44	19	34	97	144	57	74	33	164	7	33	33	73	237	381
17:15 17:30	13	20	15	48	50	24	41	115	163	63	73	19	155	8	36	27	71	226	389
17:30 17:45	7	11	9	27	68	13	29	110	137	56	83	21	160	8	40	32	80	240	377
17:45 18:00	6	20	8	34	63	11	31	105	139	47	92	26	165	5	38	41	84	249	388
Total:	366	427	280	1073	1150	425	960	2535	3608	940	1384	400	2724	199	1743	1269	3211	3608	9,543

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

INNES RD @ BEARBROOK RD/GLEN PARK DR E

Survey Date: Wednesday, December 05, 2018

WO No: 38184

Start Time: 07:00

Device: Miovision

Full Study Cyclist Volume

BEARBROOK RD/GLEN PARK DR E

INNES RD

Time Period		BEARBROOK RD/GLEN PARK DR E			INNES RD			Grand Total
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	1	0	1	0	0	0	1
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	0	0	0	0	0	0
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	1	1	1
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total		1	0	1	0	1	1	2



Transportation Services - Traffic Services

Turning Movement Count - Study Results

INNES RD @ BEARBROOK RD/GLEN PARK DR E

Survey Date: Wednesday, December 05, 2018

WO No: 38184

Start Time: 07:00

Device: Miovision

Full Study Pedestrian Volume

BEARBROOK RD/GLEN PARK DR E

INNES RD

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	1	0	1	4	0	4	5
07:15 07:30	2	4	6	2	2	4	10
07:30 07:45	5	0	5	8	1	9	14
07:45 08:00	2	0	2	4	0	4	6
08:00 08:15	2	2	4	1	3	4	8
08:15 08:30	4	1	5	3	2	5	10
08:30 08:45	1	2	3	2	1	3	6
08:45 09:00	7	2	9	1	9	10	19
09:00 09:15	3	12	15	2	12	14	29
09:15 09:30	2	7	9	2	6	8	17
09:30 09:45	2	3	5	2	5	7	12
09:45 10:00	4	0	4	3	3	6	10
11:30 11:45	5	0	5	4	2	6	11
11:45 12:00	9	3	12	6	0	6	18
12:00 12:15	33	17	50	20	19	39	89
12:15 12:30	3	3	6	2	1	3	9
12:30 12:45	5	5	10	2	7	9	19
12:45 13:00	11	0	11	3	0	3	14
13:00 13:15	5	0	5	8	1	9	14
13:15 13:30	6	5	11	9	2	11	22
15:00 15:15	8	2	10	4	6	10	20
15:15 15:30	8	4	12	4	7	11	23
15:30 15:45	9	7	16	4	26	30	46
15:45 16:00	9	8	17	5	19	24	41
16:00 16:15	8	7	15	2	1	3	18
16:15 16:30	5	2	7	3	5	8	15
16:30 16:45	5	3	8	2	2	4	12
16:45 17:00	9	0	9	2	4	6	15
17:00 17:15	5	1	6	6	4	10	16
17:15 17:30	5	3	8	1	4	5	13
17:30 17:45	4	6	10	3	0	3	13
17:45 18:00	6	1	7	0	1	1	8
Total	193	110	303	124	155	279	582



Transportation Services - Traffic Services

Turning Movement Count - Study Results

INNES RD @ BEARBROOK RD/GLEN PARK DR E

Survey Date: Wednesday, December 05, 2018

WO No: 38184

Start Time: 07:00

Device: Miovision

Full Study Heavy Vehicles

BEARBROOK RD/GLEN PARK DR

INNES RD

Northbound Southbound Eastbound Westbound

Time Period	Northbound			N TOT	Southbound			S TOT	STR TOT	Eastbound			E TOT	Westbound			W TOT	STR TOT	Grand Total	
	LT	ST	RT		LT	ST	RT			LT	ST	RT		LT	ST	RT				
07:00	07:15	0	0	1	1	0	0	1	1	2	2	1	0	3	0	5	1	6	9	11
07:15	07:30	0	2	0	2	0	1	0	1	3	2	1	0	3	1	5	1	7	10	13
07:30	07:45	2	0	0	2	0	0	0	0	2	0	2	2	4	0	6	0	6	10	12
07:45	08:00	0	0	0	0	1	0	0	1	1	0	1	1	2	0	4	1	5	7	8
08:00	08:15	1	0	0	1	0	0	1	1	2	0	4	2	6	0	6	1	7	13	15
08:15	08:30	1	0	0	1	1	1	0	2	3	2	0	1	3	0	6	3	9	12	15
08:30	08:45	0	0	0	0	2	0	0	2	2	2	9	1	12	1	7	0	8	20	22
08:45	09:00	1	0	2	3	0	0	1	1	4	2	2	2	6	1	5	2	8	14	18
09:00	09:15	1	0	0	1	1	1	1	3	4	2	1	1	4	1	1	5	7	11	15
09:15	09:30	0	0	0	0	1	0	2	3	3	0	0	1	1	0	3	0	3	4	7
09:30	09:45	0	0	0	0	1	1	0	2	2	0	2	1	3	0	1	1	2	5	7
09:45	10:00	1	0	0	1	1	0	0	1	2	0	3	0	3	0	1	0	1	4	6
11:30	11:45	0	0	0	0	2	0	2	4	4	1	2	1	4	0	2	2	4	8	12
11:45	12:00	0	0	0	0	0	0	2	2	2	0	1	0	1	0	2	0	2	3	5
12:00	12:15	0	0	0	0	0	1	0	1	1	0	3	1	4	0	2	0	2	6	7
12:15	12:30	0	0	0	0	1	0	0	1	1	0	2	0	2	0	2	1	3	5	6
12:30	12:45	1	0	0	1	1	1	0	2	3	0	2	0	2	0	1	0	1	3	6
12:45	13:00	0	0	0	0	0	1	0	1	1	1	1	0	2	0	1	0	1	3	4
13:00	13:15	1	0	0	1	1	0	0	1	2	0	3	1	4	0	3	0	3	7	9
13:15	13:30	1	1	0	2	0	1	0	1	3	0	1	0	1	0	2	0	2	3	6
15:00	15:15	0	0	0	0	0	0	3	3	3	3	5	0	8	1	3	1	5	13	16
15:15	15:30	1	0	0	1	4	0	0	4	5	0	3	0	3	1	4	0	5	8	13
15:30	15:45	1	0	0	1	1	0	0	1	2	0	3	0	3	0	2	2	4	7	9
15:45	16:00	1	1	0	2	4	0	2	6	8	2	5	0	7	0	5	2	7	14	22
16:00	16:15	1	0	0	1	2	0	0	2	3	0	2	0	2	0	2	0	2	4	7
16:15	16:30	0	0	1	1	0	0	0	0	1	0	4	0	4	0	4	2	6	10	11
16:30	16:45	0	1	0	1	2	0	0	2	3	0	4	0	4	0	1	1	2	6	9
16:45	17:00	0	0	1	1	2	0	0	2	3	2	1	0	3	0	5	0	5	8	11
17:00	17:15	0	0	0	0	0	0	0	0	0	0	4	1	5	0	2	0	2	7	7
17:15	17:30	1	0	0	1	0	0	0	0	1	0	2	0	2	0	4	1	5	7	8
17:30	17:45	0	0	0	0	0	0	0	0	0	0	6	0	6	0	1	0	1	7	7
17:45	18:00	0	0	0	0	1	0	0	1	1	1	3	0	4	0	1	0	1	5	6
Total:	None	15	5	5	25	29	8	15	52	77	22	83	16	121	6	99	27	132	253	330



Transportation Services - Traffic Services

Turning Movement Count - Study Results

INNES RD @ BEARBROOK RD/GLEN PARK DR E

Survey Date: Wednesday, December 05, 2018

WO No: 38184

Start Time: 07:00

Device: Miovision

Full Study 15 Minute U-Turn Total

BEARBROOK RD/GLEN PARK DR

INNES RD

Time Period	Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0
07:15	07:30	0	0	0	0
07:30	07:45	0	0	0	0
07:45	08:00	0	0	0	0
08:00	08:15	0	0	0	0
08:15	08:30	0	0	0	0
08:30	08:45	0	0	0	0
08:45	09:00	0	0	0	0
09:00	09:15	0	0	0	0
09:15	09:30	0	0	0	0
09:30	09:45	0	0	0	0
09:45	10:00	0	0	0	0
11:30	11:45	0	0	0	0
11:45	12:00	0	0	1	1
12:00	12:15	0	0	0	0
12:15	12:30	0	0	0	0
12:30	12:45	0	0	0	0
12:45	13:00	0	0	0	0
13:00	13:15	0	0	0	0
13:15	13:30	0	0	0	0
15:00	15:15	0	0	0	0
15:15	15:30	0	0	0	0
15:30	15:45	0	0	0	0
15:45	16:00	0	0	0	0
16:00	16:15	0	0	0	0
16:15	16:30	0	0	0	0
16:30	16:45	0	0	0	0
16:45	17:00	0	0	0	0
17:00	17:15	0	0	0	0
17:15	17:30	0	0	0	0
17:30	17:45	0	0	0	0
17:45	18:00	0	0	0	0
Total		0	0	1	1

