CEPEO

BARRHAVEN-SUD ELEMENTARY SCHOOL TRANSPORTATION IMPACT ASSESSMENT

FORECASTING REPORT

MARCH 17, 2022

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CEPEO

SCOPING REPORT
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PROJECT NO.: OUR REF. NO. 219-00014-01
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1 SCREENING

This Transportation Impact Assessment (TIA) has been prepared to support the Site Plan Control application for the development at located at the southwest corner of Kilbirnie Drive and Robin Easey Avenue (municipally addressed as 1045 Kilbirnie Drive in Ottawa. The TIA follows the City of Ottawa (the City) TIA Guidelines (2017) which potentially includes five steps:

1 Screening
2 Scoping
3 Forecasting
4 Analysis
5 TIA Submission

The Screening Step determines the need to continue with a Transportation Impact Assessment (TIA) Study. The development is assessed against three triggers: trip generation, location, and safety to identify the next step of the study. If one or more of the triggers is satisfied, the Scoping Step must be completed. If none of the triggers are satisfied, the TIA is deemed complete. If one or more triggers are satisfied, specific TIA components are required to be carried out depending on the combination of triggers (**Table 1-1**) that have been satisfied.

The proposed development at 1045 Kilbirnie Drive **satisfied the Trip Generation trigger** indicating that, as part of Steps Two through Five of the TIA process, the Design Review and Network Impact components should be completed. For reference, the completed Screening Form is provided in **Appendix A**.

Table 1-1. Transportation Impact Assessment (TIA) Screening Triggers

	TIA TRIGGERS SATISFIED		
Next Step of the TIA Process	**Trip Generation**	**Location**	**Safety**
Design Review and Network Impact	**Yes**	**No**	**No**

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2 SCOPING

2.1 SCREENING FORM

The completed Screening Form is provided in **Appendix A**.

2.2 DESCRIPTION OF PROPOSED DEVELOPMENT

The Conseil des écoles publiques de l'Est Ontario (CEPEO) is planning to construct a new elementary school located in the developing Quinn's Pint neighbourhood in Barrhaven-Sud, Ottawa. The proposed development site, located at 1045 Kilbirnie Drive, is currently vacant and undeveloped with a site area of approximately 2.43 ha (24.316 m^2). Residential uses have been approved and developments are occurring on land to the north, south and east of the subject site, while land to the west is yet to be developed. The subject site is bounded by local roads Robin Easey Avenue and Kilbirnie Drive to the east and to the north respectively, and zoned as Minor Institutional Zone, Sub-zone A (I1A) and Residential Third Density Zone, Subzone YY (R3YY). As per the I1A zone, a school and a daycare are permitted uses.

The proposed development will include a building, with a Gross Floor Area (GFA) of approximately 5,455 m^2, providing capacity for 800 students and consisting of one (1) library, one (1) gymnasium, one (1) multi-purpose room, 12 portable classrooms, and 20 classrooms among which five (5) classrooms will be for daycare use. The most up-to-date draft site plan (December 1, 2021) is attached as **Appendix B.** The proposed vehicle accesses include: a passenger vehicle access from Robin Easey Avenue to the 61-space surface parking lot, an access laneway off Kilbirnie Drive for delivery vehicles, and school bus laybys on the south side of Kilbirnie Drive and west side of Robin Easey Avenue. Forty-eight parking spaces will be provided for bicycles within the subject site. **Figure 2-1** illustrates the Study Area Context.

The development will be built as a single phase with an estimated date of completion in 2023.

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Figure 2-1. Site Area Context

2.3 EXISTING CONDITIONS

2.3.1 ROADWAYS

The existing roadways in proximity to the subject development site that will be considered in the TIA are all city-owned roadways and include those listed below. The road classifications for City of Ottawa roadways are defined in the City of Ottawa Official Plan, 2013, Volume 1, Section 7, Annex 1 Road Classifications and Rights-of-Way.

Greenbank Road is a north-south roadway classified as Arterial north of Barnsdale Road, with a posted speed limit of 60 km/h. North of Kilbirnie Drive, Greenbank has been constructed as an undivided two-lane urban arterial road, while south of Kilbirnie Drive, it remains with a rural arterial road cross-section with no sidewalk and paved shoulders on both sides.

Kilbirnie Drive in the close vicinity of the subject development site currently runs on an east-west alignment from west of Cedardown Private and terminates at Alex Polowin Avenue. It is designated as a Local Road per the City of

Ottawa Transportation Master Plan (2013), while the Barrhaven South Community Development Plan shows it is classified as a Collector Road. Kilbirnie Drive is an undivided roadway with a 22.0m road right-of-way featuring an urban collector road cross-section with monolithic sidewalks on both sides. Residential driveways front onto the roadway. The speed limit is unposted but assumed to be 50 km/h.

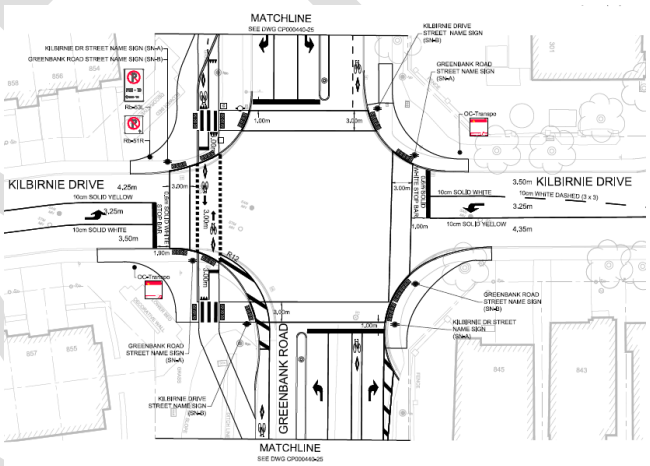
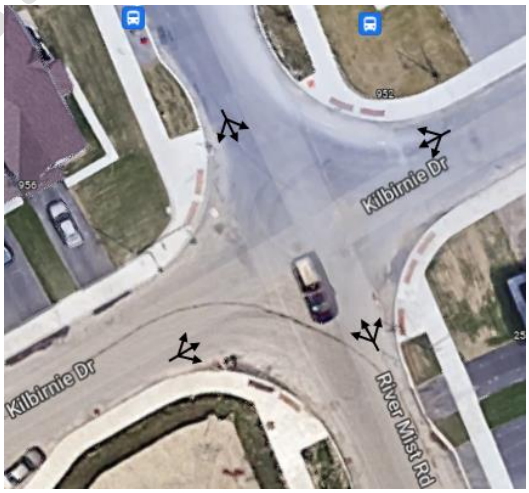
Alex Polowin Avenue is a Local Road with 18.0m right-of-way running on a north-south alignment with sidewalks on both sides.

Robin Easey Avenue is a Local Road with 18.0m right-of-way running along the east frontage of the subject development site on a north-south alignment. The subject development will have a driveway and a layby area on the west side of Robin Easey Avenue

2.3.2 INTERSECTIONS

There are three existing intersections adjacent to the development site along Kilbirnie Drive as described in Table 2-1.

