Appendix A

Appendix A

Stakeholder Consultation

BURNSIDE

Innisfil

Appendix A | Stakeholder Consultation

Date: November 18, 2022 **Project No.:** 300053011.0000

Project Name: Innisfil Transportation Master Plan Update

To: Town of Innisfil

From: R.J Burnside & Associates Limited

1.0 Stakeholder Consultation Overview

A comprehensive consultation process was undertaken to gather community and stakeholder input within the master plan process. The TMP Update follows Phases 1 and 2 of the Municipal Class Environmental Assessment process (October 2000, as amended in 2007, 2011 & 2015), including a public consultation component.

Outreach was conducted through a variety of methods, including:

- Email;
- Public surveys;
- Interactive mapping for public input;
- Interactive surveys during consultation events;
- Public and social media posts; and
- The Town website at https://www.getinvolvedinnisfil.ca/tmplan, which includes information on study updates, upcoming public events, presentations, key documents, and contact information for the Town and Consultant project managers.

The following sections summarizes the stakeholder consultation process, along with supporting documentation.

1.1 Notice of Commencement and Public Open Houses

The Transportation Master Plan (TMP) update was initiated on July 20, 2021 through a Notice of Commencement published on the Town's website and sent out via email. The Town's TMP website was also periodically updated to keep the public informed.

Two public open houses (POHs), as required by the master plan process, were held to inform the public of the study activities and provide opportunities for the public to ask questions and obtain further information from the study team. Both PICs were held in a virtual format on Zoom, due to considerations of provincial public measures and participants' health and safety during the COVID-19 pandemic.

The first POH was held on August 25, 2021 to identify transportation-related needs and opportunities. The public was informed that their input on issues, concerns and opportunities

would assist in the identification of projects and alternative strategies. Following this POH, a survey was sent to all residents to collect information on travel behaviour, needs, issues and priorities. There were a total of 724 survey responses collected between August and September 2021.

The second POH was held on January 27, 2022 to summarize the preliminary preferred alternative, which included travel demand management, active transportation, transit and road components. Supporting strategies and policies were also presented to the public.

A formal presentation was delivered for both POHs, each followed by a facilitated question and answer period. The notice of commencement, POH documentation and survey results summary are provided in Attachment 1.

1.2 Technical Advisory Committee Meetings

Three Technical Advisory Committee (TAC) meetings with Town staff and external stakeholders were held on the following dates:

- August 11, 2021 – TAC Meeting 1 to provide an overview of the TMP study objectives and preliminary needs and opportunities.
- January 13, 2022 – TAC Meeting 2 to summarize the identification and evaluation of alternative strategies.
- May 9, 2022 – TAC Meeting 3 to summarize the draft preferred strategy, recommendations and supporting strategies and policies.

Relevant technical agencies were invited to participate, including the County of Simcoe, Town of New Tecumseth, Town of Bradford West Gwillimbury, Township of Essa, City of Barrie, Ministry of Transportation (MTO), Metrolinx, Lake Simcoe Region Conservation Authority (LSRC), Nottawasaga Valley Conservation Authority (NVCA), InnPower and InnServices.

The TAC meetings were held in a virtual format on Microsoft Teams due to the considerations of provincial public measures and participant's health and safety during the COVID-19 pandemic. A presentation was provided at each TAC meeting and was followed by a discussion period where attendees could ask questions and receive further information.

Technical agency consultation and TAC meeting minutes are included in Attachment 2.

1.3 Indigenous Communities

Letters and the notices were sent by email/mail to Indigenous communities. MECP has developed guidance on the steps to rights-based consultation with Indigenous communities. Eight indigenous communities with a potential interest in the project were identified through correspondence provided to the following communities:

- Chippewas of Georgina Island
- Beausoleil First Nation
- Chippewas of Mnjikaning First Nation (Rama)

- Chippewas of Nawash First Nation
- Nation Huronne-Wendat
- Saugeen First Nation
- Saugeen Ojibway Nation (SON)
- Métis Nation of Ontario
- Williams Treaty First Nation

A summary of communication with identified Indigenous communities was maintained by Burnside on the Project Contact List and included in Attachment 3.

1.4 Ongoing Consultation

Comments were received from stakeholders throughout the study. After the Notice of Study Completion was issued, the 30-day review period began whereby comments were received and incorporated into the final report where appropriate. The last day to submit comments was originally September 30, 2022, which was later extended to October 7, 2022. Input received throughout the study and during the 30-day review is documented in Attachment 4.

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[THE DIFFERENCE IS OUR PEOPLE]

Attachment 1

Notice of Commencement
Public Open House Documents
Travel Survey Results

NOTICE OF COMMENCEMENT AND

PUBLIC INFORMATION CENTRE # 1

2021 Transportation Master Plan Update

Overview

The Town of Innisfil has initiated a 2021 Transportation Master Plan (TMP) to update the TMP completed in 2018. The study will assess the needs and opportunities of the transportation system and set a long-term transportation vision and strategy for the Town to address mobility needs to 2041 and beyond. The TMP Update will be guided by other policy documents from the Province and the Town such as *2020 – 2030 Innovative Innisfil*. The study will be exploring how the transportation system can help achieve the Town's broader objectives with regards to sustainability, climate change, innovation, economic growth and fiscal responsibility.

Process

The study will be carried out in accordance with the Transportation Master Plan process as defined by the Municipal Class Environmental Assessment (MCEA). Consistent with the Phases 1 and 2 of the Municipal Class Environmental process, the first Public Information Centre is being held to inform the public about the steps involved in this work and to gather feedback on the alternative solutions being considered.

Your Feedback is Important to Us!

Details:

We want to hear from you! You are invited to attend a Public Information Centre on **Wednesday, August 25, 2021** and provide your input. Your attendance at this meeting is important to help the study team identify transportation related opportunities, challenges, and improvements to develop and evaluate transportation solutions for the municipality.

Due to continuing efforts to contain the spread of COVID-19 and to protect individuals, the public information centre will be held virtually.

Date	Wednesday, August 25, 2021
Time	6:00 PM – 7:00 PM

Format:

The Public Information Centre will provide a brief presentation followed by a question-and-answer session. All interested parties are invited to attend the public meeting and provide their input to the study team.

Zoom meeting link:

https://zoom.us/j/94499333271?pwd=Zk9JSEhRVmZLbWlway9weW94K2xGUT09

Meeting ID: 944 9933 3271

Passcode: 657376

Details are available at https://www.getinvolvedinnisfil.ca/tmplan
A public survey will be launched following the Public Information Centre.

More Information:

If you are unable to attend the meeting, all consultation materials will be uploaded onto the study webpage. This can be accessed from https://www.getinvolvedinnisfil.ca/tmplan

Project and notice information will be made accessible upon request in accordance with the Accessibility Standard for Information and communication under the Accessibility for Ontarians with Disabilities Act, 2005. Please note information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. This Notice First Issued on **July 27, 2021**.

NOTICE OF COMMENCEMENT AND

PUBLIC INFORMATION CENTRE # 1

2021 Transportation Master Plan Update

Should you wish to submit additional questions or comments to the study team, please contact one of the study project managers:

Meredith Goodwin, C.E.T
Capital Project Manager
Town of Innisfil
T: 705-436-3740
mgoodwin@innisfil.ca

Ray Bacquie, P.Eng. MBA
Consultant Project Manager
R.J. Burnside & Associates Limited
T: 905-821-5891
Ray.Bacquie@rjburnside.com

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Innisfil

Public Open House #1

2021 Transportation Master Plan

August 25, 2021

BURNSIDE

Project Team

Town of Innisfil

Meredith Goodwin, C.E.T
Project Manager
Capital Project Manager, Engineering
Town of Innisfil

Carolina Cautillo
Project Manager
Roads, Traffic, and Transportation
Town of Innisfil

Paul Pentikainen, MCIP, RPP
Senior Policy Planner
Town of Innisfil

Consultant Team

Ray Bacquie, P.Eng., MBA
Consultant Project Manager
Sr. Vice President, Transportation
R.J. Burnside & Associates

Gordon Hui, B.A.Sc
Senior Transportation Planner
R.J. Burnside & Associates

Overview

- Study Objectives
- Study Context
- Needs and Opportunities
- Environmental, Cultural, and Social Objectives
- Vision and Alternative Strategies
- Next Steps

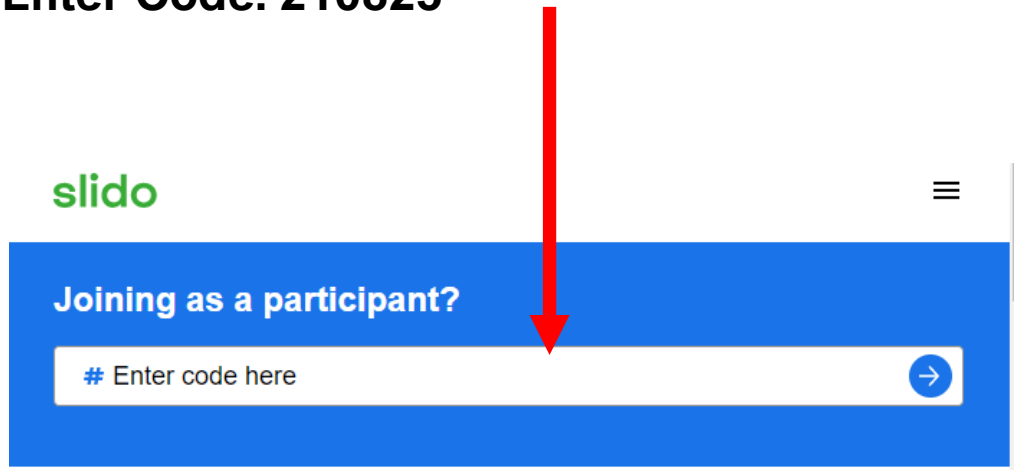
Participate!

To participate in our polls throughout this session, you can:

Use a QR Code:

OR

Visit: slido.com
Enter Code: 210825



Study Objectives

Study Objectives

To plan for future growth, the Town of Innisfil will need to:

Update the last Transportation Plan to identify needs and solutions to the year 2041 and 2051

Establish a blueprint for the Town to develop its future transportation network

Develop sidewalk, trail policies and pedestrian crossing policies

Confirm complete streets policies

Enhance the Town's connectivity to the County and inter-regional transportation network

Study Approach and Consultation

Phase 1
Problem Or Opportunity

- **Identify Natural, Social and Cultural Heritage Assets**
- **Assess Existing and Future Needs and Opportunities**
  - Road, transit, active transportation and safety needs
  - Planned growth and transportation forecasting
  - Future needs and opportunities

Public Information Centre # 1

Phase 2
Alternative Solutions

- **Identify and Analyze Alternative Solutions (Strategies)**
- **Evaluation and Selection of Preferred Alternative**
- **Preferred Network Solution (Strategy)**

Public Information Centre # 2

Future Phases
Not within this study

- **Phase 3:** Alternative Design Concepts for Preferred Solution
- **Phase 4:** Schedule C Environmental Study Report
- **Phase 5:** Implementation

Continuous Collaboration

The Transportation Master Plan will be carried out in accordance with the Municipal Class Environmental Assessment (MCEA) process.

Guiding Documents

Provincial

- Provincial Policy Statement (PPS)
- A Place to Grow Growth Plan for the GGHA
- Metrolinx Regional Transportation Plan
- Simcoe Area Multi-Modal Transportation Strategy
- Barrie GO Rail Expansion
- Provincial Environmental Policies
- Highway 400/Innisfil Beach Road Overpass

County

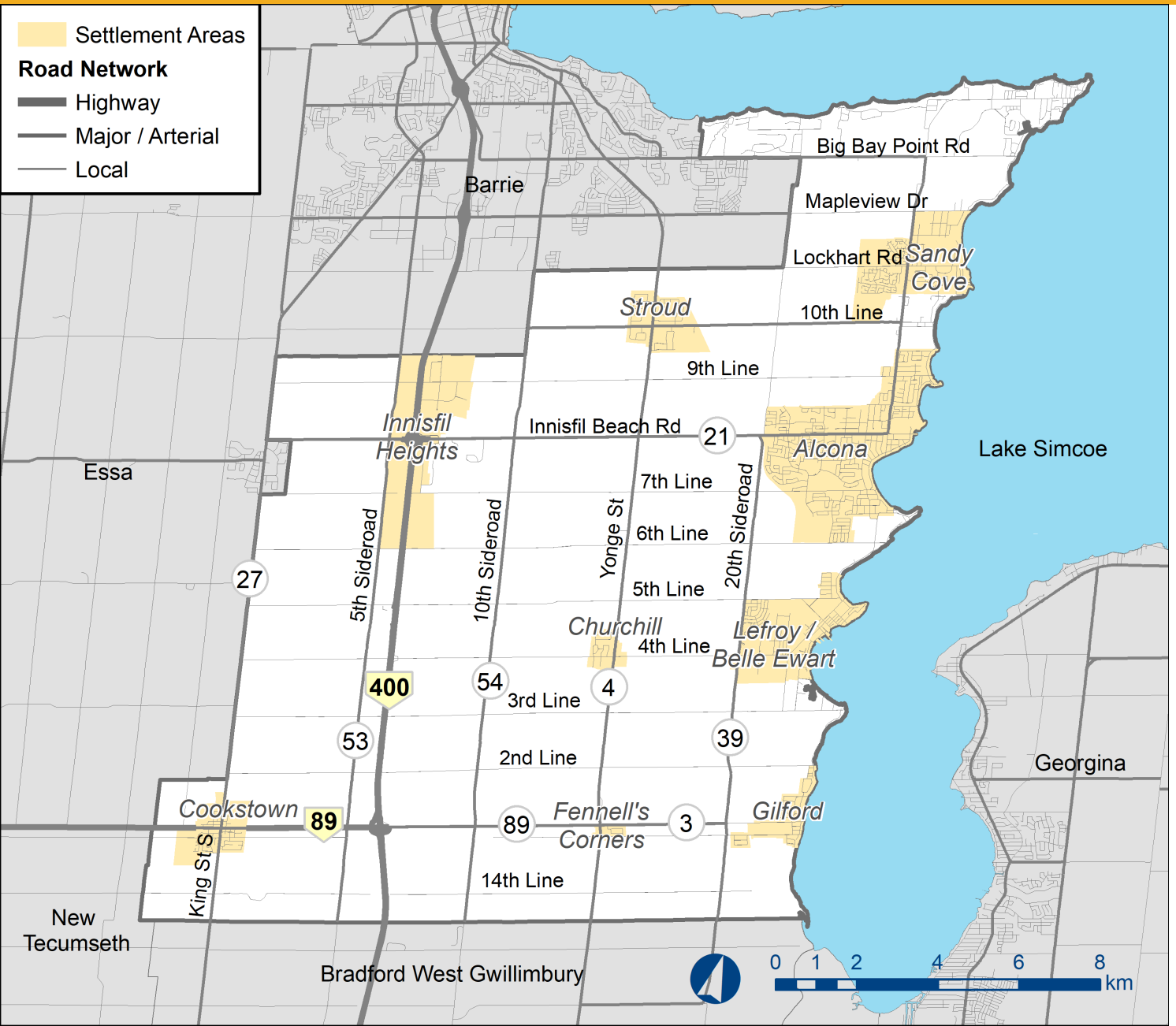
- Simcoe County Official Plan
- 2021 Transportation Master Plan
- Trails Strategy
- Transit Feasibility and Implementation Study
- 5-Year Economic Strategy

Town

- Official Plan ("Our Place")
- Strategic Plan ("Innovative Innisfil 2030")
- The Orbit: Innisfil Community
- 2018 Transportation Master Plan
- Cultural Master Plan
- Tourism Destination Master Plan
- Trails Master Plan
- Highway 400 / 6th Line Interchange

Study Context

Urban Structure



Settlement Areas

- Cookstown
- Innisfil Heights
- Stroud
- Churchill
- Fennell's
- Sandy Cove
- Alcona
- Lefroy/Belle Ewart
- Gilford

Strategic Employment Area

- Innisfil Heights

Major Transit Station Area (MTSA)

- Innisfil GO Station area in Alcona

Travel Characteristics

Trip Generation

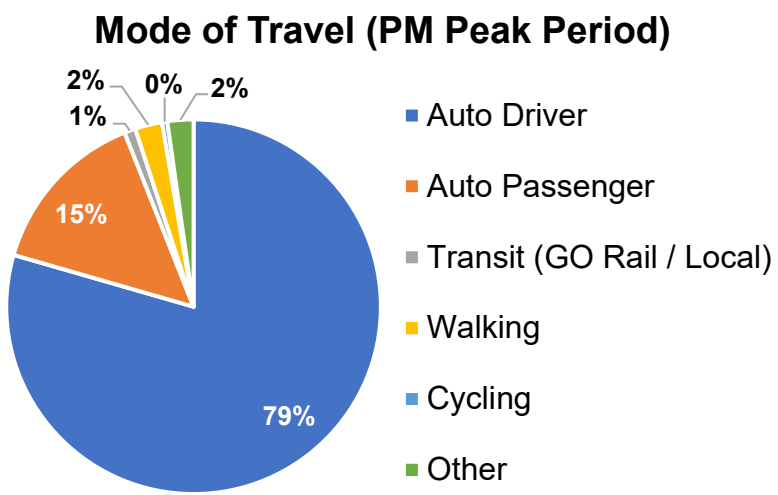
- 9,000 outbound trips during the AM peak period
- 10,000 inbound trips during the PM peak period

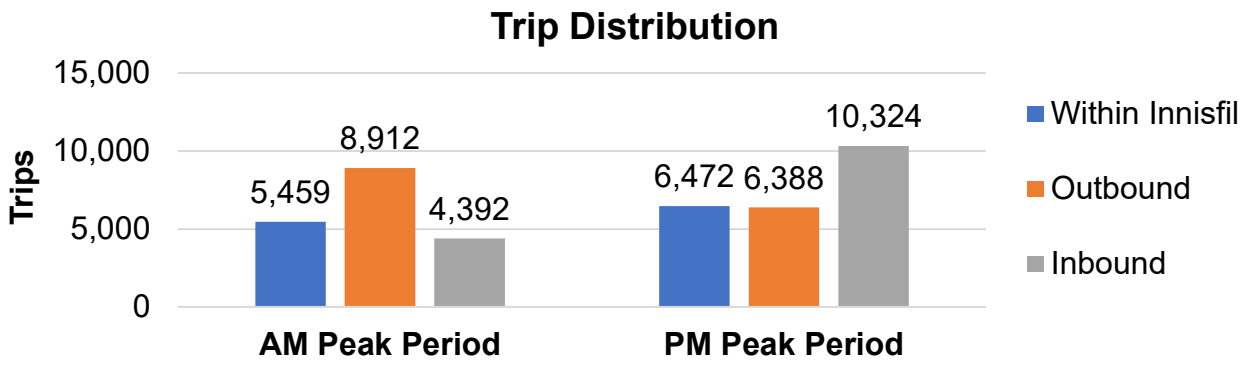
Trip Patterns (Origin-Destination)

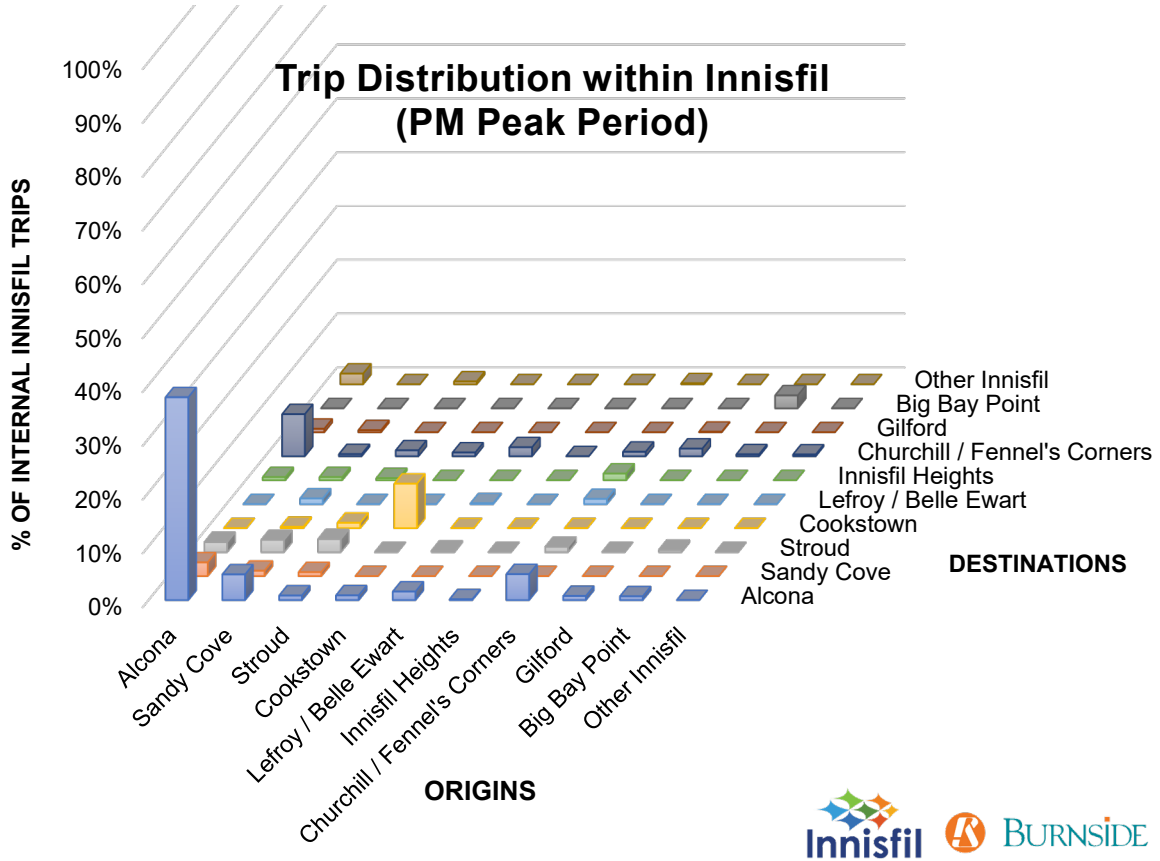
- 68% of internal Town trips are to/from Alcona during the peak period
- Majority of external trips are oriented to Barrie and the rest of Simcoe County

Modal Split

- Most trips are auto-based







Land Use Forecasts

	Population	Employment
2021	47,600	8,600
2031	60,300	13,100
2041	76,400	15,100
2051	100,000 *	Subject to Further Analysis

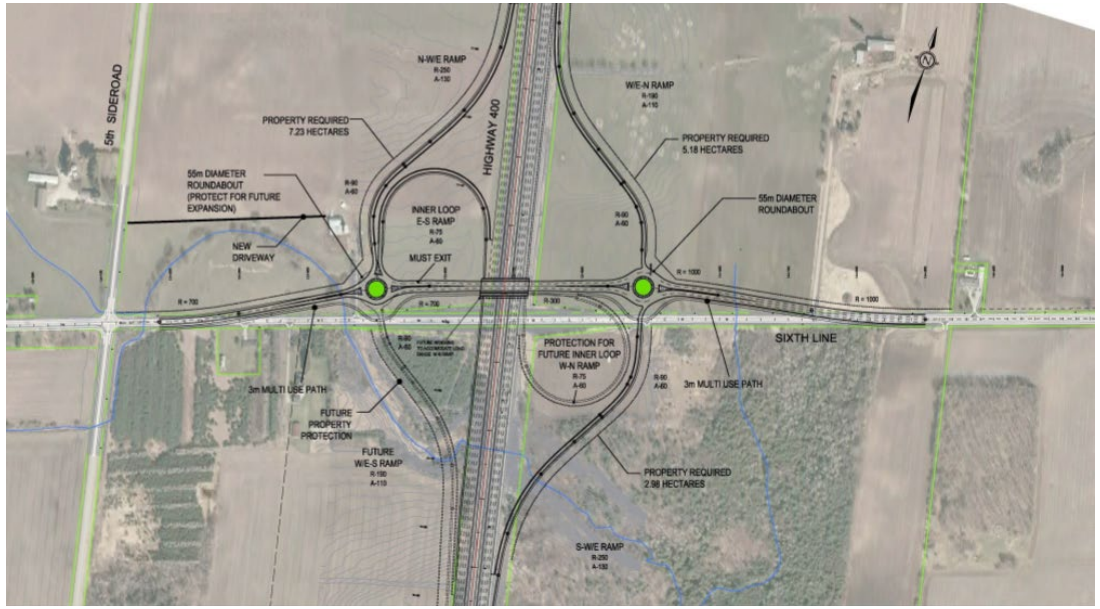
** Being used for Master Planning exercises*

Transportation Needs and Opportunities

Road Needs and Opportunities

Provincial Roads - Planned and Budgeted Improvements

Road / Intersection	From	To	Improvement	Timeline	Status	Source
Highway 400	1 km South of Highway 89	Highway 11	3 to 5 lanes (per direction) including a HOV lane	2031	Budgeted	MTO Highway 400 Improvements ESR
6th Line Interchange / Highway 400			New interchange	2031	Budgeted	6th Line ESR
Highway 89 East-West Link Improvements			Cookstown Alternate Route	-	Proposed	2018 TMP



6th Line Interchange

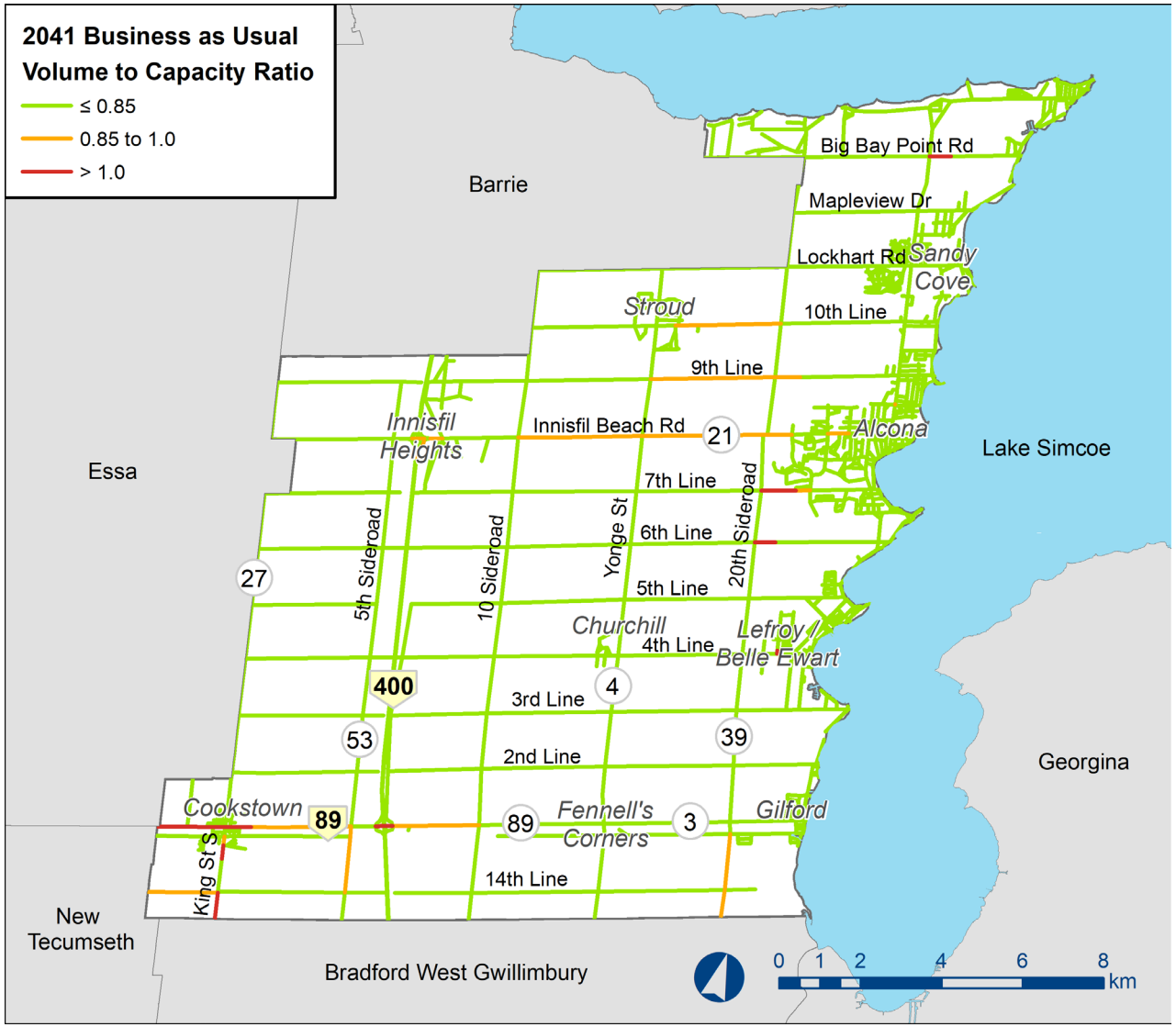
Highway 89 East-West Link Improvements

Road Needs and Opportunities

County Roads - Planned and Budgeted Improvements

Road	From	To	Improvement	Timeline	Status	Source
County Road 4 (Yonge Street)	County Road 89	Barrie City Limit	2 to 4 lane widening	2031	Proposed *	Simcoe County TMP (2014)
County Road 4 (Yonge Street)	Bradford Boundary (8th Line)	County Road 89	2 to 4 lane widening	2031	Proposed *	Simcoe County TMP (2014)
County Road 21 (Innisfil Beach Road)	County Road 27	County Road 39 (20th Sideroad)	2 to 4 lane widening	2031	Proposed *	Simcoe County TMP (2014)
County Road 53 (5th Sideroad)	County Road 21 (Innisfil Beach Road)	Barrie City Limit	2 to 4 lane widening	2031	Proposed *	Simcoe County TMP (2014)
County Road 54 (10th Sideroad)	County Road 21 (Innisfil Beach Road)	Barrie City Limit	2 to 4 lane widening	Beyond 2031	Proposed *	Simcoe County TMP (2014)