Turning Movement Count - Study Results

INNES RD @ ORIENT PARK DR

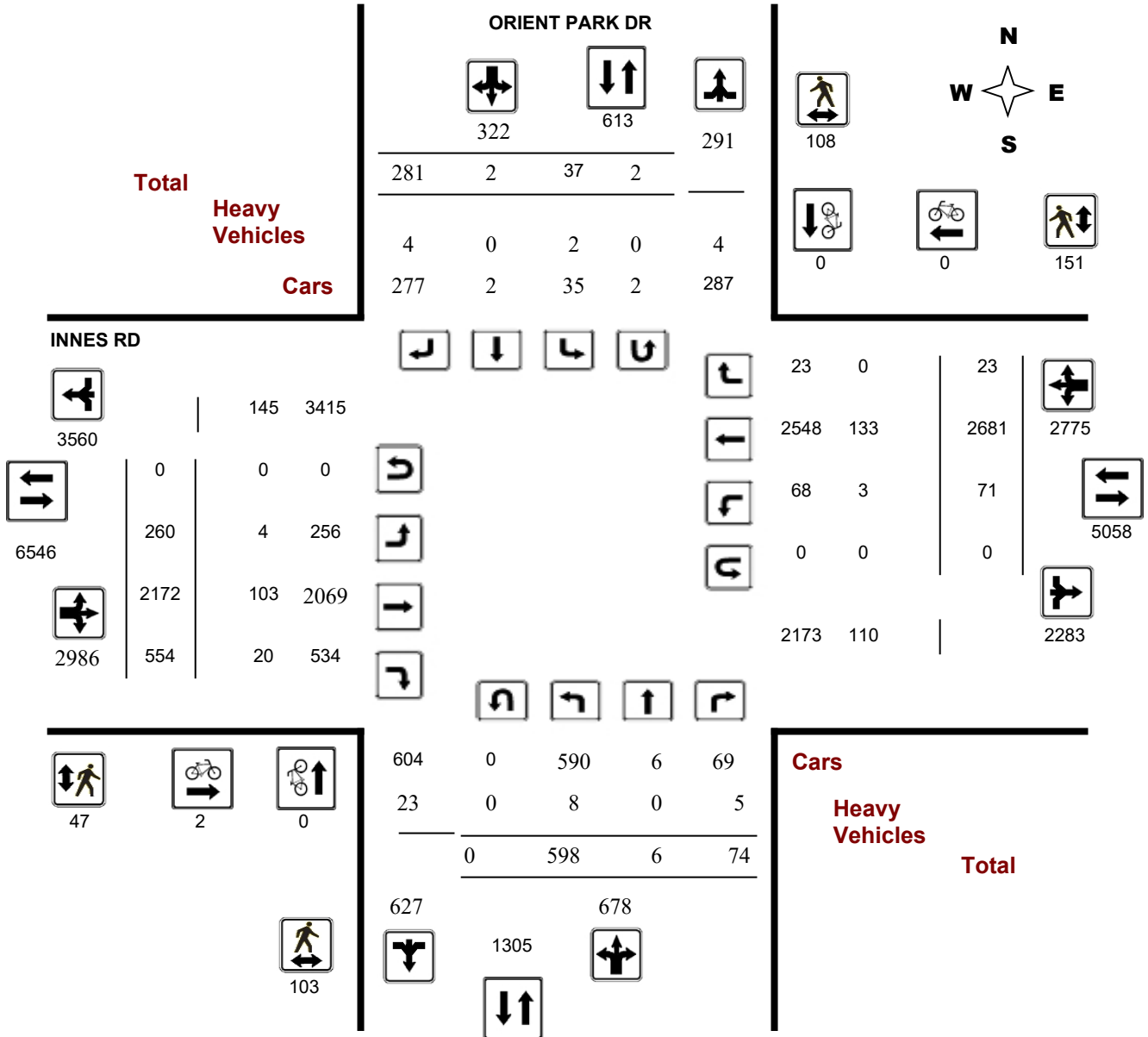
Survey Date: Wednesday, December 19, 2018

WO No: 38210

Start Time: 07:00

Device: Miovision

Full Study Diagram



Turning Movement Count - Study Results

INNES RD @ ORIENT PARK DR

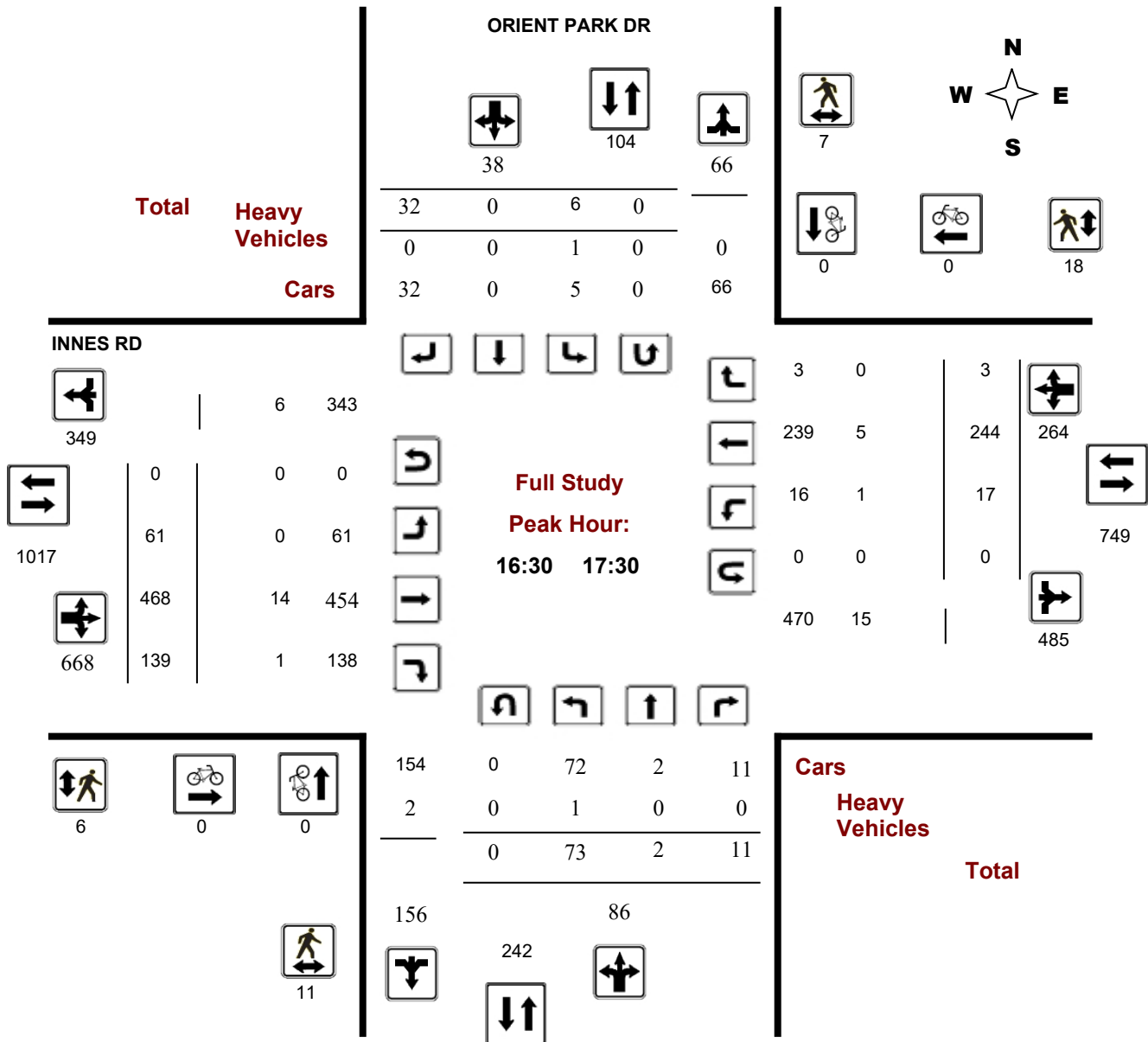
Survey Date: Wednesday, December 19, 2018