Table 2-1. Description of Study Area Intersections

INTERSECTION (DESCRIPTION)	LANE CONFIGURATION
Kilbirnie Drive and Greenbank Road [1] - Signalized intersection - One left turn lane, one through lane and one right turn lane in the southbound and northbound directions - One left-turn lane and one shared through/right-turn lane in both the eastbound and westbound directions - Crosswalks on all approaches - Bidirectional crossride on the west leg	
Kilbirnie Drive and River Mist Road - All-way stop controlled intersection - Two-way traffic on all four approaches with no centre-line markings - No crosswalk on any of the four approaches	

INTERSECTION (DESCRIPTION)	LANE CONFIGURATION
Kilbirnie Drive and Alex Polowin Avenue - All-way stop controlled intersection - Two-way traffic on all four approaches with no centre-line markings - No crosswalk on any of the four approaches	

1. *Intersection modifications at Greenbank Road and Kilbirnie Drive started in November 2020 and completed in summer 2021 per the information from the City of Ottawa's website. The new intersection configuration illustrated above is from Appendix F, 2535 River Mist Road TIA (March 2021) prepared by Novatech. Google Streetview is yet to be updated.*

2.3.3 DRIVEWAYS

Based on Google Streetview and Property Parcels layer from GeoOttawa, the existing and approved driveways within 200m from the subject development site include the following:

- Approximately 40 residential driveways fronting onto the north side of Kilbirnie Drive
- 17 residential driveways fronting onto the east side of Alex Polowin Avenue
- Approximately 31 residential driveways on both sides of Robin Easey Avenue

There are other residential driveways on the local roads (i.e. Galmoy Way, Teelin Circle) within a 200m vicinity of the development site. Those driveways are not anticipated to be directly affected by the proposed school development.

2.3.4 PEDESTRIAN AND CYCLING FACILITIES

Greenbank Road north of Kilbirnie Drive has a multi-use-pathway (MUP) on the west side and a boulevard sidewalk on the east side, except for a section of approximately 100m south of Dundonald Drive where there is no buffer between the travel lane and sidewalk. Collector roads in proximity of the subject development site, including Kilbirnie Drive and River Mist Road, have sidewalks on both sides. The local roads within 200m area from the subject site has either sidewalk on one side (i.e. Alex Polowin Avenue) or does not have a sidewalk.

Greenbank Road is identified as a Spine Cycling Route north of Barnsdale Road, and currently has an on-road curbside bike lane on the east side for northbound cyclists.

2.3.5 TRANSIT FACILITIES

OC Transpo Route 75 and Route 675 provides transit services along Kilbirnie Drive and River Mist Road.

- Route 75 is a Rapid Route running between Barrhaven Centre and Tunney's Pasture Station. Route 75 operates seven days a week with a 15-minute frequency during weekday peak hours and 30-minute frequency during weekday off-peak hours and on weekends.
- Route 675 is a school route traveling between Minto Recreation Complex in Barrhaven South and Bell High School. Route 675 only operates twice per weekday starting from the terminal stations in the morning and afternoon respectively. No service is provided by Route 675 on weekends.

Bus stops closest to the subject development sites are Bus Stop #2807 and Bus Stop #2808 located at the northwest and northeast corners of Kilbirnie Drive and River Mist Road intersection respectively. Bus Stop #2809 and Bus

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Stop #2810 located at the intersection of Kilbirnie Drive and Breakstone Road are also with 400m walking distance from the development site.

Figure 2-2 highlights the OC Transpo bus routes on adjacent roadways in proximity of the proposed development.

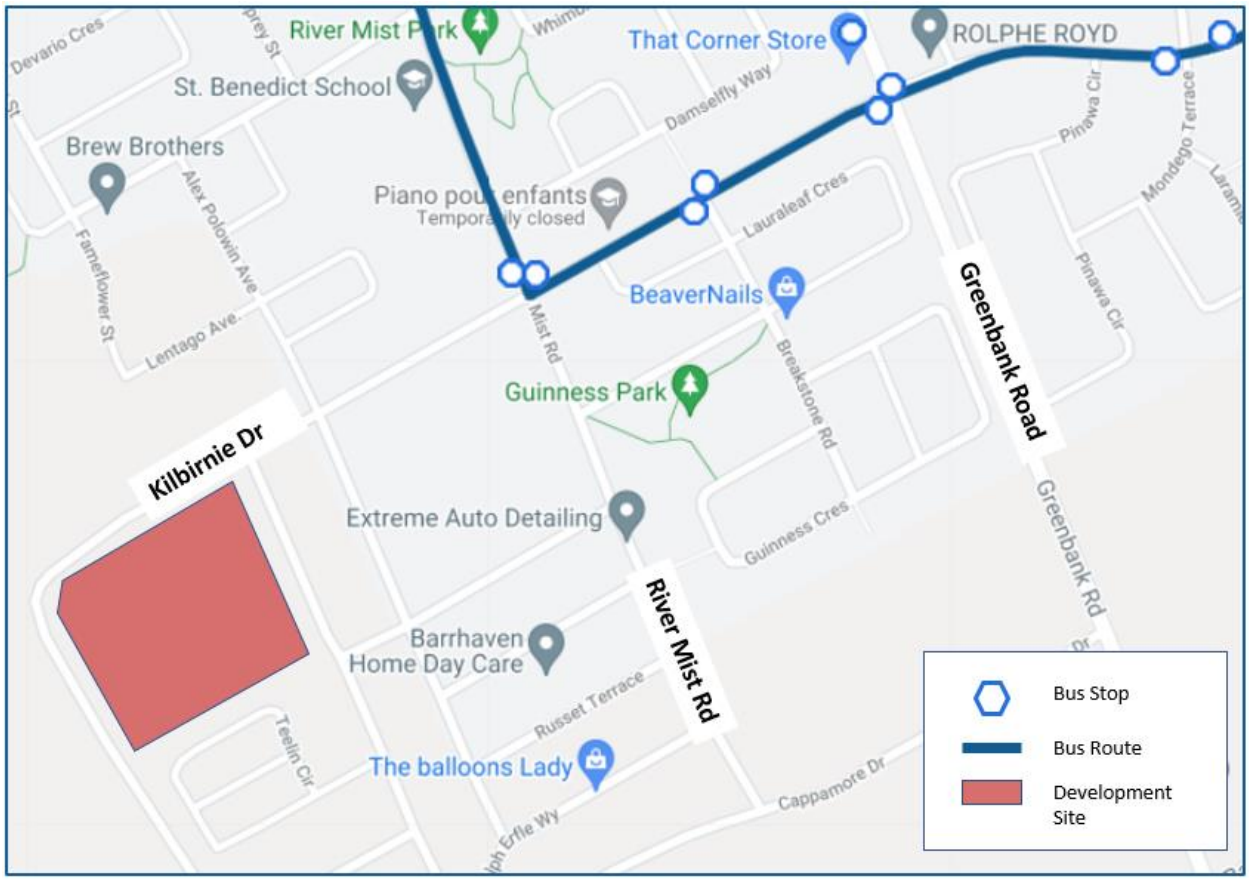

Figure 2-2: OC Transpo Bus Routes (Source: OC Transpo Network Map)

2.3.6 AREA TRAFFIC MANAGEMENT MEASURES

The subject development site is within a developing neighbourhood with limited existing traffic management measures implemented. The existing area traffic management measures identified adjacent to the proposed development site include:

- School Zone designation along the segment of River Mist Road in the vicinity of St. Benedict School
- Curb extension on the north, south and west approaches of the Kilbirnie Drive and River Mist Road intersection

