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South Nepean Town Centre Official Plan Amendment Transportation Impact Assessment Strategy Report



South Nepean Town Centre Official Plan Amendment

Transportation Impact Assessment Strategy Report

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Table of Contents

1. INTRODUCTION	1
2. SCREENING FORM.....	1
2.1. SUMMARY OF DEVELOPMENT	1
3. EXISTING CONDITIONS	4
3.1. AREA ROAD NETWORK	4
3.2. TRANSIT NETWORK	5
3.3. PEDESTRIAN/CYCLING NETWORK.....	5
3.4. EXISTING STUDY AREA INTERSECTIONS	6
4. PLANNED CONDITIONS	10
4.1. PLANNED STUDY AREA TRANSPORTATION NETWORK CHANGES	10
4.2. OTHER AREA DEVELOPMENTS	11
5. TIME PERIODS	12
6. HORIZON YEARS	12
7. EXEMPTIONS REVIEW.....	12
8. DEVELOPMENT GENERATED TRAVEL DEMAND	13
8.1. TRIP GENERATION AND MODE SHARES	13
8.1.1. Residential Trip Generation.....	13
8.1.2. Non-Residential Trip Generation	14
8.1.3. Projected Mode Share	15
8.1.4. Residential Uses	15
8.1.5. Non-Residential Uses.....	16
8.2. NET TRAVEL DEMAND REDUCTION	16
8.3. TRIP DISTRIBUTION.....	17
9. DEMAND RATIONALIZATION.....	17
10. TRANSIT	18
10.1. ROUTE CAPACITY	18
11. REVIEW OF NETWORK CONCEPT.....	18
11.1. ROAD NETWORK.....	18
11.2. TRANSIT	18
11.3. CYCLING AND PEDESTRIAN	19
12. SUMMARY OF IMPROVEMENTS INDICATED AND MODIFICATION OPTIONS	21

List of Figures

Figure 1: Local Context	2
Figure 2: Proposed OPA Land Use Plan	3
Figure 3: Area Transit Network.....	5
Figure 4: 600m BRT Coverage at Area of Study.....	17

Figure 5: Identified Transit Coverage Needs	19
Figure 6: Identified Local Pedestrian Connectivity Needs for the SNTC Interim Build-Out.....	20
Figure 7: Ultimate Cycling Network at the SNTC– Ottawa Cycling Plan	20
Figure 8: Identified Interim Cycling Connectivity Needs for the SNTC Interim Build-Out	21

List of Tables

Table 1: Proposed OPA Land Use Statistics	2
Table 2: CDP and OPA Land Use Plan.....	4
Table 3: Exemptions Review Summary.....	12
Table 4: Additional Recommended Exemptions Summary.....	13
Table 5: TRANS Recommended Vehicle Trip Generation Rate.....	14
Table 6: Total Vehicle Trip Generation by Residential Uses	14
Table 7: Modified Fitted Curve Equations for Non-Residential Land Uses.....	15
Table 8: Total Person-Trip Generation by Non-Residential Land Uses.....	15
Table 9: Projected Modal Share for the Study Area	15
Table 10: Total Residential Person-Trip Generation by Mode of Travel.....	16
Table 11: Total Non-Residential Person-Trip Generation by Mode of Travel	16
Table 12: Net Reduction in Total Weekday Morning and Afternoon Peak Hour Person-Trip Generation	16
Table 13: Net Reduction in Transit Trips Generation for the Proposed 2018 OPA.....	18
Table 14: Net Percentage Reduction in Transit Trips Generation for the Proposed 2018 OPA.....	18

List of Appendices

Appendix A – Screening Form

TIA Strategy Report

1. INTRODUCTION

The South Nepean Town Centre (SNTC) is located in the City of Ottawa's south end community of Barrhaven. The 2006 Community Design Plan (CDP) and Secondary Plan envision the Town Centre as the core of Barrhaven where rapid transit service and population growth would contribute to the evolution of the community into a compact, mixed-use and high-quality urban environment.

Minto Communities and Richcraft Group of Companies currently have significant land holdings within the SNTC and have an interest in seeing the Town Centre develop into the envisioned compact, transit-supportive community. To accomplish this, Minto and Richcraft have initiated an Official Plan Amendment (OPA) to review the CDP and redefine the initial form of development to mid-rise, mixed-use to match foreseeable market conditions as well as similar areas throughout Ottawa that have been termed transit-oriented developments; while allowing development to proceed in the area without precluding further densification in the future as the SNTC evolves.

The proposed Official Plan Amendment recognizes the opportunity to create an exemplar suburban Town Centre to serve the south end of the City, where a mid-rise form that achieves the goals of compact, transit-supportive, mixed-use community will allow the Town Centre to intensify and evolve over time. The amendments preserve opportunities for high-rise buildings within 600 metres of rapid transit stations, and generally within 200 metres walking distance. The mix of uses will contribute to the walkability of the neighbourhood and will help increase transit use both to and from the Town Centre.

The following Transportation Impact Assessment (TIA) will update the existing transportation context, development and network conditions within and adjacent to the Town Centre, assess the anticipated change in trip generation of the proposed units and density targets, and impacts of transit-oriented design within the Town Centre.

2. SCREENING FORM

The screening form was prepared for the subject development and included as part of the subsequent report. Used to assess the need for a TIA, the nature of the OPA underway will reduce the density of the SNTC and re-assess the Community Design Plan as a whole. As such, the Trip Generation and Safety triggers are not applicable for this assessment. The Location trigger is applicable and requires an assessment of the transportation network. The individual site plan and plan of subdivision applications will require additional assessment.

The screening form is provided in Appendix A.

2.1. SUMMARY OF DEVELOPMENT

The proposed amendment maintains the intensification targets set out in the Official Plan, as well as the previous objectives for the Town Centre to become compact, mixed-use, walkable, pedestrian-scaled and transit-supportive. The proposed densities and unit types, summarized in Table 1, for the initial development of the SNTC will be mainly mid-rise form. While less intense than what was ultimately envisioned by the CDP and Secondary Plan, the amendment will allow development to proceed in the area without precluding further densification in the future, as the SNTC evolves.

Figure 1 depicts the SNTC, which is bounded by Strandherd Drive to the north, Longfields Drive to the east, the Jock River to the south, and the Kennedy Burnett Stormwater Management Facility to the west. Figure 2 depicts the OPA proposed changes to the current CDP and Secondary Plan.

Table 1: Proposed OPA Land Use Statistics

Land Use Designation	Proposed Gross Area (ha)	Net Area (ha)	Proposed Net Density Target (units/ha)	Anticipated Units	Anticipated Employment Gross Floor Area (m2) ¹
High-Rise Mixed Use	18.49	16.6	200	3,328	-
Mid-Rise Mixed Use	33.24	29.9	120	3,590	-
High-Rise Residential	-	-	200	-	-
Mid-Rise Residential	39.86	27.9	50	1,395	-
Other	73.41	-	-	-	208,250
TOTAL	165.0	-	-	8,313	208,250

Figure 1: Local Context



¹ Assumes all employment is retail.