WO No: 38210

Start Time: 07:00

Device: Miovision

Full Study Peak Hour Diagram



Turning Movement Count - Peak Hour Diagram

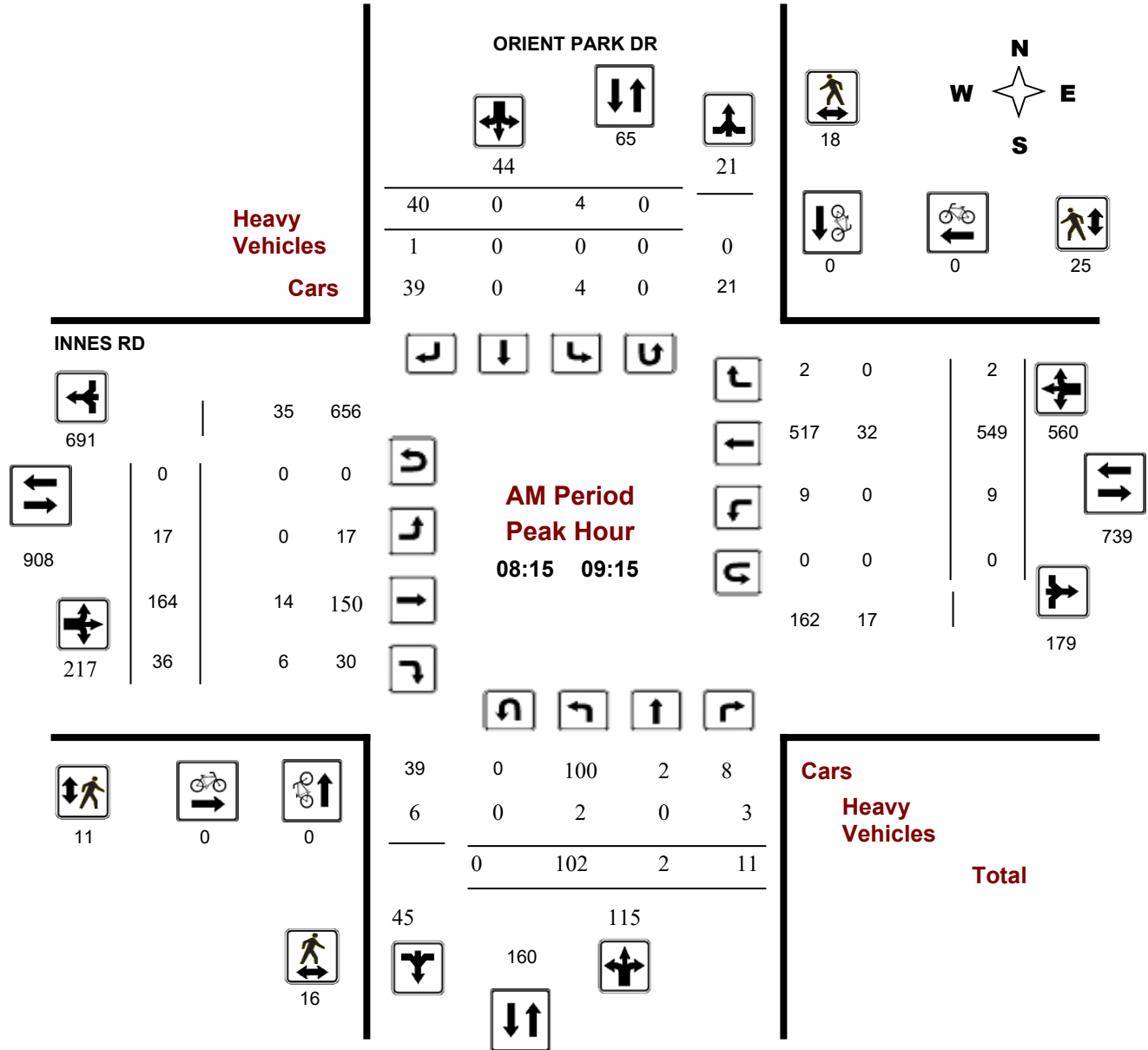
INNES RD @ ORIENT PARK DR

Survey Date: Wednesday, December 19, 2018

Start Time: 07:00

WO No: 38210

Device: Miovision



Turning Movement Count - Peak Hour Diagram

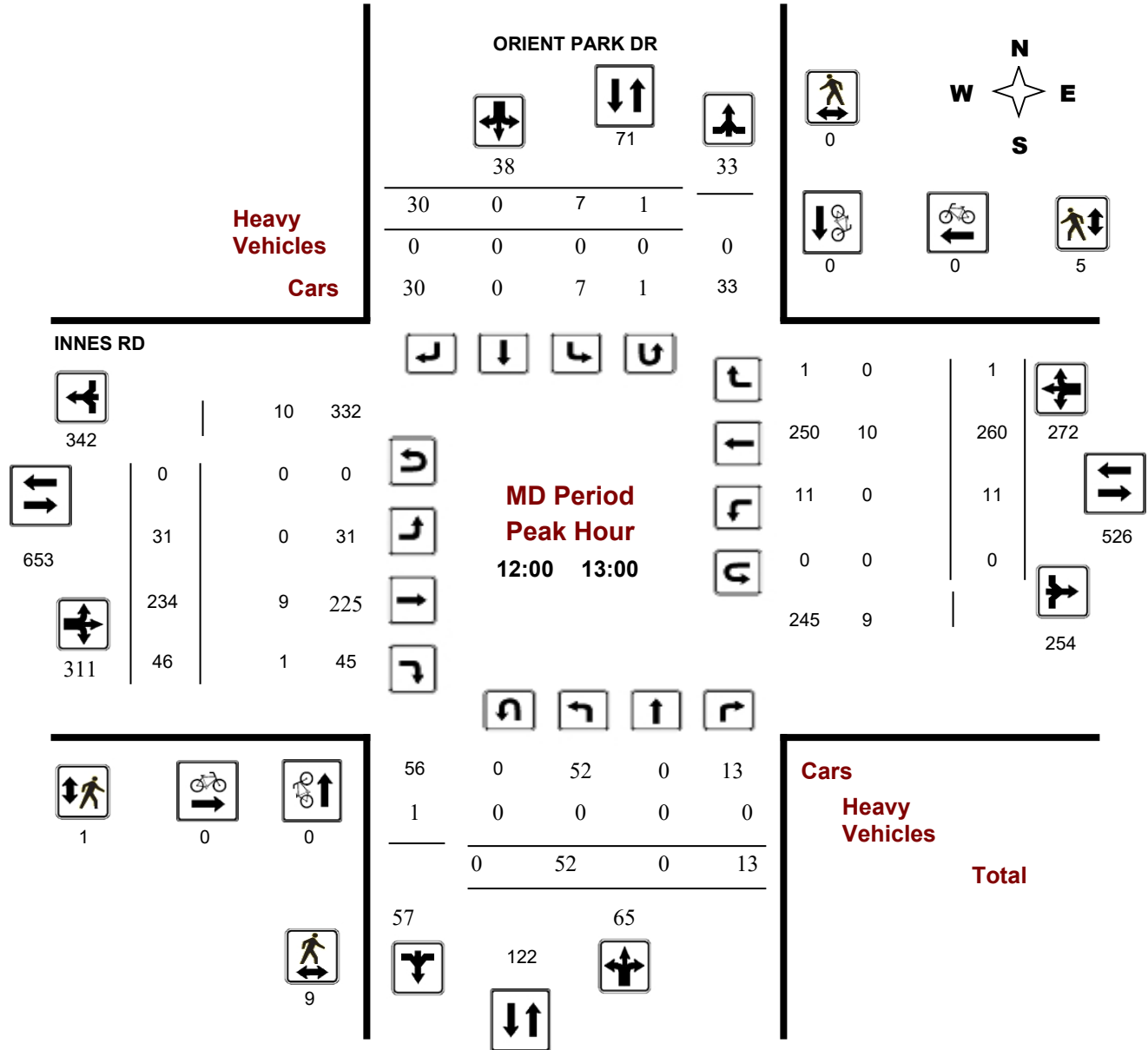
INNES RD @ ORIENT PARK DR

Survey Date: Wednesday, December 19, 2018

Start Time: 07:00

WO No: 38210

Device: Miovision



Turning Movement Count - Peak Hour Diagram

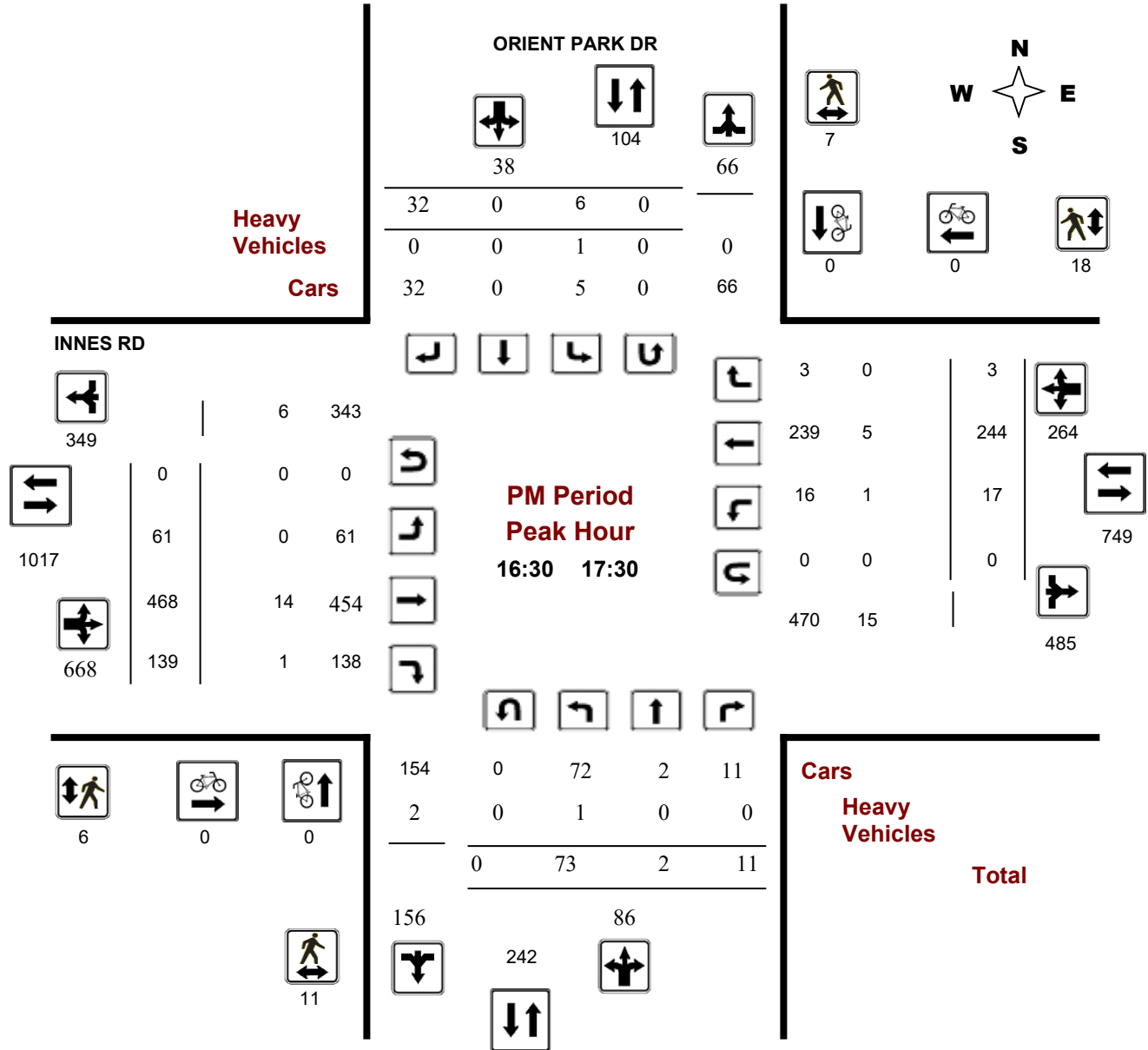
INNES RD @ ORIENT PARK DR

Survey Date: Wednesday, December 19, 2018

Start Time: 07:00

WO No: 38210

Device: Miovision





Transportation Services - Traffic Services

Turning Movement Count - Study Results

INNES RD @ ORIENT PARK DR

Survey Date: Wednesday, December 19, 2018

WO No: 38210

Start Time: 07:00

Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, December 19, 2018

Total Observed U-Turns
 Northbound: 0 Southbound: 2
 Eastbound: 0 Westbound: 0

AADT Factor
 1.00

ORIENT PARK DR

INNES RD

Period	Northbound					Southbound					Eastbound					Westbound					Grand Total
	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT			
07:00 08:00	124	1	9	134	6	0	57	63	197	17	94	21	132	3	535	4	542	674	871		
08:00 09:00	105	2	9	116	2	1	37	40	156	17	151	33	201	8	530	3	541	742	898		
09:00 10:00	78	1	7	86	4	0	42	46	132	24	183	42	249	4	367	1	372	621	753		
11:30 12:30	46	0	12	58	6	0	34	40	98	28	233	54	315	11	246	0	257	572	670		
12:30 13:30	48	0	8	56	5	1	27	33	89	33	221	47	301	4	238	1	243	544	633		
15:00 16:00	59	0	10	69	2	0	29	31	100	37	397	112	546	12	288	7	307	853	953		
16:00 17:00	72	1	11	84	5	0	19	24	108	42	460	131	633	14	238	5	257	890	998		
17:00 18:00	66	1	8	75	7	0	36	43	118	62	433	114	609	15	239	2	256	865	983		
Sub Total	598	6	74	678	37	2	281	320	998	260	2172	554	2986	71	2681	23	2775	5761	6759		
U Turns	0			0	2			2	2	0			0	0			0	0	2		
Total	598	6	74	678	39	2	281	322	1000	260	2172	554	2986	71	2681	23	2775	5761	6761		
EQ 12Hr	831	8	103	942	54	3	391	448	1390	361	3019	770	4150	99	3727	32	3858	8008	9398		
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.																1.39					
AVG 12Hr	831	8	103	942	54	3	391	448	1390	361	3019	770	4150	99	3727	32	3858	8008	9398		
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.																1.00					
AVG 24Hr	1089	10	135	1234	71	4	512	587	1821	473	3955	1009	5437	130	4882	42	5054	10491	12312		
