Stantec

42 Northside Road

Transportation Impact Assessment

Final Report

May 6, 2022

Prepared for:

Rohit Communities Ontario Inc.

Prepared by:

Stantec Consulting Ltd.

Certification

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;

3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and

4. I am either a licensed[1] or registered[1] professional in good standing, whose field of expertise is either transportation engineering or transportation planning.

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

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[1] License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works

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1.0 SCREENING

1.1 SUMMARY OF DEVELOPMENT

Municipal Address	**42 Northside Road**
Description of Location	Southeast quadrant of the Northside Road at Thorncliff Place West intersection
Land Use Classification	One Multi-Unit (High-Rise) apartment building
Development Size (units)	51 units
Development Size (ft^2)	N/A
Number of Accesses and Locations	1 parking garage access off Northside Road
Phase of Development	1 phase
Buildout Year	2023

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

1.2 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	Triggered
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	✘
Generates more than 60 person trips per hour		✘

** 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.

1.3 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?		✘
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone? *		✘

**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.

1.4 SAFETY TRIGGERS

	Yes	No
Are posted speed limits on a boundary street 80 km/hr or greater?		✘
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?		✘
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)?	✓	
Is the proposed driveway within auxiliary lanes of an intersection?		✘
Does the proposed driveway make use of an existing median break that serves an existing site?		✘
Is there a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?		✘
Does the development include a drive-thru facility?		✘

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

1.5 SUMMARY

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

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).

2.0 SCOPING

2.1 EXISTING AND PLANNED CONDITIONS

2.1.1 Proposed Development

Rohit Communities Ontario Inc. is proceeding with a Site Plan Control Application for a proposed Multi-Unit (high-rise) apartment building as defined by the *TRANS Trip Generation Manual – Summary Report (October 2020)* located at 42 Northside Road in the Bells Corners community of Ottawa. The site is bound by existing commercial buildings to the south, Thorncliff Place to the west, Northside Road to the north, and an existing place of worship to the east.

Figure 1 illustrates the location of the proposed site.

The subject site is currently zoned as a General Mixed-Use Zone (GM) Zone; the purpose of the GM Zone, according to the City of Ottawa's Official Plan, is to:

- *allow residential, commercial and institutional uses, or mixed use development in the **General Urban Area** and in the **Upper Town, Lowertown and Sandy Hill West Character Areas** of the **Central Area** designations of the Official Plan;*
- *limit commercial uses to individual occupancies or in groupings in well defined areas such that they do not affect the development of the designated Traditional and Arterial Mainstreets as viable mixed-use areas;*
- *permit uses that are often large and serve or draw from broader areas than the surrounding community and which may generate traffic, noise or other impacts provided the anticipated impacts are adequately mitigated or otherwise addressed; and*
- *impose development standards that will ensure that the uses are compatible and complement surrounding land uses.*

Figure 2 illustrates the proposed site plan. It is noted that the proposed development is planned to be constructed over 1 phase and will be complete by 2023. The development includes 51 apartment units and will have underground parking with an access off Northside Road.

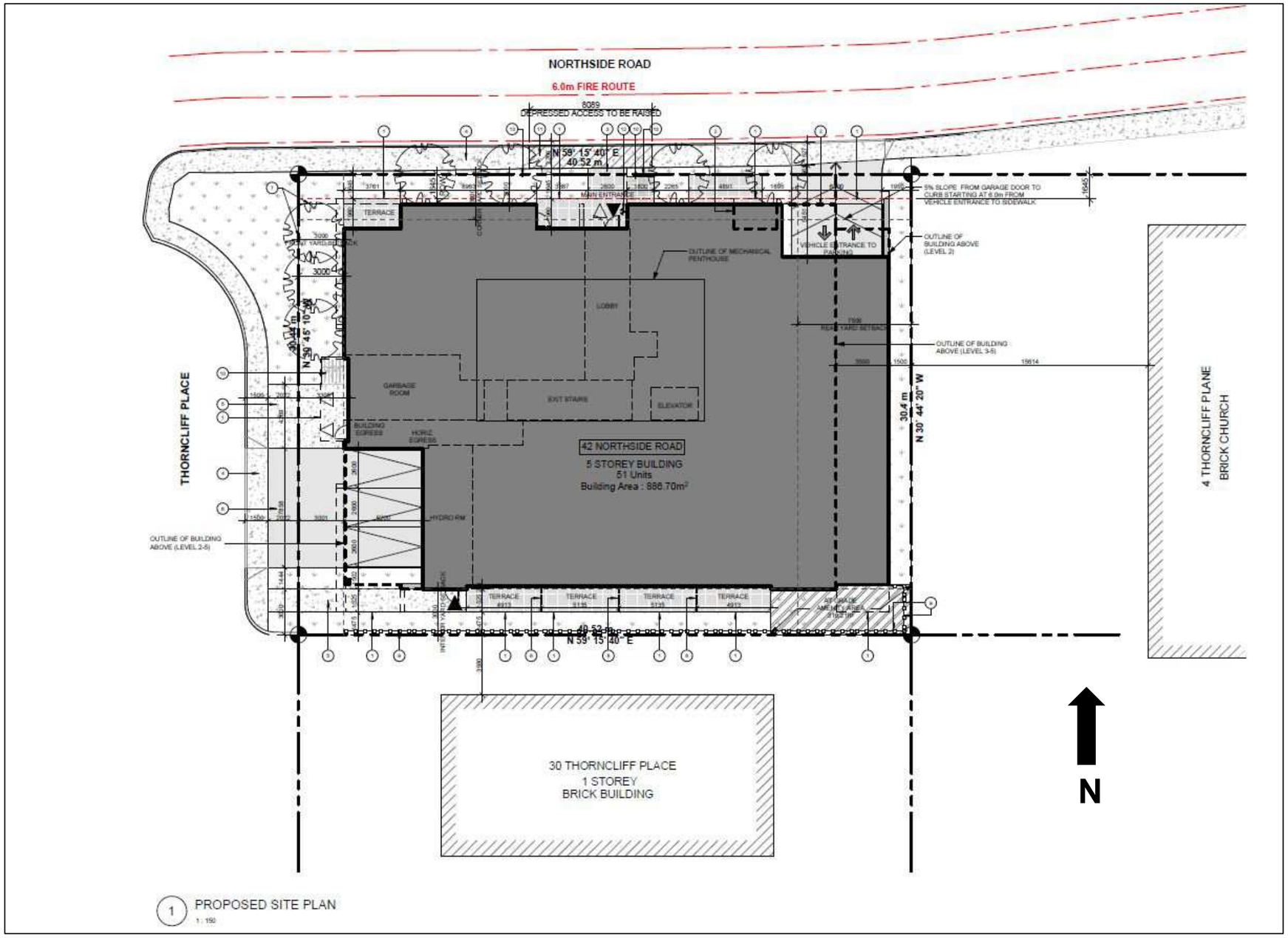
Table 1 outlines the land uses assumed for the analysis to forecast the trips generated by the proposed development. The *TRANS Trip Generation Manual – Summary Report (October 2020)* was used for the residential land use trip generation.