Figure 2: Proposed OPA Land Use Plan

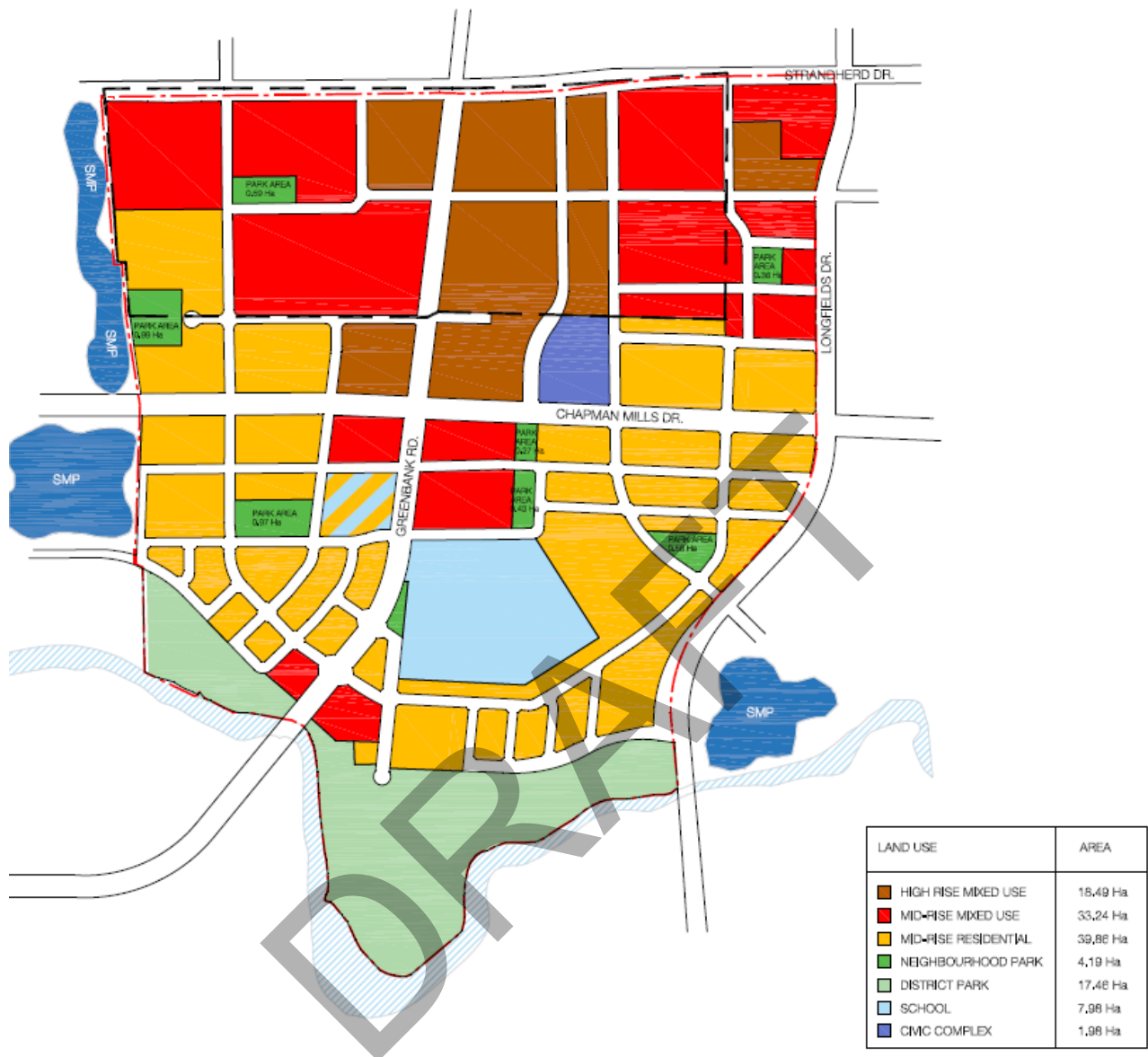


Table 2 summarizes the changes proposed by the OPA to the CDP Land Use Plan. A 28% reduction in population is anticipated. Regarding residential uses, an increase of 78% in the supply of townhouses and 86% reduction in the supply of apartments is proposed. Regarding non-residential uses, a retail-only supply is envisioned.

Table 2: CDP and OPA Land Use Plan

Land Use	Units	CDP	OPA	Percent Change
Townhouses (row or stacked)	Dwelling Units (du)	3,500	6,235	78%
Apartments	Dwelling Units (du)	14,800	2,078	-86%
Retail Gross Floor Area	Square Meters	217,000	208,250	-4%
Office Gross Floor Area	Square Meters	350,500	-	-100%
Projected Population	-	22,500	16,211	-28%
Employment	-	12,600	4,628	-63%

3. EXISTING CONDITIONS

3.1. AREA ROAD NETWORK

Strandherd Drive is an east-west divided arterial roadway that extends from Fallowfield Road in the west (where it continues as Fallowfield Road) and Prince of Wales Drive in the east (where it continues as Earl Armstrong Road). Within the study area, Strandherd Drive has a four-lane cross-section with auxiliary turn lanes provided at major intersections. The posted speed limit is 60 km/h.

Greenbank Road is a north-south divided arterial roadway that extends from Iris Street in the north (where it continues as Pinecrest Road) to Prince of Wales Drive in the south. Within the study area, Greenbank Road has a four-lane cross-section with auxiliary turn lanes provided at major intersections. The posted speed limit is 60 km/h west of Riocan's unsignalized driveway and 70 km/h east of Riocan's unsignalized driveway.

Chapman Mills Drive is an east-west major collector connecting Longfields Drive to Woodroffe Avenue. As part of an ongoing EA, an extension of Chapman Mills Drive, from Longfields Drive west to Strandherd Drive, is being designed.

Longfields Drive is a north-south divided arterial roadway (south of Strandherd Drive) that extends from Bill Leathem Drive in the north to Prince of Wales Drive in the south. Within the study area, Longfields Drive has a four-lane cross-section with auxiliary turn lanes provided at major intersections. The posted speed limit is 50 km/h which increases to 60 km/h south of Marketplace Avenue.

Jockvale Road is a north-south local roadway between Greenbank Road and Longfields Drive and is a major collector north of Strandherd Drive. The local road section is a 2-lane roadway with paved shoulders and a posted speed limit is 60 km/h and a right-turn auxiliary lane is provided at Greenbank Road. The Southwest Transitway connects to Jockvale Road approximately 135m southeast of Greenbank Road.

Marketplace Avenue/Clearbrook Drive is an east-west collector roadway with a two-lane cross section. Auxiliary turn lanes are provided at major intersections and the posted speed limit is 50 km/h.

Riocan Avenue is a two-lane local road extending from Strandherd Drive south to the end of the Barrhaven Town Centre. The intersection with Strandherd has auxiliary lanes and is traffic signal controlled. The intersection at Marketplace has separate left-turn lanes in all directions, and it is STOP-controlled. The unposted speed is understood to be 50 km/hr.

3.2. TRANSIT NETWORK

Transit service within the SNTC area is currently provided by OC Transpo Local Routes #170, 171, 173, 175, 176, 305, Peak Hour Routes #95, 99 and Frequent Route #80. Local Routes provide frequent all-day service 7-days a week and Peak Hour Routes provide weekday morning and afternoon peak hour service only. Frequent Routes provide service every 15 minutes or less during weekdays. The following Figure 3 depicts the existing transit within the vicinity of the SNTC area.

OC Transpo bus stops within the SNTC area are currently provided along the Southwest Transitway, Strandherd Drive, Marketplace Avenue, and Longfields Drive. The Southwest Transitway bisects the SNTC area, between Strandherd Drive and Riocan Avenue, with Marketplace Transit Station located south of Marketplace Avenue. Chapman Mills is planned to extend west from Longfields and would intersect with the Southwest Transitway at the Barrhaven Centre Transit Station.

Figure 3: Area Transit Network



3.3. PEDESTRIAN/CYCLING NETWORK

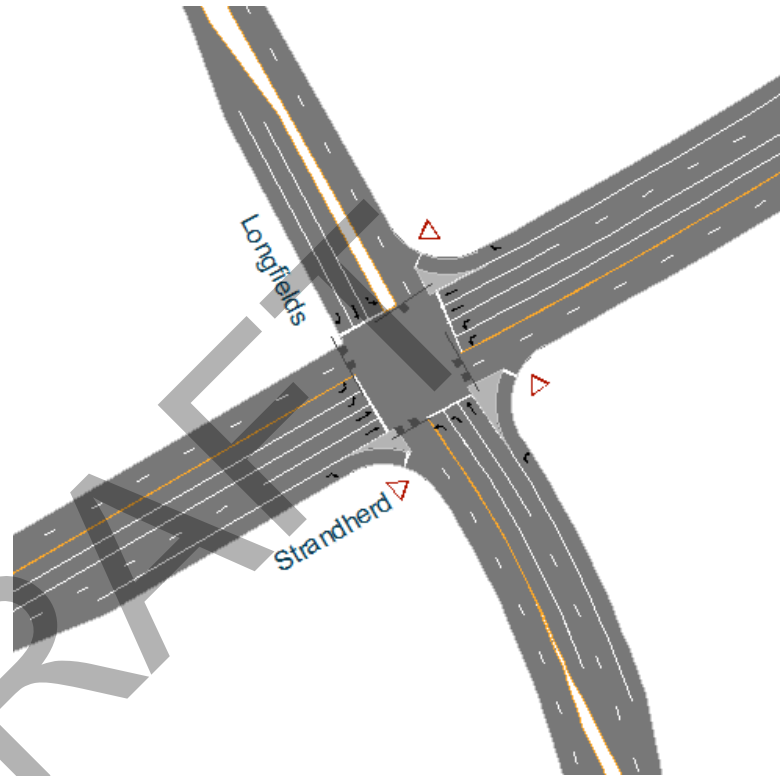
According to the City's Cycling Plan, Longfields Drive and Chapman Mills Drive are classified as "Local Routes", and Strandherd Drive and Greenbank Road are classified as "Spine Routes". Bicycle lanes are currently provided in both directions along Longfields Drive and Strandherd Drive, paved shoulders are provided on Greenbank Road. Major Pathways are provided east-west along Jock River and north-south along the Kennedy Burnett Stormwater Management Facility between Jock River and Strandherd Drive. Chapman Mills Drive is identified to have cycle-tracks in the Chapman Mills Extension and Bus Rapid Transit Environmental Assessment 2016 between Longfields Drive and west of the Kennedy-Burnett Drain.

The City of Ottawa Pedestrian Plan (2013) identifies pedestrian facilities (sidewalks) along Strandherd Drive on both north and south sides of the road from Borrisokane Road to approximately Andora Avenue, where a multi-use pathway extends along the north side of the road and a sidewalk continues along the south side. On Longfields Drive, sidewalks are provided on both sides of the road between the Jock River and Strandherd Drive, and on the East side of Greenbank Road between the Jock River and Strandherd Drive. Pedestrian facilities are also available along the north side of Marketplace Avenue and throughout the existing community roads.