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.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

INNES RD @ ORIENT PARK DR

Survey Date: Wednesday, December 19, 2018

WO No: 38210

Start Time: 07:00

Device: Miovision

Full Study 15 Minute Increments

ORIENT PARK DR

INNES RD

Northbound

Southbound

Eastbound

Westbound

Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 07:15	35	1	0	36	2	0	18	20	56	3	14	5	22	0	106	2	108	130	186
07:15 07:30	34	0	4	38	0	0	14	14	52	6	24	4	34	1	160	0	161	195	247
07:30 07:45	34	0	1	35	4	0	12	16	51	5	27	6	38	2	137	2	141	179	230
07:45 08:00	21	0	4	25	0	0	13	13	38	3	29	6	38	0	132	0	132	170	208
08:00 08:15	34	1	0	35	0	1	11	12	47	6	40	8	54	0	116	1	117	171	218
08:15 08:30	28	0	4	32	1	0	11	12	44	4	31	9	44	2	147	0	149	193	237
08:30 08:45	21	1	0	22	1	0	7	8	30	6	36	6	48	3	141	0	144	192	222
08:45 09:00	22	0	5	27	0	0	8	8	35	1	44	10	55	3	126	2	131	186	221
09:00 09:15	31	1	2	34	2	0	14	16	50	6	53	11	70	1	135	0	136	206	256
09:15 09:30	18	0	2	20	0	0	11	11	31	6	41	14	61	1	102	0	103	164	195
09:30 09:45	12	0	1	13	2	0	5	7	20	8	39	10	57	1	67	1	69	126	146
09:45 10:00	17	0	2	19	0	0	12	12	31	4	50	7	61	1	63	0	64	125	156
11:30 11:45	12	0	2	14	1	0	11	12	26	7	59	14	80	2	63	0	65	145	171
11:45 12:00	13	0	1	14	1	0	6	7	21	5	61	16	82	2	61	0	63	145	166
12:00 12:15	7	0	6	13	3	0	9	12	25	7	63	9	79	5	49	0	54	133	158
12:15 12:30	14	0	3	17	1	0	8	9	26	9	50	15	74	2	73	0	75	149	175
12:30 12:45	17	0	2	19	2	0	9	11	30	9	66	13	88	0	61	1	62	150	180
12:45 13:00	14	0	2	16	2	0	4	6	22	6	55	9	70	4	77	0	81	151	173
13:00 13:15	7	0	3	10	1	1	6	8	18	11	44	16	71	0	45	0	45	116	134
13:15 13:30	10	0	1	11	1	0	8	9	20	7	56	9	72	0	55	0	55	127	147
15:00 15:15	16	0	3	19	0	0	6	6	25	7	80	13	100	2	53	2	57	157	182
15:15 15:30	14	0	3	17	1	0	5	6	23	6	100	26	132	0	69	1	70	202	225
15:30 15:45	18	0	2	20	0	0	13	13	33	14	93	32	139	5	94	3	102	241	274
15:45 16:00	11	0	2	13	1	0	5	6	19	10	124	41	175	5	72	1	78	253	272
16:00 16:15	16	0	1	17	2	0	8	10	27	11	115	21	147	4	49	2	55	202	229
16:15 16:30	14	0	3	17	1	0	2	3	20	6	108	35	149	1	65	1	67	216	236
16:30 16:45	22	1	4	27	2	0	3	5	32	13	117	40	170	6	66	1	73	243	275
16:45 17:00	20	0	3	23	1	0	6	7	30	12	120	35	167	3	58	1	62	229	259
17:00 17:15	17	0	3	20	2	0	11	13	33	21	116	29	166	4	71	1	76	242	275
17:15 17:30	14	1	1	16	1	0	12	13	29	15	115	35	165	4	49	0	53	218	247
17:30 17:45	19	0	2	21	2	0	5	7	28	13	94	24	131	3	61	0	64	195	223
17:45 18:00	16	0	2	18	2	0	8	10	28	13	108	26	147	4	58	1	63	210	238
Total:	598	6	74	678	39	2	281	322	1000	260	2172	554	2986	71	2681	23	2775	1000	6,761