2.3.7 PEAK HOUR TRAVEL DEMANDS

The TRANS Committee was established to co-ordinate transportation planning efforts among various planning agencies located within the National Capital Region. The proposed development is located in South Nepean, corresponding to the TRANS District 425. The complete TRANS O-D results (including a map of the district area) is provided in **Appendix C**. The most recent Origin-Destination (O-D) survey was completed by TRANS in the Fall of 2011. The TRANS trip data for South Nepean is summarized in **Table 2-2.**

Table 2-2. Peak Hour Trips by Primary Travel Mode – TRANS District 425 South Nepean

TRAVEL MODE	AM PEAK PERIOD (6:30 A.M. – 8:59 A.M.)			PM PEAK PERIOD (3:30 P.M. – 5:59 P.M.)		
	FROM DISTRICT	TO DISTRICT	WITHIN DISTRICT	FROM DISTRICT	TO DISTRICT	WITHIN DISTRICT
Auto-Driver	60%	71%	34%	72%	65%	46%
Auto-Passenger	19%	13%	19%	21%	11%	21%
Transit	27%	5%	4%	4%	24%	4%
Bicycle	0%	1%	2%	1%	0%	1%
Walk	0%	0%	17%	0%	0%	20%
Other	4%	10%	24%	1%	2%	9%
Total Vehicles	**24,140**	**6,120**	**17,260**	**8,130**	**23,580**	**18,420**

Source: TRANS 2011 O-D Survey Report, District 425 - South Nepean

Based on the Trans 2011 O-D Survey, the majority of the population use personal vehicles as their main source of transport to and from the district. During both AM and PM peak hour periods, auto-driver and auto-passenger modes account for between 76% to 93% of the total vehicles that are travelling to and from the South Nepean district. The remaining 7% to 24% are split between transit, bicycle, walk, or other modes of transportation.

Within the district, travel modes are more diversified. People tend to less rely on auto modes for travelling and would choose other modes especially by walking and other modes.

The existing peak hour turning movement volumes at the Greenbank Road and Kilbirnie intersection are presented in Figure 2-3. The traffic counts were collected by the City of Ottawa on March 3, 2020; the AM and PM peak hours from this count at 7:45-8:45 AM and 4:45-5:45 PM.

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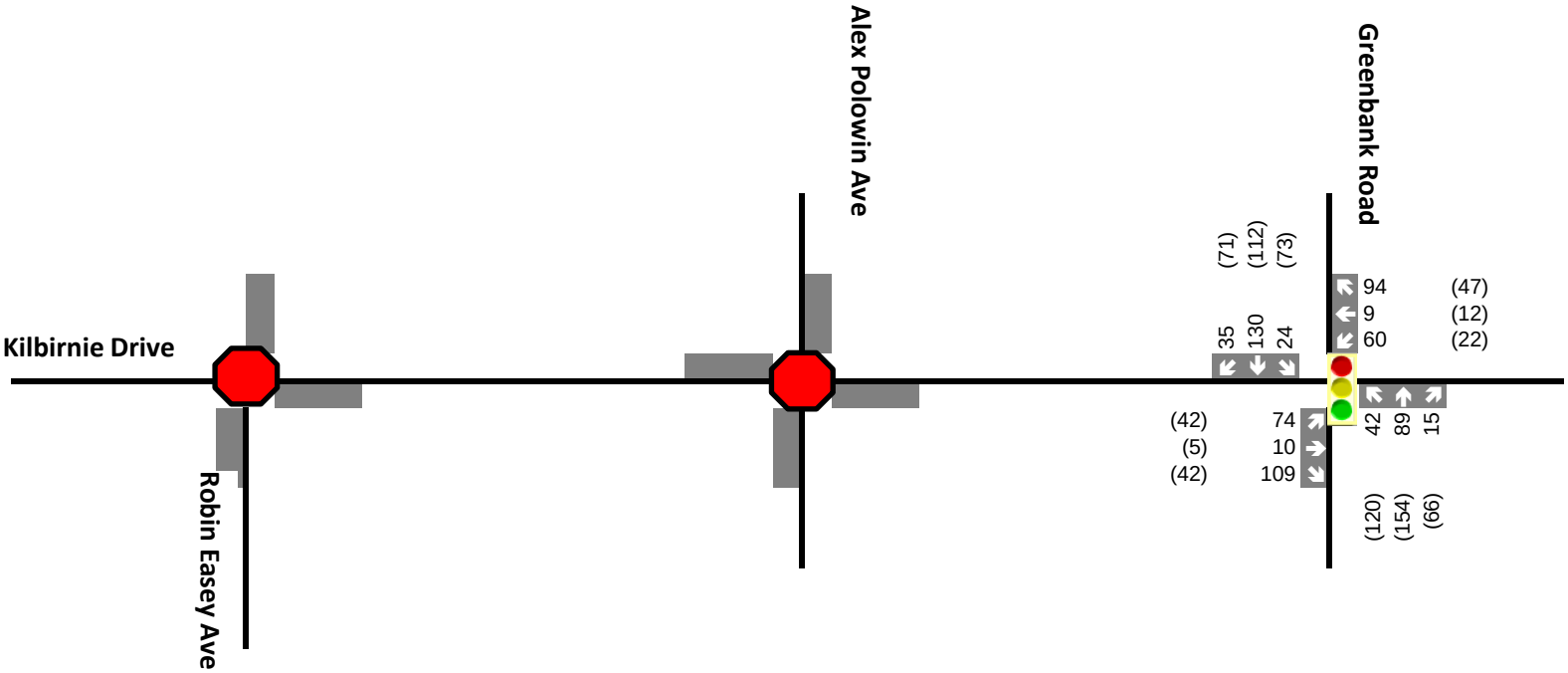

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xx A.M. Peak Hour Traffic Volumes

(xx) P.M. Peak Hour Traffic Volumes

Figure 2-3

Existing Traffic (2020)

2.3.8 FIVE-YEAR COLLISION HISTORY

The boundary road for the proposed development is Kilbirnie Drive between Greenbank Road and Robin Easey Avenue. The latest past five years (January 1, 2015 through December 31, 2019) collision history available on the City of Ottawa Open Data website were reviewed, which provides yearly total collisions by location. Table 2-3 summarizes the five-year collision history on the boundary road.

More detailed five-year collision data will be required to identify if any collision pattern and/or safety concern exists. A more thorough collision review will be conducted upon the request from the City.

Table 2-3. Five-Year Collision History Summary (2015-2019)

Location		Pedestrian Collisions	Cyclist Collisions	Total Collisions by Year				
				2015	2016	2017	2018	2019
Segment:	Kilbirnie Drive [Greenbank Road - Breakstone Road]	0	0	0	1	1	0	1
Intersection:	Greenbank Road @ Kilbirnie Drive	0	0	0	1	1	1	3
Five-year Total Collisions				9				

2.4 PLANNED CONDITIONS

2.4.1 CHANGES TO THE STUDY AREA TRANSPORTATION NETWORK

The City of Ottawa Official Plan, Transportation Master Plan (TMP) (2013), and Barrhaven South Community Design Plan were reviewed to identify potential future roadway upgrades in the vicinity of the subject development site.