3.4. EXISTING STUDY AREA INTERSECTIONS

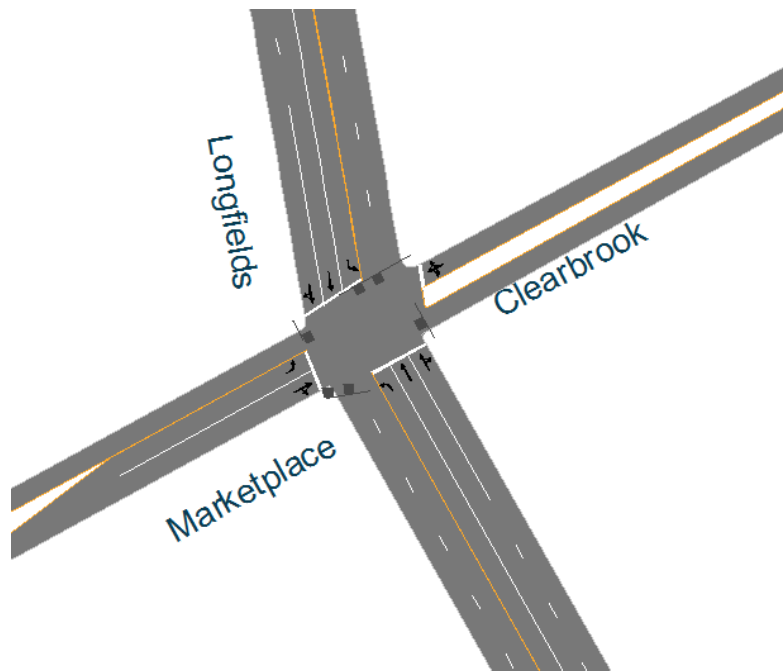
Strandherd/Longfields

The Strandherd/Longfields intersection is a signalized four-legged intersection. The southbound approach consists of an auxiliary left-turn lane, a single through lane and a right-turn lane. The northbound approach consists of a dual left-turn lane, single through lane and a channelized right-turn lane. The west and eastbound approaches consist of double left-turn lanes, double through lanes and channelized right-turn lanes. All movements are permitted at this location.



Longfields/Marketplace & Clearbrook

The Longfields/Marketplace & Clearbrook intersection is a signalized four-legged intersection. The northbound and southbound approaches consist of an auxiliary left-turn lane, a through lane and a shared through/right-turn lane. The eastbound and westbound approaches consist of a single shared through/right-turn lane and an auxiliary left-turn lane. All movements are permitted at this location.



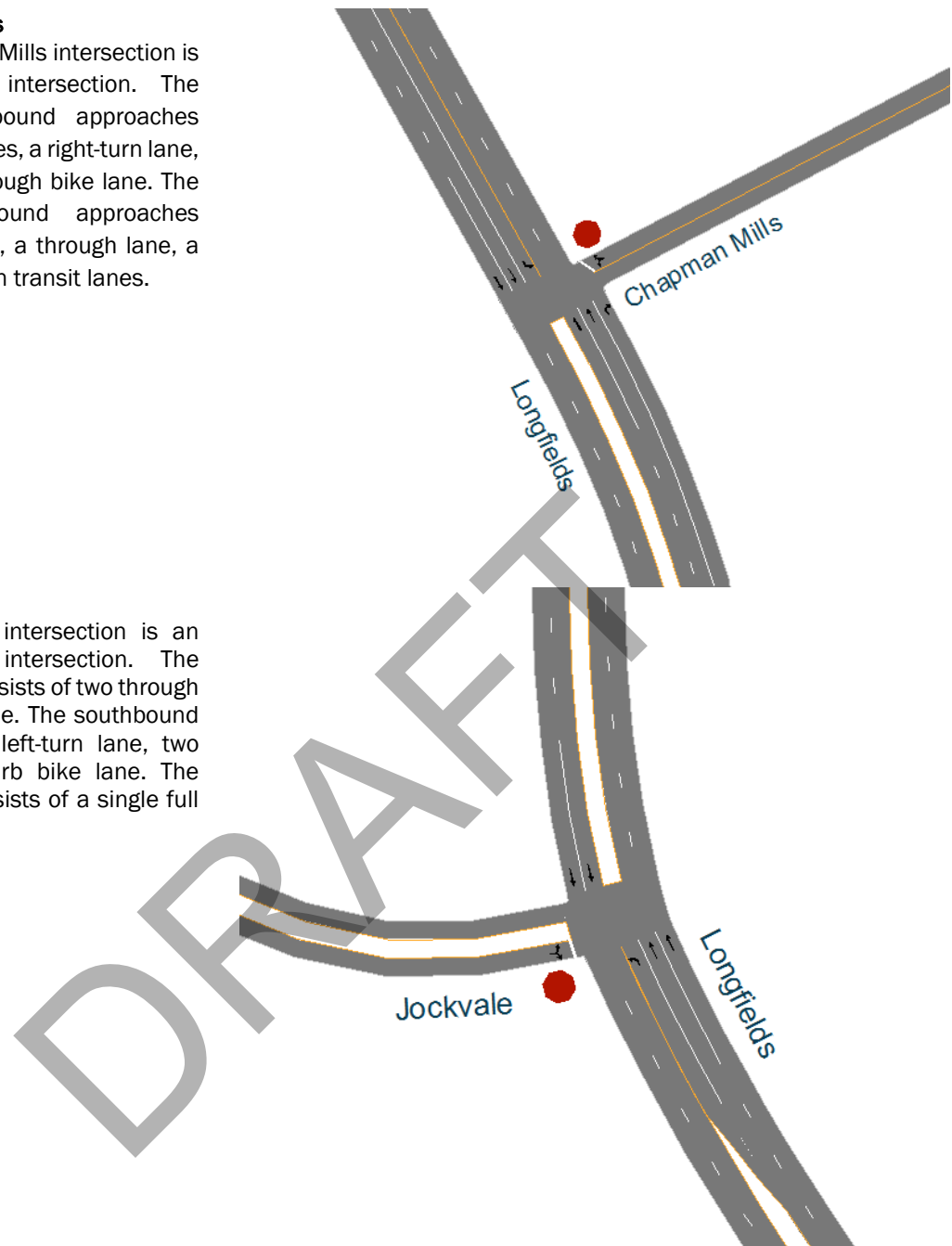
PARSONS

Longfields/Chapman Mills

The Longfields/Chapman Mills intersection is a signalized 4-legged intersection. The northbound and southbound approaches consist of two through lanes, a right-turn lane, a left-turn lane and a through bike lane. The eastbound and westbound approaches consist of a left-turn lane, a through lane, a right-turn lane and median transit lanes.

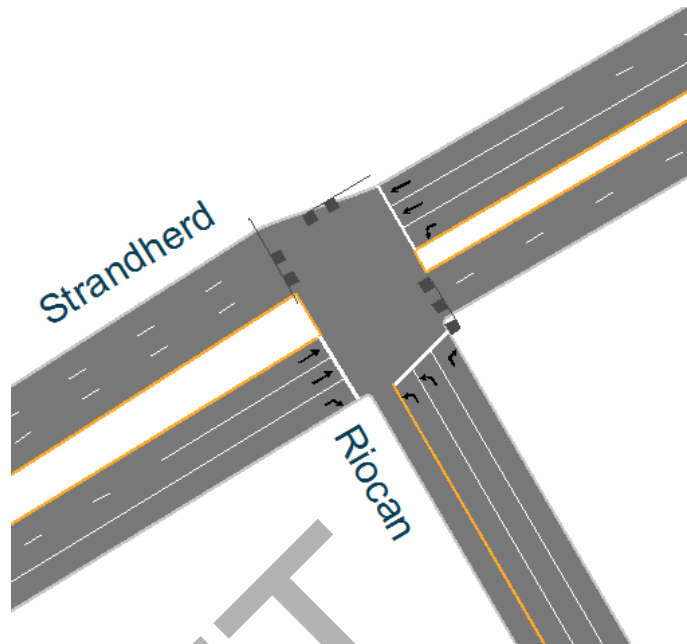
Longfields/Jockvale

The Longfields/Jockvale intersection is an unsignalized 3-legged intersection. The northbound approach consists of two through lanes and a curb bike lane. The southbound approach consists of a left-turn lane, two through lanes and a curb bike lane. The eastbound approach consists of a single full movement lane.