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

INNES RD @ ORIENT PARK DR

Survey Date: Wednesday, December 19, 2018

WO No: 38210

Start Time: 07:00

Device: Miovision

Full Study Cyclist Volume

ORIENT PARK DR

INNES RD

Time Period		ORIENT PARK DR			INNES RD			Grand Total
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	2	0	2	2
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	0	0	0	0	0	0
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total		0	0	0	2	0	2	2



Transportation Services - Traffic Services

Turning Movement Count - Study Results

INNES RD @ ORIENT PARK DR

Survey Date: Wednesday, December 19, 2018

WO No: 38210

Start Time: 07:00

Device: Miovision

Full Study Pedestrian Volume

ORIENT PARK DR

INNES RD

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	1	0	1	0	5	5	6
07:15 07:30	3	6	9	2	10	12	21
07:30 07:45	0	0	0	0	5	5	5
07:45 08:00	2	7	9	1	5	6	15
08:00 08:15	2	1	3	1	6	7	10
08:15 08:30	3	3	6	0	3	3	9
08:30 08:45	4	4	8	2	7	9	17
08:45 09:00	5	3	8	5	11	16	24
09:00 09:15	4	8	12	4	4	8	20
09:15 09:30	1	1	2	2	1	3	5
09:30 09:45	3	1	4	1	1	2	6
09:45 10:00	0	1	1	0	1	1	2
11:30 11:45	2	7	9	1	5	6	15
11:45 12:00	2	1	3	0	1	1	4
12:00 12:15	1	0	1	0	3	3	4
12:15 12:30	3	0	3	0	1	1	4
12:30 12:45	3	0	3	1	0	1	4
12:45 13:00	2	0	2	0	1	1	3
13:00 13:15	5	0	5	1	1	2	7
13:15 13:30	1	0	1	0	1	1	2
15:00 15:15	4	1	5	2	7	9	14
15:15 15:30	3	3	6	2	5	7	13
15:30 15:45	4	1	5	2	3	5	10
15:45 16:00	8	31	39	6	19	25	64
16:00 16:15	12	5	17	2	3	5	22
16:15 16:30	7	12	19	4	12	16	35
16:30 16:45	4	3	7	1	4	5	12
16:45 17:00	1	1	2	3	4	7	9
17:00 17:15	2	3	5	1	2	3	8
17:15 17:30	4	0	4	1	8	9	13
17:30 17:45	6	1	7	1	5	6	13
17:45 18:00	1	4	5	1	7	8	13
Total	103	108	211	47	151	198	409



Transportation Services - Traffic Services

Turning Movement Count - Study Results

INNES RD @ ORIENT PARK DR

Survey Date: Wednesday, December 19, 2018

WO No: 38210

Start Time: 07:00

Device: Miovision

Full Study Heavy Vehicles

ORIENT PARK DR

INNES RD

Northbound

Southbound

Eastbound

Westbound

Time Period	Northbound			N TOT	Southbound			S TOT	STR TOT	Eastbound			E TOT	Westbound			W TOT	STR TOT	Grand Total
	LT	ST	RT		LT	ST	RT			LT	ST	RT		LT	ST	RT			
07:00 07:15	0	0	0	0	0	0	0	0	0	0	1	0	1	0	5	0	5	6	6
07:15 07:30	2	0	0	2	0	0	0	0	2	1	1	0	2	1	4	0	5	7	9
07:30 07:45	0	0	0	0	0	0	1	1	1	0	2	0	2	0	6	0	6	8	9
07:45 08:00	0	0	0	0	0	0	1	1	1	1	3	0	4	0	5	0	5	9	10
08:00 08:15	0	0	0	0	0	0	0	0	0	0	5	0	5	0	5	0	5	10	10
08:15 08:30	0	0	1	1	0	0	1	1	2	0	3	1	4	0	7	0	7	11	13
08:30 08:45	0	0	0	0	0	0	0	0	0	0	3	0	3	0	7	0	7	10	10
08:45 09:00	2	0	1	3	0	0	0	0	3	0	3	4	7	0	6	0	6	13	16
09:00 09:15	0	0	1	1	0	0	0	0	1	0	5	1	6	0	12	0	12	18	19
09:15 09:30	2	0	0	2	0	0	0	0	2	0	3	2	5	0	4	0	4	9	11
09:30 09:45	0	0	0	0	0	0	0	0	0	1	5	1	7	0	1	0	1	8	8
09:45 10:00	0	0	0	0	0	0	0	0	0	0	2	0	2	0	6	0	6	8	8
11:30 11:45	0	0	0	0	0	0	0	0	0	0	3	0	3	0	2	0	2	5	5
11:45 12:00	0	0	0	0	0	0	0	0	0	0	2	1	3	0	5	0	5	8	8
12:00 12:15	0	0	0	0	0	0	0	0	0	0	2	0	2	0	4	0	4	6	6
12:15 12:30	0	0	0	0	0	0	0	0	0	0	1	0	1	0	3	0	3	4	4
12:30 12:45	0	0	0	0	0	0	0	0	0	0	5	0	5	0	1	0	1	6	6
12:45 13:00	0	0	0	0	0	0	0	0	0	0	1	1	2	0	2	0	2	4	4
13:00 13:15	0	0	1	1	0	0	0	0	1	0	2	0	2	0	2	0	2	4	5
13:15 13:30	0	0	0	0	0	0	1	1	1	0	2	0	2	0	4	0	4	6	7
15:00 15:15	1	0	0	1	0	0	0	0	1	0	4	1	5	0	4	0	4	9	10
15:15 15:30	0	0	0	0	0	0	0	0	0	0	5	0	5	0	6	0	6	11	11
15:30 15:45	0	0	1	1	0	0	0	0	1	0	4	1	5	1	9	0	10	15	16
15:45 16:00	0	0	0	0	0	0	0	0	0	0	6	2	8	0	8	0	8	16	16
16:00 16:15	0	0	0	0	0	0	0	0	0	0	6	1	7	0	2	0	2	9	9
16:15 16:30	0	0	0	0	0	0	0	0	0	0	3	2	5	0	5	0	5	10	10
16:30 16:45	1	0	0	1	0	0	0	0	1	0	4	1	5	1	0	0	1	6	7
16:45 17:00	0	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0	1	3	3
17:00 17:15	0	0	0	0	1	0	0	1	1	0	1	0	1	0	1	0	1	2	3
17:15 17:30	0	0	0	0	0	0	0	0	0	0	7	0	7	0	3	0	3	10	10
17:30 17:45	0	0	0	0	1	0	0	1	1	1	4	0	5	0	0	0	0	5	6
17:45 18:00	0	0	0	0	0	0	0	0	0	0	3	1	4	0	3	0	3	7	7
Total: None	8	0	5	13	2	0	4	6	19	4	103	20	127	3	133	0	136	263	282