Table 1 - Proposed Land Uses / Land Use Codes

Land Use	Size	ITE Land Use Code (LUC)
Residential	51 units	221&222 – Multi-Unit (High-Rise)

Figure 1 - Site Location

Figure 2 - Proposed Site Plan



2.1.2 Existing Conditions

2.1.2.1 Roads and Traffic Control

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

Thorncliff Place

In the vicinity of the proposed development, Thorncliff Place is a two-lane municipal Local roadway with a posted speed limit of 40 km/h and features a rural cross section. Thorncliff Place is a crescent and connects to Northside Road in two places, west and east of the subject site. The Northside Road at Thorncliff Place West intersection is stop-controlled along Northside Road. It should be noted that the northbound movements at this intersection are prohibited. The intersection of Northside Road and Thorncliff Place East is stop-controlled along Thorncliff Place East. Parking is prohibited along the inside of the crescent of Thorncliff Place.

Northside Road

In the vicinity of the proposed development, Northside Road is a two-lane municipal Collector roadway with a posted speed limit of 40 km/h. Across the frontage of the subject site, Northside Road has a semi-urban cross-section with the southside having curbs and the north side having a paved shoulder. The intersection with Larkspur Drive is an all-way stop-controlled intersection and the west leg accommodates eastbound traffic only. On-street parking is permitted along both sides of Northside Road across the frontage of the subject site. There are three high school bus routes along Northside Road.

Robertson Road

In the vicinity of the proposed site, Robertson Road is a four-lane municipal Arterial roadway with a posted speed limit of 60 km/h. The roadway features an urban cross-section with sidewalks along both sides. The intersection with Northside Road is signalized with auxiliary left turn lanes in the eastbound, westbound, and southbound directions and auxiliary right turn lanes in the westbound and southbound directions. The intersection with Stafford Road is signalized with an auxiliary left turn lane in all directions and an auxiliary right turn lane in the northbound direction as well as a channelized right turn lane in the southbound direction. It is noted that there are no existing cycling facilities on Robertson Road in the vicinity of the subject site. On-street parking is prohibited at all times on Robertson Road.

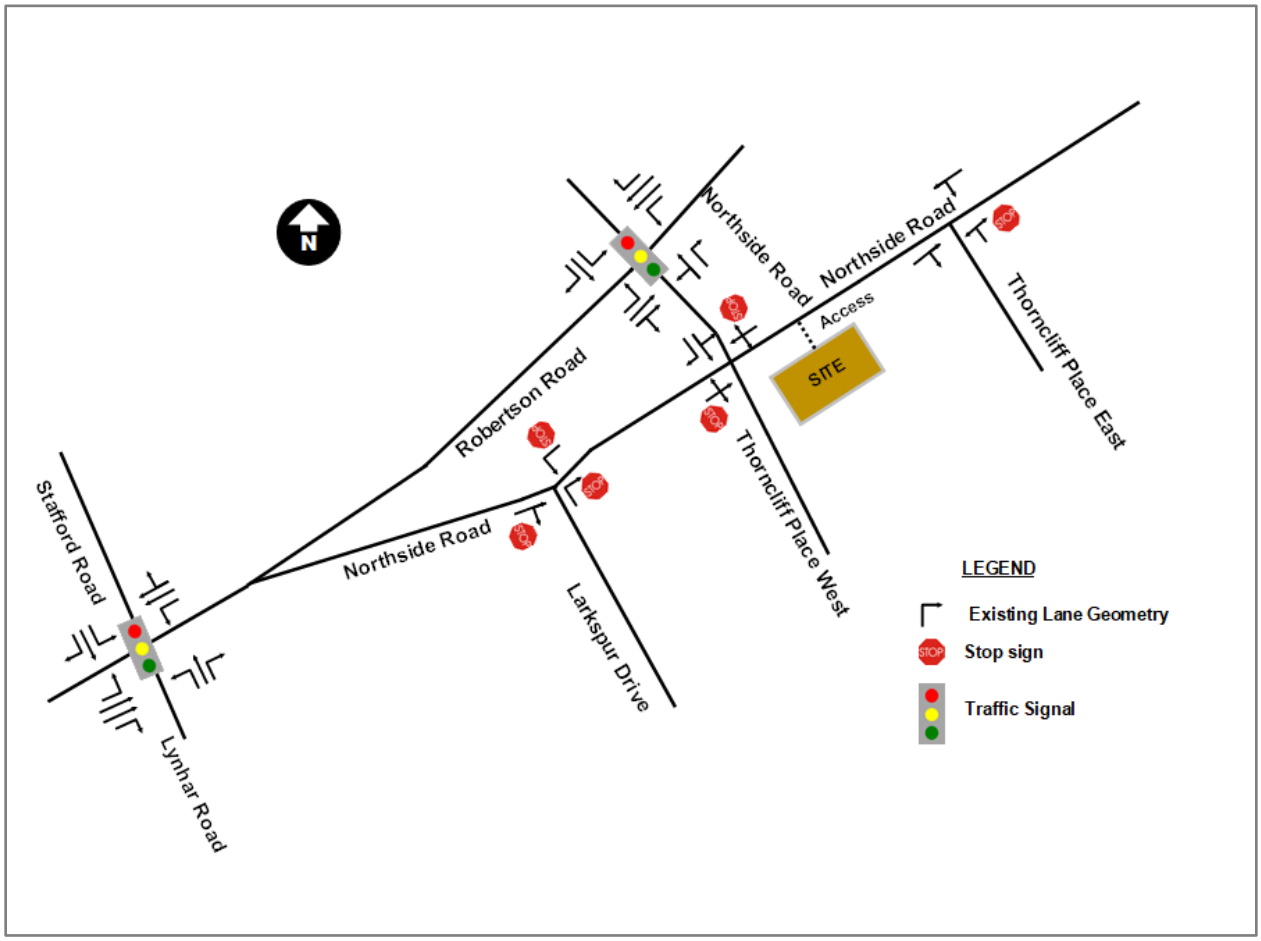
Stafford Road

In the vicinity of the proposed site, Stafford Road is a two-lane municipal Collector roadway with a default speed limit of 50 km/h (in the absence of a posted speed limit) and has sidewalks along both sides.

Larkspur Drive	Between the intersections with Eaton Street and Northside Road, Larkspur Drive is a two-lane municipal Collector roadway with posted speed limit of 40 km/h. The roadway features a semi-urban cross section.
Lynhar Road	Within the vicinity of the proposed site, Lynhar Road is a two-lane municipal collector roadway with a posted speed limit of 40km/hr. The roadway features an urban cross section with a sidewalk along the east side.

Figure 3 illustrates the existing lane configuration and traffic control at the study area intersections.

Figure 3 - Existing Lane Configuration and Traffic Control



2.1.2.2 Walking and Cycling

Robertson Road is well serviced with pedestrian facilities, as sidewalks are included along both sides of the roadway. In the vicinity of the subject site, Northside Road includes a sidewalk along the south side, that connects Larkspur Drive to Foothills Drive (appx 250m east of the site). As Thorncliff Place has a rural cross-section, there are no pedestrian facilities along this road.