Greenbank Road will be widened to a four-lane cross-section between Cambrian Road and Jockvale Road to accommodate growth within South Nepean as identified in the City of Ottawa Transportation Master Plan (2013). South of Cambrian Road, Greenbank Road will be realigned to run north-south to the west of the subject development site. The Greenbank Realignment and Southwest Transitway Extension project is underway. Per the updated functional design released by the City in summer 2021, a new Park and Ride facility is planned to be located on the south side of Kilbirnie Avenue, west of the future realigned Greenbank Road. The new Greenbank Road alignment from St Joseph's High School to Barnsdale Road will have four lanes and two median bus rapid transit lanes with the bus lanes ending at the new Park and Ride facility. The construction is planned to start in 2030 or later based on budget availability.

Kilbirnie Drive will be extended westwards to connect to the realigned Greenbank Road as part of the Quinn's Pointe Phase 2 Subdivision.

There are no other major changes expected to the study area transportation network.

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2.4.2 OTHER STUDY AREA DEVELOPMENTS

Two developments are noted in the City of Ottawa's Development Application Search tool developments that are likely to occur within the proposed horizon years of the subject development and could have direct influences on the study area are noted below:

- 989 Kilbirnie Drive (App# D07-12-20-0181): A Site Plan Control application for a two-storey elementary school and daycare with a GFA of 6,500 m2 and 121 parking spaces. The build-out horizon is anticipated to be in 2022. The supporting TIA (March 2021) was prepared by Novatech.
- 3718 Greenbank Road (App# D07-16-21-0024): A Zoning By-law Amendment and Plan of Subdivision application for residential development consisting of a mix of 228 stacked townhouse units. The anticipated full build-out and occupancy horizon is 2024. The supporting TIA (June 2021) was prepared by CGH Transportation Inc.
- 3960 Greenbank Road – Quinn's Pointe Phase 2: A TIA dated October 2018 was prepared by Stantec in support of this application. Based on the TIA the development will contain 536 single detached houses, 493 townhouses, 100 apartment units, and two elementary schools with a combined 59,000ft2 GFA.

2.5 STUDY AREA AND TIME PERIOD

The limits for the Transportation Impact Assessment (TIA) study area and study intersections are shown in **Figure 2-4**. The boundary roads Kilbirnie Drive and Robin Easey Avenue will be reviewed. Three intersections along Kilbirnie Drive at Robin Easey Avenue, Alex Polowin Avenue and Greenbank Road will be assessed.

Figure 2-4: Study Area

It is noted that the afternoon peak of elementary schools is usually earlier than the regular PM peak hour of the roadway network, therefore the impact of school will be mainly reflected during the morning peak which generally aligns with the regular AM peak. The study time periods identified for the traffic analysis are weekday AM and PM

peak hours as these represent the time periods with the highest traffic volumes that would govern the design of study area roadways and intersections.

These periods will be consistent with the AM and PM peak hours identified in the latest turning movement counts that were collected at the Kilbirnie Drive and River Mist Road intersection on October 25, 2018, and at the Kilbirnie Drive and Greenbank Road intersection on March 3, 2020.

The peak periods will be checked against more recent turning movement counts if any is available from the City.

2.6 HORIZON YEARS

The proposed facility is expected to be completed in one phase with a target build-out year of 2023. In accordance with the City of Ottawa TIA Guidelines (2017), the following horizons will be considered for analysis.

- 2023, which represents the anticipated buildout horizon,
- 2028, which represents the buildout year plus five years.

2.7 EXEMPTIONS REVIEW

Based on the review of the development and network conditions, the following elements shown in **Table 2-4** qualify for an exemption from this Transportation Impact Assessment.

Table 2-4. Exemptions Summary

MODULE	ELEMENT	EXEMPTIONS
DESIGN REVIEW COMPONENT		
4.1 Development Design	4.1.2 Circulation and Access	**Not Exempted.** This element is only required for site plans.
	4.1.3 New Street Networks	**Exempted** This element is only required for plans of subdivision.
4.2 Parking	4.2.1 Parking Supply	**Not Exempted.** This element is required for site plans.
	4.2.2 Spillover Parking	**Exempted** This element is only required for site plans where parking supply is 15% below unconstrained demand.
NETWORK IMPACT COMPONENT		
4.5 Transportation Demand Management	All Elements	**Not Exempted** Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time.
4.6 Neighborhood Traffic Management	4.6.1 Adjacent Neighbourhoods	**Exempted** Required when the development relies on local or collector access and total volumes exceed ATM capacity threshold.
4.8 Network Concept		**Exempted** Required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by established zoning.

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Based on the above, the TIA report will include the following modules:

- Module 4.1: Development Design
- Module 4.2: Parking
- Module 4.3: Boundary Streets
- Module 4.4: Access Design
- Module 4.5: Transportation Demand Management
- Module 4.6: Neighbourhood Traffic Management
- Module 4.7: Transit
- Module 4.9: Intersection Design

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3 FORECASTING

3.1 DEVELOPMENT GENERATED TRAFFIC

3.1.1 TRIP GENERATION

The proposed development consists of two primary trip generator land uses which are elementary school and daycare services. Trips generated by the elementary school and daycare service have been estimated based on the most up-to-date information provided by the school board. The elementary school is anticipated to provide capacity for 751 students, while the daycare service will provide capacity for 49 children. A total of 51 staff, including teachers, custodians, and office staff, are expected to work for the school and daycare. There is a plan for future addition to the school providing extra capacity for 200 students, but this addition was not included in this TIA study as it is not part of the current Site Plan Application and no timeline has been defined.

CEPEO has indicated that operation hours of the elementary school will be from 7:30 AM to 4:00 PM, and the daycare will operate between 6:00 AM to 5:00 PM. The start and end time of the school and daycare service generally align with the peak hours of the adjacent street traffic.

SCHOOL PERSON TRIP GENERATION (STUDENTS)

Trip generation for the student population at the proposed school has been developed using first principles analysis based on information provided by CEPEO. The 2020 TRANS Trip Generation Manual does include mode share assumptions for elementary and high schools but recommends that mode shares be developed on a site-specific basis if additional information is available from the school or school board. Information from CEPEO indicates that approximately 85% of the student population is anticipated to arrive by school bus, with the remainder by other modes. These remaining trips have been split as 10% by auto and 5% by active transportation modes, recognizing a portion of the student population will be within walking distance of the school.

SCHOOL PERSON TRIP GENERATION (STAFF)

Staff trip generation to the proposed school is based on the anticipated 51 staff. The Mode share for these trips has been based on the Employment Generator Mode Shares from the 2020 TRANS Trip Generation Manual for the South Nepean District.

DAYCARE PERSON TRIP GENERATION

Daycare person Trip Generation is based on the capacity of 49 children provided by CEPEO. A 100% auto passenger mode share has been adopted for daycare children, assuming that all children will be dropped off by parents.

TOTAL PERSON TRIP GENERATION AND MODE SHARE

Table 3-1 provides a summary of the person trip generation for all of the uses on the site.