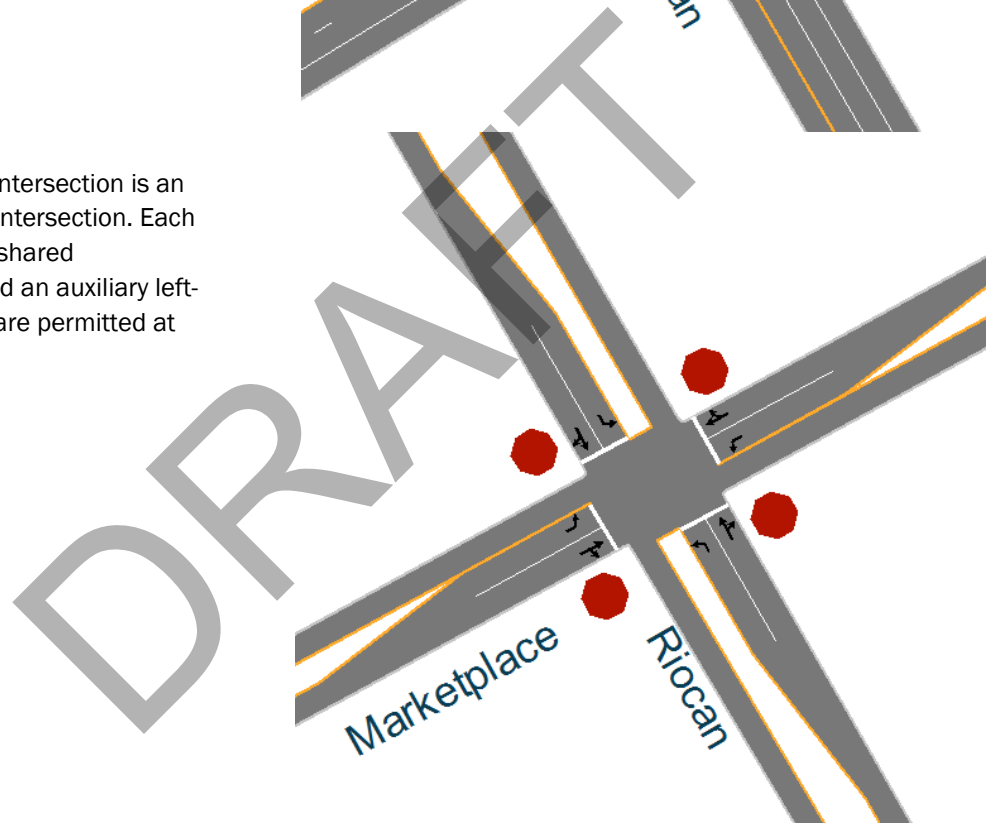
Strandherd/Riocan

The Strandherd/Riocan intersection is a signalized 'T' intersection. The northbound approach consists of double left-turn lanes and a single right-turn lane. The westbound approach consists of an auxiliary left-turn lane and two through lanes. The eastbound approach consists of two through lanes and a single right-turn lane. All movements are permitted at this location.



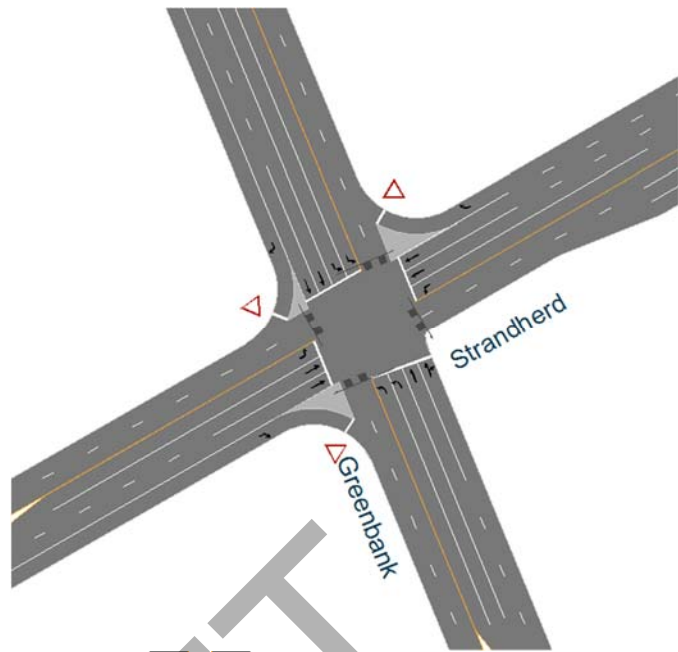
Marketplace/Riocan

The Marketplace/Riocan intersection is an unsignalized, four-legged intersection. Each approach consists of one shared through/right-turn lane and an auxiliary left-turn lane. All movements are permitted at this location,



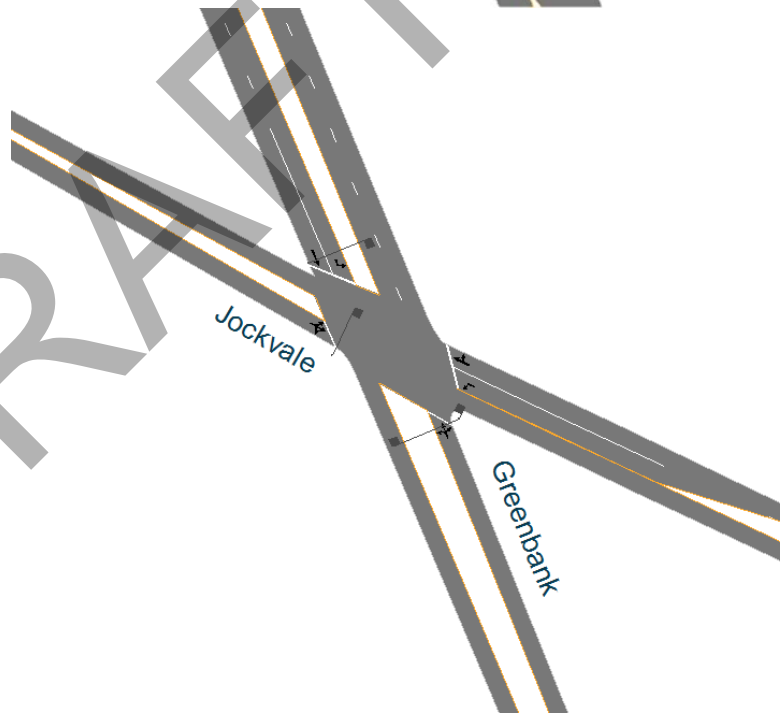
Strandherd/Greenbank

The Strandherd/Greenbank intersection is a signalized four-legged intersection. The northbound approach consists of two left-turn lanes, two through lanes and one through bike lane. The southbound approach consists of two left-turn lanes, two through lanes, one through bike lane and a channelized right-turn lane. The west and eastbound approaches consist of one left-turn lane, two through lanes, one through bike lane and one channelized right-turn lane. All movements are permitted at this location.



Greenbank/Jockvale

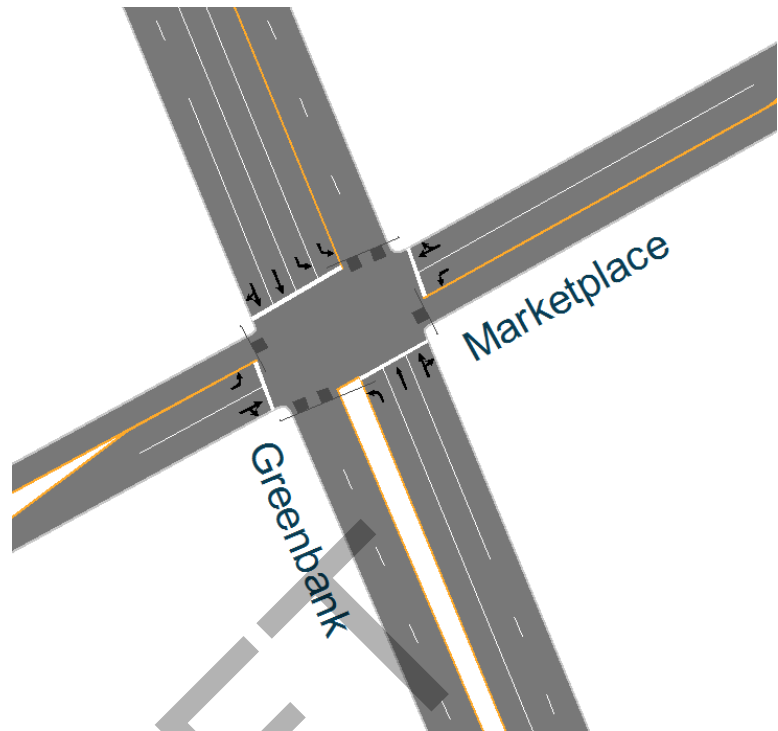
The Greenbank/Jockvale intersection is a signalized four-legged intersection. The north and eastbound approaches consist of a shared left/through/right lane. The westbound approach consists of a single shared left/through lane and a single right-turn lane. The southbound approach consists of a single left-turn lane and a shared through/right-turn lane. All movements are permitted at this location.



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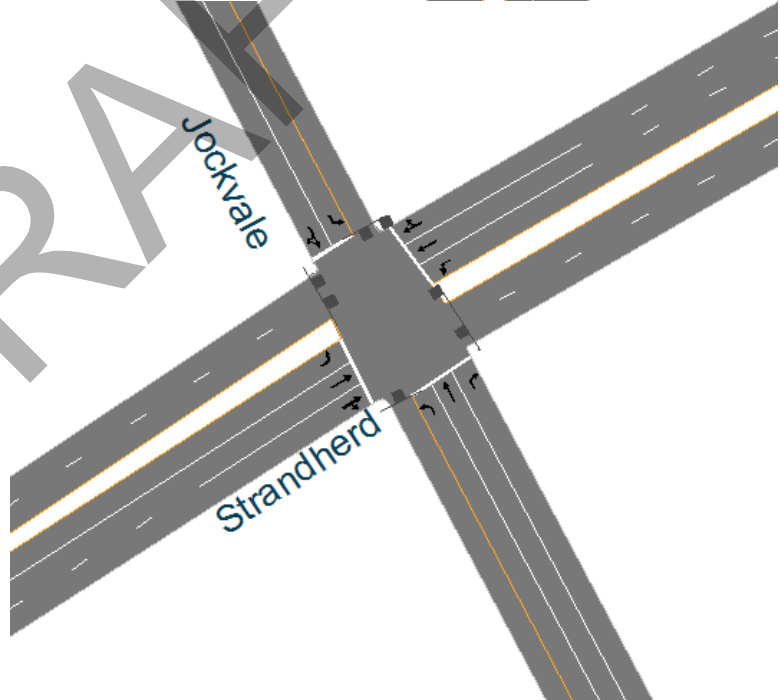
Greenbank/Marketplace

The Greenbank/Marketplace intersection is a signalized four-legged intersection. The southbound approach consists of two left-turn lanes, one through lane, one shared through/right-turn lane and one curb bike-lane. The northbound approach consists of one left-turn lane, one through lane and one shared through/right-turn lane. The eastbound approach consists of one left-turn lane and one shared through/right-turn lane. The westbound approach consists of one left-turn lane and one shared through/right-turn lane. All movements are permitted at this location.