In terms of cycling facilities, Robertson Road, in the vicinity of the subject site, is designated as both a Spine Route as well as a Cross-Town Bikeway per the City of Ottawa's Ultimate Cycling Plan. Despite these future designations, Robertson Road does not currently feature dedicated cycling infrastructure in the proximity of the proposed development. Lynhar Road is currently designated as a Suggested Cycling Route and will be designated as a Local Cycling Route, per the Ultimate Cycling Plan. Cyclists using Lynhar Road have to do so in the vehicle travel lanes as cyclists operate in mixed traffic.

Figure 4 illustrates the existing and planned pedestrian and cycling facilities within the vicinity of the subject site.

Figure 4 - Existing and Planned Active Modes Facilities

Source: geoOttawa, accessed November 2021

2.1.2.3 Transit

The transit routes in the vicinity of the subject site include routes 57 and 88.

Route 57 — Route 57 is a Rapid Route that runs 7 days of the week between Tunney's Pasture & North Rideau and Bayshore Crystal Bay. Route 57 operates with 30 minute and 15-minute headways during the AM and PM peak hours, respectively.

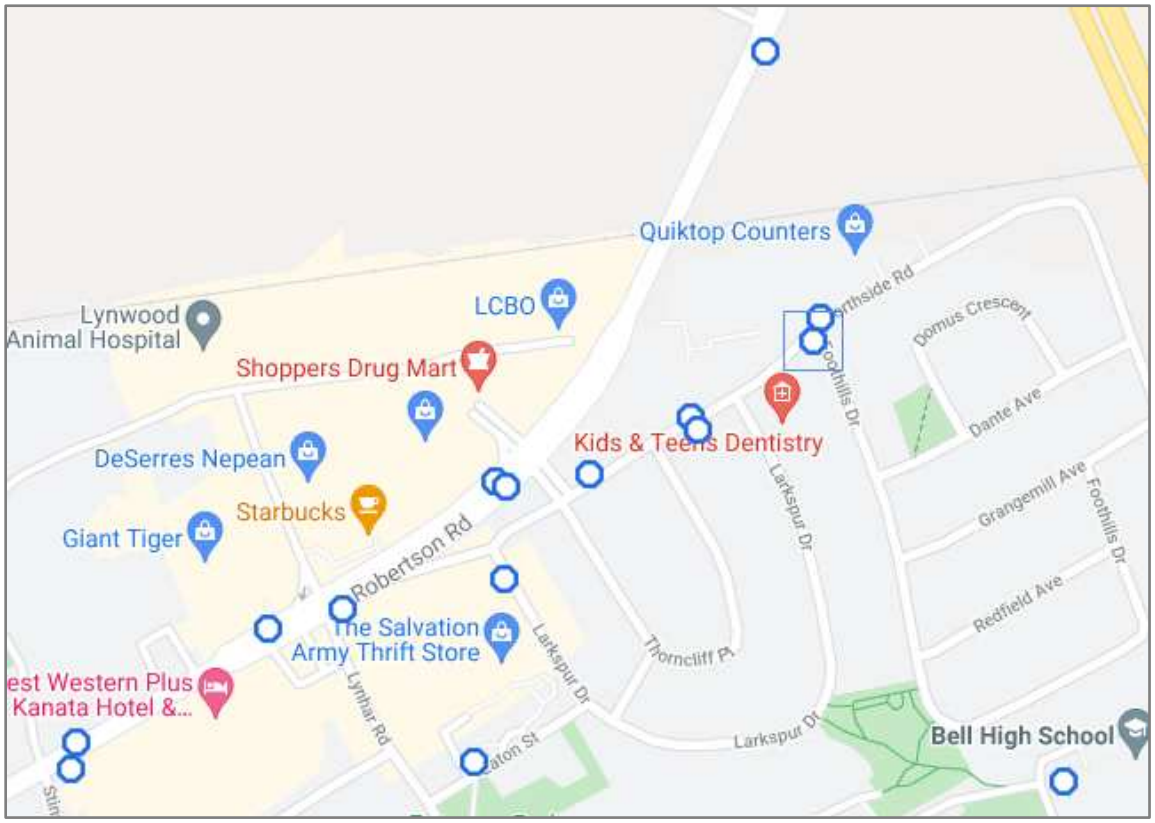
Route 88 — Route 88 is a Frequent Route that runs 7 days of the week between Hurdman and Terry Fox. Route 88 operates with 20-minute and 15-minute headways during the AM and PM peak hours, respectively.

Figure 5 illustrates the transit routes in the vicinity of the subject site and **Figure 6** illustrates the nearby bus stops.

Figure 5 - Nearby Transit Routes

Source: OC Transpo Trip Planner, accessed November 2021

Figure 6 - Nearby Bus Stops



Source: OC Transpo Trip Planner, accessed January 2022

2.1.2.4 Traffic Management Measures

There are currently no traffic measures in the vicinity of the subject development.