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Table 3-1: Proposed School Site Person Trip Generation and Mode Share

	AUTO DRIVER	AUTO PASSENGER	SCHOOL BUS	PUBLIC TRANSIT	WALKING & CYCLING
	Mode Shares				
School Students	0%	10%	85%	0%	5%
Staff	80%	10%	0%	5%	5%
Daycare Children	0%	100%	0%	0%	0%
	Person Trips				
School Students	0	75	638	0	38
Staff	41	5	0	3	3
Daycare Children	0	49	0	0	0
TOTAL PERSON TRIPS	**41**	**129**	**638**	**3**	**41**

CONVERSION TO VEHICLE TRIPS

The person trip generation above represents the student and staff trip generation in terms of arrivals to the school site in the morning and departures in the afternoon but do no reflect the vehicle volumes added to the surrounding road network. The conversion of the person trips to vehicle trips is based on the following:

- Auto passenger trips for student and daycare drop-offs represent one auto arrival and one auto departure from the site during the AM and PM peak hours. Vehicle trips were calculated from the auto passenger person trips assuming a vehicle occupancy of 1.2, reflecting some families who will drop off multiple children in one trip.
- Auto driver trips by staff represent one vehicle arrival in the morning and one departure in the afternoon. Staff auto trips have been calculated based on a vehicle occupancy of 1.0. No additional vehicle trips have been added to reflect staff auto passenger trips as it is anticipated these will be combined with staff auto driver arrivals (carpooling).
- School bus capacity ranges from 48-72 students based on 2-3 students per seat. School bus volumes have been estimated based on an average of 60 students per bus.

PEAK HOUR DISTRIBUTION

The person trip generation above is based on total trips made by the students and staff to and from the site. CEPEO has indicated that operation hours of the elementary school will be from 7:30 AM to 4:00 PM, and the daycare will operate between 6:00 AM to 5:00 PM. It is anticipated that the school hours provided represent before and after care in addition to classes; most CEPEO schools in Ottawa operate with morning and afternoon bell times at approximately 8:30-9:00 AM and 3:00 PM. While school student arrivals will be concentrated just before and after the opening and closing bells, trips by staff, before and after care students and daycare children may be more distributed. Given the commuter peak hours of 7:45-8:45 AM and 4:45-5:45 PM from the provided traffic count, the

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proportions of the site generated vehicle trips falling within the commuter peak hours have been estimated based on the following:

- 80% of auto trips arriving during the AM peak hour, reflecting a portion of the staff arrivals, before school care and daycare drop-offs that arrive earlier in the morning.
- 50% of auto trips departing the school during the PM peak hour, reflecting a wider distribution of parent pickup between the end of the school day and end of daycare and after school programs and a wider distribution in staff departure times at the end of the day.
- 100% of school bus arrivals during the AM peak hour, corresponding with a concentration in drop-offs just before the morning bell.
- 0% of bus departures during the PM peak hour, reflecting that bus departures will occur at the end of the school day before the commuter PM peak hour.

DAYCARE DIVERTED TRIP ESTIMATION

In many cases, school and daycare drop-offs by parents will be planned as part of a parent's commute; these diverted trips will be reflected in the background traffic volumes on the road network but will divert to the school before continuing on their original path. The Trip Generation Manual 3rd Edition indicates an average diverted trip proportion of 56% specific to daycare centres; this proportion has been applied as diverted trips in the site generated traffic. The same handbook does not indicate a diverted trip proportion for the elementary school land use; to be conservative, this analysis is based on all auto trips generated by the school to be primary trips added to the road network.

TOTAL VEHICLE TRIPS

The total peak hour vehicle trips generated by the proposed school are summarized in Table 3-2.

Table 3-2: Total Site Vehicle Trip Generation

	AM PEAK HOUR		PM PEAK HOUR	
	IN	OUT	IN	OUT
Auto Trips	115	83	52	72
School Buses	11	11	0	0
Diverted Auto Trips (included in total above)	18	18	11	11

3.1.2 TRIP DISTRIBUTION

The overall trip distribution of the site generated trips has been adopted from existing traffic patterns and the TIA for 989 Kilbirnie Drive prepared by Novatech. While the catchment of the proposed school was not provided, the prominence of students on school buses suggests that the catchment area will extend beyond the local neighbourhood, and thus trip distribution based on overall commuter patterns is an appropriate estimate. The provided traffic volumes indicate that traffic is fairly evenly balanced to the north and south but slightly greater to and from the south during weekday peak hours. While this appears counterintuitive based on the surrounding land uses and the urban centre of Ottawa to the north, this may be influenced by the closest interchange to Highway 416 being accessed from Bankfield Road to the south. Based on the surrounding road network configuration and existing traffic patterns, the overall distribution has been assigned to the network as follows:

- Inbound / Outbound Trip Distribution (2023)
    - 5% to/from Kilbirnie Drive to the west (when available 2028, via Robin Easey Avenue to/from the south in 2023).
    - 10% to/from Kilbirnie Drive to the east
    - 45% to/from the south via Greenbank Road
    - 40% to/from the north via Greenbank Road
- Site Access Distribution
    - The proposed site plan includes school bus loading bays on both the west side of Robin Easey Avenue and south side of Kilbirnie Drive. School buses have been assigned to the network with 50% serving each of the bus bay areas. Southbound buses have been assigned to return to Kilbirnie Drive on departure by going around the block to Alex Polowin Avenue.
    - Student drop off by parents will be possible using the pickup and drop-off areas on Robin Easey Avenue and within the school parking lot. As school traffic may create difficulty in vehicles returning north to Kilbirnie Drive after pickup or drop-off, 25% of the outbound traffic has also been assigned to go around the block and return to Kilbirnie Drive via Alex Polowin Avenue.
    - Diverted trips have been assumed to originate from existing traffic volumes along Greenbank Road.

Figure 3-1 shows the development generated trips assigned to the study intersections.

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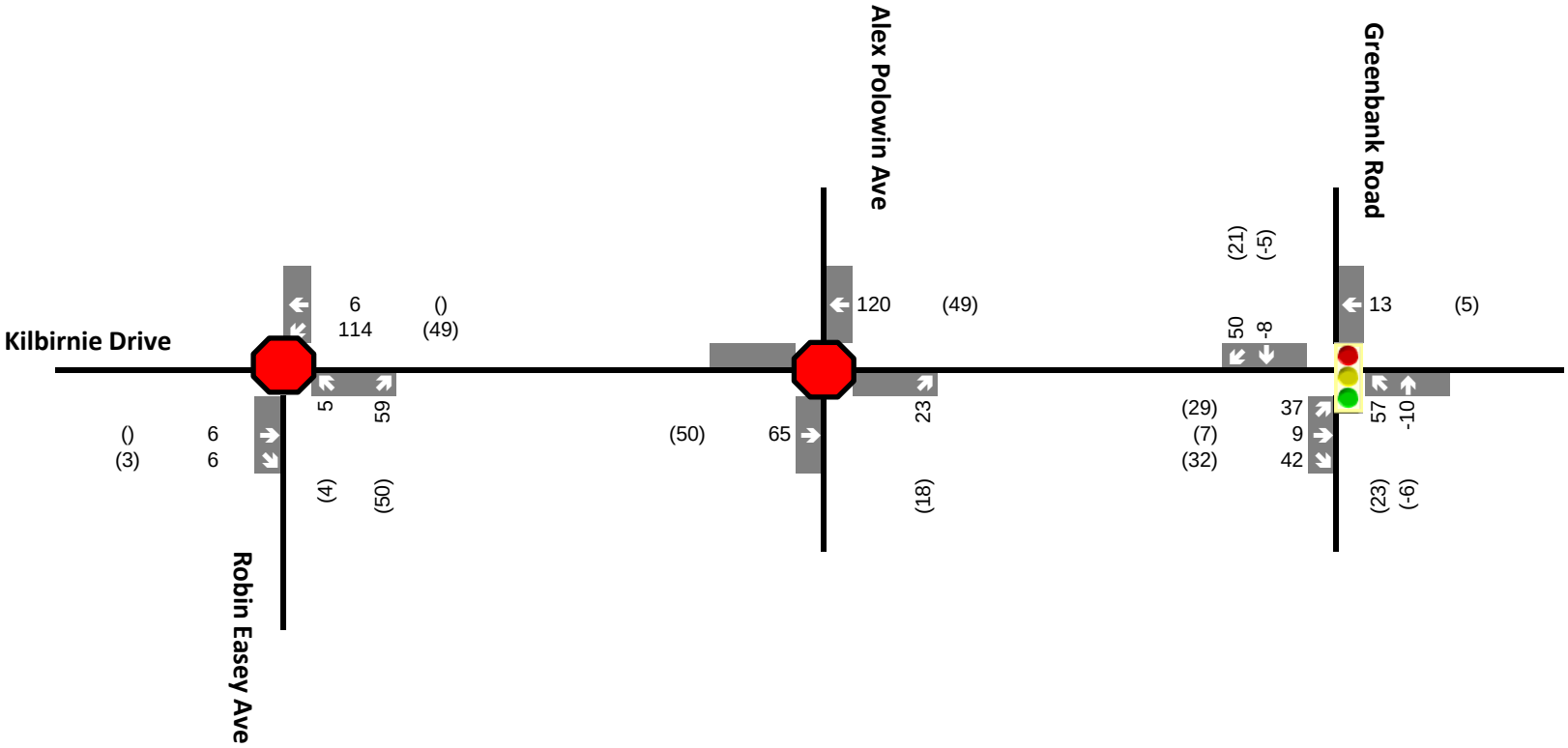