Road Capacity Needs



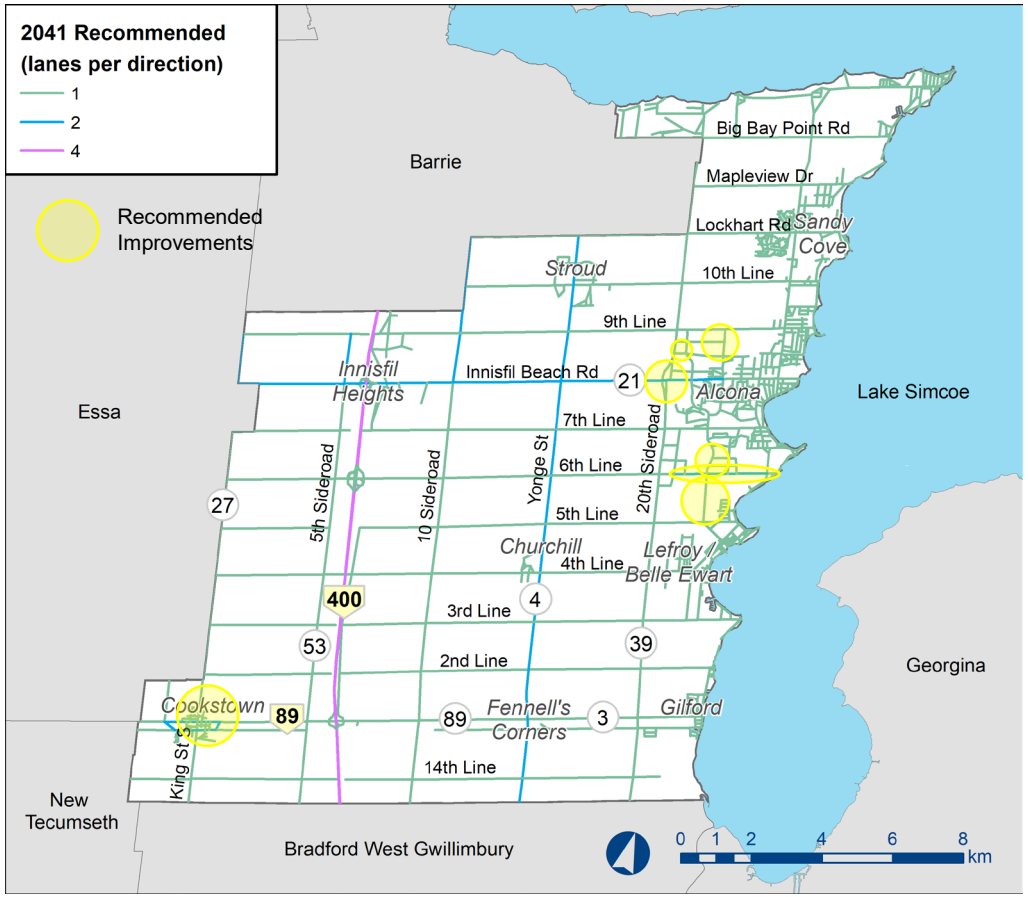
The following major road segments were identified to approach / exceed capacity under the **2041 "Business-As-Usual" scenario** (which includes planned road widenings):

- 10th Line between Yonge St and 20th Sideroad
- 9th Line between Yonge St and 20th Sideroad
- Innisfil Beach Road (County Road 21), *despite the 2 to 4 lane widening improvements*
- 7th Line, east of 20th Sideroad
- 6th Line, east of 20th Sideroad
- County Road 89, west of 10 Sideroad
- 14th Line, west of King St S
- King St S, south of Cookstown
- 5th Sideroad, south of County Road 89
- 20th Sideroad, south of County Road 3 (Shore Acres Drive)

Road Capacity Planned Improvements / Opportunities

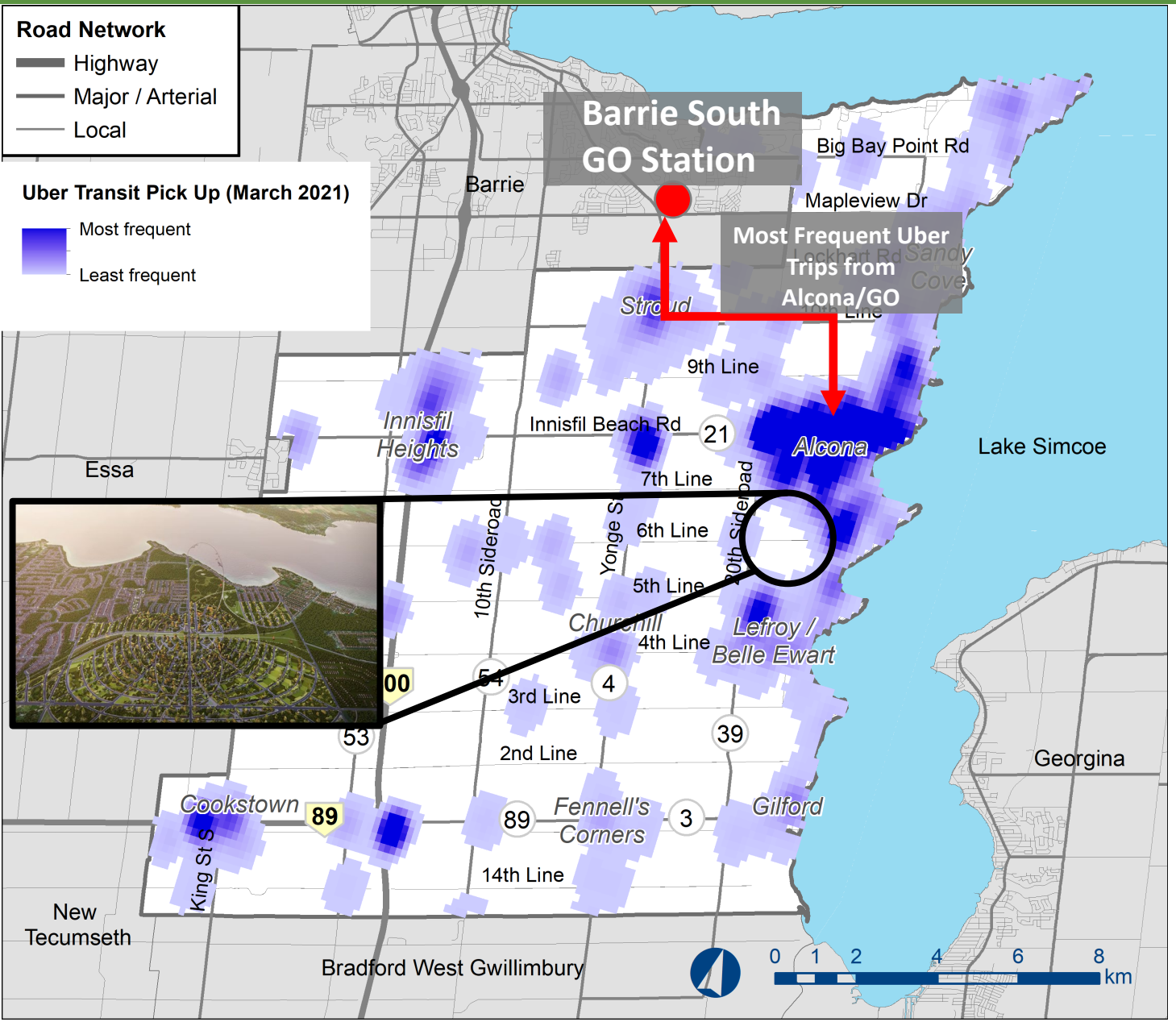
The previous *Transportation Master Plan* (2018) identified the following additional road improvements to address future 2041 conditions:

Road	From	To	Improvement	Priority
Webster Boulevard	North Limit	20th Sideroad	Extension	Short-Term
Highway 89 East-West Link	West of Cookstown	East of Cookstown	Alternate Route	Short-Term
Webster Boulevard	Quarry Drive	6th Line	Extension	Short-Term
Jans Boulevard	North Limit	9th Line	Extension	Short-Term
6th Line	20th Sideroad	Angus Street	Widening	Short-Term
20th Sideroad Bypass	Leslie Drive	South of Innisfil Beach Road	Bypass	Medium-Term (2031)
Webster Boulevard	6th Line	5th Line	Extension	Medium-Term (2031)
6th Line	County Road 53 (5th Sideroad)	20th Sideroad	Widening *	Long-Term (Beyond 2031)



* *Map does not include proposed improvements deemed a long-term priority*

Transit Needs and Opportunities



Existing Transit System

GO Transit

- GO bus route (Barrie Transit Terminal to the Aurora GO Transit Station)

Simcoe Lynx Transit

- No significant connections to Innisfil origins or destinations

Innisfil Transit

- Town & Uber on-demand transit (since 2017): **reliable, affordable, serving all residents**
- Alcona to/from Barrie South GO Station is a frequent Uber route

Transit Plans and Opportunities

- **Innisfil GO Station** will be located on 6th Line in the heart of the planned Orbit development
- **Innisfil Transit** will be scaled, and fixed bus route alternatives will be explored

Pedestrian Needs and Opportunities

Proposed Pedestrian Improvements

In the 2018 TMP, a total of 7.61km of sidewalk improvements were recommended. These will be further confirmed using the sidewalk prioritization scoring system.

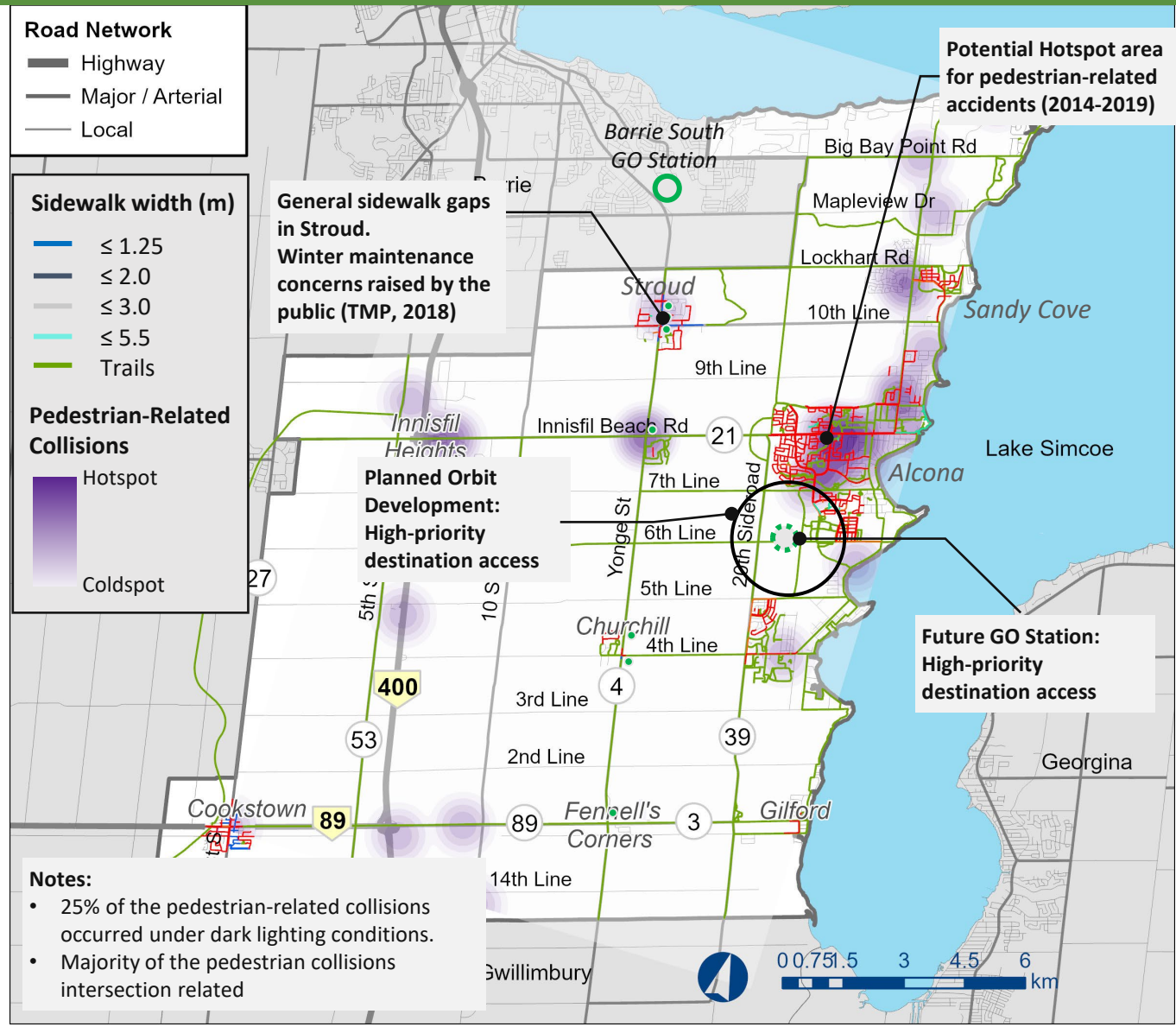
Area	Short Term	Medium Term
Alcona	0.33	3.38
Churchill	-	1.52
Cookstown	0.32	-
Gilford	1.24	-
Lefroy	-	0.14
Leonard's Beach	-	0.68
Subtotal (km)	**1.89**	**5.72**
Total (km)	**7.61**	

Sidewalk Prioritization Policy – Scoring Criteria

- Existing Sidewalk Condition
- AODA Requirements
- Identified in Trail Master Plan
- Land use, trip generators
- Road characteristics
- Public Support
- Constructability / Cost
- Safety Trends

Other Pedestrian Needs and Opportunities

- Pedestrian Crossing needs
- Comfort, convenience and walkability



Cycling Needs and Opportunities

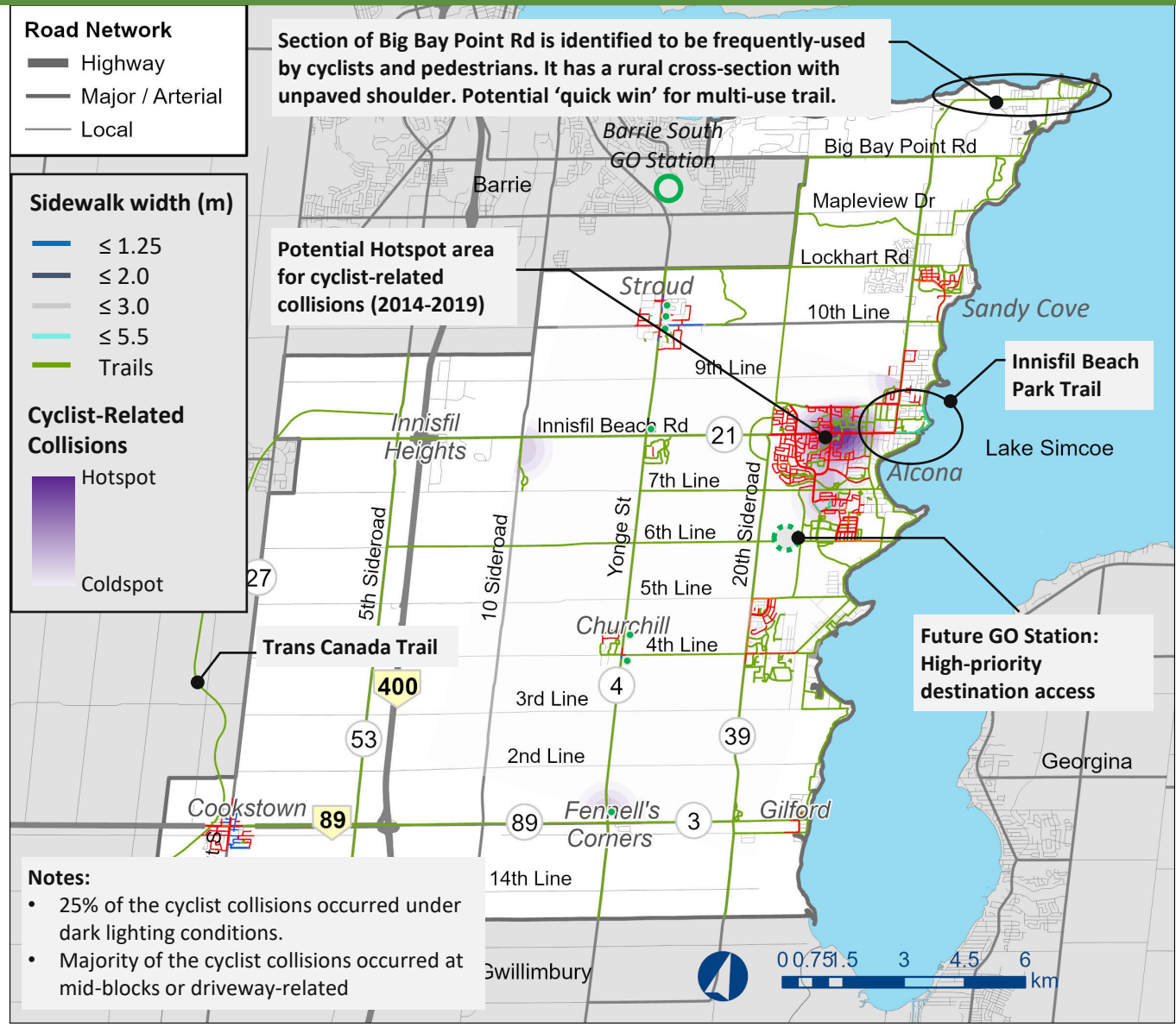
Proposed Cycling Network Improvements

In the 2018 TMP, a total of 74.21km of **cycling network improvements** were recommended. These will be further confirmed with detailed needs justification and analysis.

Area	Short Term	Medium Term	Long Term
Alcona	13.6	6.59	0.51
Churchill	1.37	-	-
Gilford	4.1	-	-
Lefroy	5.45	8.83	3.3
Rural	18.02	2.14	10.3
Subtotal (km)	**42.54**	**17.56**	**14.11**
Total (km)	**74.21**		

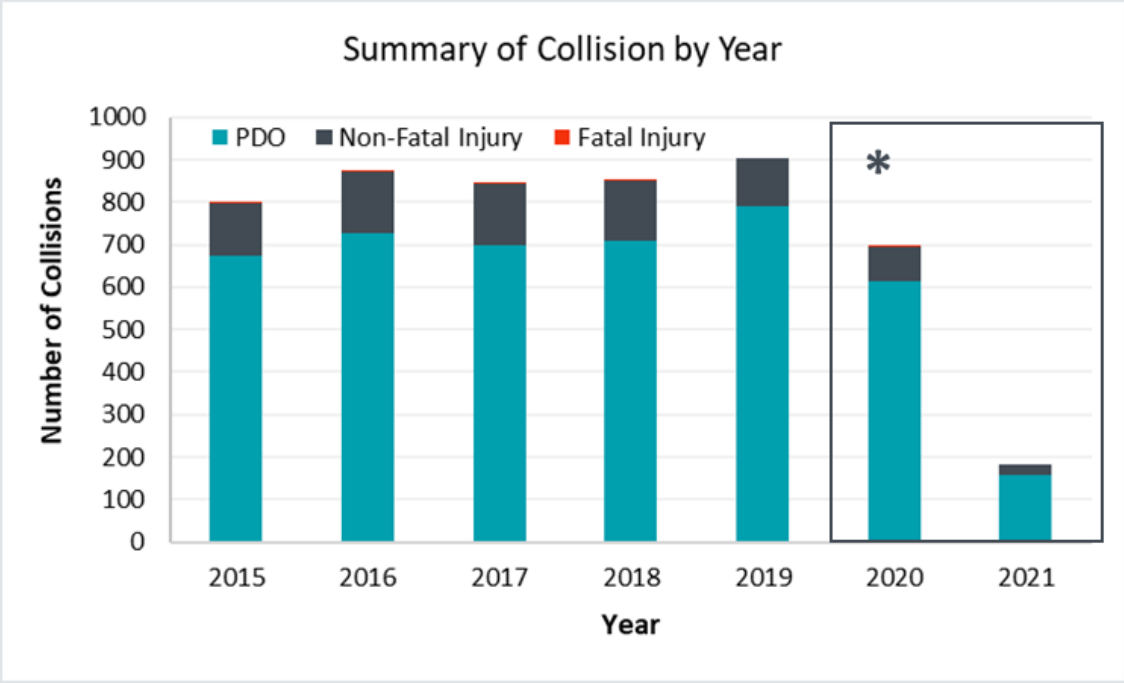
Confirming Cycling Network Improvements

- Routes designated in the Trails Master Plan
- Proximity and connections to major trip generators
- Anticipated cycling demand
- Network connectivity
- Use of street by vulnerable road users
- Safety considerations (vehicle speed and volumes)
- Existing and planned ROW widths
- Natural environment constraints
- Corridor environment (geometry, accesses)

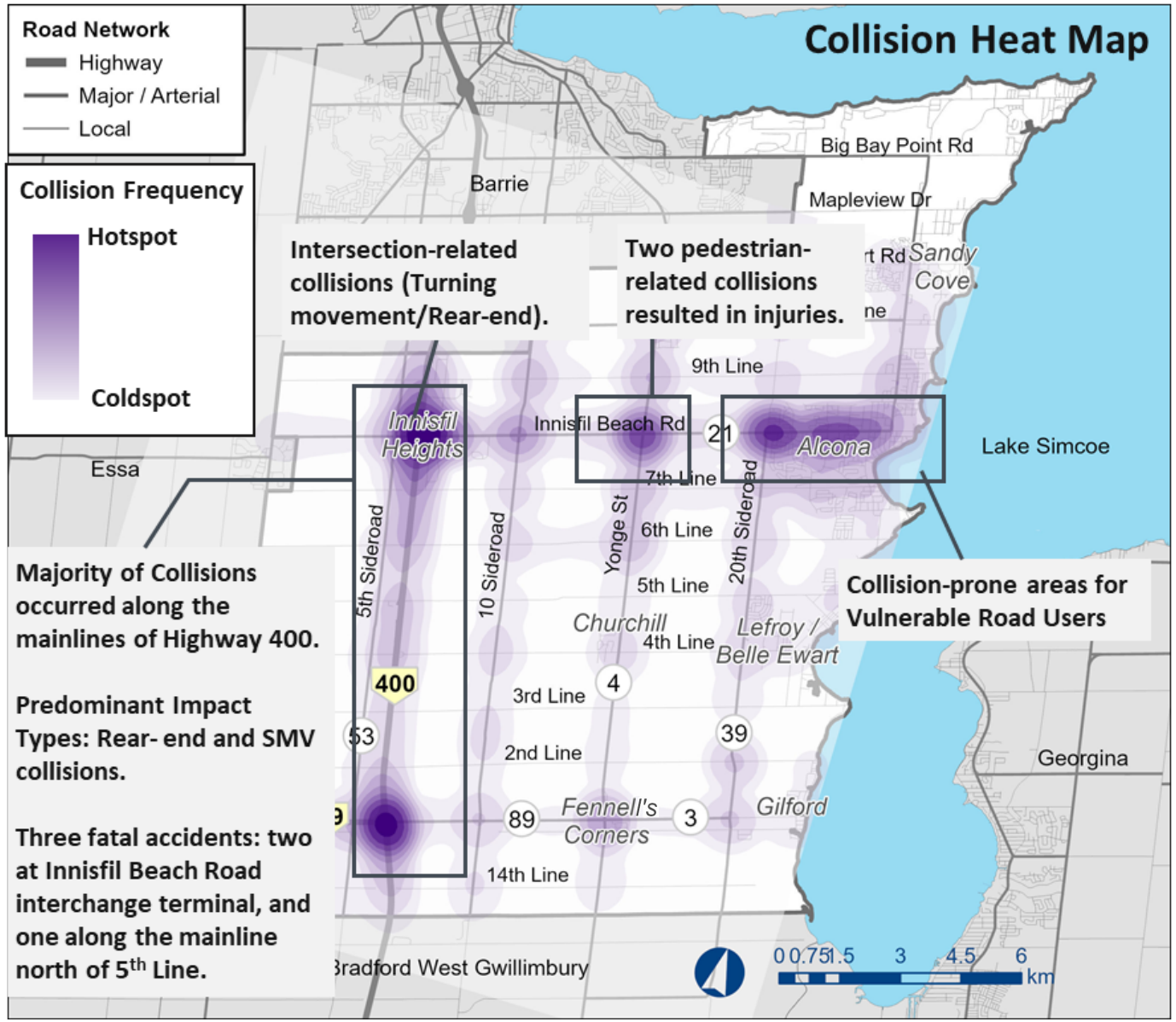


Traffic Safety Needs and Opportunities

- Town's collision data was reviewed
- 5-year of collision records (2015-2019) were used for analysis



* Covid Period: The reduction in collision is likely due to the reduced traffic exposure due to the pandemic. Data for 2021 is incomplete.