2.1.2.5 Traffic Volumes

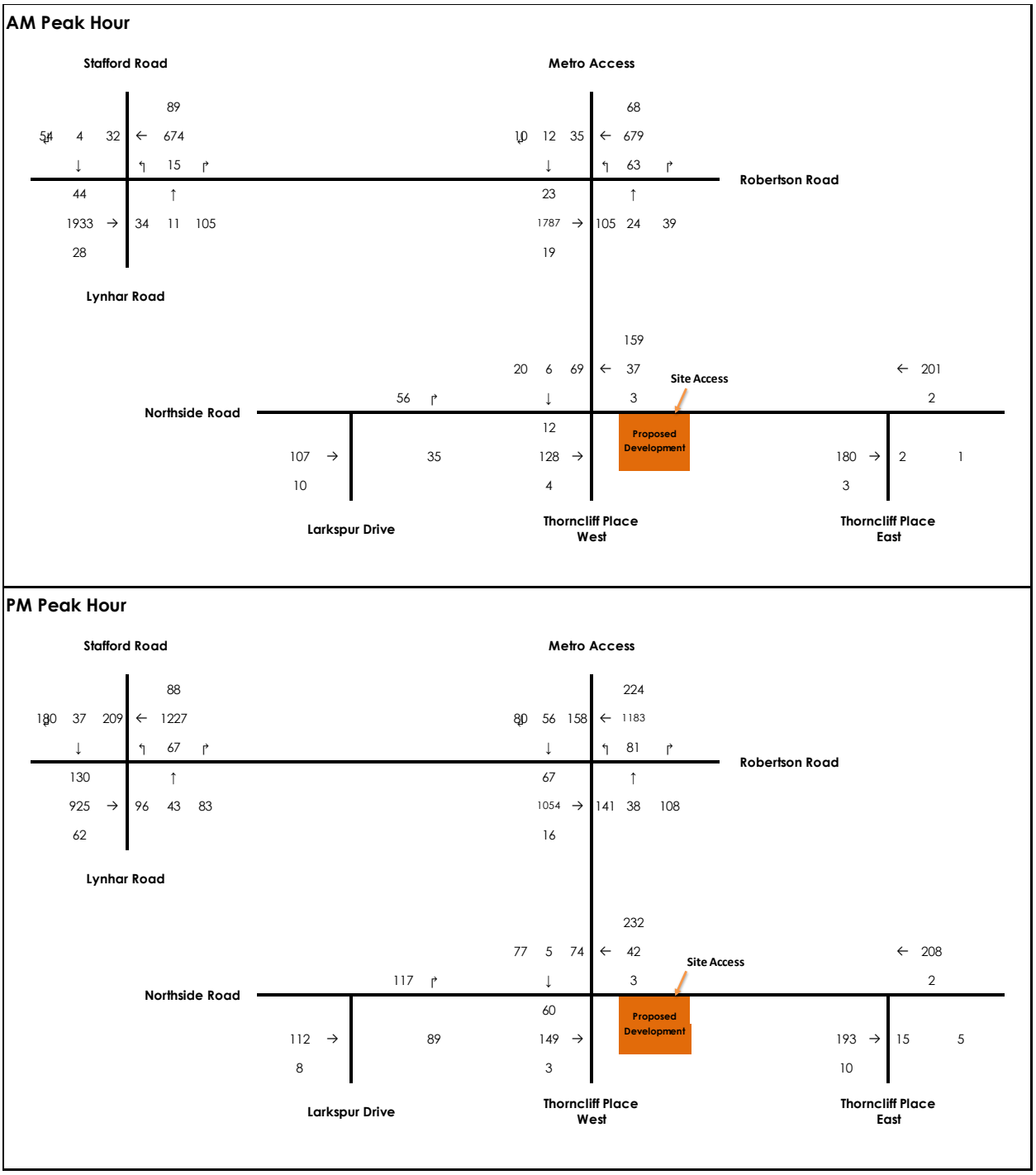
Turning movement counts at the study area intersections were provided by the City of Ottawa and are illustrated in **Figure 7.** The turning movement counts include the intersections below:

- Northside Road and Larkspur Drive (November 10th, 2021).
- Northside and Thorncliff Place E (November 10th, 2021).
- Northside and Thorncliff Place (November 10th, 2021).
- Robertson and Northside Road (June 13th 2019), and
- Robertson and Lynhar / Stafford Road (March 8th, 2017).

To capture the background growth in the study area, the turning movement counts were grown at a rate of 1% per annum. This rate of growth was derived from the long rage growth model in Exhibit 2.11 of the City of Ottawa's 2013 Transportation Master Plan.

Appendix A contains the traffic data and is provided for reference.

Figure 7 - 2021 Existing Traffic Volumes



2.1.2.6 Collision History

Collision data was provided by the City of Ottawa for the period between January 2015 and December 2019 in the vicinity of the proposed site. The data was reviewed to determine if any intersections or road segments exhibited an identifiable collision pattern during the five (5) year period.

Table 2 summarizes the collision and class and impact types for each road segment and intersection in the study area.

Based on the data provided, there were a total of 82 collisions in the vicinity of the subject site, of which 68 collisions (83%) resulted in property damage only. It should be noted that no fatal collisions were recorded during the five-year period and there was a total of 2 collisions (2.4%) involving pedestrians.

Of the total collisions, 81 collisions (99%) were caused by actions attributed to known vehicle maneuver and 1 collision (1%) was attributed to unknown / other vehicle maneuver. These include going ahead (38%), turning left / right (28%), slowing / stopping (13%), changing lanes (17%), reversing (1%), and merging (1%).

Of the total collisions, 35 collisions (43%) were rear ends, 16 collisions (20%) were sideswipes, 9 collisions (11%) were turning movements,12 collisions (15%) occurred at an angle, and 10 collisions (12%) involved single motor vehicles / other.

Of the total collisions, 65 collisions (79%) occurred under clear environmental conditions, 8 collisions (10%) occurred during rain, 7 collisions (9%) during snow, and 2 collisions (2%) during freezing rain.

The intersection of Robertson Road and Lynhar Road / Stafford Road experienced the highest number of collisions over the 5-year period with 51 collisions (62% of the total collisions). The most common impact types at this intersection were rear ends (27 collisions, or 53%) and sideswipes (10 collisions, or 20%). Of the rear end collisions, 14 collisions (17%) occurred in the northbound direction, 5 collisions (6%) occurred in the southbound direction, 34 collisions (41%) occurred in the westbound direction, and 20 collisions (24%) occurred in the eastbound direction. Of the total rear end collisions at the intersection, 6 collisions (17%) were attributed to turning movements (left/right).

Appendix B contains the collision data and is provided for reference.

Table 2 - Collision Summary

	Robertson Rd @ Lynhar Rd/Stafford Rd	Robertson Rd @ Northside Rd	Robertson Rd between Stafford Rd & Northside Rd	Thorncliff Pl @ Northside Rd	Northside Rd W @ Robertson	Northside Rd between Larkspur Dr and Thorncliff Pl West	Total
Classification							
Fatal	0	0	0	0	0	0	0
Non-Fatal Injury	11	3	0	0	0	0	14
Property Damage Only	40	16	6	1	4	1	68
Impact Type							
Angle	5	6	0	1	0	0	12
Rear End	27	6	1	0	1	0	35
Sideswipe	10	0	4	0	1	1	16
Turning Movement	3	5	0	0	1	0	9
Other / SMV Other	6	2	1	0	1	0	10
Vehicle Maneuver							
Going ahead	18	7	1	1	3	1	31
Turning	12	10	0	0	1	0	23
Slowing/ Stopping	10	1	0	0	0	0	11
Changing lanes	10	0	4	0	0	0	14
Reversing	1	0	0	0	0	0	1
Merging	0	0	1	0	0	0	1
Unknown/Other	0	1	0	0	0	0	1
Environment							
Clear	43	12	6	0	4	0	65
Rain	2	5	0	1	0	0	8
Snow / Drifting Snow	4	2	0	0	0	1	7
Freezing Rain	2	0	0	0	0	0	2

2.1.3 Planned Conditions

2.1.3.1 Road Network Modifications

Table 3 identifies the City of Ottawa's *2013 Transportation Master Plan* (TMP) projects within the vicinity of the subject site.

Table 3 - City of Ottawa Transportation Master Plan Projects

Project	Description	TMP Phase
Baseline/ Heron/ Walkley/ St. Laurent	At-grade BRT connecting Baseline Station to Heron Station At-grade BRT connecting Bayshore Station to St. Laurent	Affordable Network Network Concept
Baseline Road	Transit signal priority and queue jump lanes between Baseline Station and Richmond Road	Affordable Network Only
Robertson Road	Transit signal priority and queue jump lanes between Eagleson Road and Holly Acres Road	Affordable Network and Network Concept

2.1.3.2 Future Background Developments

There are two developments scheduled to occur in the vicinity of the subject site as described in **Table 4** and illustrated in **Figure 8**.