Strandherd/Jockvale

The Strandherd/Jockvale intersection is a signalized four-legged intersection. The southbound approach consists of one left-turn lane and one shared through/right-turn lane. The northbound approach consists of one left-turn lane, one through lane and one right-turn lane. The west and eastbound approaches consist of one left-turn lane, one through lane and one shared through/right-turn lane. All movements are permitted at this location.



4. PLANNED CONDITIONS

4.1. PLANNED STUDY AREA TRANSPORTATION NETWORK CHANGES

According to the Official Plan (Schedule D), a Future Transit Corridor is conceptualized west of Greenbank Road along the future alignment of Chapman Mills Drive to Borrisokane Road. Likewise, an extension of the Southwest Transitway, along the future Greenbank Road alignment and into Barrhaven South, is also envisioned.

The extension of Chapman Mills Drive from Longfields Drive to Strandherd Drive is a Phase 2 project identified within the Affordable Network in the City's TMP to be completed between 2020-2025. The Chapman Mills Drive is identified as a Transit Priority corridor and a Bus Rapid Transit Environmental Assessment Study was completed at the end of 2016, identifying the extension of the bus rapid transit corridor from the Southwest Transitway to Borrisokane Road. The right-of-way along Chapman Mills Drive includes a typical cross-section of 2.0m wide concrete sidewalk on either side of the roadway, 2.0m cycle track in each direction, 1.2m boulevard, 2.5m parking lane in each direction, 3.5m travel lane in each direction, 4.5m landscaped median, and 4.0m transit lane in each direction.

The Greenbank Road Class Environmental Assessment Study was completed in 2006 to widen Greenbank Road to 4-lanes from Malvern Drive to Cambrian Road. Centre bus rapid transit lanes were included from the Southwest Transitway, south to Cambrian Road. South of Chapman Mills Drive, the re-alignment will swing west to cross the Jock River and loop around Mattamy's Half Moon Bay to connect to Cambrian Road. The Greenbank Road right-of-way typical cross-section will likely include 2.0m wide concrete sidewalk on either side of the roadway, 2.0m cycle track/lane in each direction, two 3.5m travel lanes in each direction, 4.5m landscaped median, and 4.0m transit lane in each direction.

An update to the Strandherd Drive widening is currently underway from Kennevale Road to Jockvale Road. The design currently includes cycle tracks and sidewalks on both side of Strandherd Drive, with a divided four lane cross section. It is anticipated that construction will begin in 2018 and completed by 2020.

As designated by the Official Plan (Schedule C), Strandherd Drive, Greenbank Road and Jockvale Drive are all planned to accommodate on-road cycling facilities. A multi-use pathway is proposed along the north side of the Jock River and connecting to the District Park within the Town Centre.

4.2. OTHER AREA DEVELOPMENTS

According to the City's development application search tool, the following developments are planned within the vicinity of the subject SNTC area.

3311 Greenbank Road

Minto Communities, in conjunction with the City of Ottawa, is planning a residential subdivision in the South Nepean Town Centre. The residential development will consist of 146 executive townhomes and 108 mid-rise condominium units. The proposed development is north of the Jock River, on the south side of St. Joseph High School and is currently vacant land.

3201 Greenbank Road

Approximately 11,000 ft² of retail and an 8,000 ft² restaurant are being proposed within an existing retail development located at the above-mentioned address, approximately 550 m southwest of the subject area.

1034 McGarry Terrace

The proposed residential/commercial development at 1034 McGarry and 1117 Longfields Drive is located in the Barrhaven Town Centre in the northeast quadrant of the Longfield/Marketplace intersection. It is a two-phase project totaling approximately 372 apartment units and 3,600 m² of ground level commercial space.

1012 and 1024 McGarry Terrace

Lapine Corporation is proposing to construct a 14-storey apartment building with 217 units and 260 parking spaces adjacent to the northwest. Garage access will be to/from McGarry Terrace.

1000 McGarry Terrace

Dymon Storage is proposing one of their drive through storage facilities on this site. While the Site Plan has been submitted, it is our understanding site access still needs to be resolved.

125 Marketplace & 101A Lindenshade

An approximate 290-unit senior residential development is being proposed at the above-mentioned address, approximately 50 m south of the SNTC area.

Nepean Town Centre Development Corp. (NTCDC)

The NTCDC site is located at 3288 Greenbank Road and has recently undergone an official plan amendment to allow an increase in development density and changes to the road network plan proposed within the South Nepean Town Centre CDP. The 12.75-hectare site is bounded by Greenbank Road on the east, future Chapman Mills Drive on the north, the Kennedy-Burnett SWM Facility to the west and Claridge's Burnett lands (see Section 3.2.3) to the south. In total, the site concept includes 482 mid-rise mixed use units, 343 high-rise mixed use units, and 496 mid-rise residential units.

Burnett Lands – 3370 Greenbank Road (Claridge)

The plan of subdivision and official plan amendment have been submitted for 3370 Greenbank Road, located west of Greenbank Road and north of the Jock River. The development is proposed to include 247 townhomes and 420 condominium units. Ultimately the re-aligned Greenbank Road will bisect the development, but in the interim, the proposed access locations will connect to existing Greenbank Road south of Jockvale Road and opposite Minto's site Street No. 1 access. The anticipated build out of the Burnett Lands is 2020 for Phase 1 (177 townhomes), and 2020 for Phases 2 and 3 (70 townhomes and 720 condominiums).

5. TIME PERIODS

Given the nature of the OPA submission, only the AM and PM peak hour trip generation will be provided and summarized. For analysis purposes, "total trip generation" in this report will refer to total trip generation during the weekday morning and afternoon peak hours.

6. HORIZON YEARS

Given the nature of the OPA submission, no horizon year will be assessed.

7. EXEMPTIONS REVIEW

Based on the City's TIA guidelines and the subject area, the following modules/elements of the TIA process, summarized in Table 3, are recommended to be exempt in the subsequent steps of the TIA process:

Table 3: Exemptions Review Summary

Module	Element	Exemption Consideration
4.1 Development Design	All Elements	As this study supports the proposed OPA density changes for the initial stages of development of the SNTC area, the development design will be completed, as required, during the individual site plan or plan of subdivision stages for the individual developers
4.2 Parking	All Elements	As this study supports the proposed OPA density changes for the initial stages of development of the SNTC area, the parking will be assessed, as required, during the individual site plan or plan of subdivision stages for the individual developers.
4.5 Transportation Demand Management	All Elements	As this study supports the proposed OPA density changes for the initial stages of development of the SNTC area, the TDM measures will be assessed, as required, during the individual site plan or plan of subdivision stages for the individual developers.

In addition to the above recommendations of the Exemptions Review, the following exemptions are also proposed for both Step 3 – Forecasting and Step 4 – Analysis and are summarized in Table 4.

Table 4: Additional Recommended Exemptions Summary

Module	Element	Exemption Consideration
3.1 Development-Generated Travel Demand	3.1.3 Trip Assignment	As this study supports the proposed OPA density changes for the initial stages of development of the SNTC area, the trip assignment will be assessed, as required, during the individual site plan or plan of subdivision stages for the individual developers.
3.2 Background Network Travel Demand	All Elements	As this study supports the proposed OPA density changes for the initial stages of development of the SNTC area, the background travel demand will be assessed, as required, during the individual site plan or plan of subdivision stages for the individual developers.
3.3 Demand Rationalization	All Elements	As this study supports the proposed OPA density changes for the initial stages of development of the SNTC area, the demand rationalization will be assessed, as required, during the individual site plan or plan of subdivision stages for the individual developers.
4.3 Boundary Streets	All Elements	As this study supports the proposed OPA density changes for the initial stages of development of the SNTC area, the boundary street conditions and impacts will be assessed, as required, during the individual site plan or plan of subdivision stages for the individual developers.
4.4 Access Intersection Design	All Elements	As this study supports the proposed OPA density changes for the initial stages of development of the SNTC area, no access intersections are being considered. These components will be completed, as required, during the individual site plan or plan of subdivision stages for the individual developers.
4.6 Neighbourhood Traffic Management	All Elements	As this study supports the proposed OPA density changes for the initial stages of development of the SNTC area, the neighbourhood traffic management will be assessed, as required, during the individual site plan or plan of subdivision stages for the individual developers.
4.7 Transit	4.7.2 Transit Priority	As this study supports the proposed OPA density changes for the initial stages of development of the SNTC area, the transit priority measures are not required. These components will be completed, as required, during the individual site plan or plan of subdivision stages for the individual developers.
4.9 Intersection Design	All Elements	As this study supports the proposed OPA density changes for the initial stages of development of the SNTC area, intersection design will be assessed, as required, during the individual site plan or plan of subdivision stages for the individual developers.