Transportation Services - Traffic Services

Turning Movement Count - Study Results

INNES RD @ ORIENT PARK DR

Survey Date: Wednesday, December 19, 2018

WO No: 38210

Start Time: 07:00

Device: Miovision

Full Study 15 Minute U-Turn Total

ORIENT PARK DR

INNES RD

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	1	0	0	1
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	1	0	0	1
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	2	0	0	2

Traffic Signal Timing

City of Ottawa, Public Works Department

Traffic Signal Operations Unit

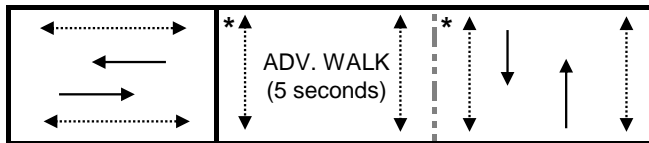
Intersection:	<i>Main:</i> Innes	<i>Side:</i>	Breakbrook / Glen Park
Controller:	MS 3200	TSD:	5327
Author:	Devin Colman	Date:	29-Nov-2022

Existing Timing Plans[†]

	Plan				Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Walk	DW	A+R
Cycle	75	70	70	70			
Offset	33	X	18	X			
EB Thru	41	36	36	36	7	15	3.3+2.4
WB Thru	41	36	36	36	7	15	3.3+2.4
NB Thru	34	34	34	34	10	17	3.0+3.2
SB Thru	34	34	34	34	10	17	3.0+3.2

Phasing Sequence[‡]

Plan: All



Schedule

Weekday		Saturday		Sunday	
Time	Plan	Time	Plan	Time	Plan
0:10	4	0:10	4	0:10	4
6:30	1	7:00	2	7:00	2
9:30	2	20:00	4	19:00	4
15:00	3				
18:30	2				
22:00	4				

Notes

- †: Time for each direction includes amber and all red intervals
- ‡: Start of first phase should be used as reference point for offset
- Asterisk (*) Indicates actuated phase
- (fp): Fully Protected Left Turn
- ←.....→ Pedestrian signal

Cost is \$61.16 (\$54.12 + HST)

Traffic Signal Timing

City of Ottawa, Public Works Department

Traffic Signal Operations Unit

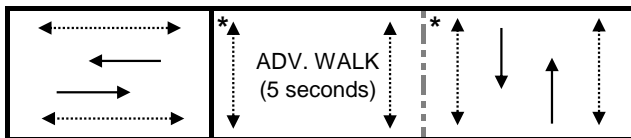
Intersection:	<i>Main:</i> Innes	<i>Side:</i> Orient Park
Controller:	MS 3200	TSD: 5595
Author:	Devin Colman	Date: 29-Nov-2022

Existing Timing Plans[†]

	Plan				Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Walk	DW	A+R
Cycle	75	70	70	70			
Offset	13	X	31	X			
EB Thru	47	42	42	42	7	15	3.3+2.5
WB Thru	47	42	42	42	7	15	3.3+2.5
NB Thru	28	28	28	28	7	15	3.0+2.9
SB Thru	28	28	28	28	7	15	3.0+2.9

Phasing Sequence[‡]

Plan: All



Schedule

Weekday

Time	Plan
0:10	4
6:30	1
9:30	2
15:00	3
18:30	2
22:00	4

Saturday

Time	Plan
0:10	4
7:00	2
20:00	4

Sunday

Time	Plan
0:10	4
7:00	2
19:00	4

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

←.....→ Pedestrian signal

Cost is \$61.16 (\$54.12 + HST)

APPENDIX D – Synchro Output Reports

2263 Innes Road TIS
3: Glenn Park Drive/Bearbrook Road & Innes Road

2023 Existing Conditions
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	115	16	30	474	368	66	73	27	73	19	156
Future Volume (vph)	78	115	16	30	474	368	66	73	27	73	19	156
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	55.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98	0.99		0.98	0.99		0.99	0.96	
Frt		0.982			0.934			0.960				0.866
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1660	1585	0	1644	1607	0	1629	1678	0	1676	1480	0
Flt Permitted	0.111			0.666			0.637			0.687		
Satd. Flow (perm)	194	1585	0	1135	1607	0	1075	1678	0	1204	1480	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			70			28			170	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		348.9			380.4			166.1			483.2	
Travel Time (s)		25.1			27.4			14.9			43.5	
Confl. Peds. (#/hr)	6		11	11		6	15		6	6		15
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
Heavy Vehicles (%)	3%	8%	33%	4%	5%	1%	5%	3%	0%	2%	6%	1%
Adj. Flow (vph)	85	125	17	33	515	400	72	79	29	79	21	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	142	0	33	915	0	72	108	0	79	191	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

2263 Innes Road TIS
3: Glenn Park Drive/Bearbrook Road & Innes Road

2023 Existing Conditions
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	41.0	41.0		41.0	41.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0		41.0	41.0		34.0	34.0		34.0	34.0	
Total Split (%)	54.7%	54.7%		54.7%	54.7%		45.3%	45.3%		45.3%	45.3%	
Maximum Green (s)	35.3	35.3		35.3	35.3		27.8	27.8		27.8	27.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		6.2	6.2		6.2	6.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Ped	Ped		Ped	Ped	
Walk Time (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	10	10		6	6		6	6		12	12	
Act Effct Green (s)	36.1	36.1		36.1	36.1		27.0	27.0		27.0	27.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.36	0.36		0.36	0.36	
v/c Ratio	0.91	0.18		0.06	1.13		0.19	0.17		0.18	0.30	
Control Delay	99.8	10.9		6.9	89.8		18.1	13.3		17.9	5.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	99.8	10.9		6.9	89.8		18.1	13.3		17.9	5.3	
LOS	F	B		A	F		B	B		B	A	
Approach Delay		44.2			86.9			15.2			9.0	
Approach LOS		D			F			B			A	
Queue Length 50th (m)	11.1	10.4		2.3	~157.3		7.2	7.9		7.9	2.0	
Queue Length 95th (m)	#39.3	20.5		m3.1	#233.9		16.5	18.2		17.5	14.9	
Internal Link Dist (m)		324.9			356.4			142.1			459.2	
Turn Bay Length (m)	75.0			55.0			30.0			30.0		
Base Capacity (vph)	93	769		546	809		398	639		446	655	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.91	0.18		0.06	1.13		0.18	0.17		0.18	0.29	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 9.3 (12%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.13
 Intersection Signal Delay: 60.1
 Intersection LOS: E

Intersection Capacity Utilization 109.3% ICU Level of Service H

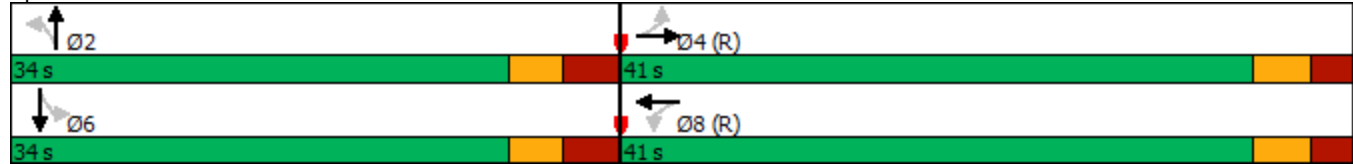
Analysis Period (min) 15

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

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Glenn Park Drive/Bearbrook Road & Innes Road



2263 Innes Road TIS
6: Orient Park Drive & Innes Road

2023 Existing Conditions
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	177	39	10	689	2	119	2	12	4	0	47
Future Volume (vph)	18	177	39	10	689	2	119	2	12	4	0	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		0.0	45.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	1.00			0.98				0.96
Frt		0.973						0.988				0.875
Flt Protected	0.950			0.950				0.957				0.996
Satd. Flow (prot)	1710	1573	0	1710	1698	0	0	1624	0	0	1472	0
Flt Permitted	0.212			0.613				0.709				0.982
Satd. Flow (perm)	379	1573	0	1082	1698	0	0	1184	0	0	1448	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23						7				51
Link Speed (k/h)		50			50			40				40
Link Distance (m)		380.4			447.2			180.6				29.9
Travel Time (s)		27.4			32.2			16.3				2.7
Confl. Peds. (#/hr)	18		16	16		18	11		25	25		11
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
Heavy Vehicles (%)	0%	9%	17%	0%	6%	0%	2%	0%	27%	0%	0%	3%
Adj. Flow (vph)	20	192	42	11	749	2	129	2	13	4	0	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	234	0	11	751	0	0	144	0	0	55	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