Table 4 - Background Developments

Key Plan Reference	Development	Location	Description	Assumed Build-Out Year
A	2165 Robertson Road	Northwest quadrant of the intersection of Roberson Road and Fitzgerald Road	Fast food restaurant with drive-thru, 74 surface parking spaces. Retail/ Warehouse	2019
B	1987 Robertson Road and 295 Moodie Drive	Southeast quadrant of the intersection of Moodie Drive and Timm Drive	Eight high-rise building and six-storey with 1,925 unit of commercial space	5 phases by 2029

Figure 8 - Background Developments Key Plan

2.2 STUDY AREA AND TIME PERIODS

2.2.1 Study Area

The proposed study area is limited to the following intersections:

1. Robertson Road at Northside Road;
2. Robertson Road at Lynhar Road / Stafford Road;
3. Northside Road at Thorncliff Place East;
4. Northside Road at Thorncliff Place West; and
5. Northside Road at Larkspur Drive.

2.2.2 Time Periods

The proposed scope of the transportation assessment includes the following analysis time periods:

- Weekday AM peak hour of roadway; and
- Weekday PM peak hour of roadway.

2.2.3 Horizon Years

The scope of the transportation assessment proposes the following horizon years:

- 2021 Existing conditions;
- 2023 Future Background conditions;
- 2023 Total Future conditions (site build-out); and
- 2028 Total Future conditions (5 years beyond build-out).

2.3 EXEMPTIONS REVIEW

Table 5 summarizes the Exemptions Review table from the City of Ottawa's *2017 Transportation Impact Assessment Guidelines*.

Table 5 - Exemptions Review

Module	Element	Exemption Considerations	Exempted?
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	Only required for site plans	No
	4.1.3 New Street Networks	Only required for plans of subdivision	Yes
4.2 Parking	4.2.1 Parking Supply	Only required for site plans	No
	4.2.2 Spillover Parking	Only required for site plans where parking supply is 15% below unconstrained demand	Yes
Network Impact Component			
4.5 Transportation Demand Management	All Elements	Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time	No
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Yes
4.8 Network Concept		Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by established zoning	Yes
4.9 Intersection Design	All Elements	Not required if site generation trigger is not met.	Yes

3.0 FORECASTING

3.1 DEVELOPMENT GENERATED TRAVEL DEMAND

3.1.1 Trip Generation and Mode Shares

Table 3 of the *TRANS Trip Generation Manual Summary Report (2020)* was used to determine the person-trips generated by the residential land use per peak period. **Table 6** outlines the assumed land use and the person-trip generation rate. The subject site is located within the Bayshore / Cedarview District and Table 8 of the *TRANS Trip Generation Manual Summary Report (2020)* was used to determine the residential mode share for High-Rise multifamily housing indicated in **Table 6.** The mode share was used in the development of the trip generation potential for the subject site.

An adjustment factor from Table 4 of this manual was applied for the residential person-trip generation rates in **Table 6** below to convert from peak period trips to peak hour trips for analysis. A conversion factor of 0.50 was utilized for the AM peak while a conversion factor of 0.44 was utilized for the PM peak.

Table 6 - Person Trips Generated by Land Use

Land Use	Size		AM Peak Period			PM Peak Period		
			In	Out	Total	In	Out	Total
Person-Trip Generation Rates (Peak Period)								
221 & 222 - High Rise Apartments	51	units	31%	69%	0.80	58%	42%	0.90
Conversion to Person-Trips (Peak Hour)								
221 & 222 - High Rise Apartments	Person-Trips (Peak Period)		13	28	41	27	19	46
	Person-Trips (Peak Hour) 0.50 for AM & 0.44 for PM		7	14	21	12	8	20
Modal Share Adjustments								
Modal Share	Auto	40%	3	6	9	5	3	8
	Passenger	14%	1	2	3	2	1	3
	Transit	35%	2	5	7	4	3	7
	Cycling	1%	0	0	0	0	0	0
	Walking	10%	1	1	2	1	1	2
Total Development								
	New Auto Trips		**3**	**6**	**9**	**5**	**3**	**8**

3.1.2 Trip Distribution

The distribution of traffic to / from the proposed development was developed using the *Trans Committee's 2011 NCR Household Origin-Destination Survey* (January 2013) and by looking at the surrounding transportation network. The subject development is located within the Bayshore / Cedarview District.

Table 7 summarizes the assumed trip distribution for the proposed development.

Table 7 - Trip Distribution

Direction		Via (to / from)		
		Robertson (E)	**Robertson (W)**	**Northside (E)**
North	5%	5%	0%	-
East	50%	50%	0%	-
South	5%	3%	1%	1%
West	10%	0%	10%	-
Internal *	30%	24%	6%	-
Total	**100%**	**82%**	**17%**	**1%**

* Refers to trip origins/destinations within the same O-D District.

3.1.3 Trip Assignment

Site generated trips were assigned to the study area road network based on the trip distribution assumptions outlined above in **Table 7** and can be seen below in **Figure 9**.

Figure 10 illustrates the site generated trips for the proposed development during the AM and PM peak hours.