8. DEVELOPMENT GENERATED TRAVEL DEMAND

8.1. TRIP GENERATION AND MODE SHARES

As part of the trip generation for the proposed OPA, the CDP trip generation will also be completed to update the residential components to the TRANS generation rates, and the non-residential components to the ITE Trip Generation 10th Edition.

8.1.1. RESIDENTIAL TRIP GENERATION

Appropriate trip generation rates for the proposed development were obtained from the City's TRANS Trip Generation – Residential Trip Rates (Table 3.15 of the TRANS Trip Generation Study) and are summarized in Table 5.

Table 5: TRANS Recommended Vehicle Trip Generation Rate

Land Use	Trip Rate	
	AM Peak	PM Peak
2006 CDP		
Row/ Townhouses (CDP)	0.43	0.48
Apartments (CDP)	0.26	0.26
2018 Proposed OPA		
Row/ Townhouses (OPA)	0.43	0.48
Apartments (OPA)	0.26	0.26

Using the TRANS Trip Generation rate, the total amount of vehicle trips generated by the residential uses of both the current CDP as well as the proposed OPA were projected and the results are summarized in Table 6.

Table 6: Total Vehicle Trip Generation by Residential Uses

Land Use	Units	AM Peak (veh/h)			PM Peak (veh/h)		
		In	Out	Total	In	Out	Total
		40%	60%		55%	45%	
2006 CDP							
Row/ Townhouses (CDP)	3,500 du	602	903	1,505	924	756	1,680
Apartments (CDP)	14,800 du	846	3,002	3,848	2,385	1,463	3,848
2018 Proposed OPA							
Row/ Townhouses (OPA)	6,235 du	1,072	1,609	2,681	1,646	1,347	2,993
Apartments (OPA)	2,078 du	118	422	540	334	206	540

In total, 10,881 two-way vehicle trips are generated by the CDP residential uses during the morning and afternoon periods; and 6,754 vehicle trips are generated by the OPA residential uses during the morning and afternoon periods.

8.1.2. NON-RESIDENTIAL TRIP GENERATION

Appropriate trip generation rates for the subject land uses were obtained from the fitted curve equations provided by the 10th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual. As ITE trip generation surveys only record vehicle trips and typically reflect highly suburban locations (with little to no access by travel modes other than private automobiles), and considering that the subject development will retain compact, mixed use, mid-rise town centre characteristics, adjustment factors appropriate to the more urban study area context were applied to attain estimates of person trips for the subject development.

To convert ITE vehicle trip rates to person trips, an auto occupancy factor and a non-auto trip factor were applied to the ITE fitted curve equations. Our review of available literature suggests that a combined factor of approximately 1.3 is considered reasonable to account for typical North American auto occupancy values of approximately 1.15 and combined transit and non-motorized modal shares of less than 10%. As such, the modified ITE fitted curve equations for the SNTC area are summarized in Table 7.

Table 7: Modified Fitted Curve Equations for Non-Residential Land Uses

Land Use	Data Source	Fitted Curve Equation			
		AM Peak		PM Peak	
2006 CDP					
Office (CDP)	ITE 710	T=	1.20(x) + 33.91	Ln(T)=	0.95(x) + 0.61
Retail (CDP)	ITE 820	T=	0.64(x) + 194.28	Ln(T)=	0.74(x) + 3.14
2018 Proposed OPA					
Retail (OPA)	ITE 820	T=	0.64(x) + 194.28	Ln(T)=	0.74(x) + 3.14

Using the trip generation rates, the total amount of person trips generated by the non-residential land uses of both the current CDP as well as the proposed OPA were projected and the results are summarized in Table 8.

Table 8: Total Person-Trip Generation by Non-Residential Land Uses

Land Use	Area (1,000 sq ft)	AM Peak (veh/h)			PM Peak (veh/h)		
		In	Out	Total	In	Out	Total
2006 CDP							
Office (CDP)	3,773	3,932	641	4,573	733	3,852	4,585
Retail (CDP)	2,336	1,047	642	1,689	3,437	3,724	7,161
2018 Proposed OPA							
Retail (OPA)	2,242	1,009	620	1,629	3,334	3,612	6,946

8.1.3. PROJECTED MODE SHARE

Using modal share percentages from the 2011 NCR Household Origin – Destination Survey for the South Nepean TRANS District and considering transit targets (60% of modal share) for Transit-Oriented-Development areas, the modal share for the proposed development was projected and is summarized in Table 9.

Table 9: Projected Modal Share for the Study Area

Travel Mode	Mode Share
Auto Driver	23%
Auto Passenger	7%
Transit	60%
Non-motorized	10%

8.1.4. RESIDENTIAL USES

Using the modal share from Table 9, vehicle trips projected in Table 6 for the residential land uses were converted into person trips, as summarized in Table 10.

Table 10: Total Residential Person-Trip Generation by Mode of Travel

Travel Mode	2006 CDP			2018 Proposed OPA		
	AM	PM	Total	AM	PM	Total
Auto Driver	5,353	5,528	10,881	3,221	3,533	6,754
Auto Passenger	1,629	1,682	3,311	980	1,075	2,055
Transit	13,964	14,420	28,384	8,403	9,217	17,620
Non-motorized	2,327	2,403	4,730	1,401	1,536	2,937
Total People Trips	23,273	24,034	47,307	14,005	15,361	29,366
Total 'New' Auto Trips	5,353	5,528	10,881	3,221	3,533	6,754

8.1.5. NON-RESIDENTIAL USES

Person trips projected in Table 8 were converted into trips by mode of travel using the aforementioned modal share, and considering a 15% of pass-by trips according to Figure 5.5 of the ITE Trip Generation Handbook, chapter 5, as summarized in Table 11.

Table 11: Total Non-Residential Person-Trip Generation by Mode of Travel

Travel Mode	2006 CDP			2018 Proposed OPA		
	AM	PM	Total	AM	PM	Total
Auto Driver	1,442	2,703	4,145	376	1,598	1,974
Auto Passenger	439	824	1,263	113	485	598
Transit	3,756	7,046	10,802	978	4,169	5,147
Non-motorized	625	1,173	1,798	162	694	856
Total People Trips	6,262	11,746	18,008	1,629	6,946	8,575
Less Pass-by (15%)	-216	-406	-622	-56	-240	-296
Total 'New' Auto Trips	1,226	2,297	3,523	320	1,358	1,678

8.2. NET TRAVEL DEMAND REDUCTION

Total person trips generated by the current CDP and the proposed OPA are summarized in Table 12.

Table 12: Net Reduction in Total Weekday Morning and Afternoon Peak Hour Person-Trip Generation

Travel Mode	2006 CDP			2018 Proposed OPA			Net Reduction
	AM	PM	Total	AM	PM	Total	
Auto Driver	6,579	7,825	14,404	3,541	4,891	8,432	-41%
Auto Passenger	2,068	2,506	4,574	1,093	1,560	2,653	-42%
Transit	17,720	21,466	39,186	9,381	13,386	22,767	-42%
Non-motorized	2,952	3,576	6,528	1,563	2,230	3,793	-42%
Total People Trips	29,535	35,780	65,315	15,634	22,307	37,941	-42%
Total 'New' Auto Trips	6,579	7,825	14,404	3,541	4,891	8,432	-41%

As shown in Table 12, the current CDP is projected to generate approximately 65,315 two-way person-trips during the weekday morning and afternoon peak hours, of which 14,404 are auto trips. The OPA is projected to generate

approximately 37,941 two-way person-trips during the weekday morning and afternoon peak hours, of which 8,432 are auto trips.

The proposed OPA changes of land use intensities would reduce auto travel demand by 41% in the adjacent road network, as compared the current CDP land use intensities. It would also reduce the transit network demand by 42%, as compared the current CDP land use intensities. Considering this net reduction, no adverse impacts are anticipated to the adjacent transportation network.