Preliminary Assessment of Needs and Opportunities

Road Capacity

- Congestion throughout Highway 400 between Highway 89 and Highway 11 requiring extra capacity by 2031
- The need for additional east-west capacity in the Cookstown area
- Improvements to Innisfil Beach Road near Alcona and Innisfil Heights due to congestion
- North-south connectivity in Alcona to the future GO station

Operations and Safety

- Policies required for safe pedestrian crossings
- Protecting vulnerable road users such as pedestrians and cyclists in hot spot areas
- Improving traffic operations at key intersections
- Reviewing road classifications due to future infrastructure (ex. future GO station and interchange)

Active Transportation

- Upgrade active transportation infrastructure in key destination areas such as the future GO Station, Big Bay Point Road
- Introducing sidewalks in Stroud where there are gaps in the sidewalk network
- Assessing require road right-of-way for future improvements

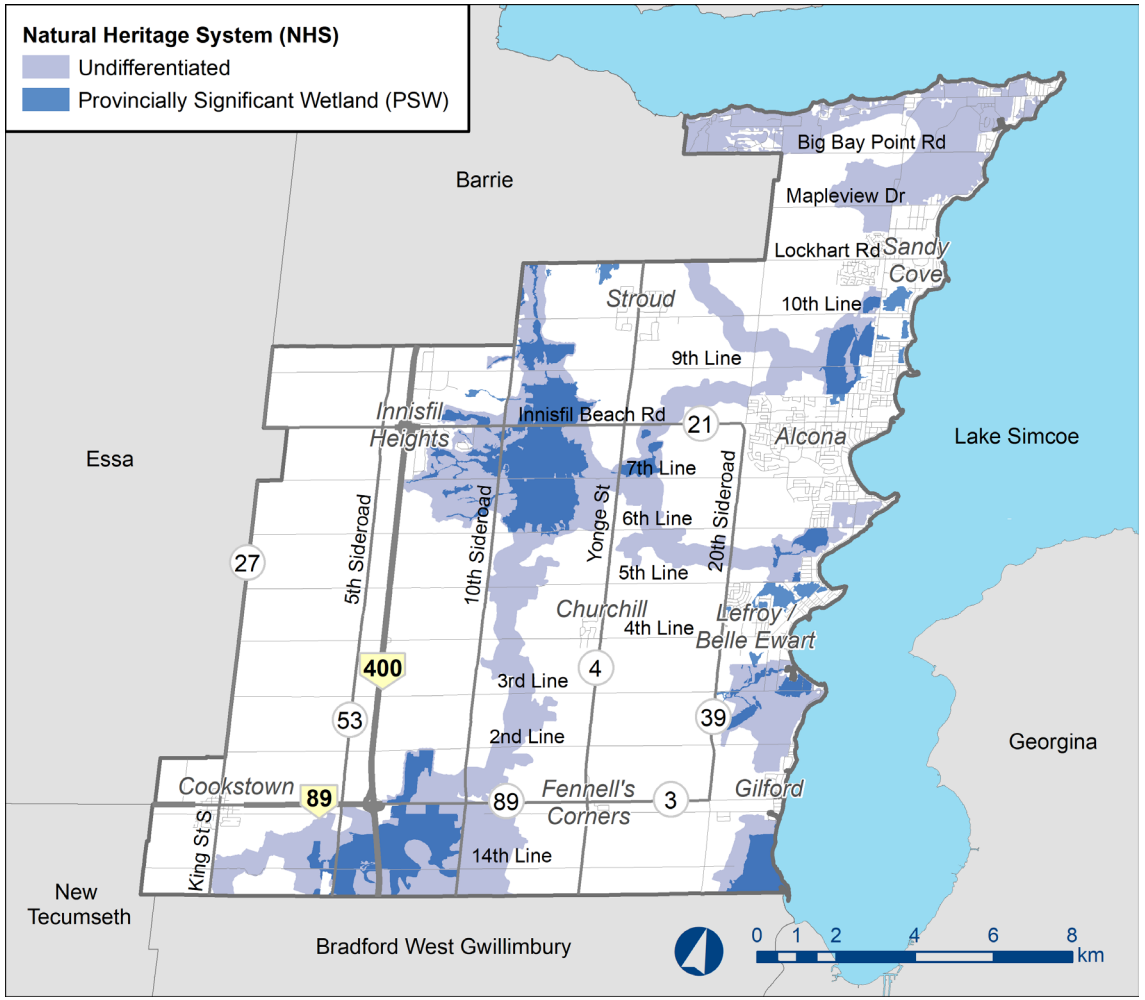
Transit

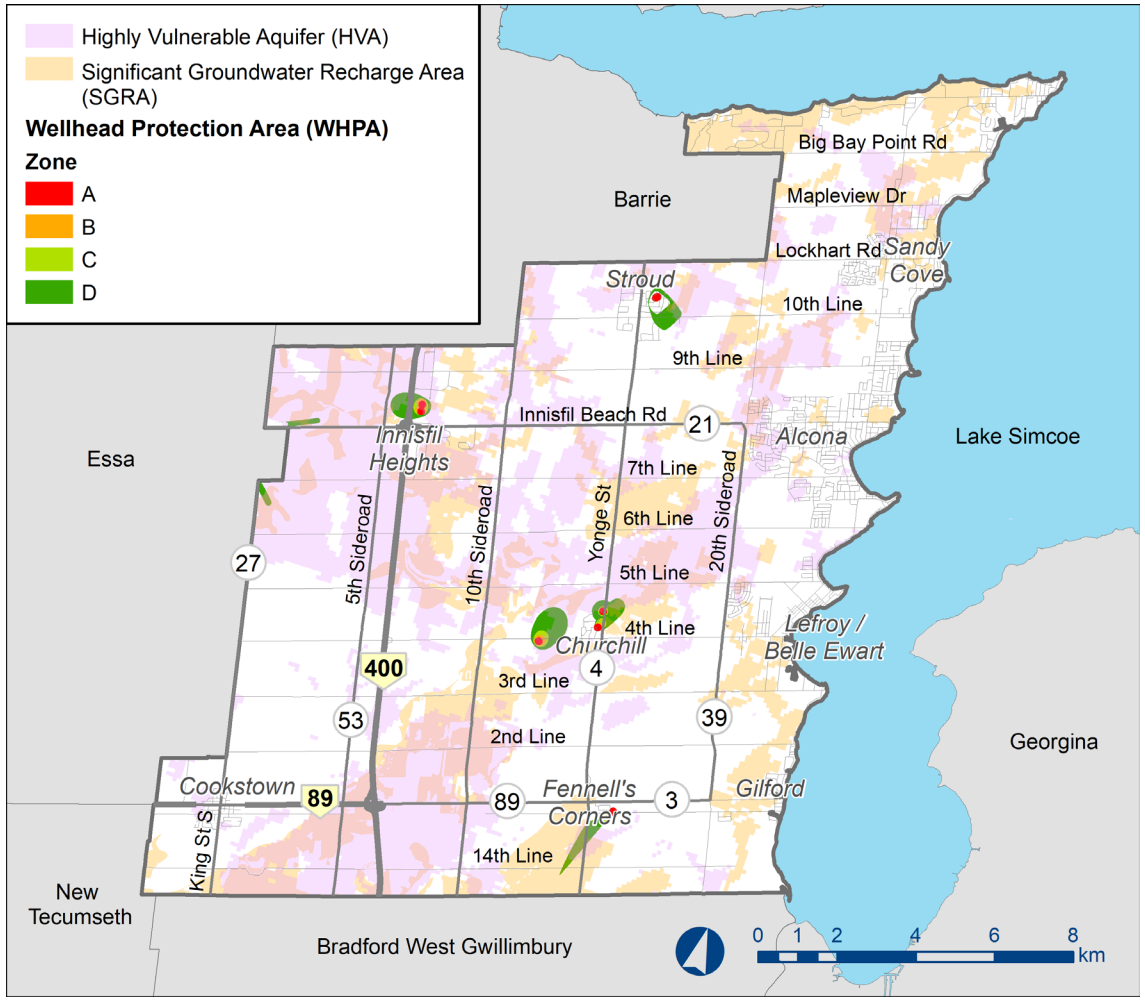
- Maximize efficient connectivity to the new GO Rail station
- Explore dynamic routing and/or fixed route options to enhance the current Innisfil Uber Transit system
- Supplementing first/last kilometre of transit trips by leveraging emerging technologies such as shared bikes, scooters, etc

Environmental, Cultural and Social Objectives

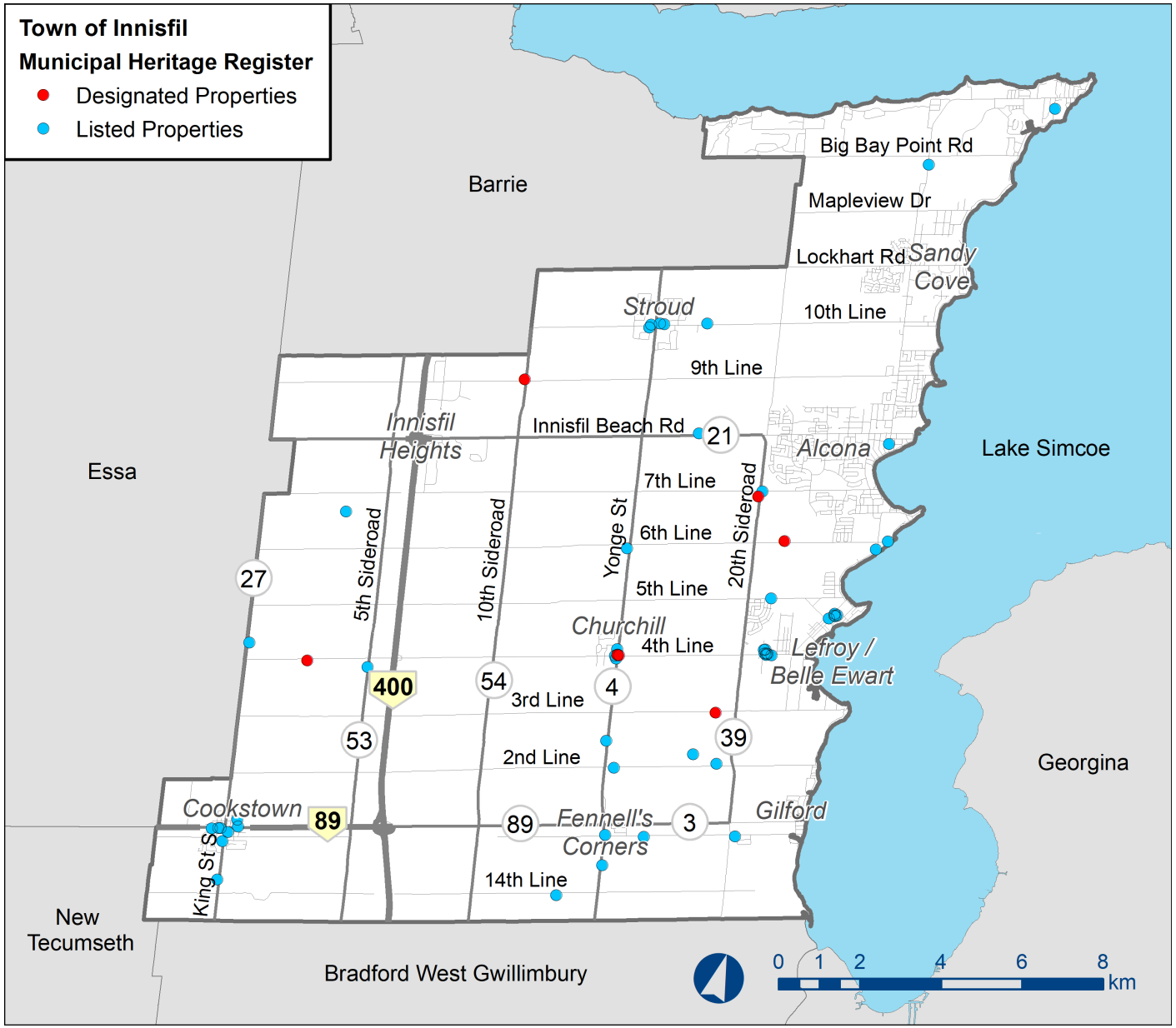
Environmental Objectives

Environmentally significant natural features were identified as potential constraints to future transportation infrastructure and will be protected as assets.



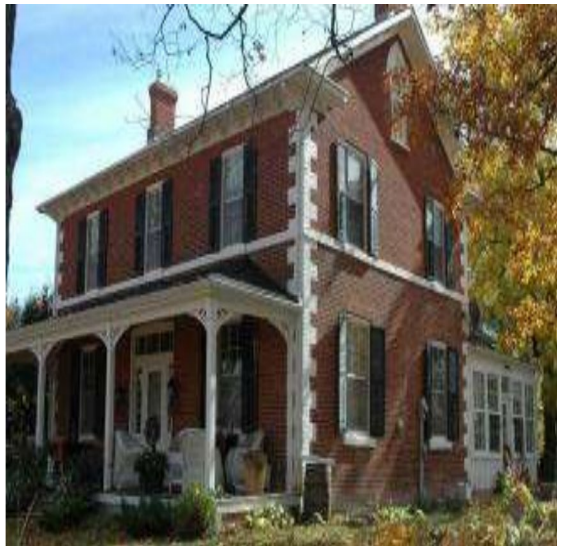


Cultural Objectives



- Culture, creativity, and quality of place are key to community development and growth
- Transportation solutions should support the Town's creative placemaking principles and ensure efficient access to the unique destinations in the Town
- The evaluation of alternatives will value the Town's cultural heritage features

Knock Schoolhouse



Chimney Copse

Social Objectives and Transportation Equity

- An equitable transportation system ensures that the distribution of infrastructure and programs allows for different populations to have reasonably equal transportation benefits and impacts.

Populations

- Age
- Agility
- Means
- Race
- Vulnerable road users

Potential Indicators

Mobility

- Affordability
- Accessibility
- Efficiency
- Reliability
- Safety

Environment

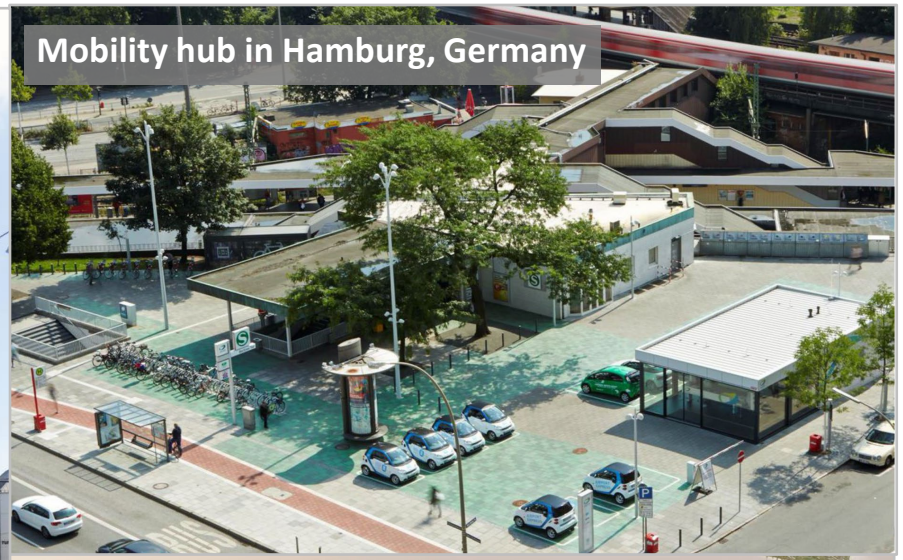
- Reduction in greenhouse gases

Economic Opportunity

- Connectivity to employment, education, services, recreation
- Benefiting local businesses and residents

Social Objectives and Emerging Technologies

Interactive Kiosks, Germany


Mobility hub in Hamburg, Germany


The Orbit, Innisfil

Today

- Innisfil Transit x Uber
- Turo

Tomorrow

- Consider other shared mobility
  - Car-share / Ride-share
  - Bike-share
- EcoMobility Hub
  - A co-location of multiple travel options
  - May include shared mobility, major transit and bus stops
- Autonomous and Connected Vehicles
- Smart Cities

Opportunity

Transform Innisfil into a town where mobility options will be integrated between the different transportation services and options. Getting around town will be more convenient, seamless and enjoyable.

Vision

Innisfil's transportation system connects people and communities, fosters healthy living, and operates innovatively and efficiently across the Town as an environmentally and financially sustainable, resilient system ready for the future.

Alternative Strategies

Base Case

Planned road improvements by MTO and Simcoe County

1 Status Quo

Implement currently planned transportation improvements (consistent with 2018 TMP)

2 Balanced Investment

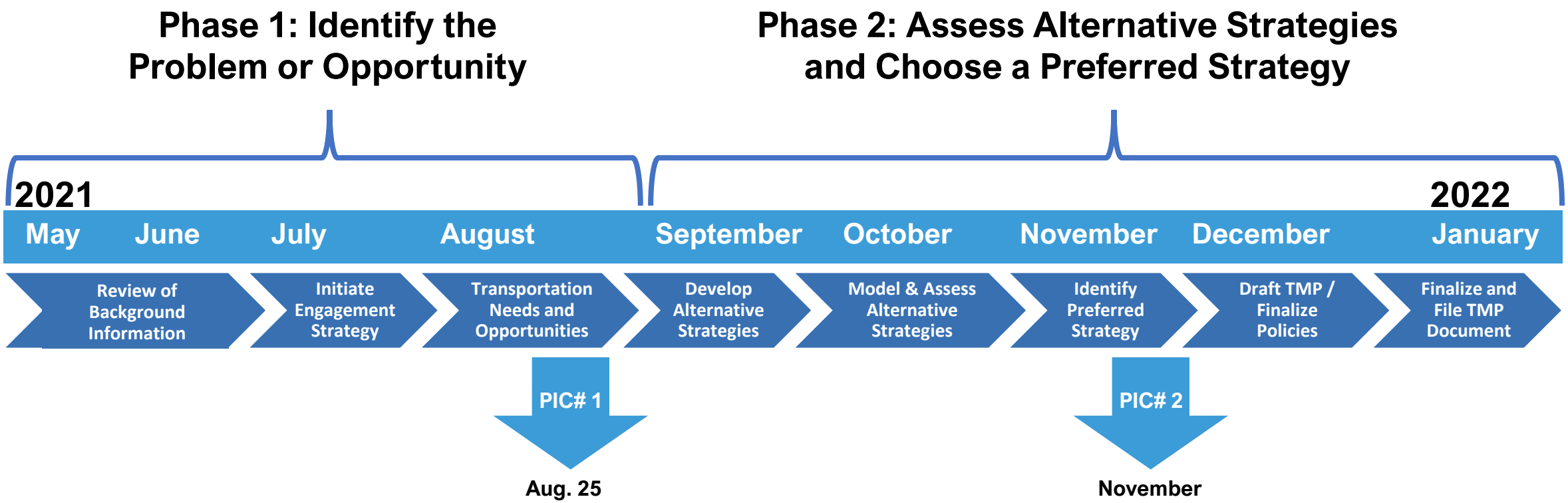
Beyond planned transportation improvements, additional investment will include investment balanced between roads, transit and active transportation

3 Alternative Mode Focused Investment

Beyond planned transportation improvements, additional investment will be focused on scheduled transit, active transportation and new technologies

Next Steps

Timeline


Phase 1: Identify the Problem or Opportunity
Phase 2: Assess Alternative Strategies and Choose a Preferred Strategy
2021
2022
May
June
July
August
September
October
November
December
January
Review of Background Information
Initiate Engagement Strategy
Transportation Needs and Opportunities
Develop Alternative Strategies
Model & Assess Alternative Strategies
Identify Preferred Strategy
Draft TMP / Finalize Policies
Finalize and File TMP Document
PIC# 1
Aug. 25
PIC# 2
November

GET INVOLVED

GetInvolvedinnisfil.ca/TMPlan

Ways to get involved:

- PIC #1 (Today) – Comments today or after the meeting
- Fill out today's survey found on the study webpage
- On-line stakeholder surveys (Summer – Fall 2021)
- PIC #2 (Fall 2021) – Comments today or after the meeting
- Contact the team!

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Innisfil

Innisfil Transportation Master Plan Update

Public Open House (POH) #1

Summary of Comments / Questions and Project Team Responses

This Q&A Sheet is based on the questions brought forward by POH #1 participants (verbally as well as via Slido and Zoom) and answers provided by the Project Team.

Question / Comment	Project Team Response
There are population projections up to 2051. Why aren't there employment projections for 2051?	Simcoe County is responsible for allocating population and employment between municipalities within the County through their Municipal Comprehensive review, which is still ongoing. The latest interim update was in August 2021, which identified 198,000 jobs in the County by 2051. However, the County is still deciding where this growth will be allocated. The Project Team will be coordinating with the County to estimate this growth over the next few months to ensure it is incorporated in travel forecasts.
Can clarification be provided on how accessibility will be accounted for in the planning stage?	In terms of active transportation, accessibility will be addressed as part of the existing and future needs assessment for pedestrians and cyclists. The Project Team will review the previous 2018 Transportation Master Plan to identify and prioritize proposed connections. The new Orbit Sustainable Community will also be considered to determine the types of pedestrians and cycling infrastructure that can accommodate the community.
What is the projected UBER ridership for 2022?	This is difficult to determine given travel conditions were impacted by the COVID pandemic over the past year. Ultimately, forecasting ridership to 2021 and 2022 would depend on the path of the pandemic and reopening plans.

Question / Comment	Project Team Response
What percentage of Innisfil residents use UBER?	The Project Team is reviewing this data, along with the Town, who has a partnership with Ryerson University to conduct the analysis. The Town notes that in 2019, there were approximately 9,500 riders travelling to/from the Town, not to say that these riders are all Innisfil residents. Ridership was lower in 2020 due to the COVID pandemic, which was a trend seen in ridership across the province.
How is the transportation planning process considering retired residents (seniors)?	The Project Team recognizes that there are barriers that affect a range of demographics, including seniors. The need to accommodate the demand of the senior population will be addressed via connections to services, medical appointments and daily needs. With regard to travel forecasting, the existing and changing demographics will be considered to determine the associated impact(s) on travel patterns. Policy frameworks can also be considered to address issues associated with pedestrian crossings, as well as providing trails and other connections.
Concerns expressed regarding the validity of the poll responses collected during the Public Open House given the number of Town residents attending.	The polls in the Public Open House are used only as a form of engagement. There is an online survey posted on the Town's website that is more comprehensive. The responses collected from this survey will be used to inform the Transportation Master Plan Update and is intended to provide better Town representation (i.e., participation target of 2-3% of households). The Project Team will be able to report on the level of input at the next public meeting.
Are there any plans to provide a safe (e.g., protected) biking or walking route from Alcona to the YMCA recreation centre?	An Innisfil Beach Road trail that connects to Alcona is currently under construction. The remaining construction along Innisfil Beach Road includes the extension of this multi-use trail.

Question / Comment	Project Team Response
Regarding plans for future fixed transit routes, will specific road networks be considered for use of this service as well as infrastructure required to sustain the service (e.g., large waiting areas, connecting hubs, etc.)? There are benefits to being informed of these plans prior to development planning.	The Project Team is in the early stages of reviewing of UBER data, which is a first opportunity to identify common origin-destination pairs. Although it is recognized that these travel patterns may change considering the planned GO station. Introducing a new service is a major financial investment, which requires a logical transit with the UBER system currently underway. As part of this Transportation Master Plan Update, new transit opportunities will be identified but a more fulsome study would follow to confirm which roads would be used, along with the associated design standards.
UBER may be used for recreational needs as well, which should be considered as part of this Study.	The Project Team will consider all UBER origin-destination pairs, which includes all trip purposes.
Regarding the use of an electric vehicle, some residents drive long distances for work which makes it difficult for recharging.	Acknowledged. The Project Team will consider the lack of charging stations as a barrier to owning or using an electrical vehicle.
Will parking challenges and solutions be considered as part of this Transportation Master Plan Update?	As part of road operation policies, existing parking challenges will be documented and considered. Parking needs will be considered within the context of road design standards; the need for a more comprehensive parking study may be identified to identify additional municipal parking infrastructure or to develop and/or update the Town's parking standards.
Will public transportation be considered to/from Friday Harbour? Many residents, including students, work there and require access to affordable, reliable transportation.	Acknowledged. The Project Team will consider both existing and future travel demands to determine road needs, active transportation connections and fixed route transit opportunities.

Question / Comment	Project Team Response
How are developers building new neighbourhoods involved in providing safe connections between trails, walkways, and schools?	Provision of sidewalks and walkways connecting a proposed development is typically addressed as part of the development application process. This Transportation Master Plan Update will assess the sidewalk network and consider active transportation opportunities, including trails and sidewalks, on a network-level.

Public Open House #2

2021 Transportation Master Plan
January 27, 2022

Innisfil

BURNSIDE

Project Team

Town of Innisfil

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Overview

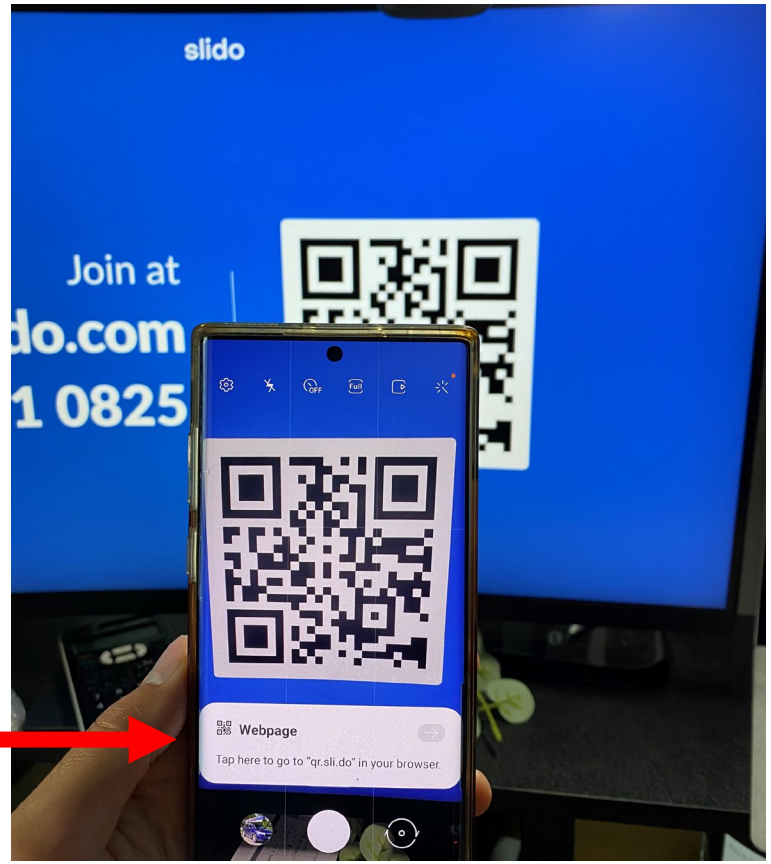
- Summary of Phase 1
- Alternative Strategies
- Evaluation Assessment
- Preferred Alternative Strategy
- Next Steps

Participate!

To participate in our polls throughout this session, you can:

Use a QR Code:

OR



Visit: slido.com
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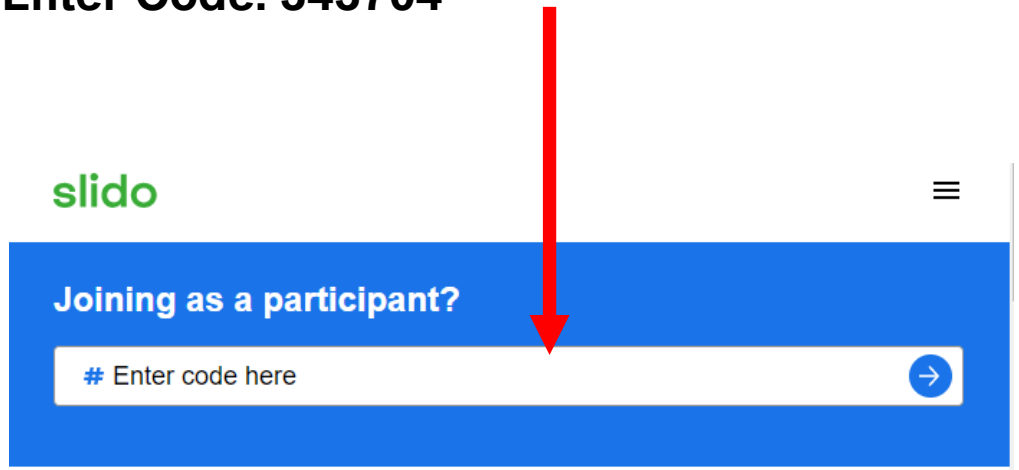


Summary of Phase 1

Study Approach and Consultation

Phase 1
Problem Or Opportunity

- **Identify Natural, Social and Cultural Heritage Assets**
- **Assess Existing and Future Needs and Opportunities**
  - Road, transit, active transportation and safety needs
  - Future needs and opportunities

Public Information Centre # 1

Phase 2
Alternative Solutions

- **Identify and Analyze Alternative Solutions (Strategies)**
- **Evaluation and Selection of Preferred Alternative**
- **Preferred Network Solution (Strategy)**

Public Information Centre # 2

Future Phases
Not within this study

- **Phase 3:** Alternative Design Concepts for Preferred Solution
- **Phase 4:** Schedule C Environmental Study Report
- **Phase 5:** Implementation

Continuous Collaboration

The Transportation Master Plan will be carried out in accordance with the Municipal Class Environmental Assessment (MCEA) process.