Figure 9 - Site Traffic Distribution

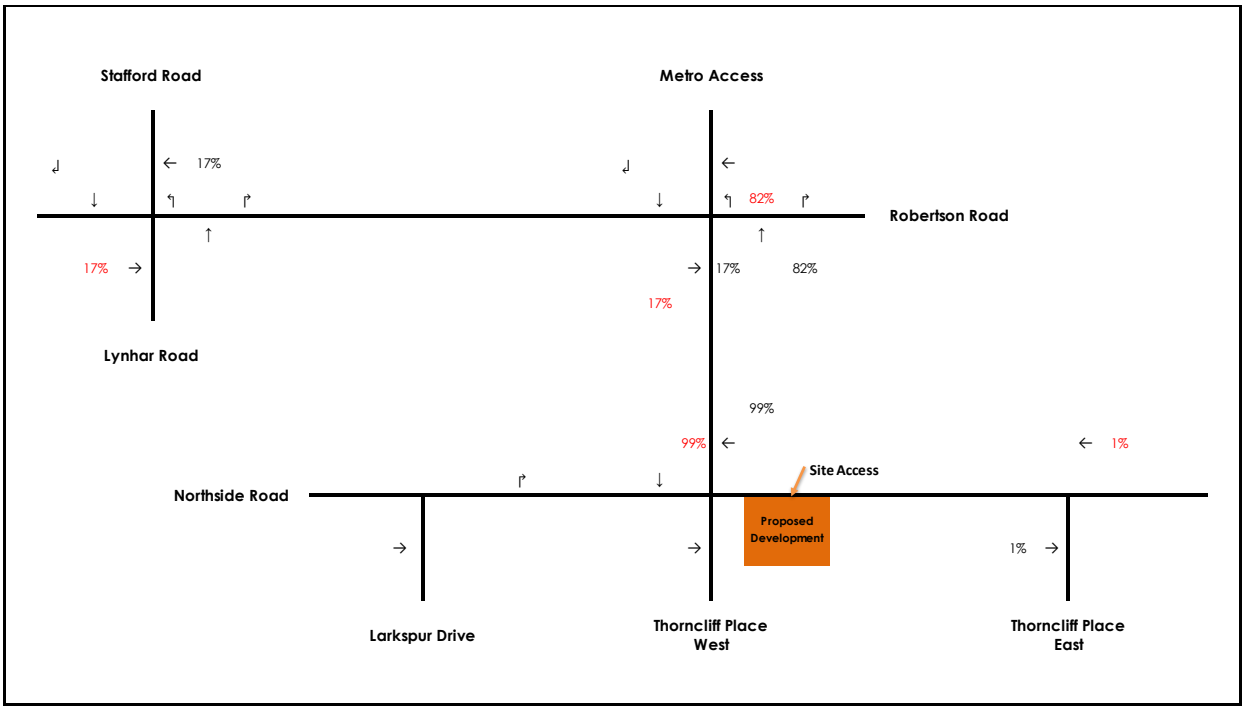
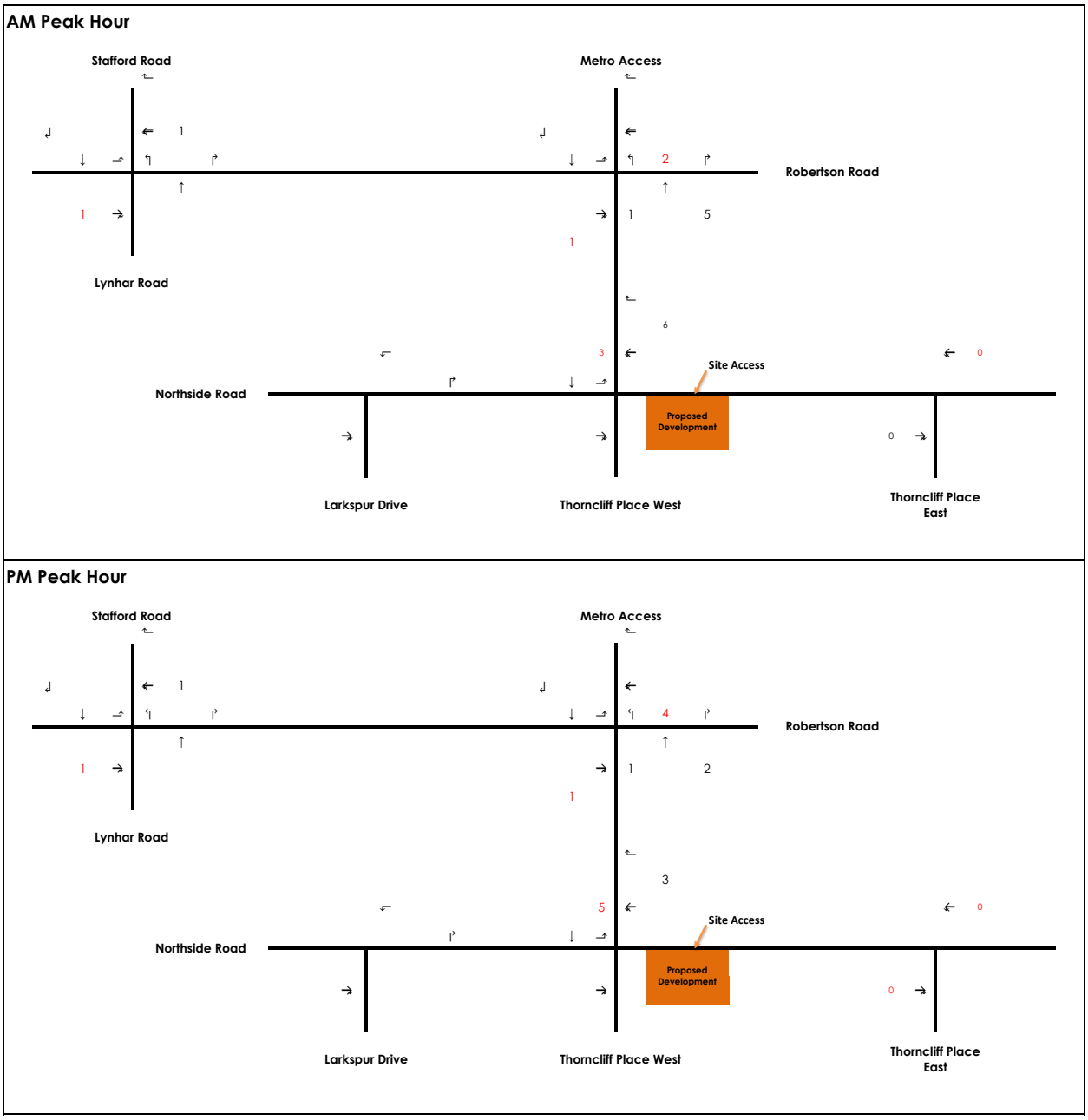


Figure 10 - Site Trips



3.2 BACKGROUND NETWORK TRAVEL DEMAND

3.2.1 Transportation Network Plans

As outlined in **Table 3** in **Section 2.1.3.1**, the City of Ottawa TMP identifies three transit projects under the Affordable Network concept that are anticipated to improve transit service in the vicinity of the proposed development. These projects include the Baseline Rapid Transit project and Transit Signal Priority and queue jump lanes along both Baseline Road and Robertson Road.

3.2.2 Background Growth

As per the City of Ottawa's Long Range Growth Model (2013 TMP – Exhibit 2.11), the annual growth rate in the vicinity of the study area was calculated to be 1%. The rate was utilized to grow turning movement counts from their respective count dates to the study horizon years.

3.2.3 Other Developments

In addition to the 1% background growth calculated rate outlined in **Section 2.1.3**, there are two background developments that are planned to be constructed within the Bells Corners community. These developments are anticipated to have a negligible impact to the subject study area intersections given their relative locations.

3.3 DEMAND RATIONALIZATION

Due to the low volumes associated with the proposed development, the effect on the immediate transportation network is anticipated to be negligible. Given the low trip generation associated with the proposed development, **Section 4.9** Intersection Analysis was exempt from the study, thus precluding traffic analysis at the nearby intersections. As such, demand rationalization measures were not investigated for the purpose of this study.

4.0 STRATEGY REPORT

4.1 DEVELOPMENT DESIGN

4.1.1 Design for Sustainable Modes

Bicycle Facilities: The majority of the bicycle parking (i.e., 24 spaces) is planned to be secured and weatherproofed as it is located inside the buildings in the P1 and P2 underground levels. The remaining 8 bicycle parking spaces will be located at-grade, at the building entrances on both Northside Road and Thorncliff Place.

Pedestrian Facilities: Pedestrians will be directly connected to the proposed building via the existing sidewalk along Northside Road as well as the proposed sidewalk along Thorncliff Place.