8.3. TRIP DISTRIBUTION

Based on the TRANS OD Survey, a trip distribution of total area-generated travel was performed:

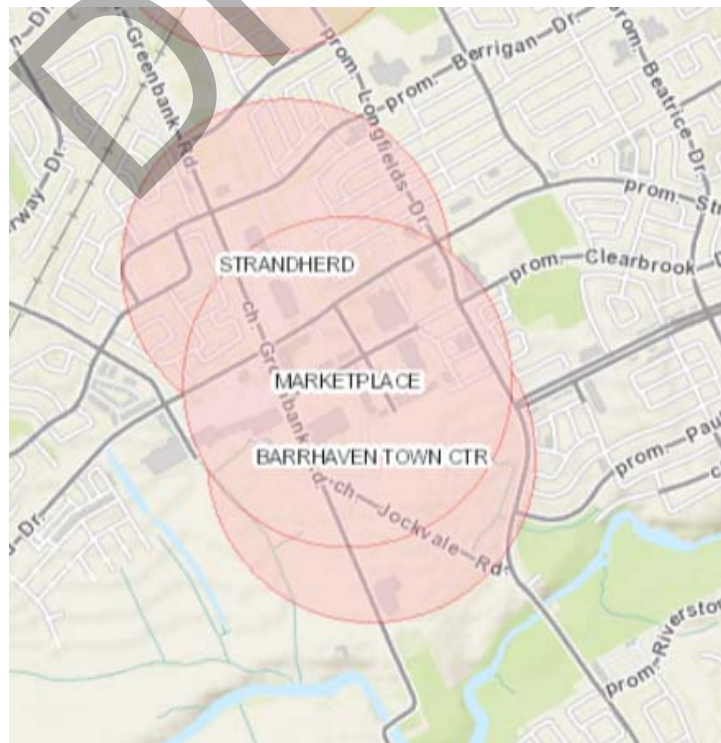
- 55% to/from the north: 55%
- 30% to/from the west: 30%
- 10% to/from the east: 10%
- 5% to/from the south: 5%
- 100%

9. DEMAND RATIONALIZATION

Travel demand forecasts in the foregoing sections have considered the evolution of local trip generation and travel demand trends in Ottawa. In particular, the 60% transit modal share targets for transit-oriented developments have been applied to the proposed OPA trip generation. The intersecting BRT lines through the Town Centre will provide a high level of transit service to the area and allow for longer commuter trips via transit. These BRT corridors will be expanded in the future, although the current connections to the north and east already provide that quality of transit service that can support the development of the SNCTC.

Figure 4 illustrates the 600m buffer coverage from the existing transit stations in the study area.

Figure 4: 600m BRT Coverage at Area of Study



10. TRANSIT

10.1. ROUTE CAPACITY

Table 13 and Table 14 summarize the net reduction in area-generated transit trips due to the proposed OPA. It is identified that area-generated transit trips for the contemplated mix of land uses are projected to be highest during the weekday afternoon peak hour.

Table 13: Net Reduction in Transit Trips Generation for the Proposed 2018 OPA

Travel Mode	2006 CDP				2018 Proposed OPA			
	AM		PM		AM		PM	
	In	Out	In	Out	In	Out	In	Out
Transit (persons/h)	6,767	10,955	11,136	10,332	3,714	5,669	7,170	6,218

Table 14: Net Percentage Reduction in Transit Trips Generation for the Proposed 2018 OPA

Travel Mode	Net Reduction			
	AM		PM	
	In	Out	In	Out
Transit (persons/h)	45%	48%	36%	40%

As shown in Table 13, the current CDP is projected to generate approximately 11,200 inbound and 10,400 outbound transit passengers during the weekday afternoon peak hour. The proposed OPA is projected to generate approximately 7,200 inbound and 6,300 outbound transit passengers during the weekday afternoon peak hour. This represents a net reduction of 36% and 40% for inbound and outbound trips, respectively, as summarized in Table 14.

11. REVIEW OF NETWORK CONCEPT

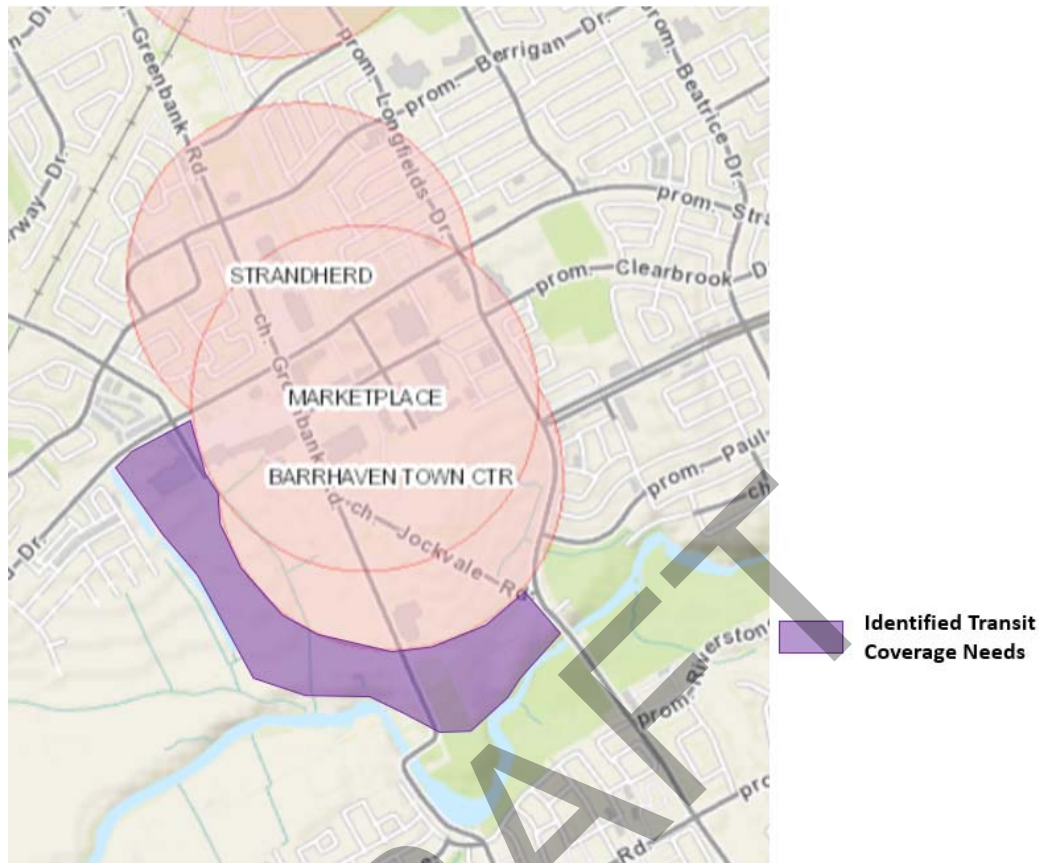
11.1. ROAD NETWORK

The OPA general layout of the road network is noted to be generally similar and consistent with the existing CDP while supporting the interim and long-term development of the Town Centre. As illustrated in Figure 2, the OPA proposed road network layout reflects planned modifications to Greenbank Road and Chapman Mills Drive and provides adequate connectivity to the arterial and major collector roads (Strandherd Drive, Greenbank Road, Longfields Drive and Chapman Mills Drive), while minimizing through traffic and associated negative effects to the community. Proposed road network changes also reflect the land ownership, avoiding consolidation to effectively develop designated blocks. These changes maintain the neighbourhood connectivity proposed within the 2006 CDP and with the existing retail-related transportation demand.

11.2. TRANSIT

The transit catchment areas illustrated in Figure 4 noted that a local bus-route will need to be provided to connect the southern and western mid-rise residential areas of the town centre with the future transit stations on Greenbank Road and Chapman Mills Drive, as illustrated in Figure 5.

Figure 5: Identified Transit Coverage Needs

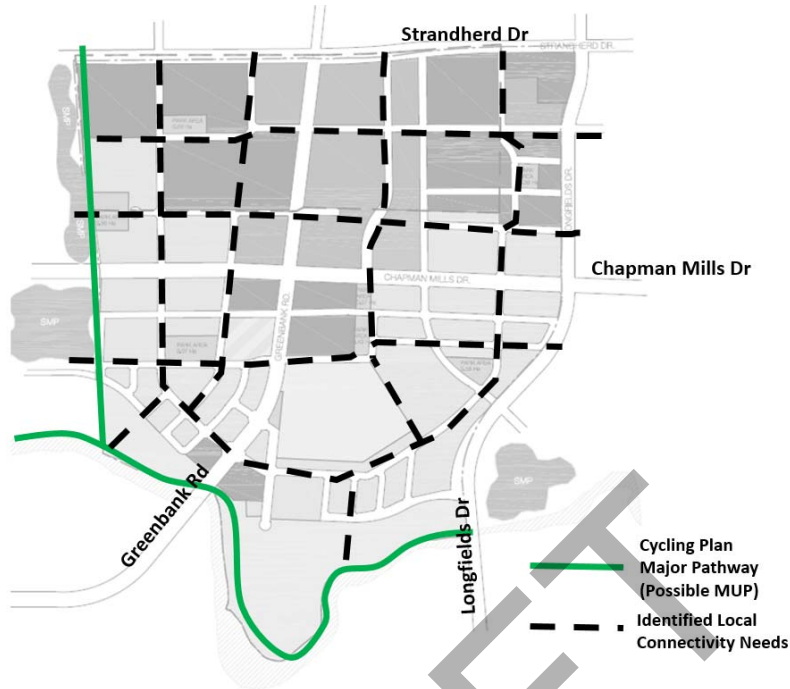


11.3. CYCLING AND PEDESTRIAN

Regarding pedestrians, it is assumed that sidewalks will be provided on both sides of collector and arterial roads; and, at minimum, on one side of local roads. Consideration should be given to increasing pedestrian permeability near transit stations, civic complex and school during design review of specific developments. These crossing opportunities may be provided by the implementation of pedestrian crossovers, or additional crossings to fit the desire lines within the SNTC.

Figure 6 illustrates the high-level pedestrian connectivity grid for the SNTC interim build-out. The average estimated distance between pedestrian connectivity lines would be approximately 250 m.