Legend

xx A.M. Peak Hour Traffic Volumes

(xx) P.M. Peak Hour Traffic Volumes

Figure 3-1

Development Generated Trips

3.2 BACKGROUND NETWORK TRAFFIC

3.2.1 CHANGES TO THE BACKGROUND TRANSPORTATION NETWORK

Kilbirnie Drive will be extended westwards to eventually connect to the realigned Greenbank Road as part of the Quinn's Pointe Subdivision (3960 Greenbank Road). While the realigned Greenbank Road is not expected to be constructed within the timeframe examined by this study, there may be potential for a connection to additional residential development to the west as the community continues to grow. The background networks for this analysis have been adapted from the 989 Kilbirnie Drive TIA and are based the existing Kilbirnie cul-de-sac in place during the 2023 scenario and a connection to the west implemented by the 2028 scenario.

3.2.2 GENERAL BACKGROUND GROWTH RATES

A 2.0% annual growth in traffic on study area arterial road (Greenbank Road) was adopted to account for traffic generated by future development that is not currently within the development application process (Section 2.4.2). The 2.0% increase was consistent with growth assumption used in approved TIA studies prepared supporting the other area developments.

3.2.3 OTHER AREA DEVELOPMENTS

Other study area developments that would influence on the subject TIA were summarized in Section 2.4.2. The estimated traffic generated by those developments were detailed in the respective TIA report which also identified other developments anticipated to occur within the same horizon years; the estimated trips were added in the 2023 and 2028 background traffic volumes. Table 3-3 summarizes the other area developments that were accounted for in the background traffic volumes of each future study horizon. The relevant excerpts from the approved TIA are included in **Appendix D.**

Table 3-3: Area Developments Built-out by 2023 and 2028

2023 BACKGROUND TRAFFIC	2028 BACKGROUND TRAFFIC
- Subdivision at 3960 Greenbank Road: Phase 1 and half of Phase 2 - Subdivision at 3718 Greenbank Road: full build-out - Development at 989 Kilbirnie Drive: full build-out	- Subdivision at 3960 Greenbank Road: full build-out - Subdivision at 3718 Greenbank Road: full build-out - Subdivision at 3713 Borrisokane Road: full build-out - Development at 989 Kilbirnie Drive: full build-out

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3.3 DEMAND RATIONALIZATION

3.3.1 DESCRIPTION OF CAPACITY ISSUES

The projected 2023 and 2028 background traffic are shown in Figure 3-2 and Figure 3-3. Total traffic volumes for the 2023 and 2028 planning horizons were estimated by:

- Applying a 2% background growth rate to the existing traffic volumes along Greenbank Road
- Adding trips generated by other area developments
- Adding trips generated by the proposed development

The 2023 and 2028 total traffic volumes are shown on Figure 3-4 and Figure 3-5.

3.3.2 ADJUSTMENT TO DEVELOPMENT GENERATED TRAVEL DEMANDS

Adjustments to development generated demands have not been proposed since the trips generated by the proposed development are not expected to adversely impact the adjacent transportation network. A detailed assessment of intersection and roadway capacities by using Synchro (version 11) for 2023 and 2028 horizons will be carried out in Section 4 as part of upon the City's approval of the Forecasting Report.

3.3.3 ADJUSTMENTS TO BACKGROUND NETWORK TRAVEL DEMANDS

Adjustments to background network demands have not been proposed since the traffic forecasting analysis indicates that the future transportation roadway network within the study area will have capacity to accommodate the addition of development generated traffic.

A detailed intersection capacity and operation assessment to identify if there would be any new over-capacity movement within the study area because of the proposed development will be completed and documented in the Strategy Report (Section 4).

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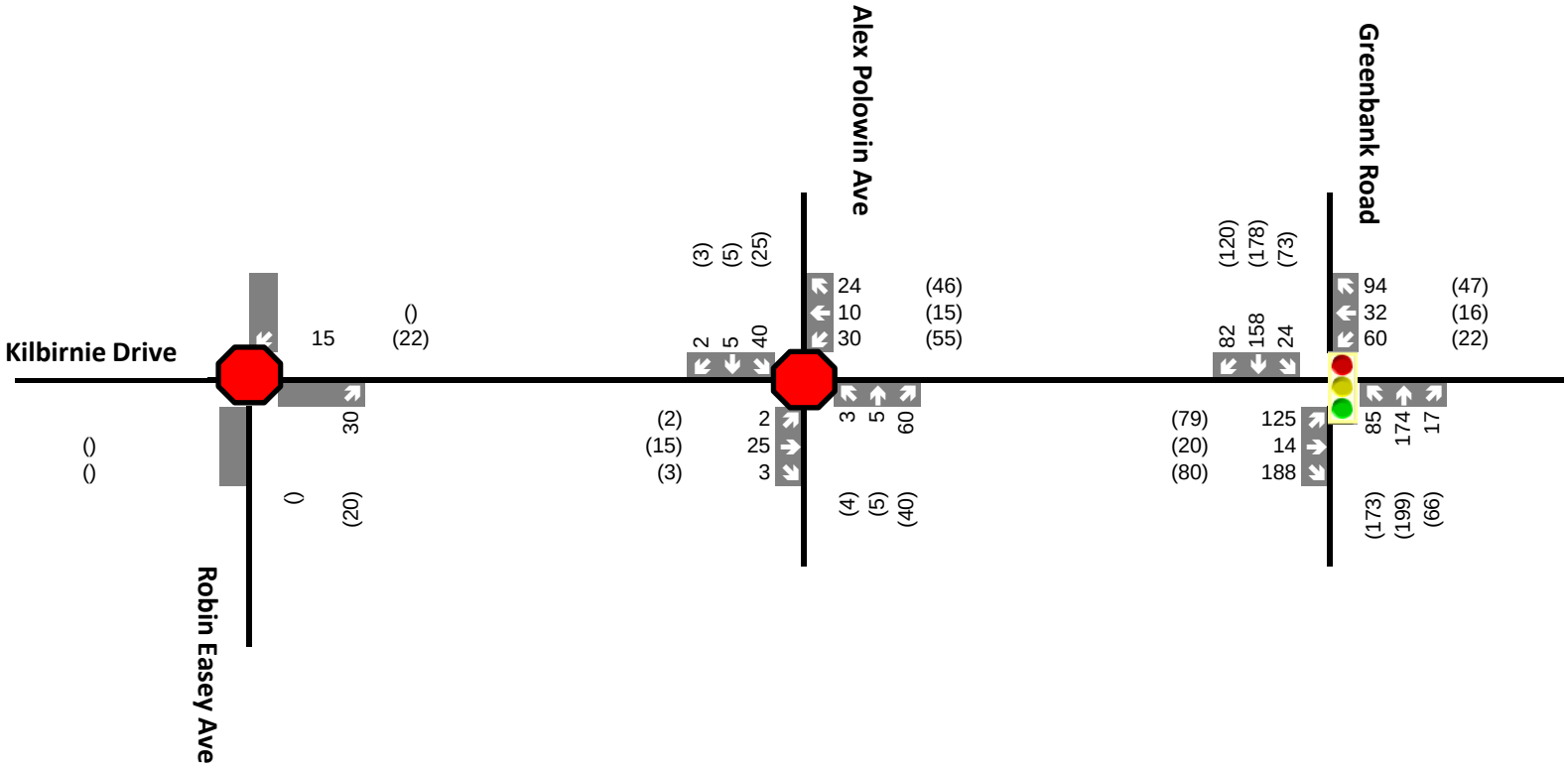