Transit Facilities: Transit stops for OC Transpo routes 57 and 88 are currently located in the vicinity of the subject site. The nearest transit stop is located at the intersection of Robertson Road and Northside Road, approximately 60m from the subject site. Residents looking to access these transit stops can cross Northside Road on the west leg of the Northside Road at Thorncliff Place West intersection, and then follow the sidewalk to the transit stop at Robertson Road.

Parking Areas: A total of 59 vehicle parking spaces are provided, including 49 for residents and 10 for visitors. All resident parking spaces will be located within the underground parking garage, along with 7 of the visitor parking spaces. The remaining 3 visitor parking spaces are located at grade on Thorncliff Place along the building's western façade.

4.1.2 Circulation and Access

The proposed site is envisioned to utilize a private driveway access. The access is planned to be 6m wide and located off Northside Road, approximately 25m east of the intersection with Thorncliff Place. The intersection of Northside Road and Thorncliff Place is a minor stop-controlled intersection along Northside.

The garbage area will be located inside the building, in the southwestern corner. Garbage trucks will not need to enter the site, but rather, they will park on Thorncliffe Place on the western frontage of the building. The garbage will then be brought outside and loaded into the garbage truck. The garbage truck will then continue south along Thorncliffe Place and will not head north on Thorncliffe Place to Robertson Road as this movement is prohibited.

4.1.3 New Street Networks

Not applicable; exempted during screening and scoping.

4.2 PARKING

4.2.1 Parking Supply

Auto Parking

As per Schedule 1A of the City of Ottawa's Official Plan, the subject site is located within Area C – Suburban area. Based on this designation, the City of Ottawa's Zoning By-law 2008-250 (Section 101 and 102) was consulted to determine the minimum parking space requirement for the proposed development. The minimum parking space rate for mid-high rise apartments is 1.2 per dwelling unit. As such, the 51 dwelling units require 55 resident parking spaces which include a 10% reduction for parking spaces located below grade in the same building as land use. The proposed development is planned to feature 49 resident parking spaces.

As per Section 102 (1) of the By-Law, for buildings within area C, in addition to the parking required under Section 101, off-street visitor parking must be provided for dwelling units at the rate set out in Table 102 (By-law 2016-249). As per Table 102 (By-law 2016-249), for apartment dwellings situated in area C, 0.2 visitor spaces are required per dwelling unit. As such, the 51 dwelling units, require 10 visitor parking spaces. The proposed development is planned to feature 10 visitor parking spaces, which meets the City's By-Law.

Bicycle Parking

As per Table 111A in Section 111 of the By-law, for a mid-rise apartment building, a minimum of 0.5 bicycle spaces must be provided for each dwelling unit. The 51 dwelling units require 26 bicycle parking spaces. The proposed development is planned to feature 32 bicycle parking spaces in the building, thereby meeting the requirements set out in the By-Law.

4.2.2 Spillover Parking

The City of Ottawa's Zoning By-Law requires a total of 65 parking spaces while the ITE Parking Generation Manual, 5th Edition suggests a parking supply of 50 spots for a parking demand of 51 dwelling units. The subject developer is providing 59 vehicular parking spaces in total, therefore, the parking supply based on both guidelines is not 15% below the demand. As such, this module can be exempt.

4.3 MULTI MODAL LEVEL OF SERVICE

The segment multi-modal level of service (MMLOS) was evaluated for Northside Road and Thorncliff Place along the frontage of the site.

Table 9 presents the MMLOS for the roadway segments.

Northside Road (across the north frontage of the proposed development)

Northside Road is classified as a Collector roadway with a posted speed limit of 40 km/h. As such, the roadway is subject to a Pedestrian level of Service (PLOS) target of C, a Bicycle Level of Service (BLOS) target of D, and a Transit Level of Service (TLOS) target of D. As Northside Road is not designated as a truck route, the Truck Level of Service (TkLOS) does not apply.

Across the frontage of the proposed development, the segment of Northside Road currently operates with PLOS F as there are no pedestrian facilities on the north side of Northside Road. To meet the PLOS target of C, a 1.8m sidewalk would need to be implemented along the north side as well as widening the sidewalk along the south side to 1.8m.

The roadway segment currently operates with BLOS D which meets the BLOS target.

The segment currently operates with TLOS D, thus meeting the TLOS target of D for the roadway.

Thorncliff Place (across the west frontage of the proposed development)

Thorncliff Place is classified as a local roadway with a posted speed limit of 40 km/h. As such, the roadway is subject to a Pedestrian level of Service (PLOS) target of C and a Bicycle Level of Service (BLOS) target of D. As Thorncliff Place is not a Transit Route nor a Truck Route, the TLOS and TkLOS do not apply.

Across the frontage of the proposed development, the segment of Thorncliff Place currently operates with PLOS F, which does not meet the target of C. This is attributed to the lack of sidewalk and boulevard along Thorncliff Place. To meet the PLOS target of C, a 1.5m sidewalk with a 0.5m boulevard or a 1.8m sidewalk would need to be implemented.

The roadway segment currently operates with BLOS B which meets the BLOS target of D.

2023 Total Future (Site Build-out)

As part of the redevelopment of the subject site, there will be a new 1.5m sidewalk along the east side of Thorncliff Place, along the subject property. However, as there is no planned sidewalk along the west side of Thorncliff Place, the PLOS will remain an F at site build-out. To meet the PLOS target of C, 1.8m sidewalks would need to be implemented along both sides of Thorncliff Place.

The remaining MMLOS will be unchanged between the existing conditions and site build-out along both Northside Road and Thorncliff Place.

Appendix C contains the detailed MMLOS analysis for roadway segments.

Table 8 - Multi-Modal Level of Service Assessment - Roadway Segments

Roadway Segment / Level of Service	Northside Road (across the frontage of the development)			Thorncliff Place (across the frontage of the development)		
	Existing	Site Build-Out	Target	Existing	Site Build-Out	Target
PLOS	F	F	C	F	F	C
BLOS	D	D	**	B	B	D
TLOS	D	D	**	-	-	N/A
TkLOS	-	-	N/A	-	-	N/A

4.4 ACCESS INTERSECTION DESIGN

4.4.1 Access Location

The proposed development is planned to feature one underground parking garage access, which will be located off Northside Road. The underground parking garage is planned to feature 49 resident parking spaces, 7 visitor parking spaces, as well as 24 bicycle parking spaces. This driveway access is approximately 25m east of the Northside Road at Thorncliff Place West intersection. In addition, it is located appx 15m west of the existing egress to the adjacent Emmanuel Alliance United Church of Ottawa.

4.4.2 Intersection Control

The site access will be a low volume driveway and is anticipated to operate as a minor stop-controlled intersection along the driveway approach.

4.5 TRANSPORTATION DEMAND MANAGEMENT

4.5.1 Context for TDM Measures

The proposed development will not meet the City of Ottawa's Zoning By-Law for parking requirements. As such, Transportation Demand Management (TDM) measures are required to support the adoption of alternative modes of transportation to supplement the parking deficiency.