Phase 1 Summary

Phase I

- **Study Context and Objectives**
  - Transportation System Inventory
  - Natural Heritage Environmental Scan
  - Understanding of Social, Cultural, and Equity objectives
- **Transportation Needs and Opportunities**
  - Town Road Safety and Operational Needs and Opportunities
  - Road Capacity Needs and Opportunities
  - Transit Needs and Opportunities
  - Active Transportation Needs and Opportunities
  - Pedestrian Policy and Complete Street Policies
- **Development and Evaluation of Alternative Strategies**

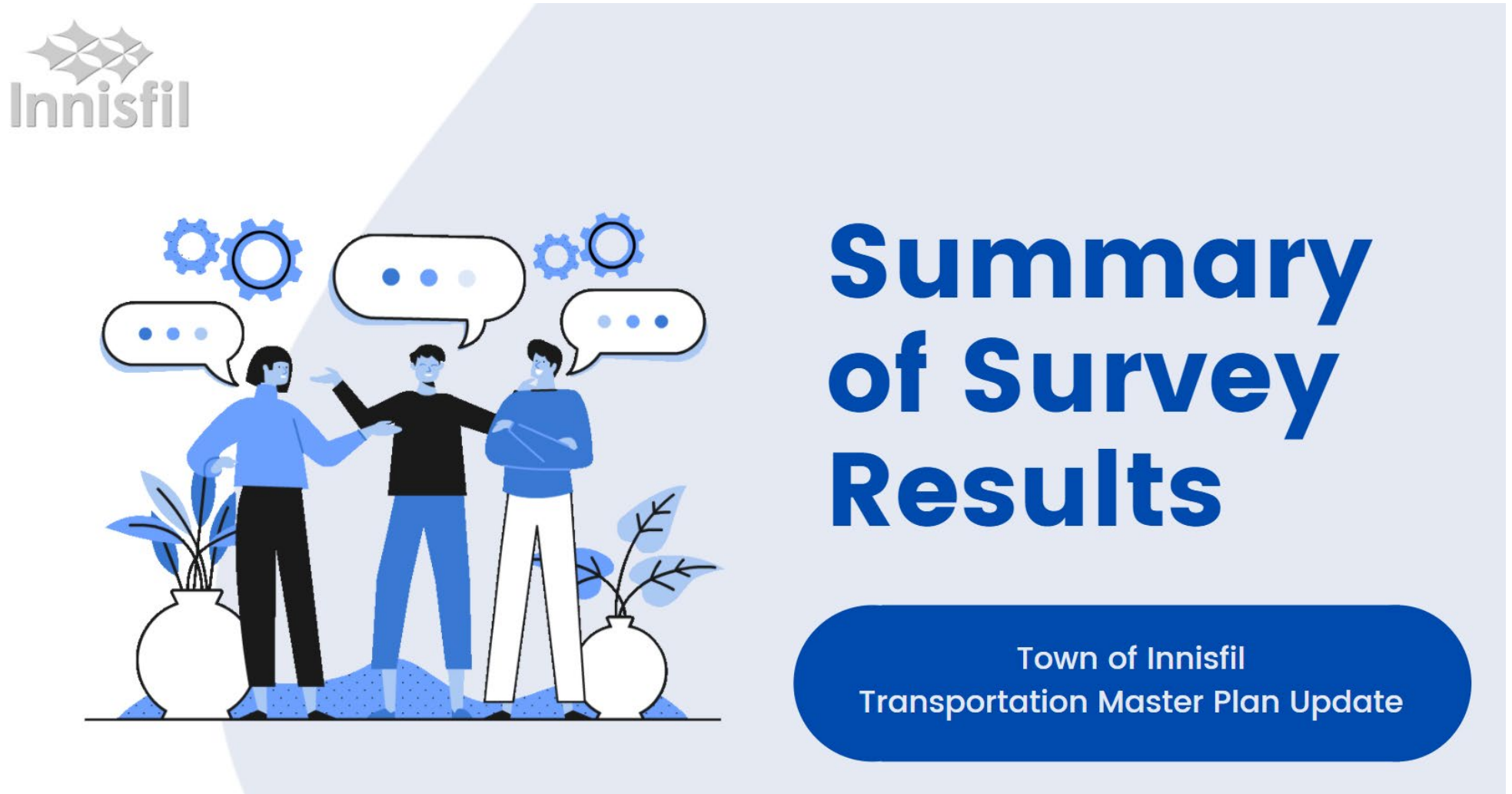
slido

Did you take the survey after the first Public Open House on August 25, 2021?

ⓘ Start presenting to display the poll results on this slide.

Public Open House #1 – What We Heard

Summary of Public Open House #1 Video



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Are these results consistent with your expectations?

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Preliminary Assessment of Needs and Opportunities

Potential Needs and Opportunities within the next 30 years include:

Road Capacity

- The need for additional east-west capacity in the Cookstown area
- Improvements to Innisfil Beach Road and 6th Line to and from Alcona and Innisfil Heights due to congestion

Operations and Safety

- Policies required for safe pedestrian crossings
- Protecting vulnerable road users such as pedestrians and cyclists at collision hot spot locations

Preliminary Assessment of Needs and Opportunities

Potential Needs and Opportunities within the next 30 years include:

Active Transportation

- Upgrade active transportation infrastructure in key destination areas such as the future GO Station and Big Bay Point Road
- Introducing sidewalks in new areas where there are gaps in the sidewalk network

Transit

- Explore dynamic routing and/or fixed route options to enhance the current Innisfil Uber Transit system by increasing reliability between key origins/destinations
- Supplementing first/last kilometre of transit trips by leveraging emerging technologies such as shared bikes, scooters, etc

Bike Lanes in Front of Nantyr Shores Secondary School

Vision

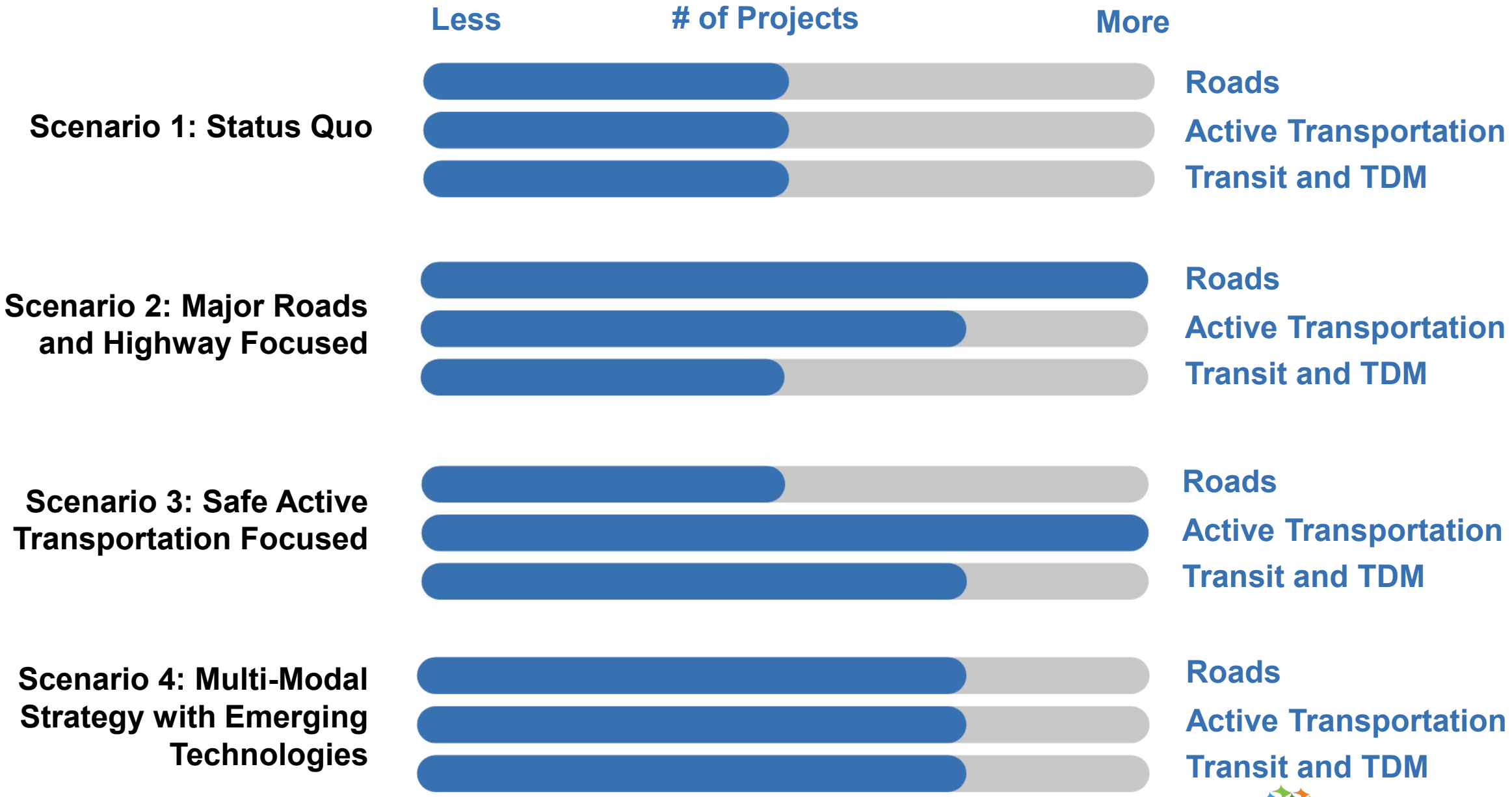
Innisfil's transportation system connects people and communities, fosters healthy living, and operates innovatively and efficiently across the Town as an environmentally and financially sustainable, resilient system ready for the future.

Alternate Strategies and Evaluation

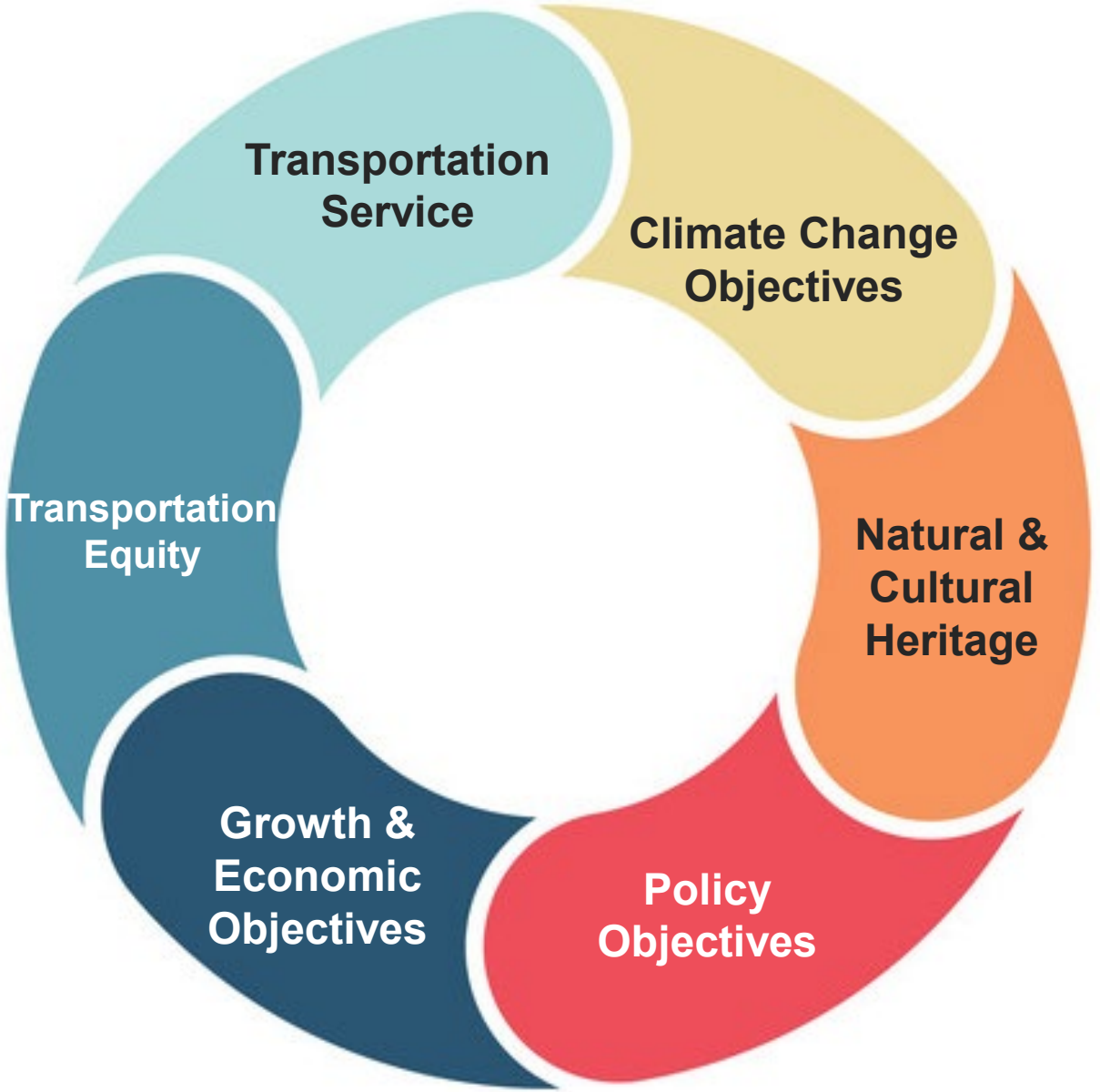
Alternative Strategies

Alternative Strategies	Goal
Base Case	To use for benchmarking to understand benefits of each alternative strategy
Status Quo	Improve the current transportation system through road upgrades, active transportation, and fixed route transit for the year 2041
Major Road and Highway Focused	Build upon the status quo by focusing on congestion and commuter flow to work and key destinations for the year 2051
Safe Alternative Road Focused Investment	Build upon the status quo by improving safe and attractive walking and cycling conditions for all road users regardless of age and ability for the year 2051
Multi-Modal Strategy with Emerging Technologies	Prioritizing attractive walking and cycling conditions for all road users, while ensuring congestion is minimized through investments in roads, active transportation, transit and emerging technologies for the year 2051

Alternate Strategy Projects



Evaluation Matrix Criteria



Evaluation Matrix Criteria

Transportation Service

- Mitigates existing and future congestion
- Improves commuting to essential destinations such as work and key recreational hubs

Climate Change Objectives

- Addresses sustainable transportation objectives (Federal, Provincial, County, and Town)
- Supports clean fuel initiatives

Natural and Cultural Heritage

- Protects the natural environment areas, local streams and aquatic resources, and air quality
- Protect farmland and agriculture
- Does not impact cultural properties

Evaluation Matrix Criteria

Policy Objectives

- Aligns with the policy objectives from various guiding documents from Simcoe, the Town, Metrolinx, and MTO

Growth and Economic Objectives

- Supports local businesses
- Maximizes land development potential
- Provides opportunities for planned growth

Transportation Equity

- Considers solutions that benefit equity-seeking groups in the Town of Innisfil such as young persons, physically/visually impaired, and access to mobility options regardless of geography
- Contributes to vertical equity by reducing major barriers to any population group
- Provides safe alternative transportation modes

Evaluation of Alternatives

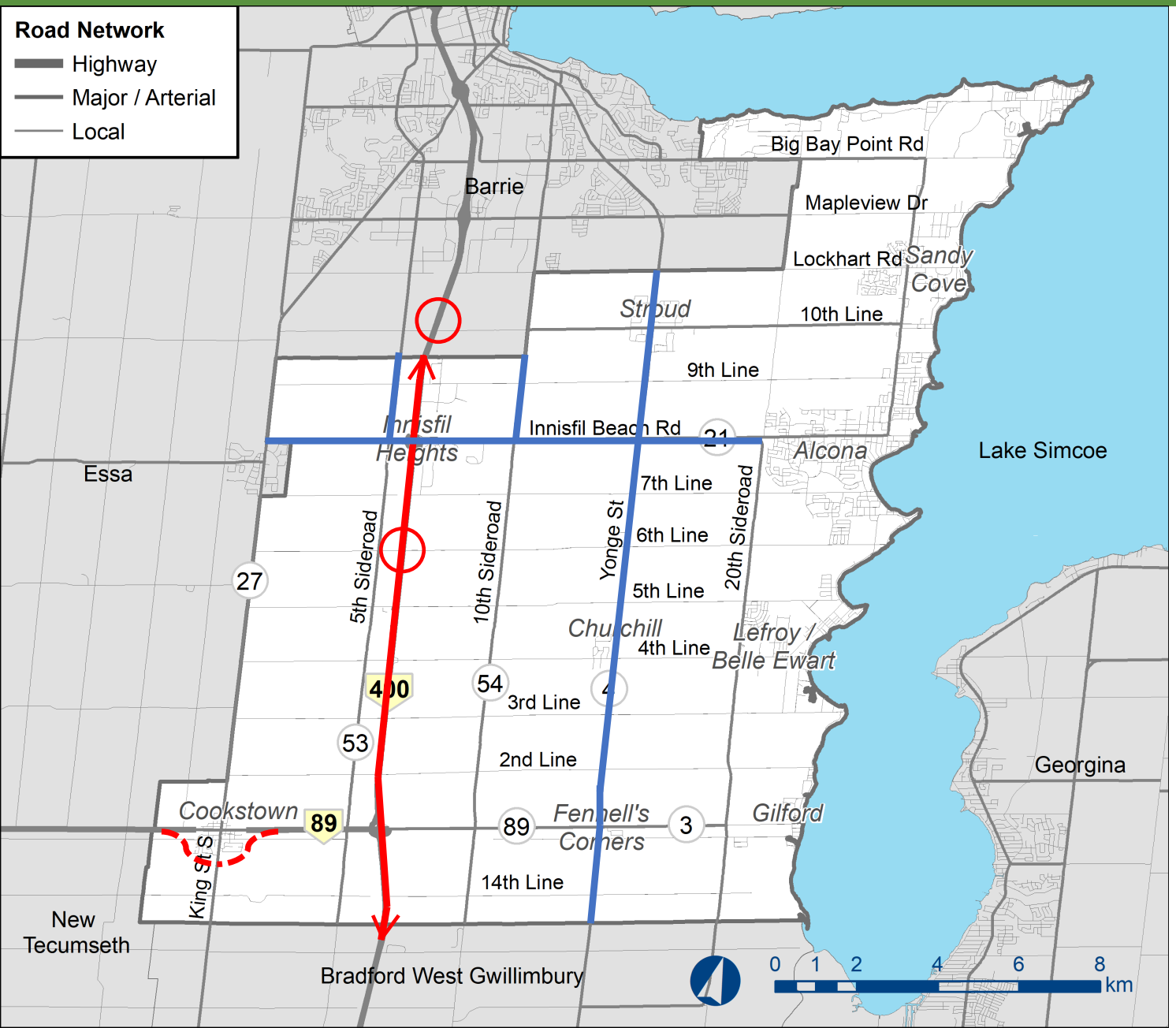
	Scenario 1: Status Quo	Scenario 2: Roads and Highway Focused	Scenario 3: Safe & Alternative Transportation Focused	Scenario 4: Multi-Modal Strategy with Emerging Technologies
Transportation Service				
Climate Change Objectives				
Natural and Cultural Heritage				
Policy Objectives				
Growth & Economic Objectives				
Transportation Equity				
Financial				
Overall	0.71	0.75	0.79	0.86 Recommended

Preliminary Preferred Solution:

Scenario 4
Multi-Modal Strategy with Emerging Technologies

Prioritizing attractive walking and cycling conditions for all road users, while ensuring congestion is minimized through investments in roads, active transportation, and emerging technologies for the year 2051

Road Capacity Projects



Provincial Projects include:

- Highway 400, 1 km south of Highway 89 to Highway 11 (3 to 5 lanes per direction, including a HOV lane)
- 6th Line interchange at Highway 400
- Highway 89 East-West Link Improvements

Simcoe County Projects include:

- Yonge Street, South Town limit to North Town Limit (2 to 4 lanes)
- CR21, CR27 to CR39 (2 to 4 lanes)
- CR53, CR21 to Town Limit (2 to 4 lanes)
- CR54, CR21 to Town Limit (2 to 4 lanes)

2018 TMP Road Capacity Projects

Planned Recommended Network

Widening Projects include:

- 6th Line, between 20 Sideroad and Angus Street
- 6th Line, between 5th Sideroad to 20th Sideroad

Signalized Intersections at:

- Yonge Street and 9th Line
- Yonge Street and 7th Line
- Yonge Street and 6th Line
- Yonge Street and 5th Line
- Yonge Street and 4th Line
- Innisfil Beach Road & 20th Sideroad Bypass

Roundabouts at:

- 20th Sideroad and Lockhart Road
- 20th Sideroad and 9th Line
- 20th Sideroad and 6th Line

slido

How familiar are you with using roundabouts while driving?

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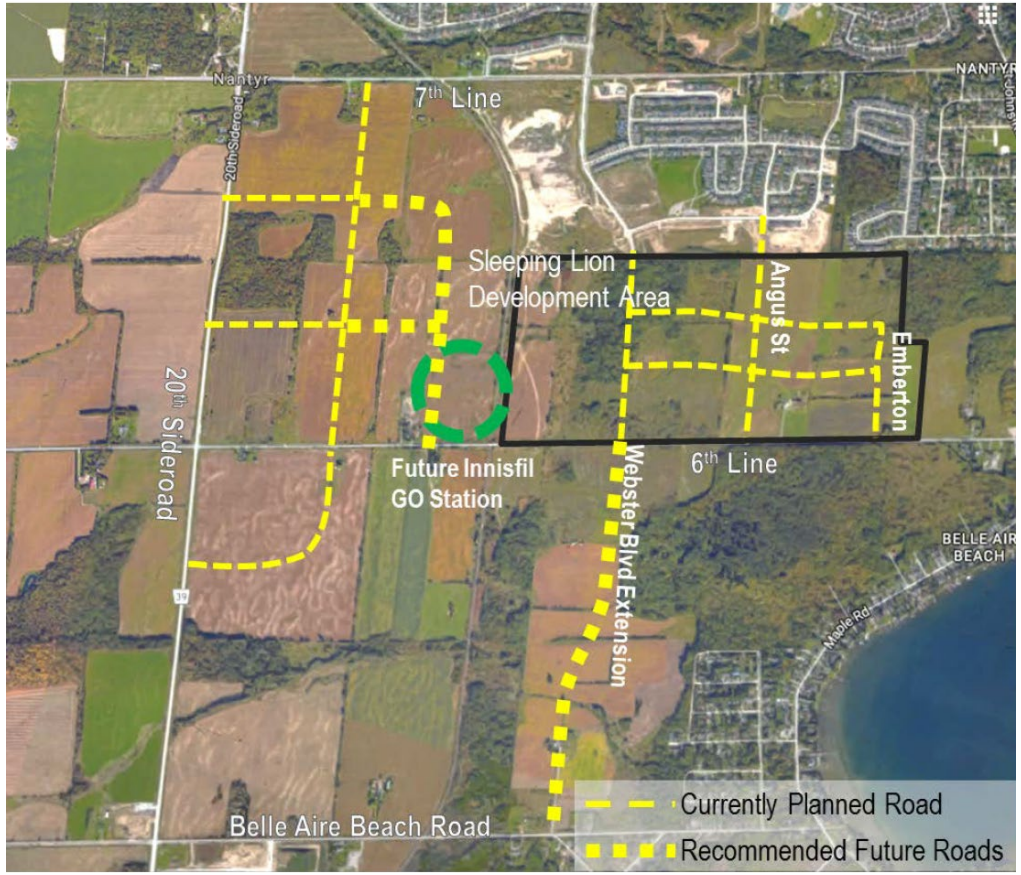
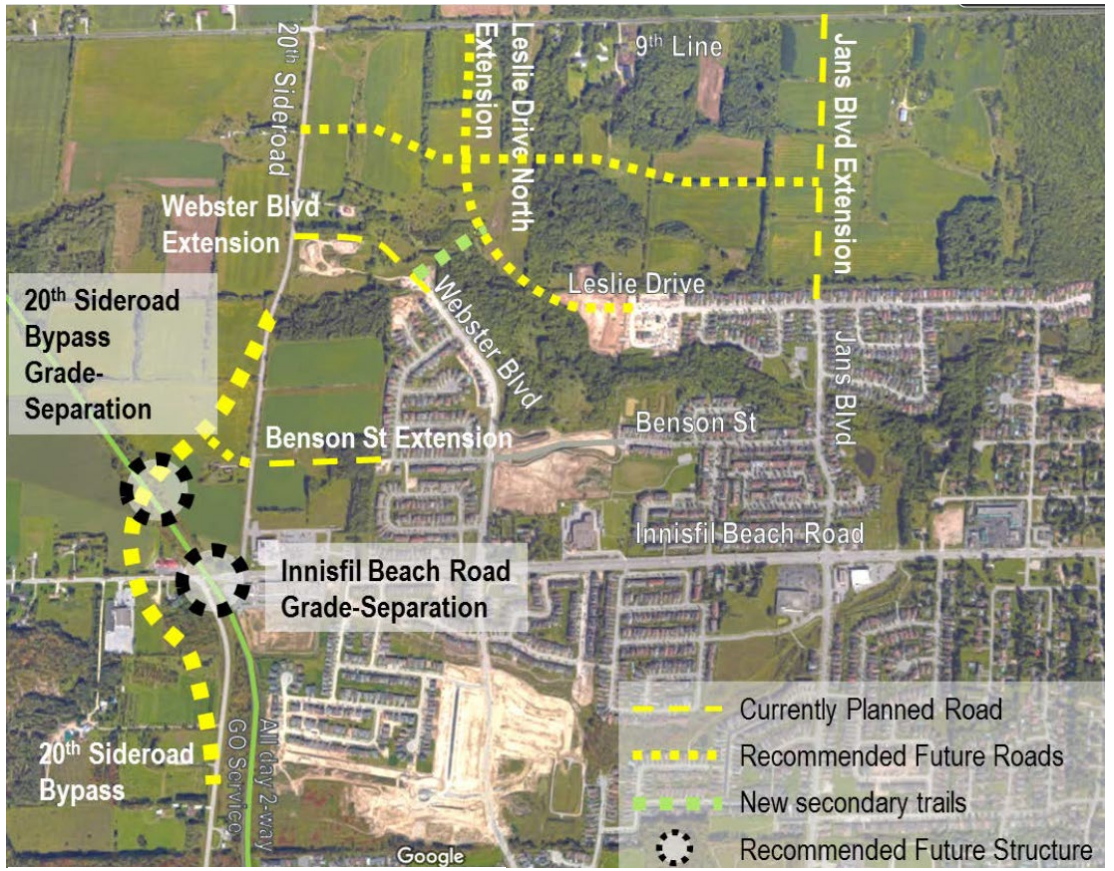
2018 TMP Road Capacity Projects