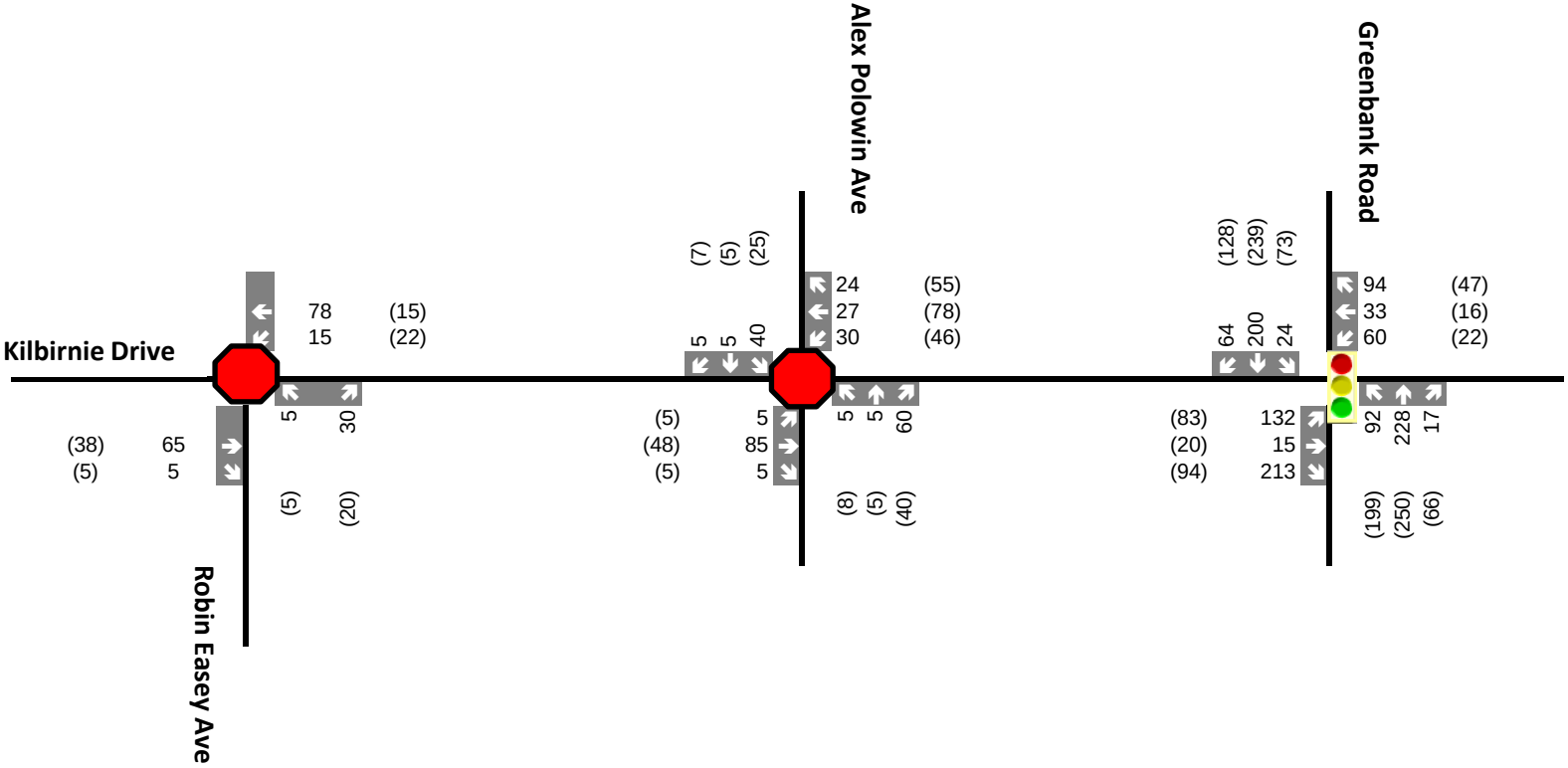
Legend

xx A.M. Peak Hour Traffic Volumes

(xx) P.M. Peak Hour Traffic Volumes

Figure 3-2

2023 Background Traffic Volumes



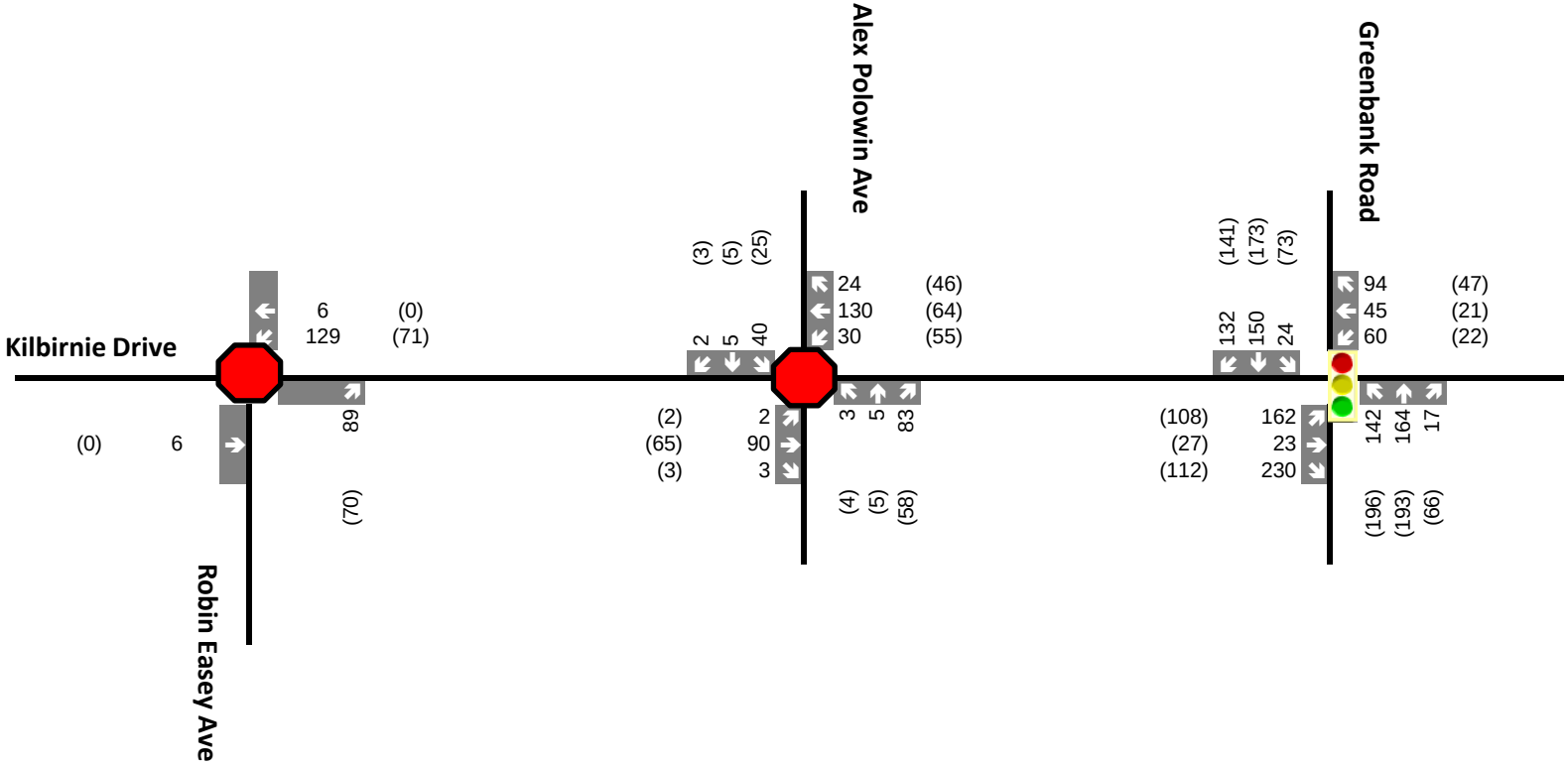
Legend

xx A.M. Peak Hour Traffic Volumes

(xx) P.M. Peak Hour Traffic Volumes

Figure 3-3

2028 Background Traffic Volumes



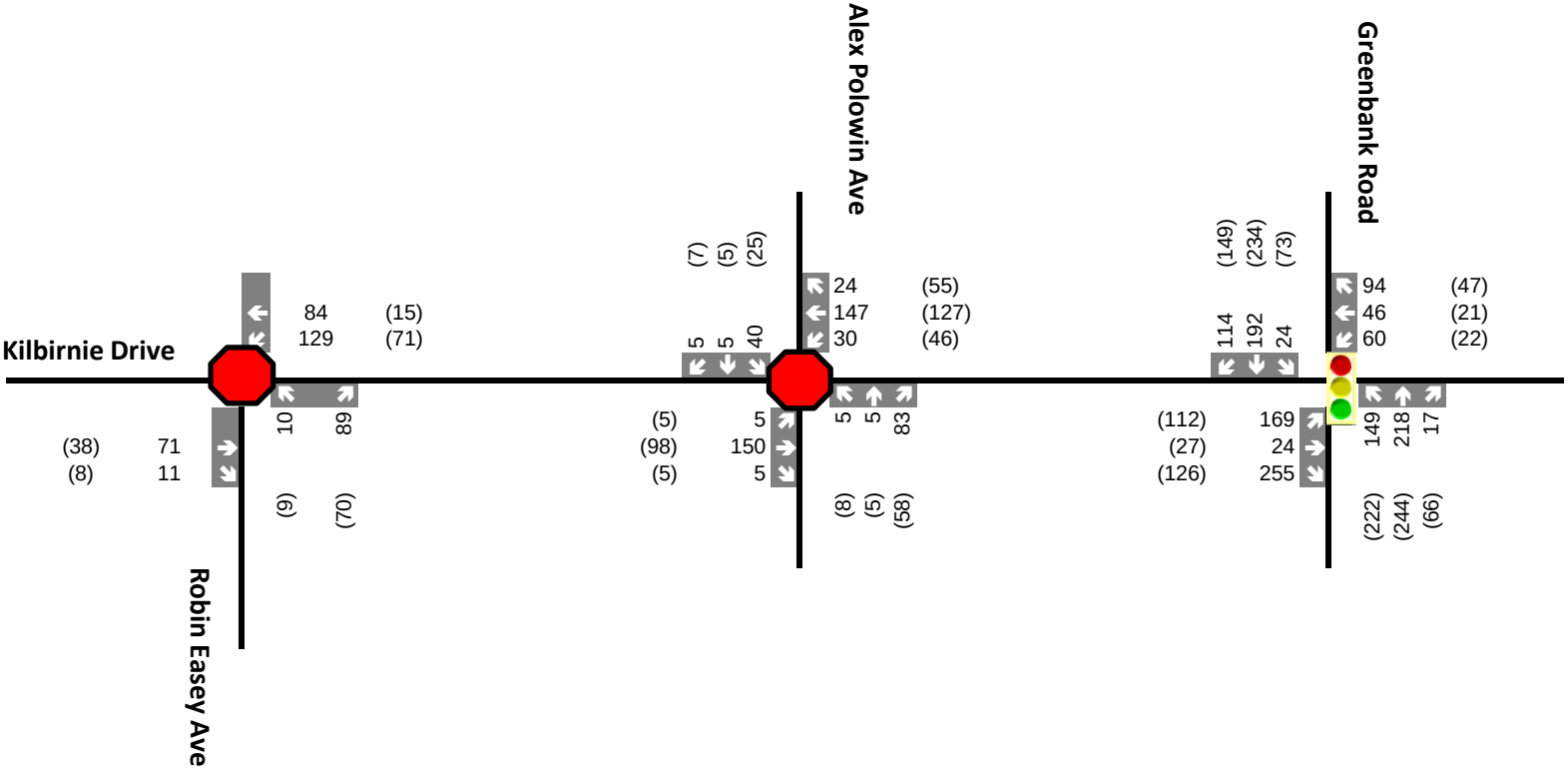
Legend

xx A.M. Peak Hour Traffic Volumes

(xx) P.M. Peak Hour Traffic Volumes

Figure 3-4

2023 Total Traffic Volumes



Legend

xx A.M. Peak Hour Traffic Volumes

(xx) P.M. Peak Hour Traffic Volumes

Figure 3-5

2028 Total Traffic Volumes

4 STRATEGY

To be completed following approval of the Forecasting Report from City of Ottawa staff.

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APPENDIX

A SCREENING FORM

APPENDIX

B DRAFT SITE PLAN

APPENDIX

C TRANS O-D SURVEY

APPENDIX

D RELATED TIA EXCERPTS

APPENDIX