Figure 6: Identified Local Pedestrian Connectivity Needs for the SNTC Interim Build-Out



Regarding cycling connectivity, a minimum hierarchical grid that connects residential areas, retail areas, school, parks and open spaces, civic centre and the broader community is required. A local grid of cycling links that connects the Town Centre with the City of Ottawa ultimate cycling network and with neighbouring communities will be needed. Off-Road links should be provided where possible, using opportunities at open spaces and parks. Figure 7 depicts the ultimate cycling network identified by the Ottawa Cycling Plan and Figure 8 broadly illustrates cycling connectivity needs identified for the SNTC interim build-out.

Figure 7: Ultimate Cycling Network at the SNTC – Ottawa Cycling Plan

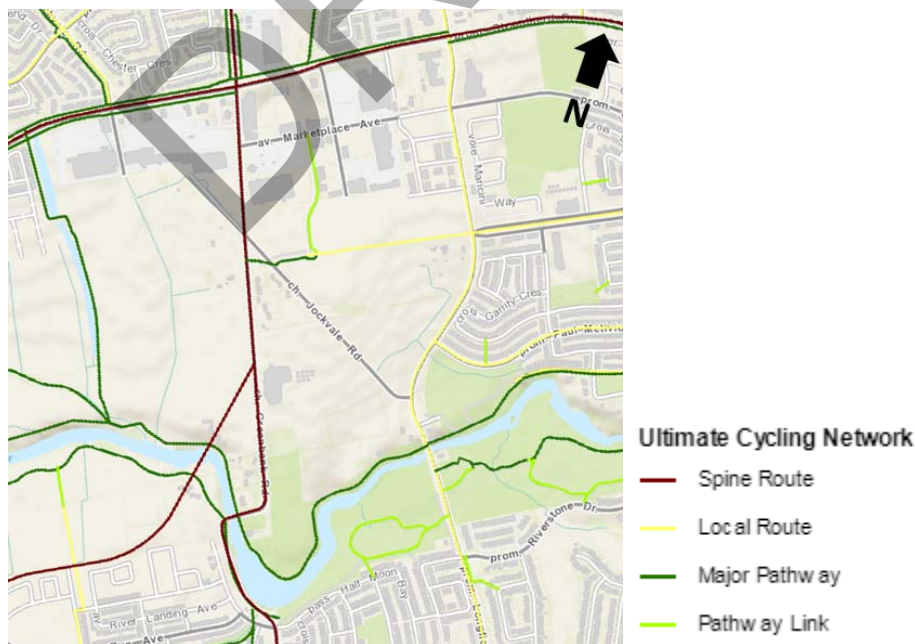


Figure 8: Identified Interim Cycling Connectivity Needs for the SNTC Interim Build-Out



12. SUMMARY OF IMPROVEMENTS INDICATED AND MODIFICATION OPTIONS

Based on the results of the study herein, the following summary is offered:

2006 Community Design Plan

- The 2006 Community Design Plan and Secondary Plan for the SNTC defined a vision for the town centre that is geared towards an accessible and sustainable transportation system that supports a compact, mixed-use, transit-oriented, pedestrian-scaled and walkable land use pattern.
- As part of this vision, the 2006 CDP set-out intensification targets and anticipated the development of 3,500 Townhouses, 14,800 apartment units, 217,000 m² of retail gross floor area and 350,500 m² of office gross floor area. As a result, the Town Centre was expected to accommodate 22,500 residents and 12,600 jobs.

Proposed Official Plan Amendment

- The current OPA seeks to redefine the initial form of development to mid-rise, mixed-use to match similar areas throughout Ottawa that have been termed transit-oriented developments, while allowing development to proceed in the area without precluding further densification in the future, as the SNTC evolves.
- The subject OPA proposes to build 6,235 Townhouses, 2,078 Apartment units and 208,250 m² of retail gross floor area. As a result, the SNTC would accommodate a population of 16,211 and 4,628 jobs. This represents a 28% reduction in the proposed population, with an increase of 78% in the supply of townhouses and 86% reduction in the supply of apartments.

Updated Trip Generation

- For the purposes of this analysis, recent progress in local know-how, best practices and the evolution of provincial and municipal policy have been considered. This includes the application of trip generation rates and modal shares that are better suited to the City of Ottawa context, as well as updated Transportation Master Plan targets, the Ottawa Pedestrian Plan, the Ottawa Cycling Plan and the City of Ottawa Complete Streets Policy.

- Travel demand forecasts have considered the evolution of local trip generation and travel demand trends in Ottawa. In particular, the 60% transit modal share targets for transit-oriented developments have been applied to the proposed OPA trip generation.
- Given the aforementioned, the current CDP is projected to generate approximately 65,315 two-way person-trips during the weekday morning and afternoon peak hours, of which 39,186 are transit trips, 6,528 are non-motorized trips, and 18,978 are auto trips. The OPA is projected to generate approximately 37,941 two-way person-trips during the weekday morning and afternoon peak hours, of which 22,767 are transit trips, 3,793 are non-motorized trips, and 11,085 are auto trips.

Transit Capacity

- The intersecting BRT lines through the Town Centre will provide a high level of transit service to the area and allow for longer commuter trips via transit. These BRT corridors will be expanded in the future, although the current connections to the north and east already provide that quality of transit service that can support the development of the SNTC.
- Given the projected travel demand, the current OPA would reduce the transit demand by 42%, as compared the current CDP land use intensities. This indicates that the future BRT corridors envisioned along Greenbank Road and Chapman Mills Drive would provide enough capacity to serve the corresponding OPA transit demand.
- Serving the 2018 OPA transit demand during the weekday afternoon peak hour (~1900 passengers to ~2200 passengers, respectively) would require either 35 to 40 single buses per hour, 25 to 29 articulated buses per hour or 21 to 24 double decker buses per hour.

Network Concept

- The OPA general layout of the road network is noted to be generally similar and consistent with the existing CDP while supporting the interim and long-term development of the Town Centre.
- Considering planned transit catchment areas, it is noted that a local bus-route will need to be provided to connect the southern and western mid-rise residential areas of the town centre with the future transit stations on Greenbank Road and Chapman Mills Drive.
- Consideration should be given to increasing pedestrian permeability near transit stations, civic complex and school during design review of specific developments. These crossing opportunities may be provided by the implementation of pedestrian crossovers, or additional crossings to fit the desire lines within the SNTC.
- Regarding cycling connectivity, a minimum hierarchical grid that connects residential areas, retail areas, school, parks and open spaces, civic centre and the broader community is required. A local grid of cycling links that connects the Town Centre with the City of Ottawa ultimate cycling network and with neighbouring communities will be needed.
- The proposed OPA changes of land use intensities would reduce auto travel demand by 41% in the adjacent road network, as compared the current CDP land use intensities. Given this net reduction, no adverse impacts are anticipated to the adjacent transportation network.

Based on the foregoing conclusions, this report satisfies the TIA requirements for proposed Official Plan Amendment for the South Nepean Town Centre and is recommended to proceed from a transportation perspective.

Appendix A

Screening Form

DRAFT

City of Ottawa 2017 TIA Guidelines

Date

27-Apr-18

TIA Screening Form

Project

South Nepean Town Centre OPA

Project Number

476622

Results of Screening	Yes/No
Development Satisfies the Trip Generation Trigger	No
Development Satisfies the Location Trigger	Yes
Development Satisfies the Safety Trigger	No

Module 1.1 - Description of Proposed Development	
Municipal Address	South Nepean Town Centre
Description of location	The South Nepean Town Centre is an area of approximately 165 hectares located in the community of Barrhaven. Bounded by Strandherd Drive to the north, Longfields Drive to the east, the Jock River to the south, and the Kennedy Burnett Stormwater Management Facility to the west.
Land Use	Multiple
Development Size	OPA to reduce to 8,313 dwelling units and 208,250 square metres of Employment Gross Floor Area
Number of Accesses and Locations	N/A
Development Phasing	N/A
Buildout Year	N/A
Sketch Plan / Site Plan	See attached

Module 1.2 - Trip Generation Trigger	
Land Use Type	Townhomes or Apartments
Development Size	-9987 Units
Trip Generation Trigger Met?	No

Module 1.2 - Trip Generation Trigger	
Land Use Type	Destination Retail
Development Size	-8750 sq. m
Trip Generation Trigger Met?	No

Module 1.2 - Trip Generation Trigger	
Land Use Type	Office
Development Size	-350500 sq. m
Trip Generation Trigger Met?	No

Module 1.3 - Location Triggers	
Development Proposes a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit, or Spine Bicycle Networks (See Sheet 3)	Yes
Development is in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone. (See Sheet 3)	Yes
Location Trigger Met?	Yes

Module 1.4 - Safety Triggers		
Posted Speed Limit on any boundary road	<80	km/h
Horizontal / Vertical Curvature on a boundary street limits sight lines at a proposed driveway	No	N/A
A proposed driveway is 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) or within auxiliary lanes of an intersection;	No	N/A
A proposed driveway makes use of an existing median break that serves an existing site	No	N/A
There is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development	No	N/A
The development includes a drive-thru facility	No	N/A
Safety Trigger Met?	No	