Additional Road Network around the Future Innisfil GO Station



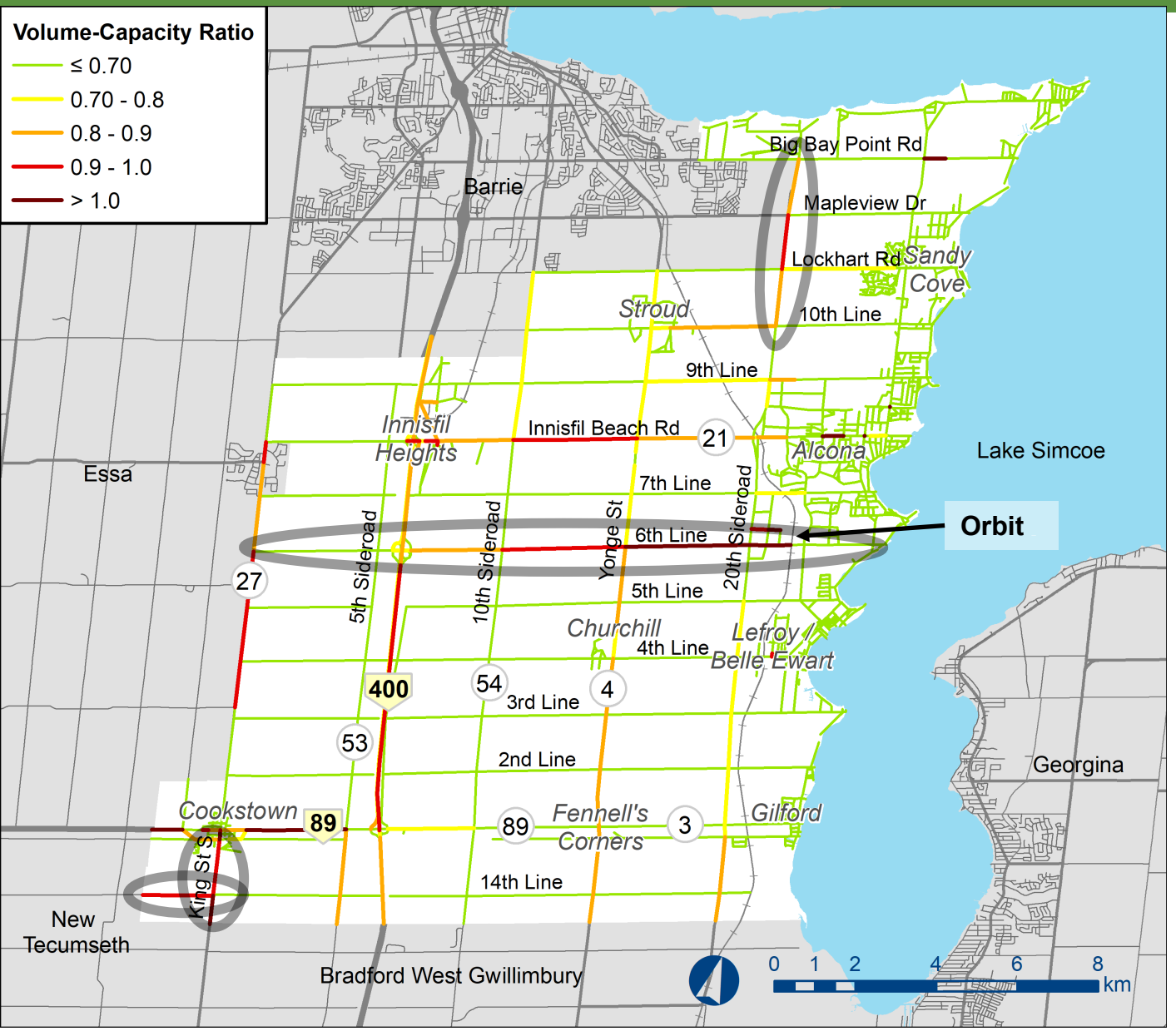
Additional Roadway Extensions in Alcona include:

- Jans Boulevard
- Webster Boulevard
- Benson Street
- Leslie Drive

Two Grade Separations (County Jurisdiction):

- Innisfil Beach Road
- 20th Sideroad By-pass

Additional Road Capacity Projects



Proposed Road Capacity Improvements:

6th Line

- Road widening from 2 to 4 lanes from County Rd 27 to the Planned GO Station
- Protect for a 6-lane corridor for needs beyond 2051

14th Line

- Reconstruct to 2 paved lanes from King St. to Innisfil boundary to increase roadway capacity
- Consistent with New Tecumseth 2019 draft TMP

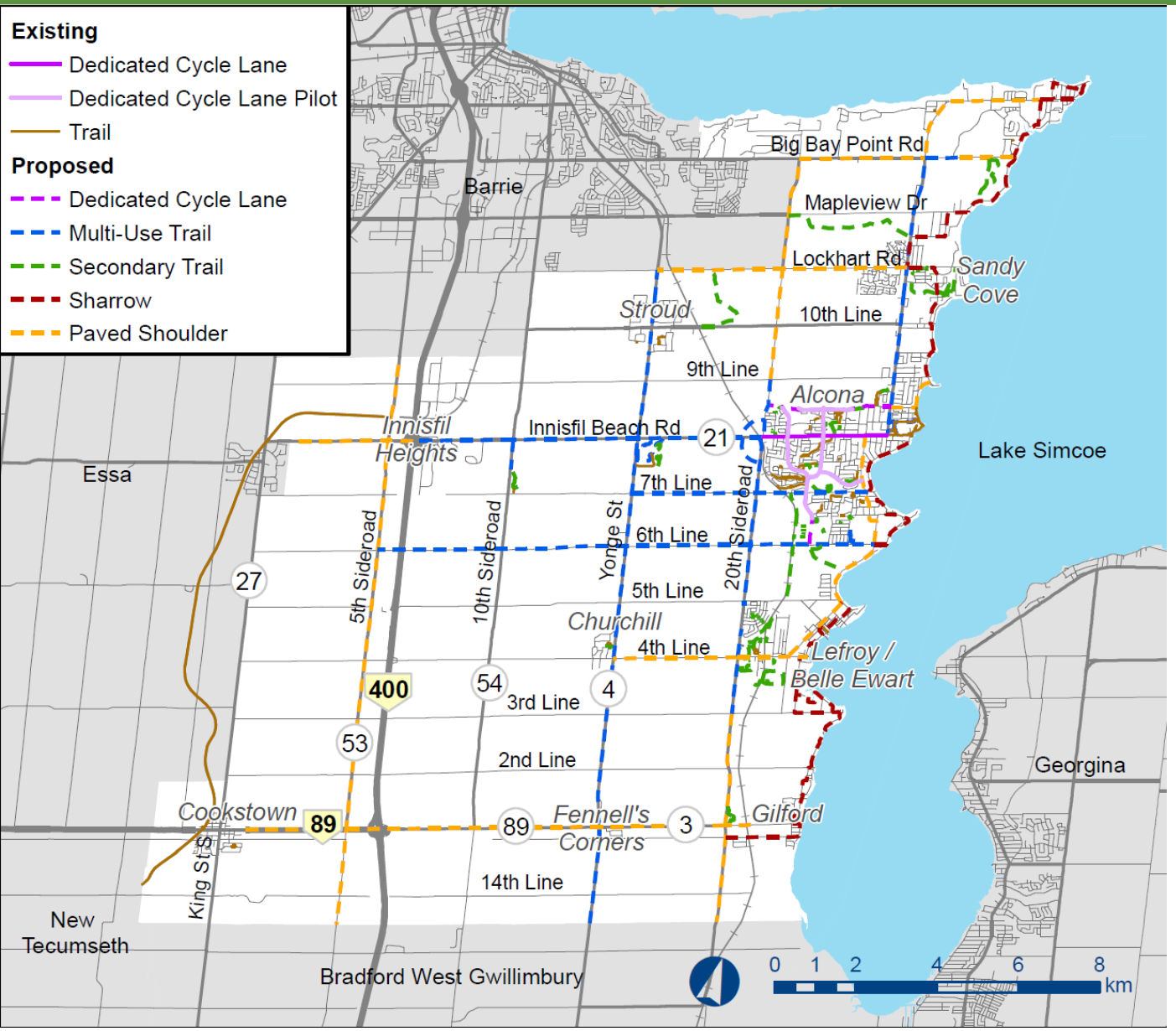
King Street South

- Parking Study with key stakeholders such as BIAs to balance parking and capacity needs

20th Sideroad

- Class EA study to assess need / protect for 4-lane cross-section and active transportation

2018 TMP Active Transportation Projects



Planned Bike Lanes

- Webster Boulevard, 6th Line to north limit
- Jans Boulevard, Webster Blvd to north limit

Planned Multi-Use Trail

- Webster Boulevard, 20th Sideroad to Angus St
- 20th Sideroad, 9th Line to 5th Line
- 20th Sideroad, 5th Line to 3rd Line
- 25th Sideroad, Big Bay Point Rd to Innisfil Beach Rd
- 7th Line, Yonge St to St Johns Rd

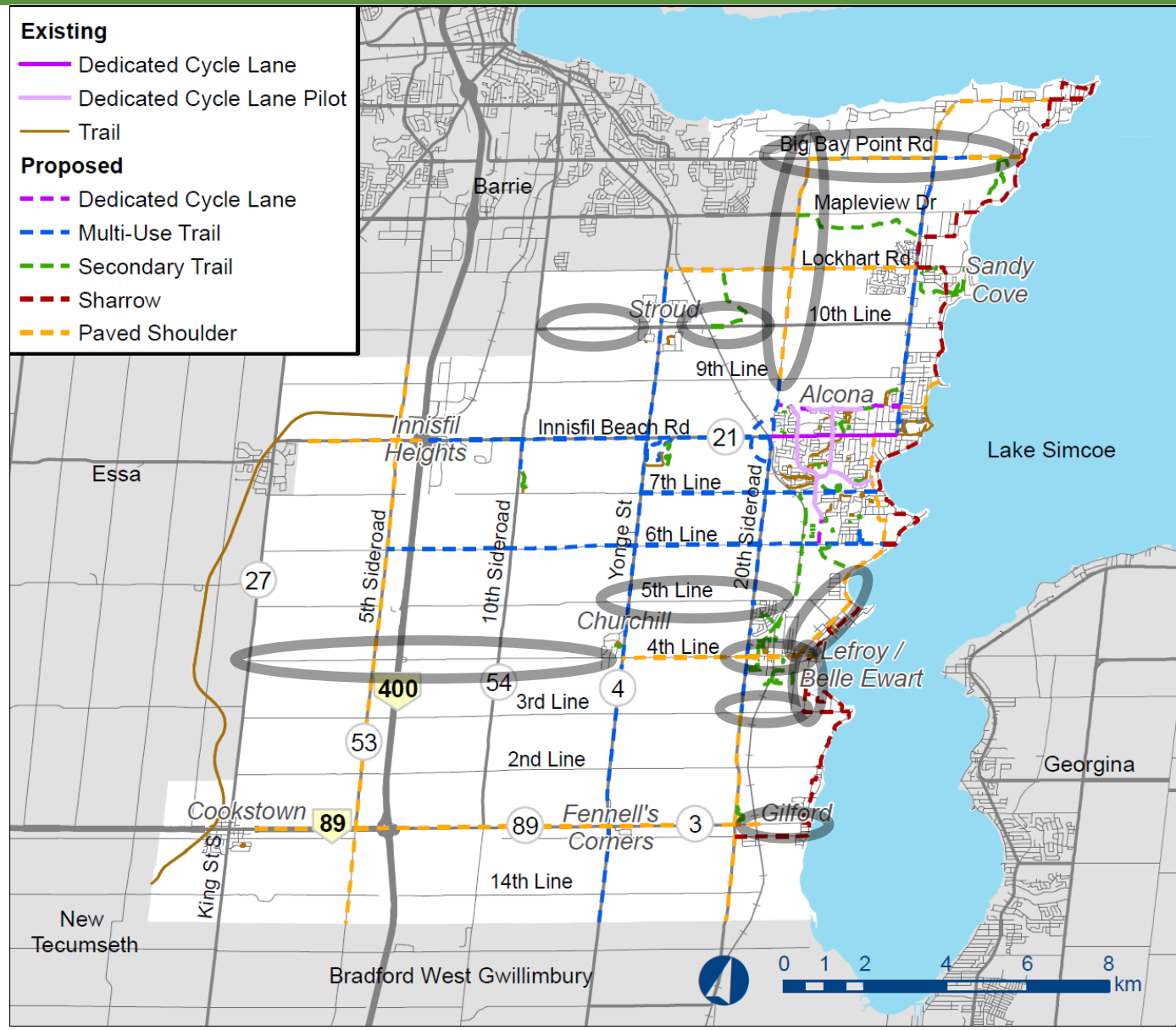
Other active transportation facilities

- Within Alcona
- Within Lefroy/Belle Ewart
- Study of a potential cycling route adjacent to Lake Simcoe and Cook's Bay

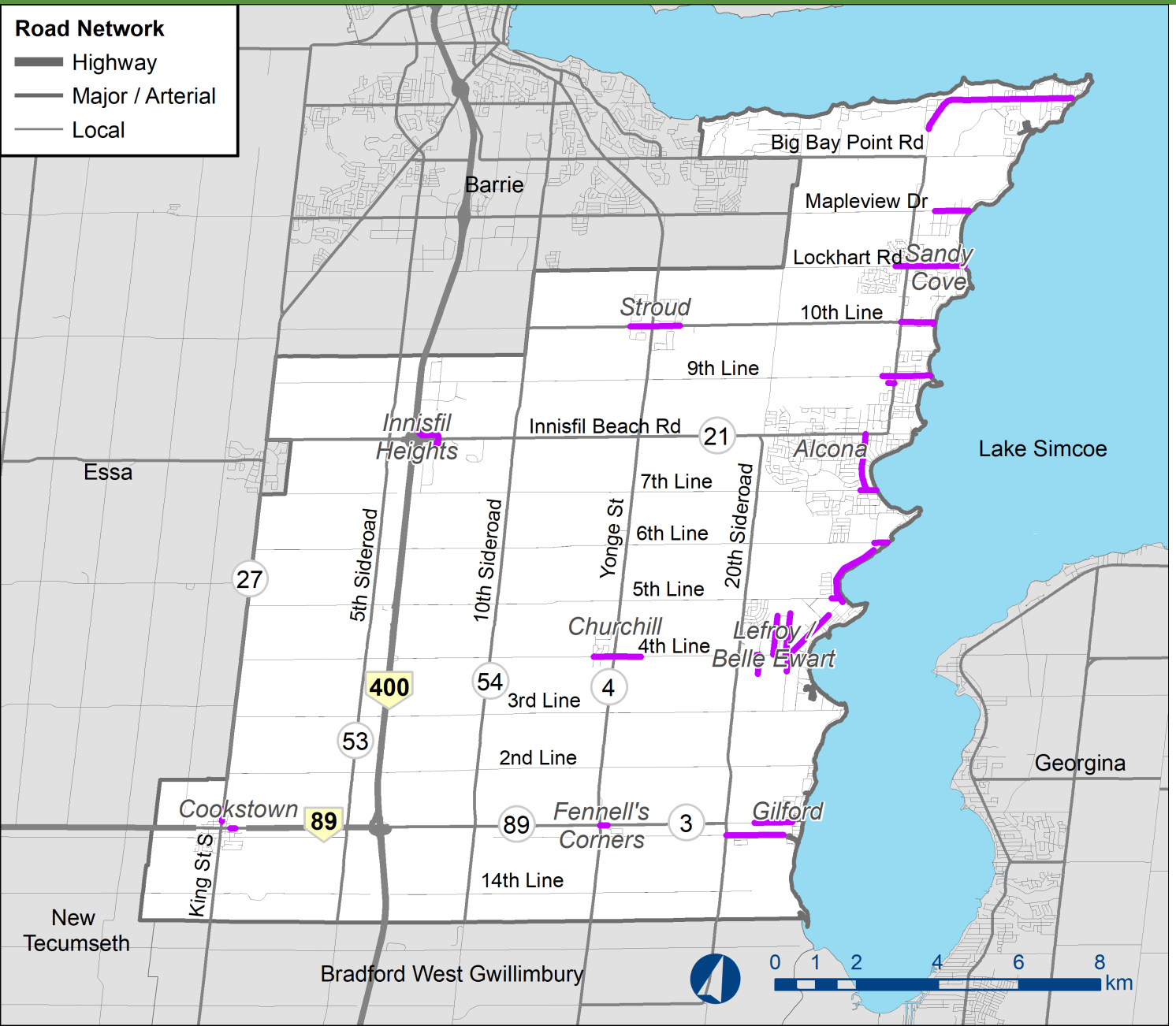
Additional Active Transportation Projects

Additional AT Projects:

- Commuter Active Transportation Infrastructure
- Moderate investments in new sidewalks
- Pedestrian Crossings
- North-south, east-west off-road connection in collaboration with the the on-going Land and Lake Master Plan



Additional Sidewalk Connection Opportunities



Proposed Sidewalk Connectivity

Sidewalk gap analysis identified opportunities to improve connectivity of sidewalks at key locations.

Locations were based on:

- Network continuity
- Connectivity to points of interest with high walking demand (ex. Schools)
- Transit Catchment Areas to GO

Sidewalk Prioritization is required for new sidewalks based on committed funding.

Update the Complete Streets Policy

Town Complete Streets Policy

slido

Would additional bike lanes change your cycling experience?

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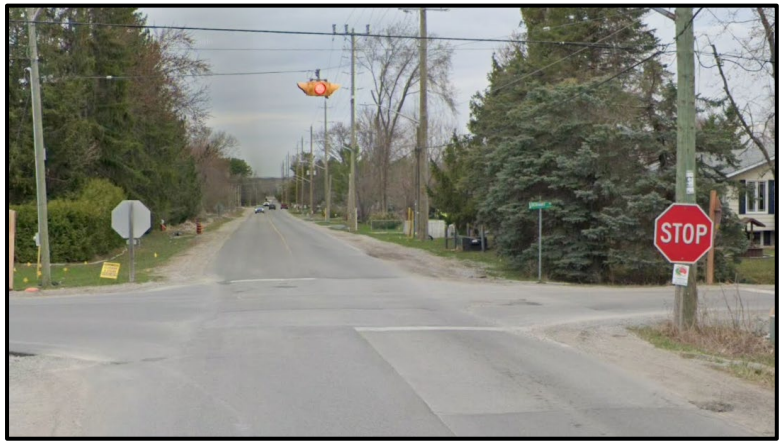
Pedestrian Policy

Stop-Controlled Intersections



Lockhart Road / 25th Sideroad

Pedestrian Signals

Innisfil Beach Road (County Road 21) / Inglewood Drive

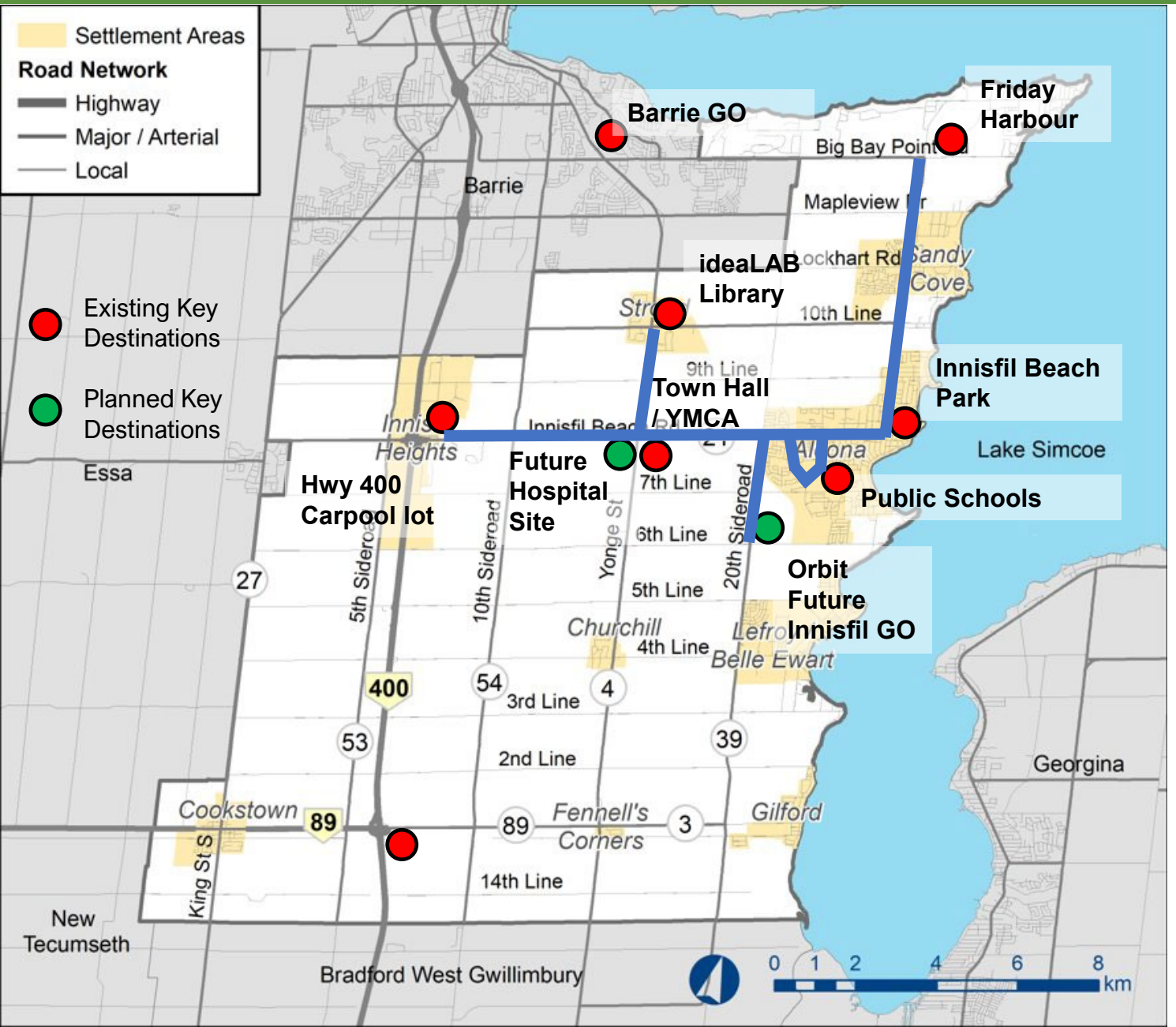
Pedestrian Crossover (PXO)

Lockhart Road, west of Main Street

Uncontrolled Crossing

Frederick Street, south of Claver Avenue

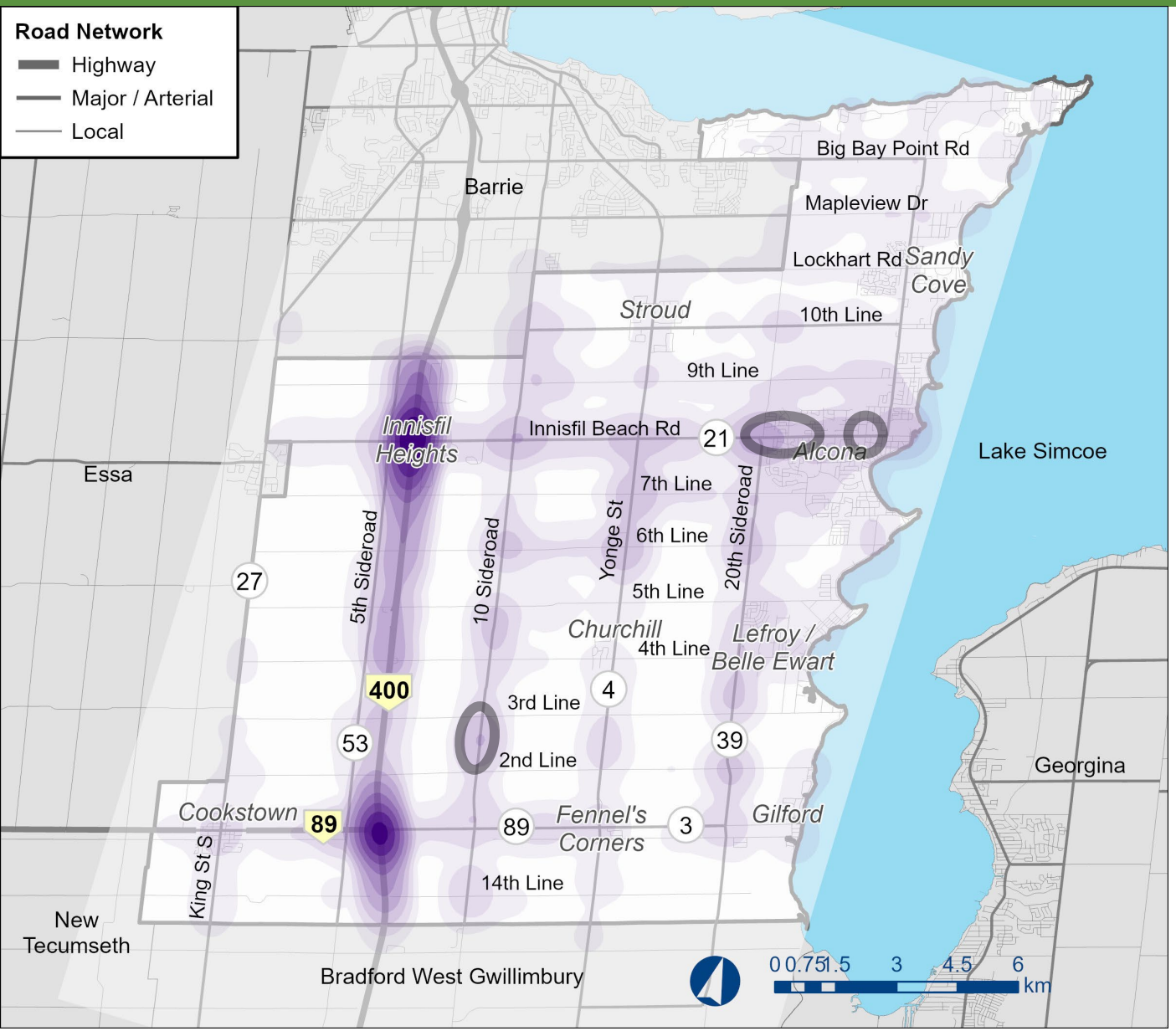
Transit Service Enhancements



Transit Service Opportunities

- There are opportunities to build on the success of Uber Transit for service to key destinations by strengthening reliability and affordability (e.g. scheduled service, incentivize drivers, etc.)
- Partnerships could be expanded with Uber, Simcoe Transit (LINX) and/or Metrolinx
  - Ex. Partnership with Simcoe County to provide a connection to Tangers Outlet or other commercial nodes via LINX
- Future transit studies are proposed at regular intervals (5-year plans) to consider origin to destination data and routing options

Safety Improvement Opportunities



Safety Related Improvements

Prioritize Safety Improvements on links and at intersections based on collision rate per vehicle. Current areas of potential improvement include:

- 10th Sideroad north of 2nd Line
- Innisfil Beach Road east of 20th Sideroad
- Innisfil Beach Road and St. Johns

Emerging Technologies

Bike Share Pilot

- A pilot would be able to explore the financial feasibility. The recommended location is between future Innisfil GO Station and Innisfil Beach Park given the population density and trip attraction

Electric Vehicle Charging

- In collaboration with InnPower, enhance the Town's electric vehicle charging station inventory

Innisfil Youth and Volunteers decorating the donated bicycles from South Simcoe Police Services for the ShareCycle program
(Image from Toronto.com)

GET INVOLVED

GetInvolvedinnisfil.ca/TMPlan

Ways to get involved:

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Innisfil

Innisfil Transportation Master Plan Update

Public Open House (POH) #2

Summary of Comments / Questions and Project Team Responses

This Q&A Sheet is based on the questions brought forward by POH #2 participants (via Zoom chat) and answers provided by the Project Team.