2263 Innes Road TIS
6: Orient Park Drive & Innes Road

2023 Existing Conditions
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.8	27.8		27.8	27.8		27.9	27.9		27.9	27.9	
Total Split (s)	47.0	47.0		47.0	47.0		28.0	28.0		28.0	28.0	
Total Split (%)	62.7%	62.7%		62.7%	62.7%		37.3%	37.3%		37.3%	37.3%	
Maximum Green (s)	41.2	41.2		41.2	41.2		22.1	22.1		22.1	22.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Ped	Ped		Ped	Ped	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	14	14		15	15		20	20		10	10	
Act Effect Green (s)	41.3	41.3		41.3	41.3			22.0			22.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55			0.29			0.29	
v/c Ratio	0.10	0.27		0.02	0.80			0.41			0.12	
Control Delay	14.1	13.4		7.8	22.1			24.5			7.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	14.1	13.4		7.8	22.1			24.5			7.7	
LOS	B	B		A	C			C			A	
Approach Delay		13.5			21.9			24.5			7.7	
Approach LOS		B			C			C			A	
Queue Length 50th (m)	1.4	15.1		0.7	83.0			16.2			0.4	
Queue Length 95th (m)	5.2	44.0		2.8	#142.6			32.6			8.3	
Internal Link Dist (m)		356.4			423.2			156.6			5.9	
Turn Bay Length (m)	45.0			45.0								
Base Capacity (vph)	208	876		595	935			353			462	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.10	0.27		0.02	0.80			0.41			0.12	

Intersection Summary

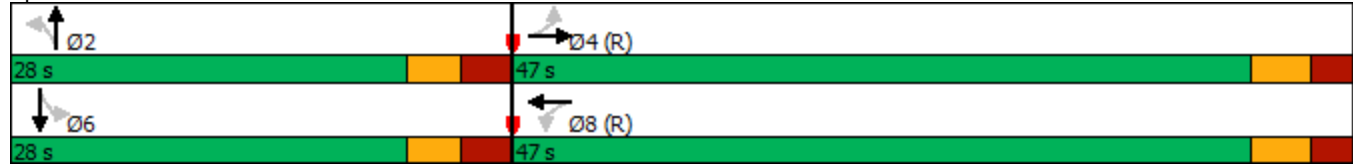
Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	36.9 (49%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	19.8
Intersection LOS:	B

Intersection Capacity Utilization 66.5% ICU Level of Service C

Analysis Period (min) 15

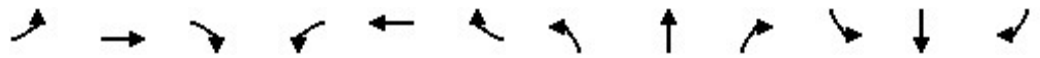
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Orient Park Drive & Innes Road



2263 Innes Road TIS
 3: Glenn Park Drive/Bearbrook Road & Innes Road

2023 Existing Conditions
 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	377	98	34	175	138	52	66	65	240	76	165
Future Volume (vph)	250	377	98	34	175	138	52	66	65	240	76	165
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	55.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99	0.98		0.99	0.98		0.99	0.98	
Frt		0.969			0.934			0.926				0.898
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1693	1668	0	1710	1577	0	1676	1622	0	1693	1577	0
Flt Permitted	0.495			0.319			0.573			0.666		
Satd. Flow (perm)	874	1668	0	566	1577	0	1000	1622	0	1172	1577	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			72			71				179
Link Speed (k/h)		50			50			40				40
Link Distance (m)		348.9			380.4			166.1				483.2
Travel Time (s)		25.1			27.4			14.9				43.5
Confl. Peds. (#/hr)	10		23	23		10	12		12	12		12
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
Heavy Vehicles (%)	1%	4%	1%	0%	8%	1%	2%	0%	2%	1%	0%	0%
Adj. Flow (vph)	272	410	107	37	190	150	57	72	71	261	83	179
Shared Lane Traffic (%)												
Lane Group Flow (vph)	272	517	0	37	340	0	57	143	0	261	262	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6				3.6
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

2263 Innes Road TIS
 3: Glenn Park Drive/Bearbrook Road & Innes Road

2023 Existing Conditions
 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.0	34.0		34.0	34.0	
Total Split (s)	36.0	36.0		36.0	36.0		34.0	34.0		34.0	34.0	
Total Split (%)	51.4%	51.4%		51.4%	51.4%		48.6%	48.6%		48.6%	48.6%	
Maximum Green (s)	30.3	30.3		30.3	30.3		27.8	27.8		27.8	27.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		6.2	6.2		6.2	6.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Ped	Ped		Ped	Ped	
Walk Time (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	10	10		6	6		6	6		12	12	
Act Effct Green (s)	30.9	30.9		30.9	30.9		27.2	27.2		27.2	27.2	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.39	0.39		0.39	0.39	
v/c Ratio	0.70	0.69		0.15	0.46		0.15	0.21		0.57	0.36	
Control Delay	28.6	20.8		10.6	11.3		15.1	8.6		22.9	6.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.6	20.8		10.6	11.3		15.1	8.6		22.9	6.8	
LOS	C	C		B	B		B	A		C	A	
Approach Delay		23.5			11.3			10.5			14.9	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	28.9	51.8		3.6	32.2		5.0	6.2		27.7	7.2	
Queue Length 95th (m)	#67.8	88.5		m5.3	56.1		12.1	16.8		50.2	21.7	
Internal Link Dist (m)		324.9			356.4			142.1			459.2	
Turn Bay Length (m)	75.0			55.0			30.0			30.0		
Base Capacity (vph)	386	750		250	737		397	686		465	734	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.70	0.69		0.15	0.46		0.14	0.21		0.56	0.36	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 9.3 (13%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 17.3

Intersection LOS: B

Intersection Capacity Utilization 92.4% ICU Level of Service F

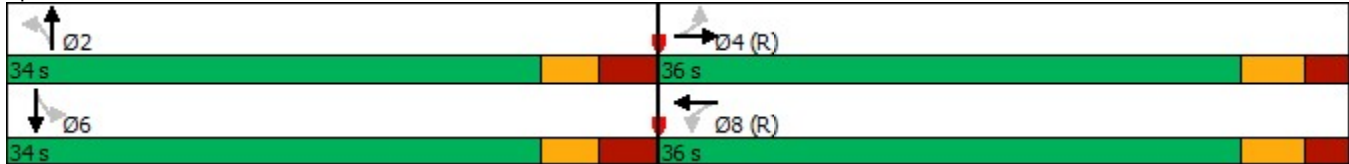
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.




















m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Glenn Park Drive/Bearbrook Road & Innes Road



2263 Innes Road TIS
6: Orient Park Drive & Innes Road

2023 Existing Conditions
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	164	36	9	549	2	102	2	11	4	0	39
Future Volume (vph)	17	164	36	9	549	2	102	2	11	4	0	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		0.0	45.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		0.99	1.00			0.99			0.97	
Frt		0.973			0.999			0.987			0.877	
Flt Protected	0.950			0.950				0.957			0.996	
Satd. Flow (prot)	1710	1695	0	1613	1763	0	0	1677	0	0	1508	0
Flt Permitted	0.305			0.622				0.717			0.980	
Satd. Flow (perm)	547	1695	0	1043	1763	0	0	1247	0	0	1481	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23						8			44	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		380.4			447.2			180.6			29.9	
Travel Time (s)		27.4			32.2			16.3			2.7	
Confl. Peds. (#/hr)	7		11	11		7	6		18	18		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
Heavy Vehicles (%)	0%	3%	1%	6%	2%	0%	1%	0%	0%	17%	0%	0%
Adj. Flow (vph)	18	178	39	10	597	2	111	2	12	4	0	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	217	0	10	599	0	0	125	0	0	46	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

2263 Innes Road TIS
6: Orient Park Drive & Innes Road

2023 Existing Conditions
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.8	27.8		27.8	27.8		27.9	27.9		27.9	27.9	
Total Split (s)	42.0	42.0		42.0	42.0		28.0	28.0		28.0	28.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	36.2	36.2		36.2	36.2		22.1	22.1		22.1	22.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8			5.9			5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Ped	Ped		Ped	Ped	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	10	10		7	7		15	15		6	6	
Act Effct Green (s)	36.3	36.3		36.3	36.3			22.0			22.0	
Actuated g/C Ratio	0.52	0.52		0.52	0.52			0.31			0.31	
v/c Ratio	0.06	0.24		0.02	0.66			0.31			0.09	
Control Delay	8.8	8.7		8.4	16.6			19.8			6.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.8	8.7		8.4	16.6			19.8			6.9	
LOS	A	A		A	B			B			A	
Approach Delay		8.7			16.5			19.8			6.9	
Approach LOS		A			B			B			A	
Queue Length 50th (m)	1.1	12.7		0.6	55.8			12.1			0.2	
Queue Length 95th (m)	m2.0	m21.2		2.7	90.1			25.5			6.8	
Internal Link Dist (m)		356.4			423.2			156.6			5.9	
Turn Bay Length (m)	45.0			45.0								
Base Capacity (vph)	283	890		540	914			399			497	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.06	0.24		0.02	0.66			0.31			0.09	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 31 (44%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