To help support the TDM measures, the the 2020 TRANS Trip Generation Manual – Summary Report was reviewed to determine the modal share targets in this area. The modal share targets for trips made to / from the Bayshore / Cedarview district for high-rise apartment dwellings during the AM and PM peak hours are as follows:

- Transit: 35%.
- Auto Driver: 40%
- Auto Passenger:14%
- Walking:10%
- Cycling: 1%.

Based on the reduction in proposed parking and the aforementioned modal share targets, specific TDM measures will be recommended.

4.5.2 Need and Opportunity

Although the proposed number of parking spaces is just slightly lower than the number of units (i.e., a deficiency of 2 parking spaces on a 1:1 ratio), per the City of Ottawa's Zoning By-Law, the deficiency is 6 parking spaces. As such, it is recommended to include specific TDM measures to ensure this parking deficiency is not an issue for the residents nor for the neighboring community.

4.5.3 TDM Program

The City of Ottawa TDM checklists were utilized in the development of design supportive and additional TDM measures.

As part of the TDM Supportive Development Design and Infrastructure Checklist, the following features have been considered:

- Locate building close to the street and do not locate parking areas between the street and building entrances.
- Locate building entrances in order to minimize walking distances to sidewalks and transit stops / stations.
- Locate building doors and windows to ensure visibility of pedestrians from the building for their security and comfort.
- Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances.
- Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas.
- Make sidewalks and open space easily accessible through features such as gradual grade transition, depressed curbs at street corners
- Provide safe, direct and attractive walking routes from building entrances to nearby transit stops.
- Provide bicycle parking in highly visible and lighted areas and sheltered from the weather wherever possible. The development is providing a total of 24 bicycle parking spaces in the underground levels 1 and 2. The remaining 8 bicycle parking stalls are provided at grade near the main entrances on Northside Road and Thorncliff Place.
- Provide the number of bicycle parking spaces identified for various land uses in different parts of Ottawa.
- Ensure that bicycle parking spaces and access aisles meet minimum dimensions.
- Do not provide more parking than permitted by zoning, nor less than required by zoning. It is worth noting that the proposed development meets the visitor parking requirement.

The City of Ottawa's TDM Checklists were used to determine what TDM measures could be implemented based on the available information. Based on the checklists, the following TDM measures have been agreed upon by the developer (independent of the TDM-Supportive Development Design and Infrastructure Checklists):

- Transit:
    - Display relevant transit schedules and route maps at entrances
    - Offer at least 6 free transit passes for a 6-month period
- Parking:
    - Unbundle parking cost from monthly rent
- TDM Marketing and Communication:
    - Provide a multimodal travel option information package to new residents

The combination of design supportive TDM measures and additional TDM measures provided by the developers are anticipated to address the parking deficiency of 6 vehicle parking stalls.

The City of Ottawa TDM checklists are included in **Appendix D**.

4.6 ADJACENT NEIGHBORHOODS

Not applicable; exempted during screening and scoping.

4.7 TRANSIT

4.7.1 Route Capacity

The forecasted transit trips for the proposed development are 7 total two-way transit trips during both the AM and PM peak hours.

There are two transit routes in the vicinity of the subject development, OC Transpo routes 57 and 88. Based on the OC Transpo schedule, there are approximately 8 buses that depart from the subject site during the AM peak hour and 11 buses that arrive to the subject site during the PM peak hour. Standard buses in OC Transpo's vehicle fleet have seated capacities of 36 to 55 seats depending on the transit bus manufacturer, which is equivalent to a capacity of 288 - 440 passengers during the AM peak hour and 396 - 605 passengers during the PM peak hour.

As such, the forecasted transit trips for the proposed development accounts for roughly 1% of transit capacity during both the AM and PM peak hours. Overall, the impact of the development on the transit network is thought to be minimal and can be accommodated.

4.8 REVIEW OF NETWORK CONCEPT

Not applicable; exempted during screening and scoping.

4.9 INTERSECTION DESIGN

As the subject development does not meet the trip generation triggers, **Section 4.9** is exempt.

5.0 SUMMARY AND CONCLUSIONS

This Transportation Impact Assessment (TIA) was prepared in support of a Site Plan Control Application for one multi-unit high rise apartment building located at 42 Northside Road in Ottawa. The site is located in southeast quadrant of the Northside Road at Thorncliff Place West intersection. The site is bound by existing commercial buildings to the south, Thorncliff Place to the west, Northside Road to the north, and an existing place of worship to the east.

The proposed development is anticipated to generate 9 and 8 two-way auto trips during the AM and PM peak hours, respectively.

There is a proposed driveway access along Northside Road, approximately 25m east of Thorncliff Place. This access leads to the underground parking garage.

The development includes 59 vehicle parking spaces (49 for residents and 10 for visitors) as well as 32 bicycle parking spaces. All resident vehicle parking spaces, 7 visitor parking spaces, and 24 bicycle parking spaces are proposed to be included in the underground parking garage. The remaining three visitor parking spaces are located at grade on Thorncliff Place, along the western façade of the building. The remaining 8 bicycle parking spaces will be located at-grade, at the building entrances along Northside Road and Thorncliff Place.

The existing segment of Northside Road, fronting the subject development, does not currently meet the PLOS target due to the narrow sidewalk width and lack of boulevard. To meet the PLOS target, the sidewalk would need to be widened to 1.8m or there would need to be a 0.5m boulevard implemented. Northside Road currently meets the BLOS and TLOS targets across the frontage of the subject site. This segment of road is not anticipated to be changed with the construction of the proposed development, thus the MLOS will not change at build-out.

The existing segment of Thorncliff Place, fronting the subject development, does not currently meet the PLOS target due to the lack of sidewalks and boulevards. To meet the PLOS target, there would need to be either a 0.5m boulevard with a 1.5m sidewalk or a 1.8m sidewalk implemented. As part of the site plan application, there is a proposed 1.5m sidewalk along the frontage of the subject site on Thorncliff Place. While this doesn't allow the PLOS target to be met, it is an improvement. To meet the PLOS target, the sidewalk would need to be widened to 1.8m or there would need to be a 0.5m boulevard implemented. The BLOS target for Thorncliff Place is currently met and this is not anticipated to change in the future with the construction of the subject site.

<u>TDM Measures</u>

- A list of TDM measures has been summarized for the development's opening year, which include aspects from the City's TDM-Supportive Development Design and Infrastructure Checklists and TDM checklists. These measures are included in **Appendix D**.
- TDM measures include
    - Transit:
        - Display relevant transit schedules and route maps at entrances.

  - TDM Marketing and Communication:
    - Provide a multimodal travel option information package to new residents
- Parking:
  - Unbundle parking cost from monthly rent

Based on the anticipated future operating conditions in the study area, the development can be supported from a transportation perspective and should be permitted to proceed.

Appendix A TRAFFIC DATA

Appendix B COLLISION DATA

Appendix C MULTI-MODAL LEVEL OF SERVICE ASSESSMENT

Appendix D TRANSPORTATION DEMAND MANAGEMENT CHECKLISTS