Question / Comment	Project Team Response
Is the Team considering the use of natural corridors and trail links through active modes?	Yes, the Team will review opportunities for off-road connections and trail improvements. The Team is also working with the Land and Lake Master Plan team to coordinate recommendations for active transportation facilities.
How many people are attending this Public Open House, excluding the project team, Town staff and members of Council?	Of the 36 people present on the Zoom meeting, approximately a dozen attendees are members of the public. In addition, there are 9 people watching the Youtube livestream.
How are the alternative solutions assessed based on costing?	A high-level cost estimate is conducted based on estimates from the 2018 Development Charges (DC) Study. Projects associated with each alternative solution is costed by equivalent project type. Alternative solutions are assessed based on evaluation criteria, one of which is financial investment.
How will the TMP address the road needs of the active farm community within the Town (e.g., as it pertains to storing farm equipment)?	The Team has assessed road needs on a capacity and safety perspective (including a review of collision trends). The Team will also aim to address issues raised by the public, including the accommodation of farm equipment along roads; although it is noted that widening and paved shoulders may pose a challenge.
Are there any recommendations from the TMP that allow the Town to	Complete Streets Guidelines are incorporated in the TMP, which would inform the roadway design for the Town going forward. Several active transportation facilities have also

Question / Comment	Project Team Response
implement safety changes right away?	been identified for recommendation as part of the TMP, which are intended to be incorporated in the 10-Year Capital Program to secure funding. An organizational capacity review is another element of this TMP that involves collecting survey data on other jurisdictions to determine how the organization is structured to set up services for implementation. For example, some jurisdictions have a dedicated line item in their capital program for active transportation, which ensures that these projects are actively initiated and implemented.
Are there roundabouts recommended along 20th Sideroad?	Yes, there are three roundabouts recommended along 20th Sideroad at Lockhart Road, 9th Line and 6th Line. The other circled intersections along 20th Sideroad on the Planned Recommended Network map from the 2018 TMP represent locations for other forms of intersection improvement (e.g., signalization).
What is the difference between active and passive transportation?	Active transportation refers to activities that involves physical exertion, such as walking, cycling and roller-skating. Passive transportation refers to activities that are not human-propelled, such as being a passenger on a bus or in a car.
Are we looking at the full buildout of The Orbit as part of this TMP?	Buildout of The Orbit up until the 2051 horizon year is incorporated in this TMP update. Further studies are recommended for growth beyond 2051. In addition, the Orbit Potential and Innovation Plan (OPIP), a coordinated Master Servicing Plan and Secondary Plan, is currently underway.
The theatre in Cookstown currently does not have a designated parking lot and has caused parking issues in the area.	Acknowledged. A recommendation from this TMP is a Parking Study to be conducted for Cookstown.
Will there be delineation between vehicles and bicycles along 25th Sideroad, other than the painted lines?	Yes, there will be multi-use trail (MUT) along 25th Sideroad to provide physical separation between bicyclists and vehicles.

Question / Comment	Project Team Response
The previous TMP identified the need to realign 20th Sideroad, along with other realignments. Will the 2021 TMP update provide more direction on alignments and impacts on grade separation and/or are these subject to further study?	In recommending road realignments, the TMP addresses the first two phases of the Environmental Assessment (EA) process (i.e., Problem or Opportunity and Alternative Solution); however, this varies based on the type of facility, lanes along the facility and configuration design. The project would also have to seek approval through Schedule C of the EA process, which involves a more detailed assessment of implications. Typically, the EA study following this TMP will re-confirm Phase 1 and Phase 2. Phase 3 will assess various design concepts including the alignment and its impacts to environment, natural heritage, etc.
Will the roads proposed to have a "Dedicated Cycle Lane" be separated by a buffer?	"Dedicated Cycle Lane" include painted or buffered cycle lanes. As part of the TMP, a selection framework can be devised to consider bike lanes with a higher degree of protection and highlight preferences for a particular facility type, given the appropriate roadway context. The type of cycling facility recommended is subject to an assessment of the specific corridor (e.g., due to varying right-of-way width constraints).
Locations of schools should be shown on the active transportation map for trail connectivity.	Agreed, school locations were an important consideration in assessing locations for new trails to improve access. School locations will be shown in a map within the TMP document.
Is the intersection of Innisfil Beach Road and 20th Sideroad being considered for safety-related improvements?	Yes. Historical collisions can also be reviewed at the intersection, if available, based on the type of collision experienced (e.g., rear-end, turning movement, etc.) to assess specific needs.
When will the TMP go to Council?	Recognizing that 2022 is an election year, the goal is to have the TMP completed by April / May. However, it is important that sufficient time is provided to allow for coordination with other ongoing plans, such as the County TMP, for consistency.

Innisfil

Summary of Survey Results

Town of Innisfil
Transportation Master Plan Update

In Summer 2021 the Town of Innisfil conducted a survey to collect information for the Town's Transportation Master Plan Update

Who did we hear from?

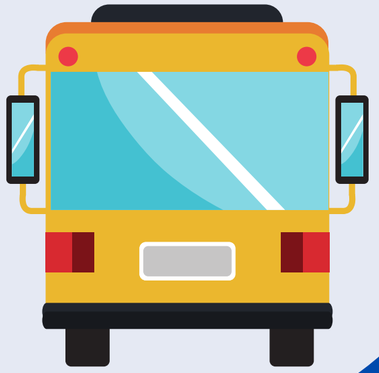
There were 724 respondents to the survey that launched after the first Public Open House on August 25, 2021 and ended on September 30, 2021.

Innisfil

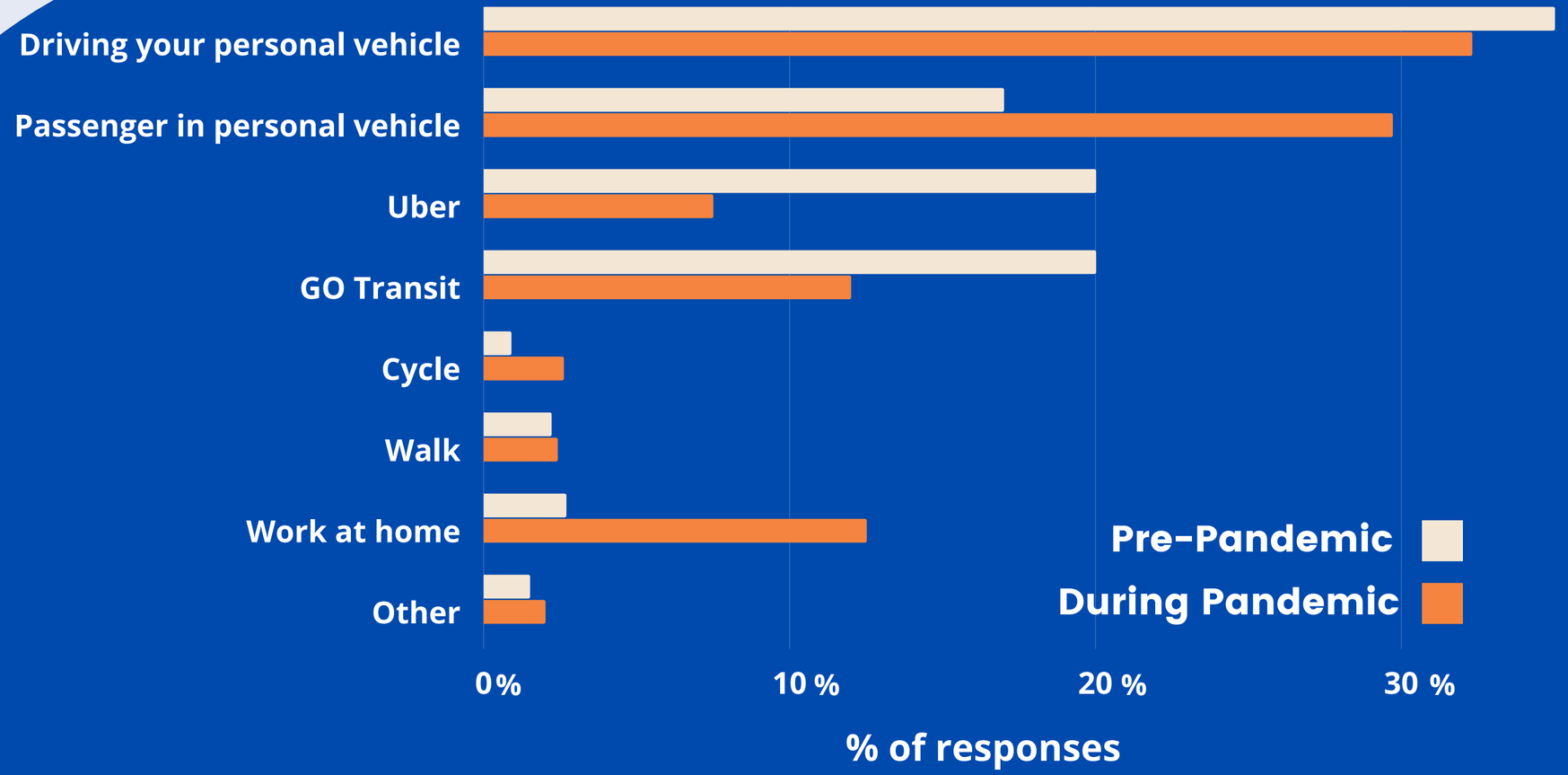
Some key takeaways of the results from this survey include the following:

- Driving decreased during the pandemic while working from home and other transportation modes increased.
- Safer walking and cycling environments are desired.
- Most respondents currently using the Bradford and Barrie GO Stations will switch to using the Innisfil GO Station once completed.

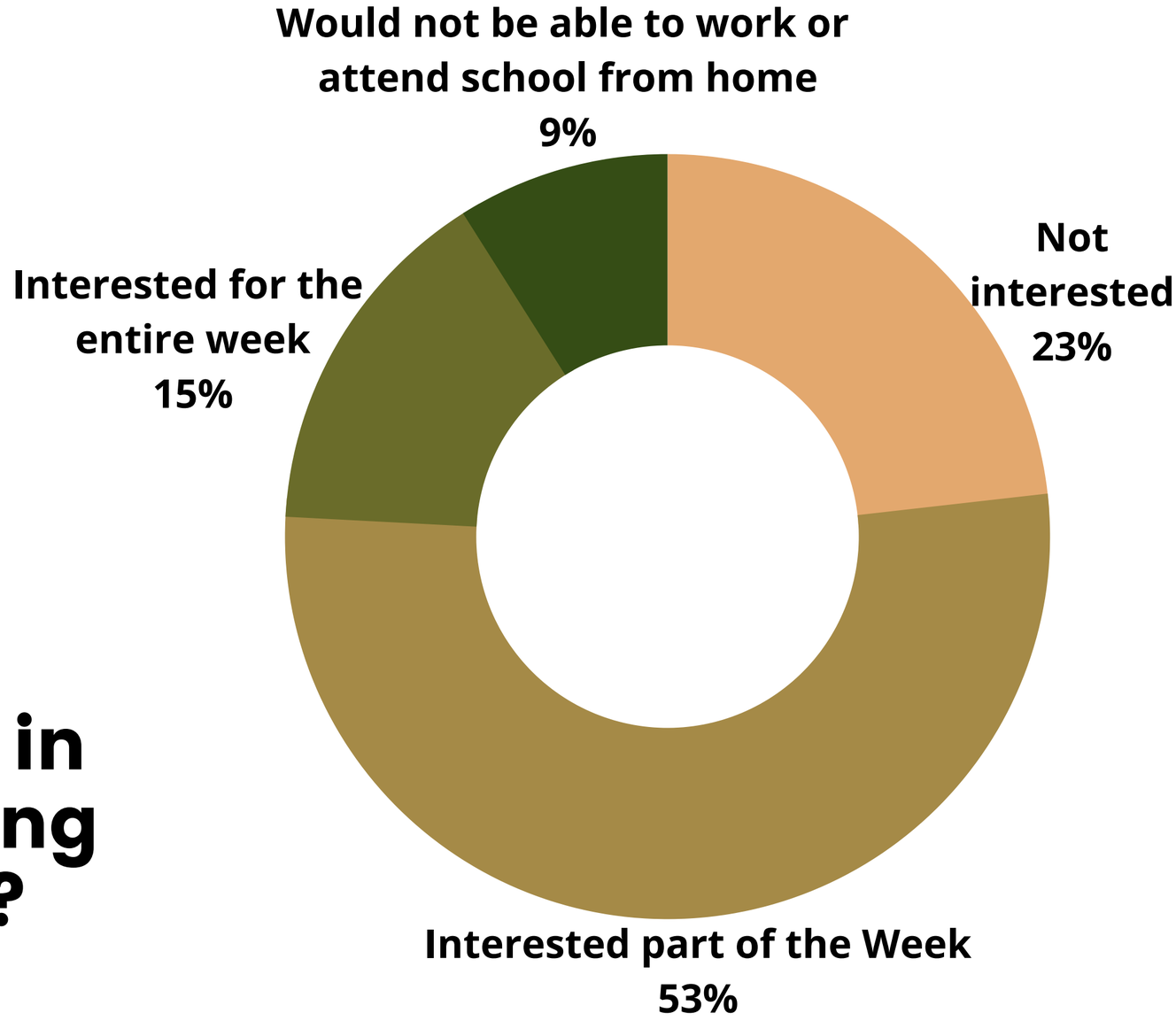
Questions Asked in the Survey



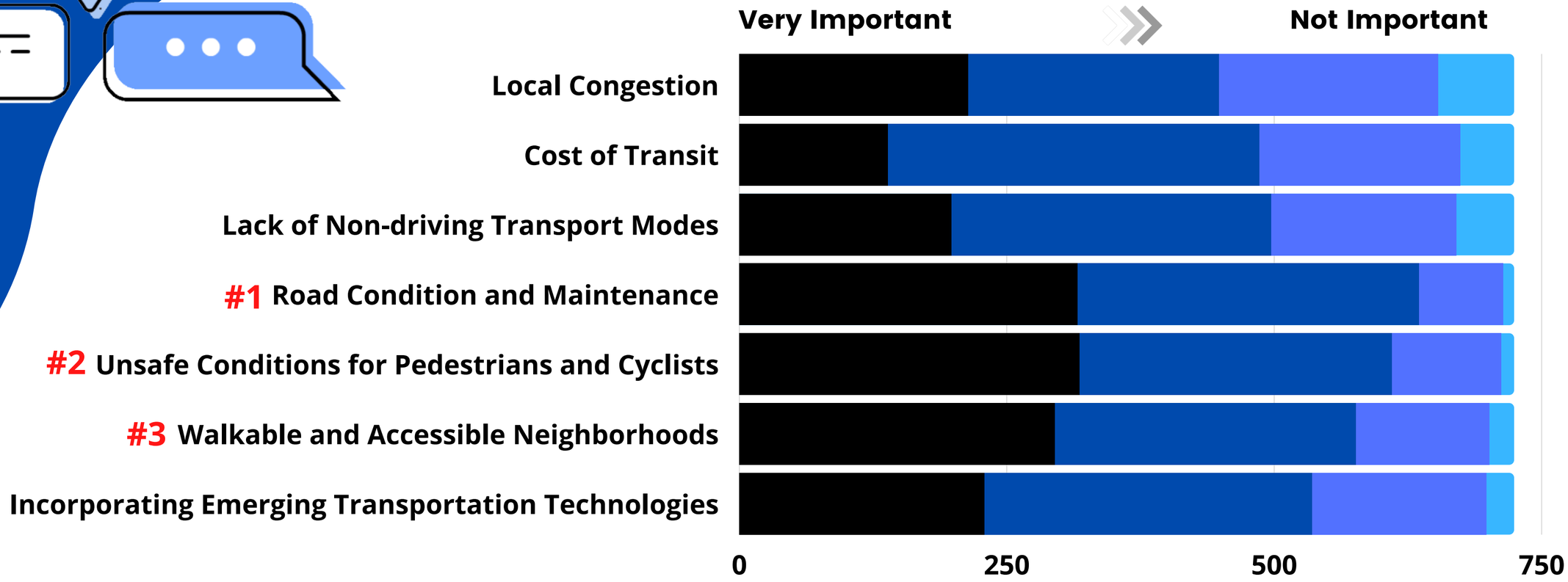
What mode of travel did you typically use to attend work or school before and during the Covid-19 pandemic?



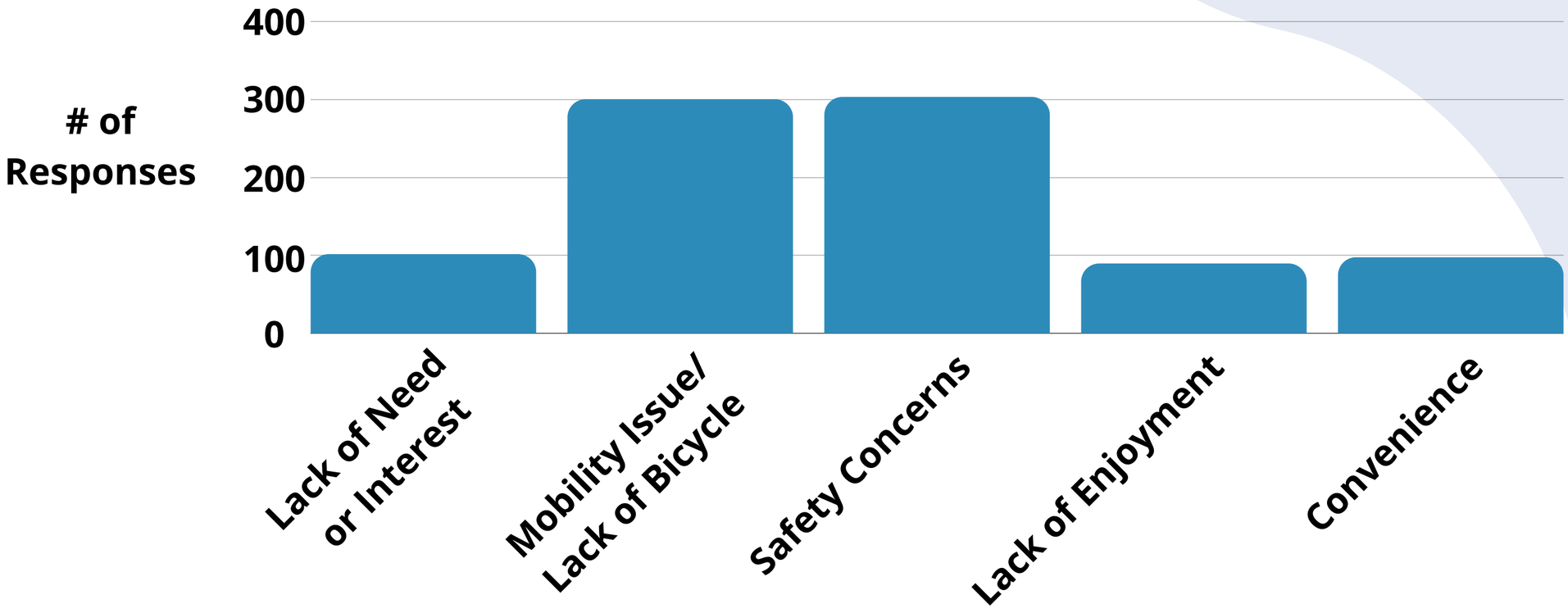
After the Covid-19 pandemic, how interested are you in working or attending school from home?



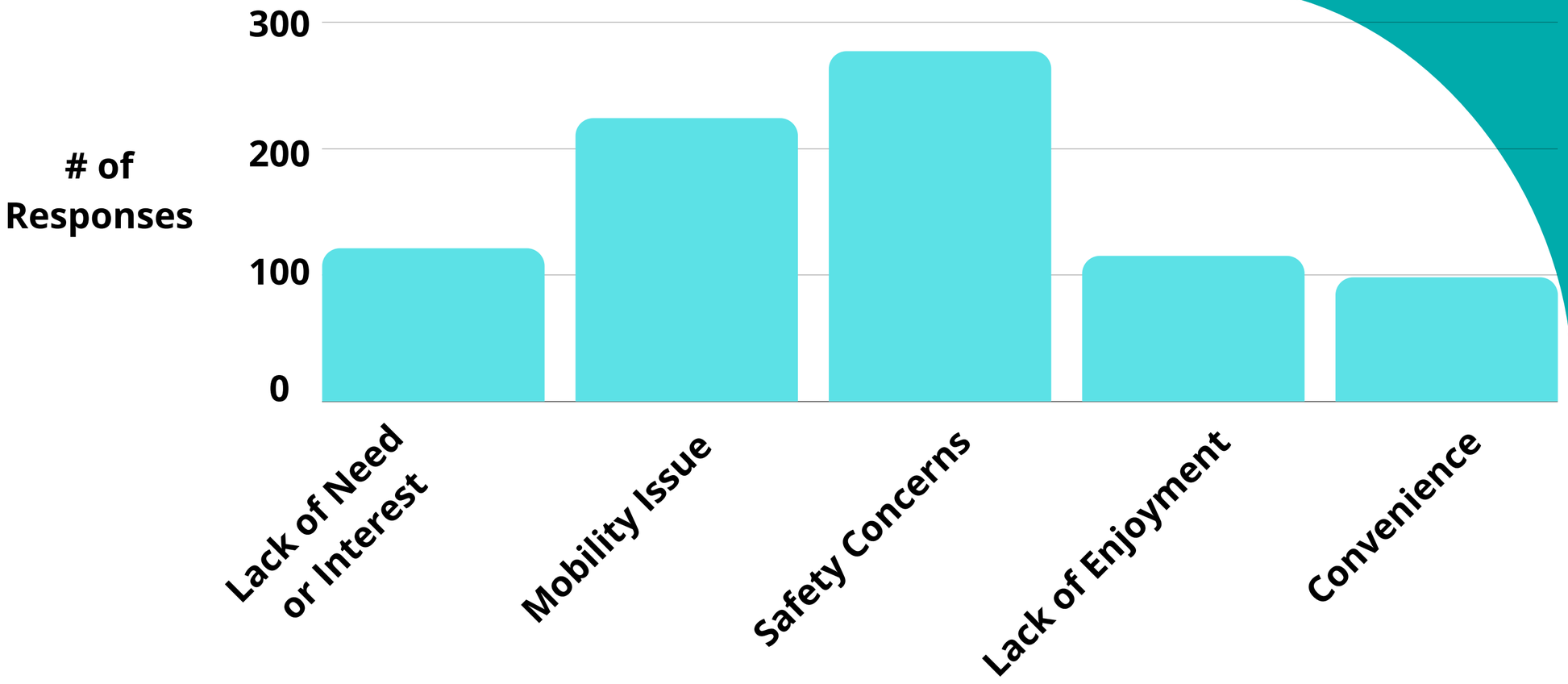
Which of the following transportation solutions for the Town of Innisfil are more important in your opinion?



What are barriers holding you back from cycling for recreation and/or health?



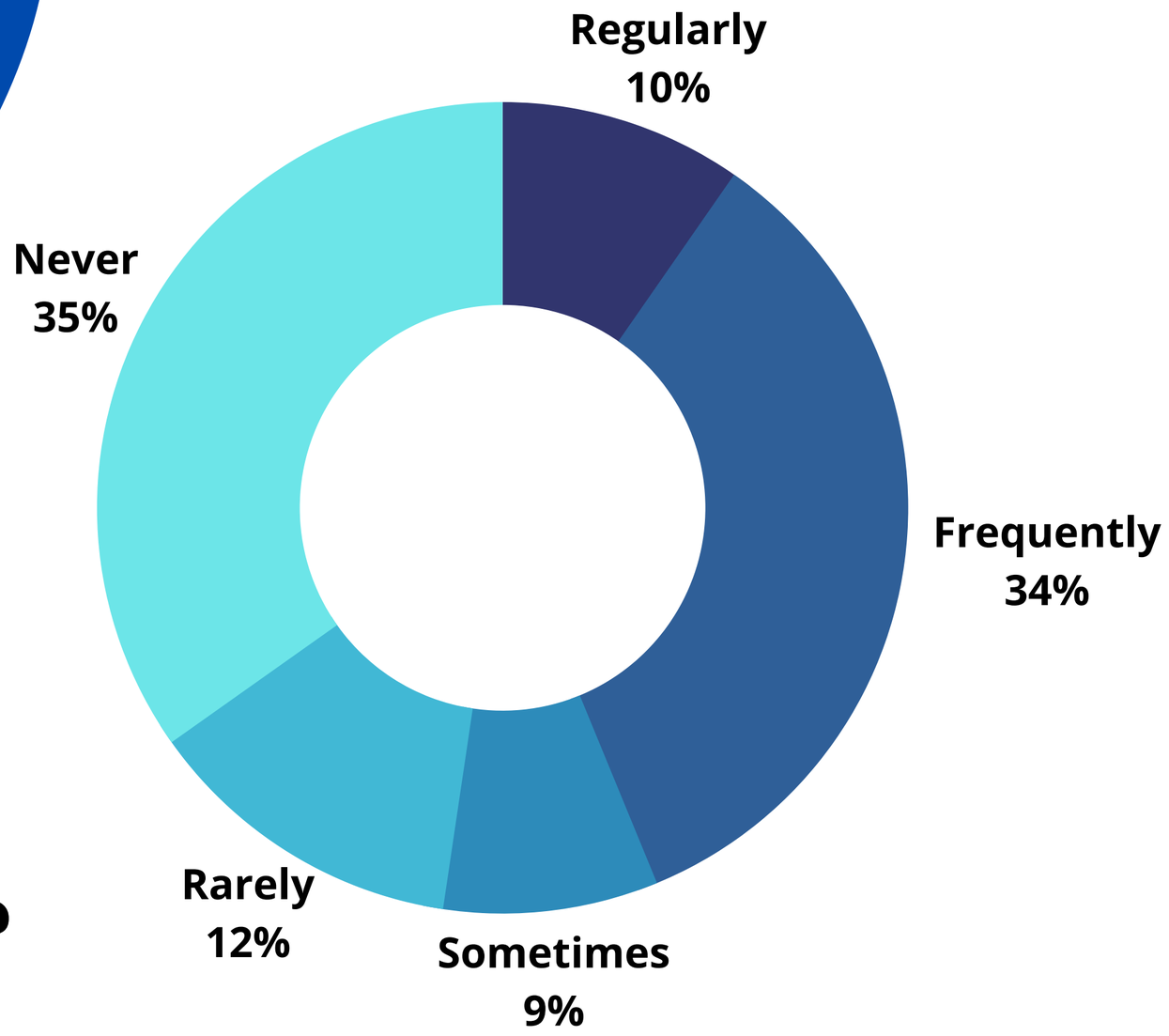
What are barriers holding you back from walking for recreation and/or health?