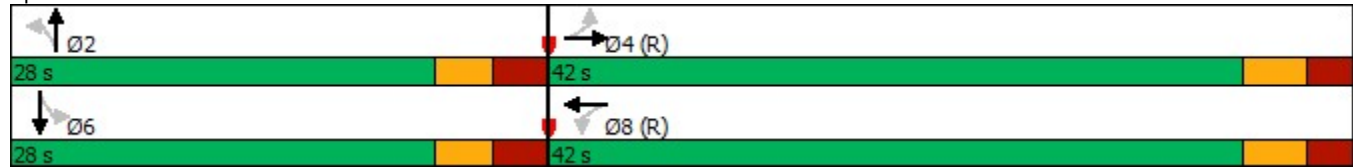
Maximum v/c Ratio: 0.66

Intersection Signal Delay: 14.6

Intersection LOS: B

Intersection Capacity Utilization 58.7% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Orient Park Drive & Innes Road



2263 Innes Road TIS
3: Glenn Park Drive/Bearbrook Road & Innes Road

2023 Existing Conditions - Calibrated
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	115	16	30	440	368	66	73	27	73	19	156
Future Volume (vph)	72	115	16	30	440	368	66	73	27	73	19	156
Ideal Flow (vphpl)	1800	1800	1800	1800	2100	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	55.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98	0.99		0.98	0.99		0.99	0.96	
Frt		0.982			0.932			0.960			0.866	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1660	1585	0	1644	1871	0	1629	1678	0	1676	1480	0
Flt Permitted	0.111			0.666			0.637			0.687		
Satd. Flow (perm)	194	1585	0	1135	1871	0	1075	1678	0	1204	1480	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			80			28			170	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		348.9			380.4			166.1			483.2	
Travel Time (s)		25.1			27.4			14.9			43.5	
Confl. Peds. (#/hr)	6		11	11		6	15		6	6		15
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
Heavy Vehicles (%)	3%	8%	33%	4%	5%	1%	5%	3%	0%	2%	6%	1%
Adj. Flow (vph)	78	125	17	33	478	400	72	79	29	79	21	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	142	0	33	878	0	72	108	0	79	191	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	0.88	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

2263 Innes Road TIS
 3: Glenn Park Drive/Bearbrook Road & Innes Road

2023 Existing Conditions - Calibrated
 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	41.0	41.0		41.0	41.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0		41.0	41.0		34.0	34.0		34.0	34.0	
Total Split (%)	54.7%	54.7%		54.7%	54.7%		45.3%	45.3%		45.3%	45.3%	
Maximum Green (s)	35.3	35.3		35.3	35.3		27.8	27.8		27.8	27.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	-2.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	3.7		6.2	6.2		6.2	6.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Ped	Ped		Ped	Ped	
Walk Time (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	10	10		6	6		6	6		12	12	
Act Effct Green (s)	36.1	36.1		36.1	38.1		27.0	27.0		27.0	27.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.51		0.36	0.36		0.36	0.36	
v/c Ratio	0.84	0.18		0.06	0.89		0.19	0.17		0.18	0.30	
Control Delay	83.0	10.9		6.8	23.8		18.1	13.3		17.9	5.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	83.0	10.9		6.8	23.8		18.1	13.3		17.9	5.3	
LOS	F	B		A	C		B	B		B	A	
Approach Delay		36.5			23.2			15.2			9.0	
Approach LOS		D			C			B			A	
Queue Length 50th (m)	9.6	10.4		2.2	121.7		7.2	7.9		7.9	2.0	
Queue Length 95th (m)	#36.1	20.5		m3.0m#	186.1		16.5	18.2		17.5	14.9	
Internal Link Dist (m)		324.9			356.4			142.1			459.2	
Turn Bay Length (m)	75.0			55.0			30.0			30.0		
Base Capacity (vph)	93	769		546	989		398	639		446	655	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.84	0.18		0.06	0.89		0.18	0.17		0.18	0.29	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 9.3 (12%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 21.7

Intersection LOS: C

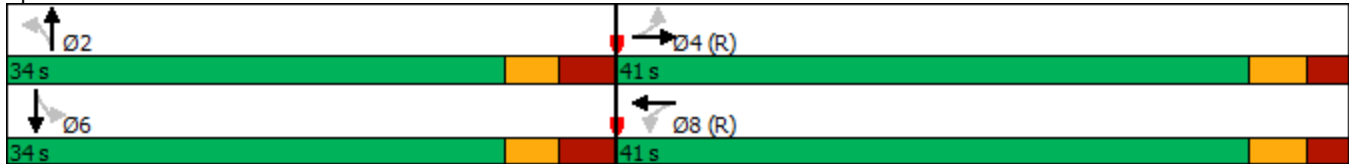
Intersection Capacity Utilization 99.2% ICU Level of Service F

Analysis Period (min) 15

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Glenn Park Drive/Bearbrook Road & Innes Road



2263 Innes Road TIS
6: Orient Park Drive & Innes Road

2023 Existing Conditions - Calibrated
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	177	39	10	689	2	119	2	12	4	0	47
Future Volume (vph)	18	177	39	10	689	2	119	2	12	4	0	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		0.0	45.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	1.00			0.98				0.96
Frt		0.973						0.988				0.875
Flt Protected	0.950			0.950				0.957				0.996
Satd. Flow (prot)	1710	1573	0	1710	1698	0	0	1624	0	0	1472	0
Flt Permitted	0.212			0.613				0.709				0.982
Satd. Flow (perm)	379	1573	0	1082	1698	0	0	1184	0	0	1448	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23						7				51
Link Speed (k/h)		50			50			40				40
Link Distance (m)		380.4			447.2			180.6				29.9
Travel Time (s)		27.4			32.2			16.3				2.7
Confl. Peds. (#/hr)	18		16	16		18	11		25	25		11
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
Heavy Vehicles (%)	0%	9%	17%	0%	6%	0%	2%	0%	27%	0%	0%	3%
Adj. Flow (vph)	20	192	42	11	749	2	129	2	13	4	0	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	234	0	11	751	0	0	144	0	0	55	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

2263 Innes Road TIS
6: Orient Park Drive & Innes Road

2023 Existing Conditions - Calibrated
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.8	27.8		27.8	27.8		27.9	27.9		27.9	27.9	
Total Split (s)	47.0	47.0		47.0	47.0		28.0	28.0		28.0	28.0	
Total Split (%)	62.7%	62.7%		62.7%	62.7%		37.3%	37.3%		37.3%	37.3%	
Maximum Green (s)	41.2	41.2		41.2	41.2		22.1	22.1		22.1	22.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Ped	Ped		Ped	Ped	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	14	14		15	15		20	20		10	10	
Act Effect Green (s)	41.3	41.3		41.3	41.3		22.0	22.0		22.0	22.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.29	0.29		0.29	0.29	
v/c Ratio	0.10	0.27		0.02	0.80		0.41	0.41		0.41	0.12	
Control Delay	14.1	13.4		7.8	22.1		24.5	24.5		24.5	7.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.1	13.4		7.8	22.1		24.5	24.5		24.5	7.7	
LOS	B	B		A	C		C	C		C	A	
Approach Delay		13.5			21.9		24.5	24.5		24.5	7.7	
Approach LOS		B			C		C	C		C	A	
Queue Length 50th (m)	1.4	15.1		0.7	83.0		16.2	16.2		16.2	0.4	
Queue Length 95th (m)	5.2	44.0		2.8	#142.6		32.6	32.6		32.6	8.3	
Internal Link Dist (m)		356.4			423.2		156.6	156.6		156.6	5.9	
Turn Bay Length (m)	45.0			45.0								
Base Capacity (vph)	208	876		595	935		353	353		353	462	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.27		0.02	0.80		0.41	0.41		0.41	0.12	

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	36.9 (49%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	19.8
Intersection LOS:	B

Intersection Capacity Utilization 66.5% ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 6: Orient Park Drive & Innes Road