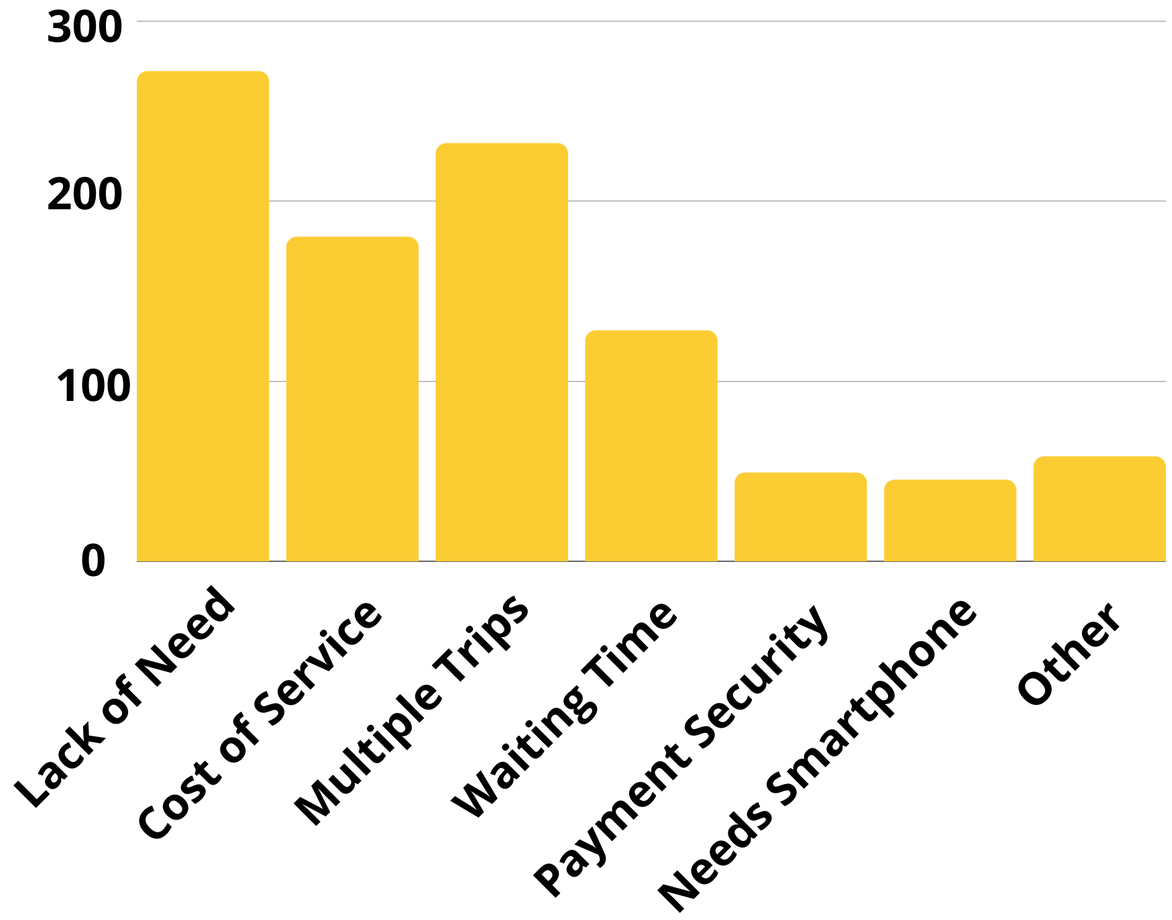
Respondents recommended that the following locations be considered for walking and cycling upgrades:

1. Innisfil Beach Road
2. Big Bay Point
3. 25th Sideroad
4. St. Johns Road
5. 20th Sideroad

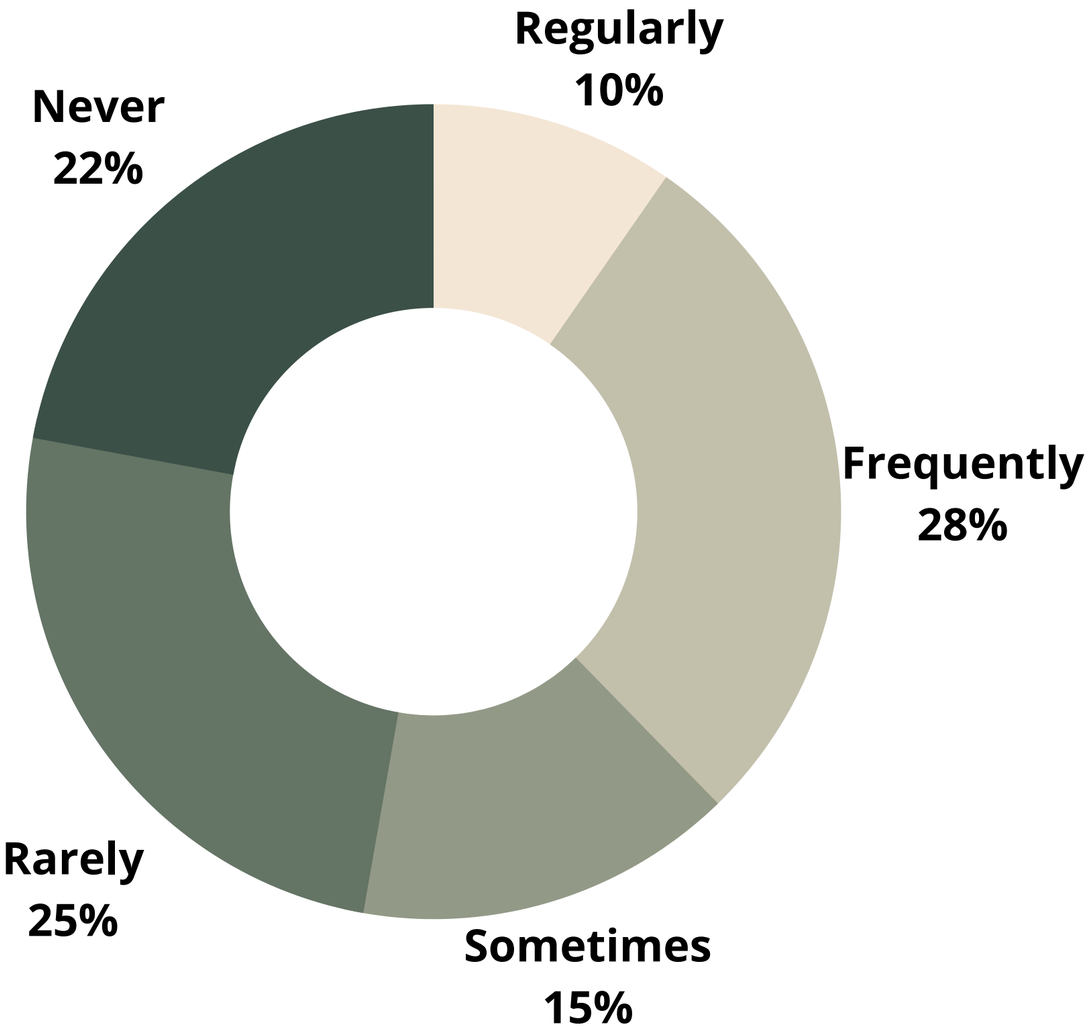
How often do you use the Innisfil Uber Transit service?



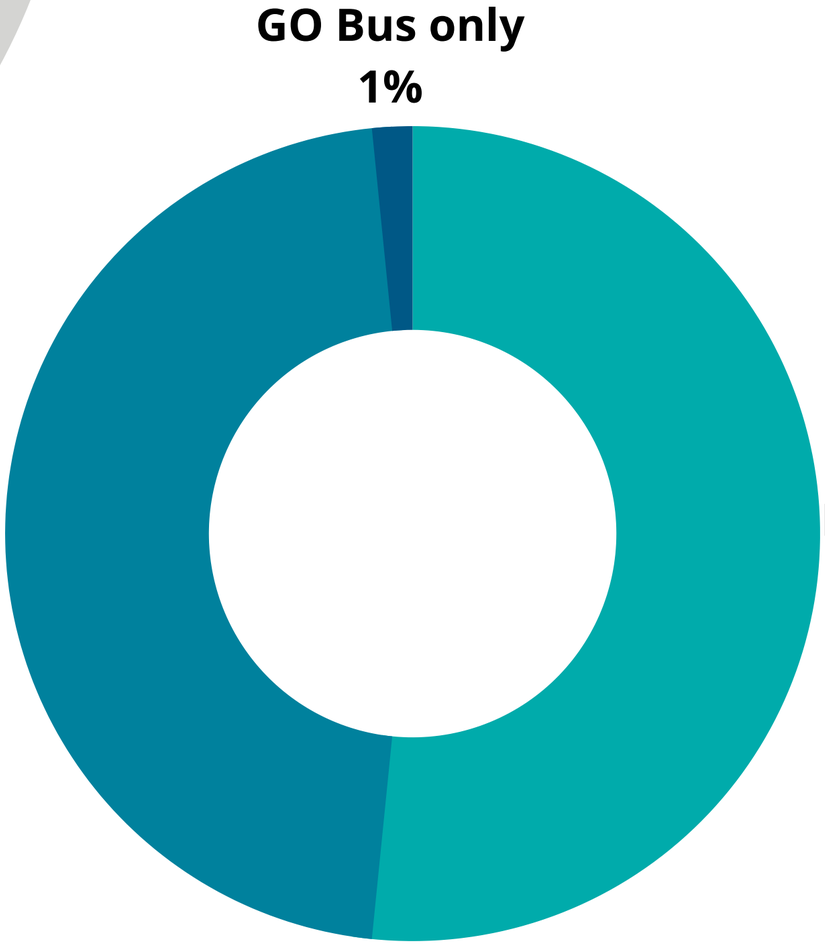
What is holding you back from taking Uber service more?

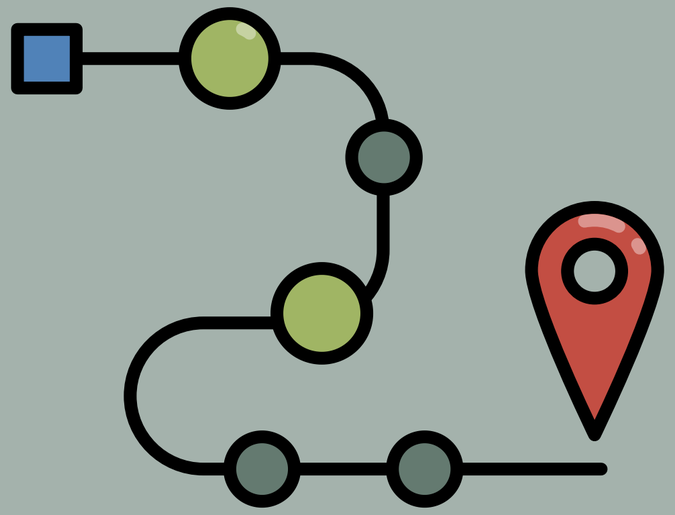


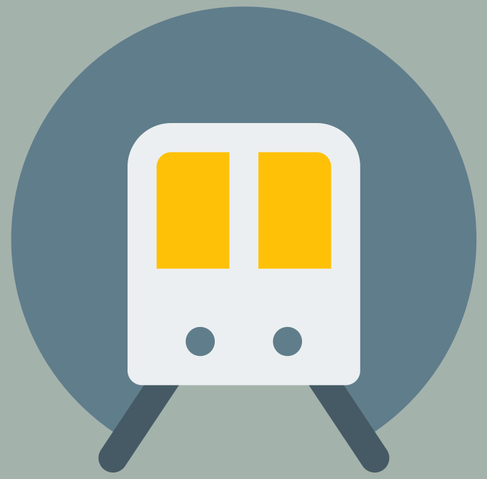
How often do you use GO Train and/or GO Bus services?



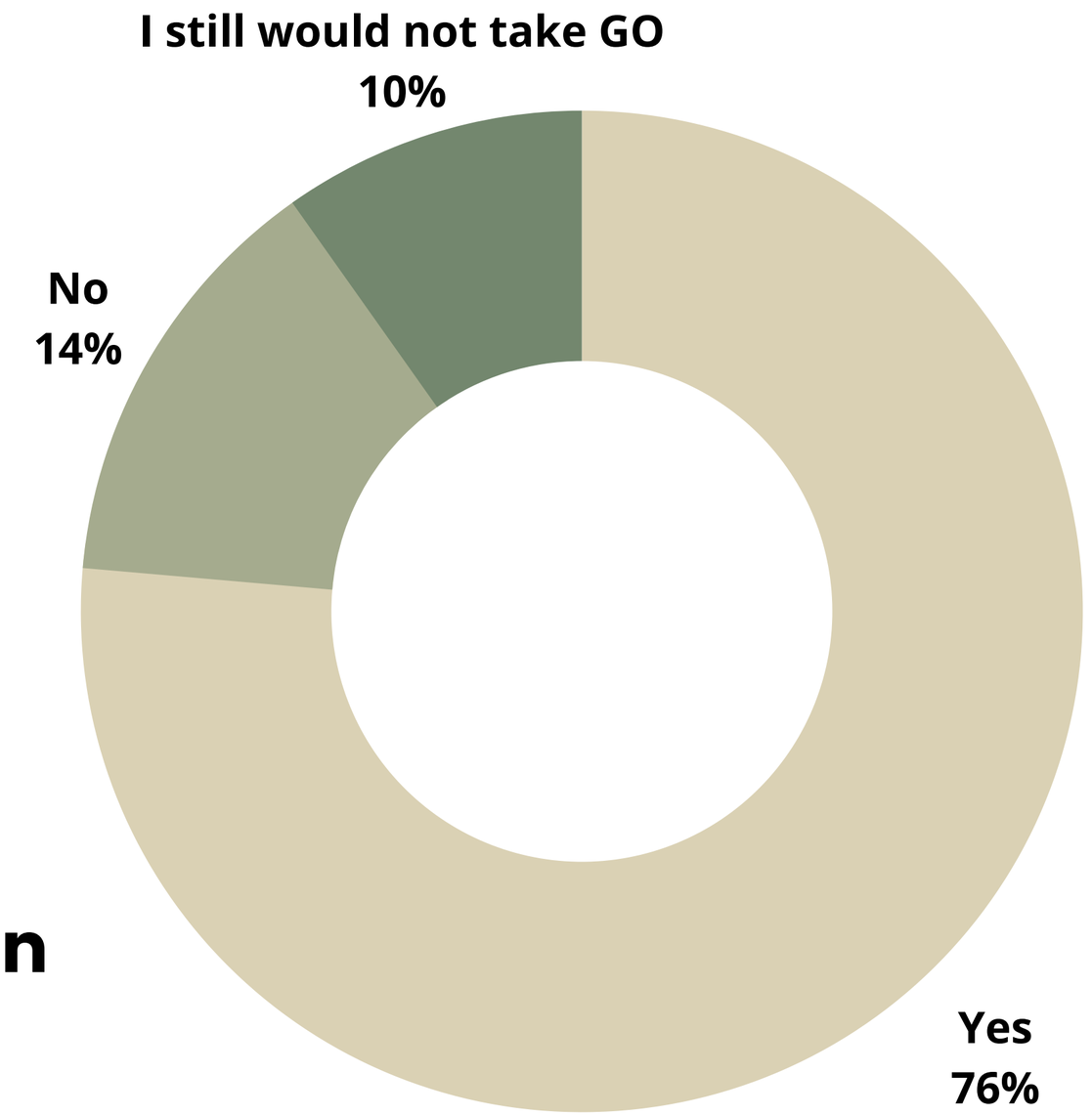
Which GO station do you usually use?



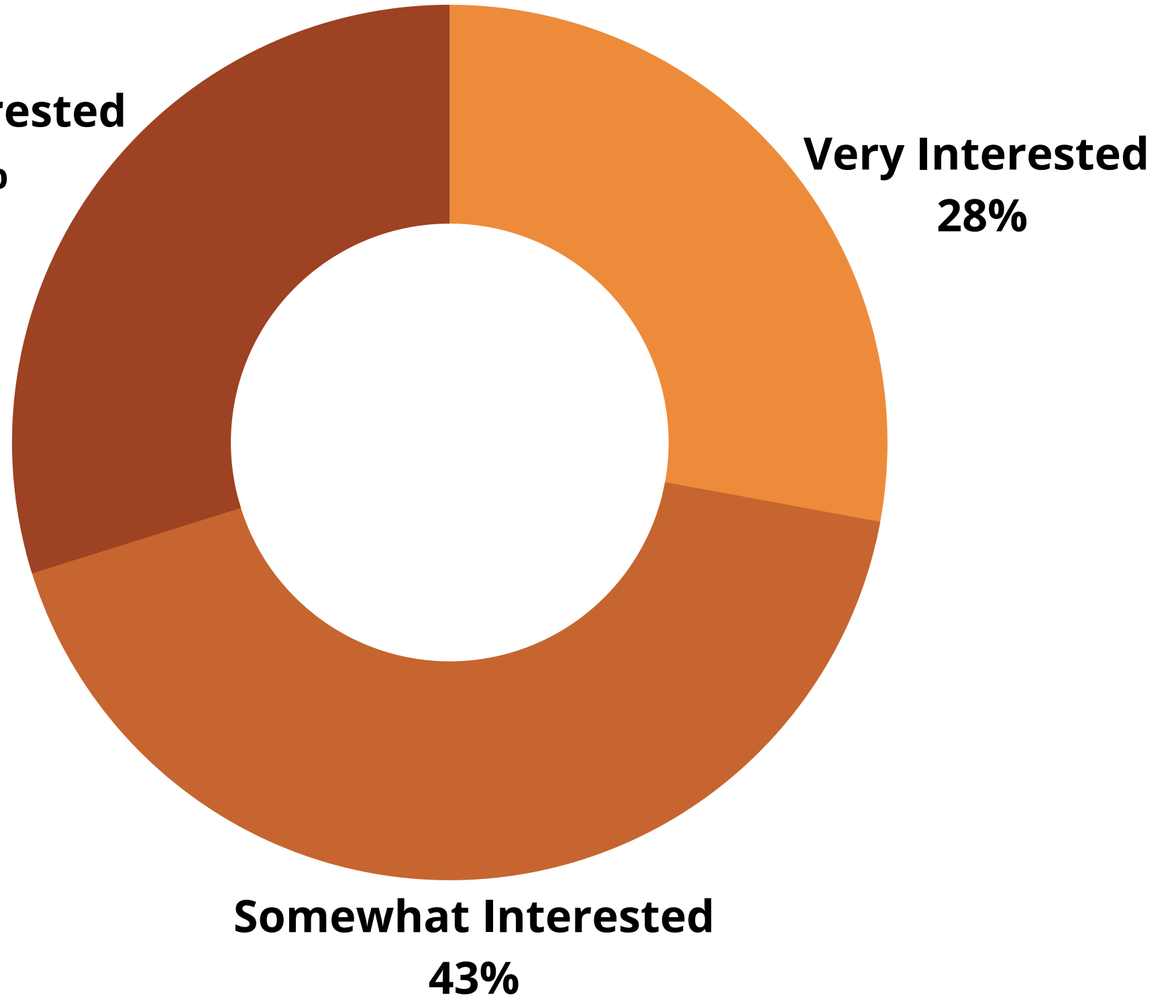




Would your first access be the Innisfil GO Station at 6th Line once completed?

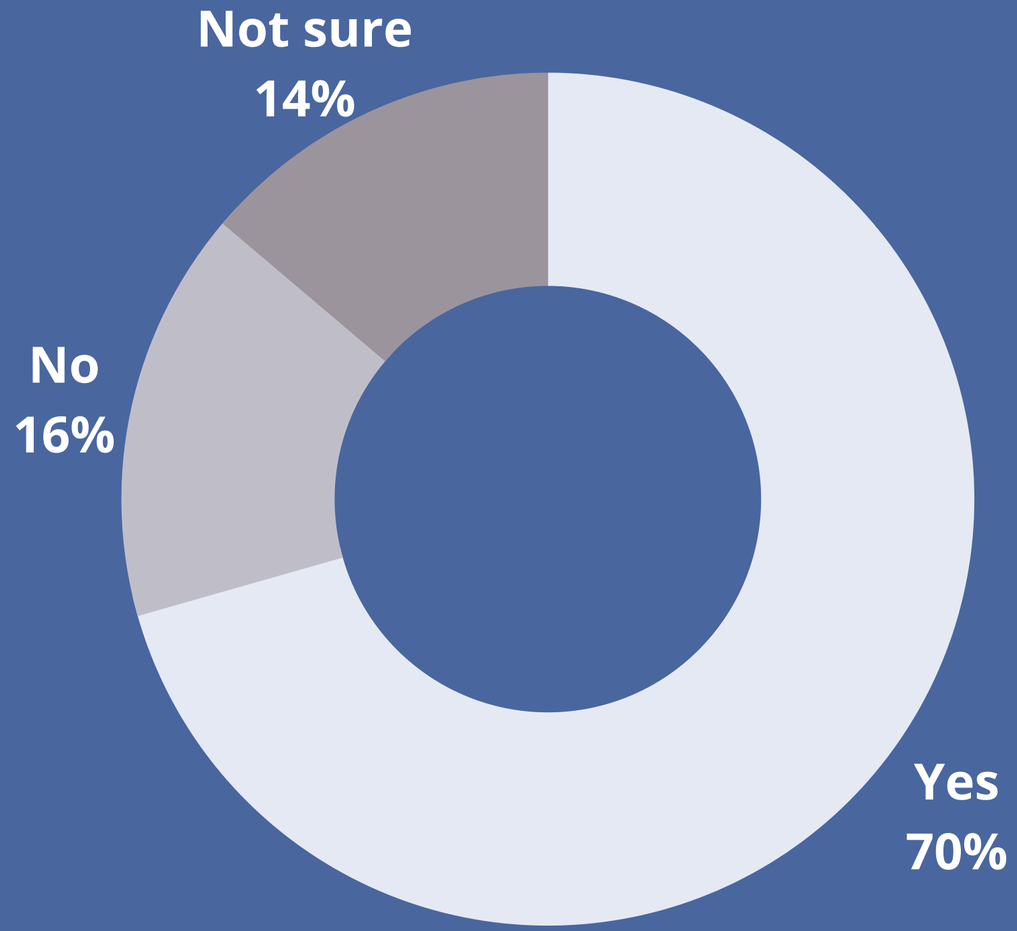


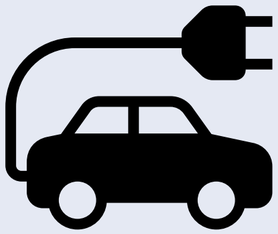
How interested would you be in using bike-share and e-scooters?

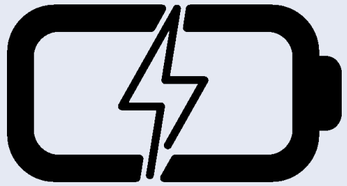


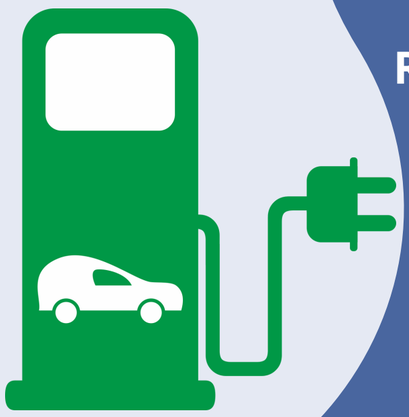
If the Town were to implement micromobility (i.e. bike-share, shared e-scooters), where would it make the most sense to implement?

Would you consider an electric vehicle as your next car?

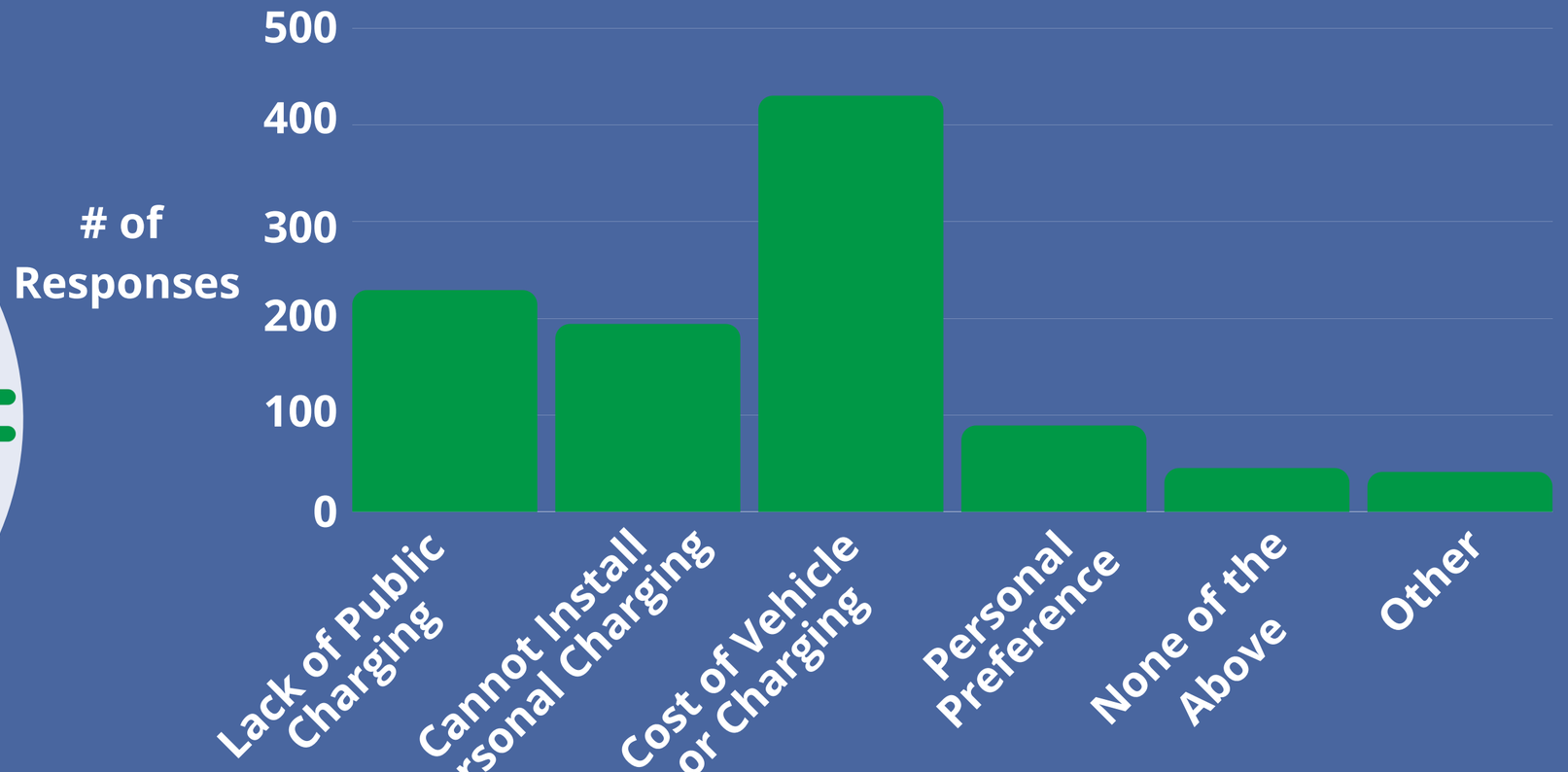








What would hinder you from buying an electric vehicle?



Innisfil

For more information, please visit

getinvolvedinnisfil.ca/tmplan

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Attachment 2

Technical Advisory Committee (TAC) Slides and Meeting Minutes

Innisfil

Technical Advisory Committee Meeting #1

2021 Transportation Master Plan

August 11, 2021

BURNSIDE

Project Team

Town of Innisfil

Meredith Goodwin, C.E.T
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Capital Project Manager, Engineering
Town of Innisfil

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Project Manager
Roads, Traffic, and Transportation
Town of Innisfil

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Senior Policy Planner
Town of Innisfil

Consultant Team

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Consultant Project Manager
Sr. Vice President, Transportation
R.J. Burnside & Associates

Gordon Hui, B.A.Sc
Senior Transportation Planner
R.J. Burnside & Associates

Overview

- Study Objectives
- Study Context
- Needs and Opportunities
- Environmental, Cultural, and Social Objectives
- Vision and Alternative Strategies
- Next Steps

Study Objectives

Study Objectives

To plan for future growth, the Town of Innisfil will need to:

Update the last Transportation Plan to identify needs and solutions to the year 2041 and 2051

Establish a blueprint for the Town to develop its future transportation network

Develop sidewalk, trail policies and pedestrian crossing policies

Confirm complete streets policies

Enhance the Town's connectivity to the County and inter-regional transportation network

Study Approach and Consultation

Phase 1
Problem Or Opportunity

- **Identify Natural, Social and Cultural Heritage Assets**
- **Assess Existing and Future Needs and Opportunities**
  - Road, transit, active transportation and safety needs
  - Planned growth and transportation forecasting
  - Future needs and opportunities

Public Information Centre # 1

Phase 2
Alternative Solutions

- **Identify and Analyze Alternative Solutions (Strategies)**
- **Evaluation and Selection of Preferred Alternative**
- **Preferred Network Solution (Strategy)**

Public Information Centre # 2

Future Phases
Not within this study

- **Phase 3:** Alternative Design Concepts for Preferred Solution
- **Phase 4:** Environmental Study Report
- **Phase 5:** Implementation

Continuous Collaboration

The Transportation Master Plan will be carried out in accordance with the Municipal Class Environmental Assessment (MCEA) process.

Guiding Documents

Provincial

- Provincial Policy Statement (PPS)
- A Place to Grow Growth Plan for the GGHA
- Metrolinx Regional Transportation Plan
- Simcoe Area Multi-Modal Transportation Strategy
- Barrie GO Rail Expansion
- Provincial Environmental Policies
- Highway 400/Innisfil Beach Road Overpass

County

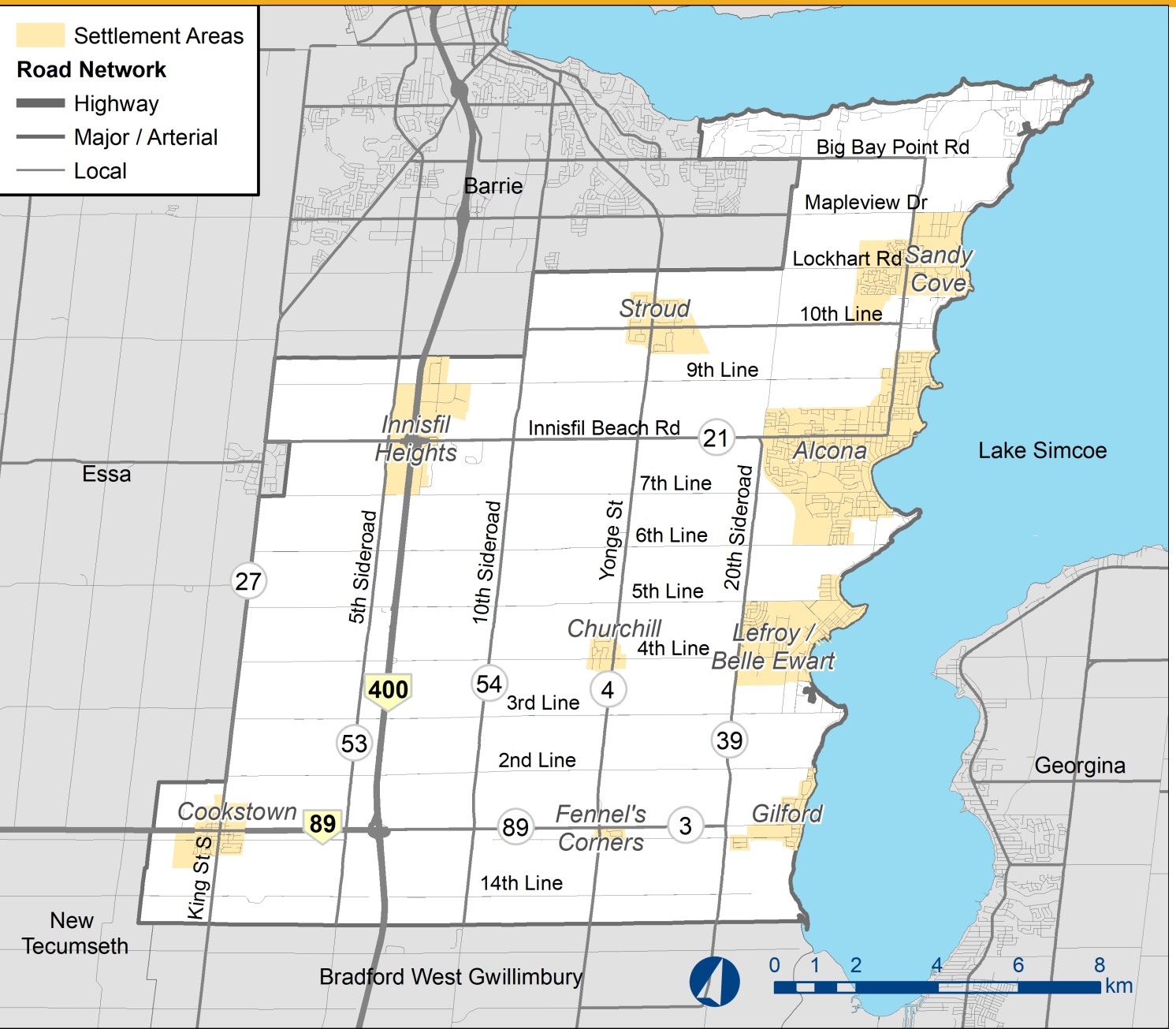
- Simcoe County Official Plan
- 2021 Transportation Master Plan
- Trails Strategy
- Transit Feasibility and Implementation Study
- 5-Year Economic Strategy

Town

- Official Plan ("Our Place")
- Strategic Plan ("Innovative Innisfil 2030")
- The Orbit: Innisfil Community
- 2018 Transportation Master Plan
- Cultural Master Plan
- Tourism Destination Master Plan
- Trails Master Plan
- Highway 400 / 6th Line Interchange

Study Context

Urban Structure



Settlement Areas

- Cookstown
- Innisfil Heights
- Stroud
- Churchill
- Fennel's Corners
- Sandy Cove
- Alcona
- Lefroy/Belle Ewart
- Gilford

Strategic Employment Area

- Innisfil Heights

Major Transit Station Area (MTSA)

- Innisfil GO Station area in Alcona

Travel Characteristics

Trip Generation

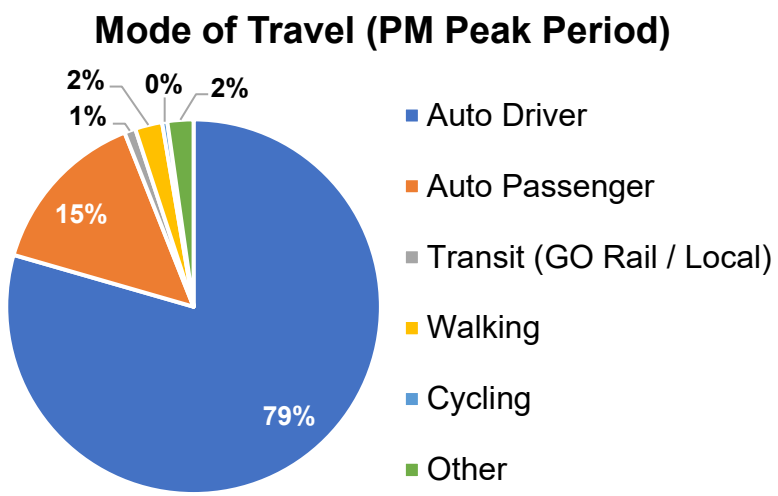
- 9,000 outbound trips during the AM peak period
- 10,000 inbound trips during the PM peak period

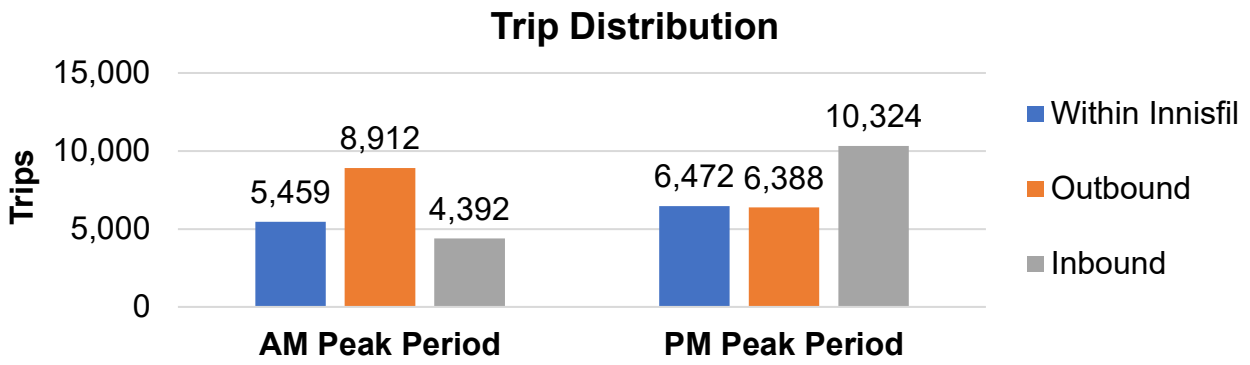
Trip Patterns (Origin-Destination)

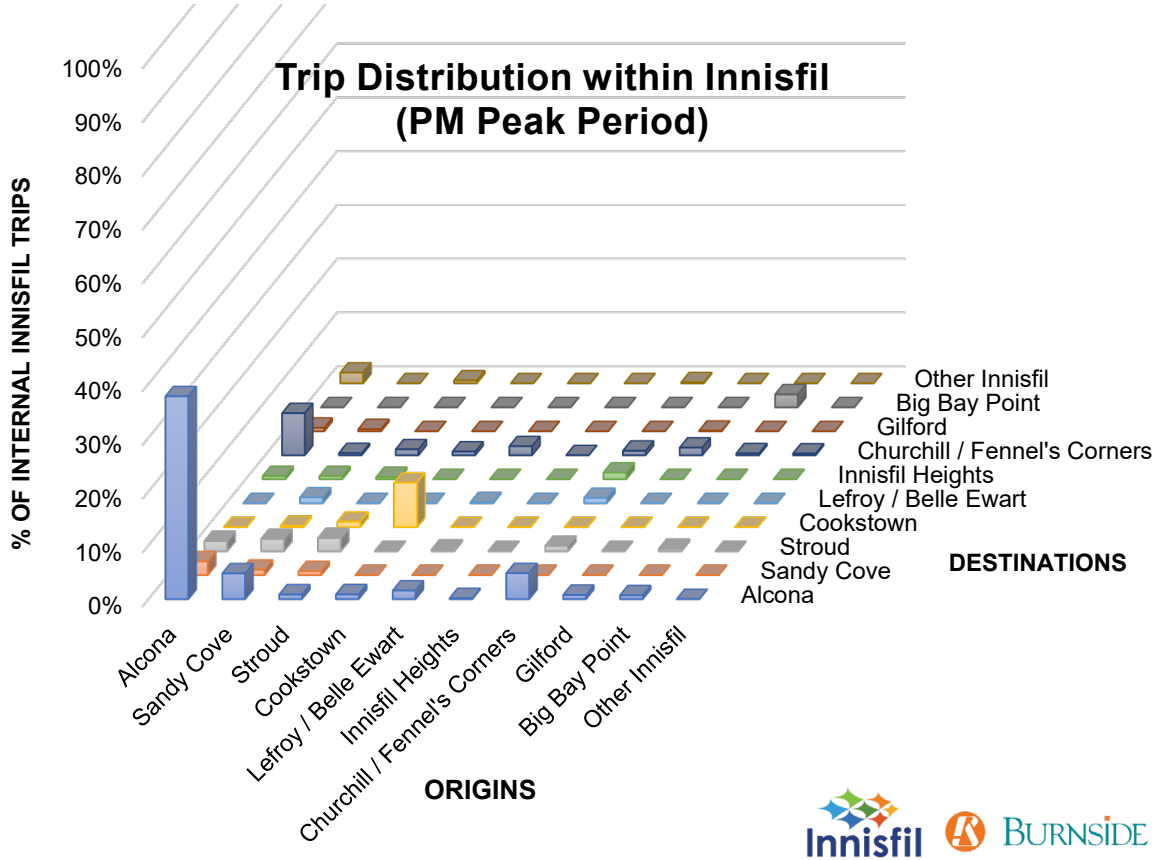
- 68% of internal Town trips are to/from Alcona during the peak period
- Majority of external trips are oriented to Barrie and the rest of Simcoe County

Modal Split

- Most trips are auto-based







Land Use Forecasts

	Population	Employment
2021	47,600	8,600
2031	60,300	13,100
2041	76,400	15,100
2051	100,000 *	Subject to Further Analysis

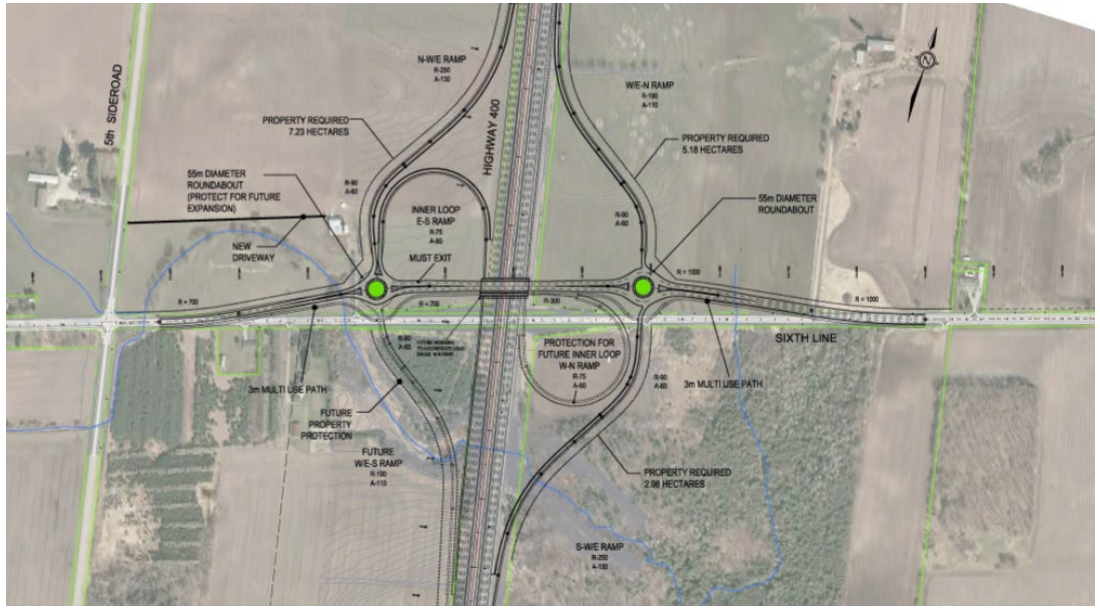
** Being used for Master Planning exercises*

Transportation Needs and Opportunities

Road Needs and Opportunities

Provincial Roads - Planned and Budgeted Improvements

Road / Intersection	From	To	Improvement	Timeline	Status	Source
Highway 400	1 km South of Highway 89	Highway 11	3 to 5 lanes (per direction) including a HOV lane	2031	Budgeted	MTO Highway 400 Improvements ESR
6th Line Interchange / Highway 400			New interchange	2031	Budgeted	6th Line ESR
Highway 89 East-West Link Improvements			Cookstown Alternate Route	-	Proposed	2018 TMP



6th Line Interchange

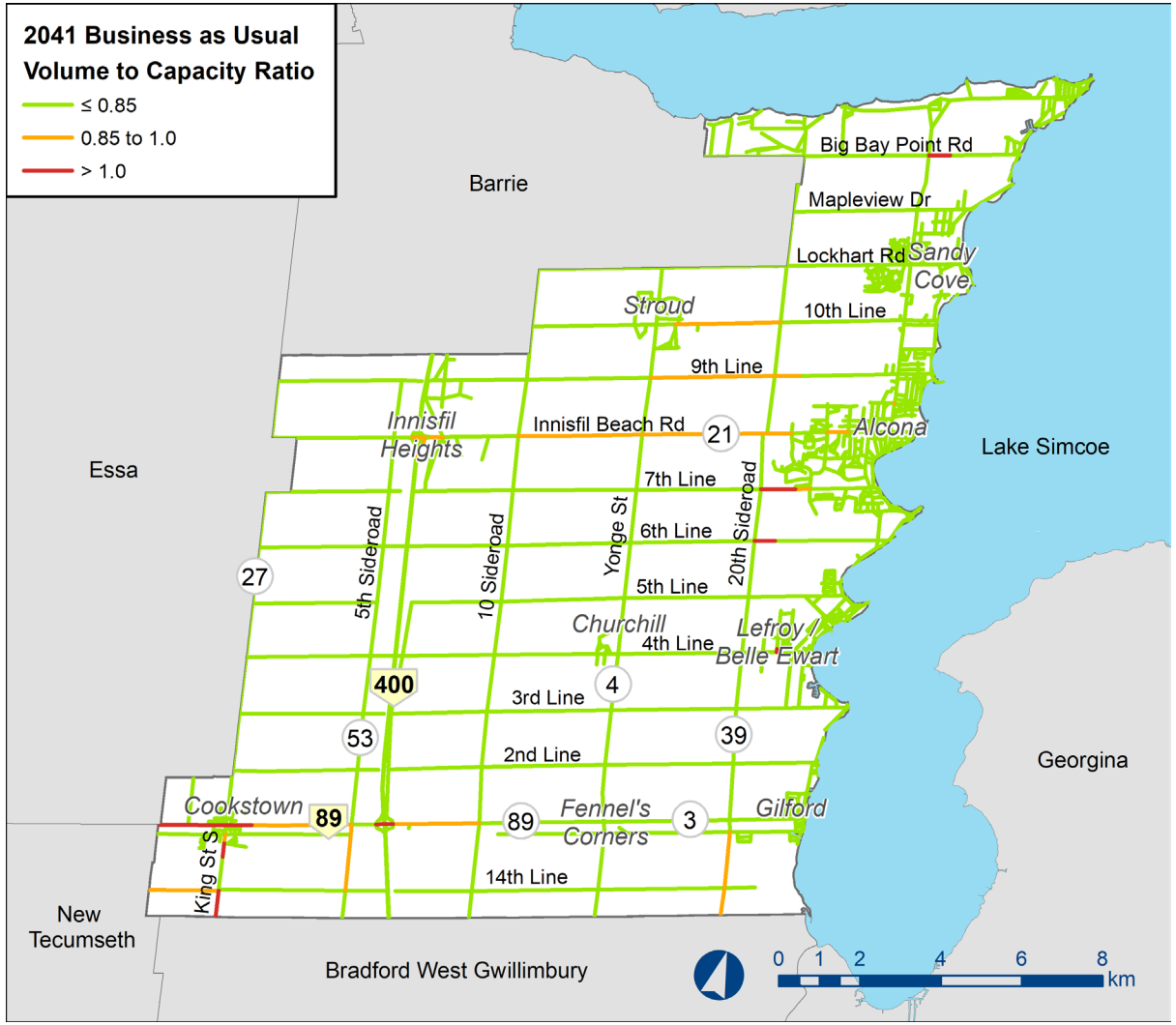
Highway 89 East-West Link Improvements

Road Needs and Opportunities

County Roads - Planned and Budgeted Improvements

Road	From	To	Improvement	Timeline	Status	Source
County Road 4 (Yonge Street)	County Road 89	Barrie City Limit	2 to 4 lane widening	2031	Proposed *	Simcoe County TMP (2014)
County Road 4 (Yonge Street)	Bradford Boundary (8th Line)	County Road 89	2 to 4 lane widening	2031	Proposed *	Simcoe County TMP (2014)
County Road 21 (Innisfil Beach Road)	County Road 27	County Road 39 (20th Sideroad)	2 to 4 lane widening	2031	Proposed *	Simcoe County TMP (2014)
County Road 53 (5th Sideroad)	County Road 21 (Innisfil Beach Road)	Barrie City Limit	2 to 4 lane widening	2031	Proposed *	Simcoe County TMP (2014)
County Road 54 (10th Sideroad)	County Road 21 (Innisfil Beach Road)	Barrie City Limit	2 to 4 lane widening	Beyond 2031	Proposed *	Simcoe County TMP (2014)
County Road 21 (Innisfil Beach Road)	County Road 27	County Road 39 (20th Sideroad)	2 to 4 lane widening	2031	Proposed *	Simcoe County TMP (2014)

Road Capacity Needs



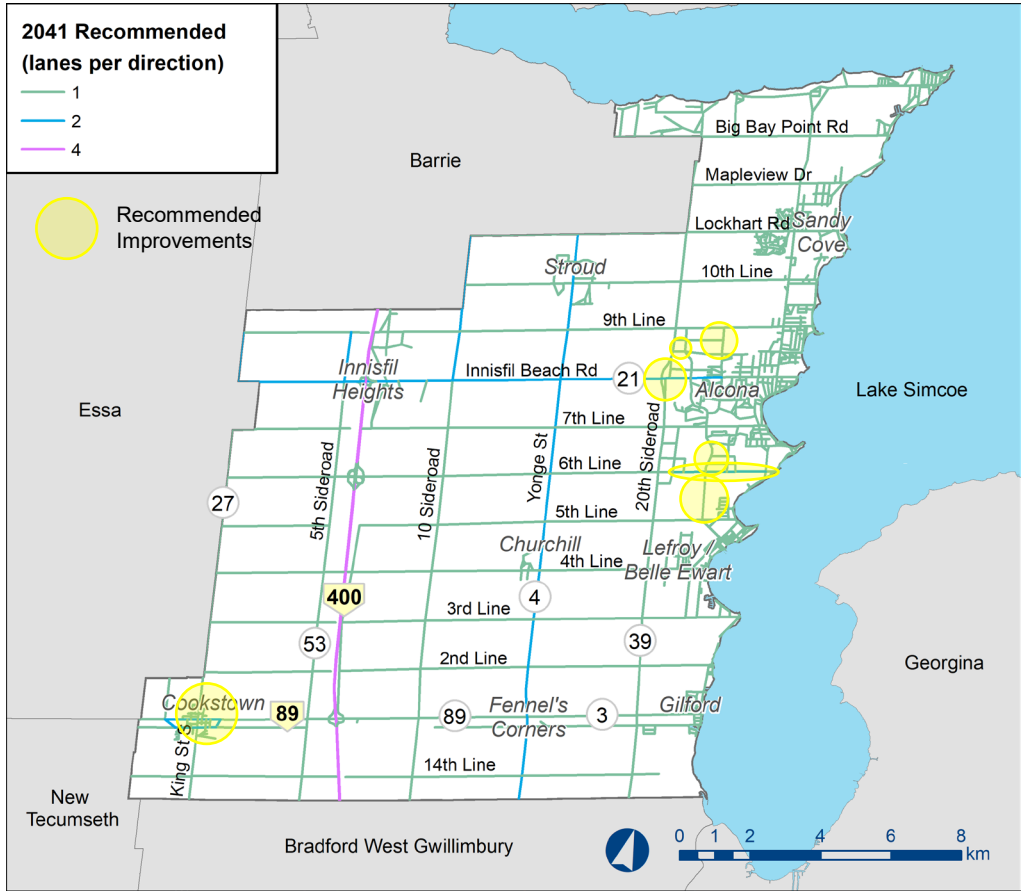
The following major road segments were identified to approach / exceed capacity under the **2041 "Business-As-Usual" scenario** (which includes planned road widenings):

- 10th Line between Yonge St and 20th Sideroad
- 9th Line between Yonge St and 20th Sideroad
- Innisfil Beach Road (County Road 21), *despite the 2 to 4 lane widening improvements*
- 7th Line, east of 20th Sideroad
- 6th Line, east of 20th Sideroad
- County Road 89, west of 10 Sideroad
- 14th Line, west of King St S
- King St S, south of Cookstown
- 5th Sideroad, south of County Road 89
- 20th Sideroad, south of County Road 3 (Shore Acres Drive)

Road Capacity Planned Improvements / Opportunities

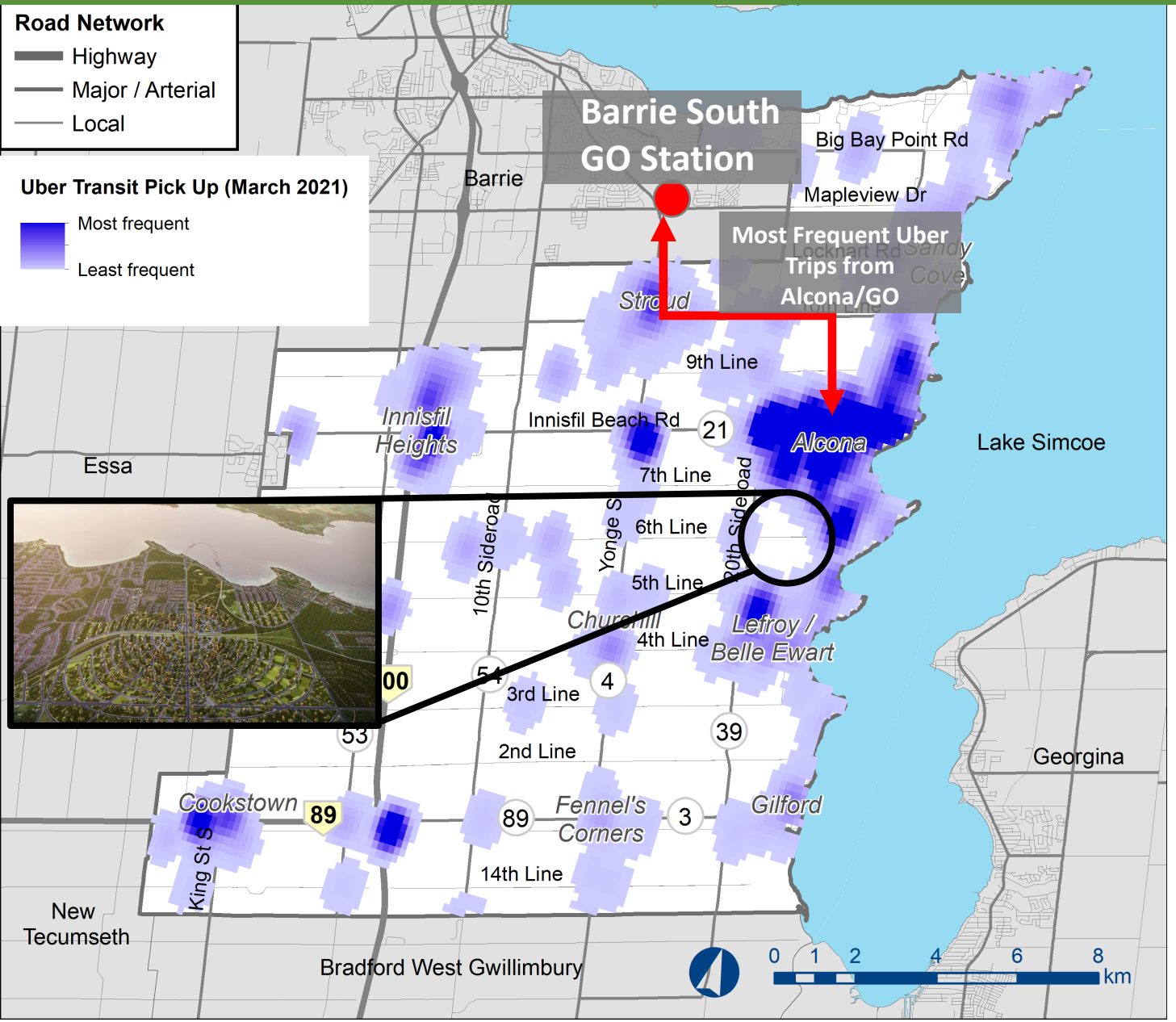
The previous *Transportation Master Plan* (2018) identified the following additional road improvements to address future 2041 conditions:

Road	From	To	Improvement	Priority
Webster Boulevard	North Limit	20th Sideroad	Extension	Short-Term
Highway 89 East-West Link	West of Cookstown	East of Cookstown	Alternate Route	Short-Term
Webster Boulevard	Quarry Drive	6th Line	Extension	Short-Term
Jans Boulevard	North Limit	9th Line	Extension	Short-Term
6th Line	20th Sideroad	Angus Street	Widening	Short-Term
20th Sideroad Bypass	Leslie Drive	South of Innisfil Beach Road	Bypass	Medium-Term (2031)
Webster Boulevard	6th Line	5th Line	Extension	Medium-Term (2031)
6th Line	County Road 53 (5th Sideroad)	20th Sideroad	Widening *	Long-Term (Beyond 2031)



* *Map does not include proposed improvements deemed a long-term priority*

Transit Needs and Opportunities



Existing Transit System

GO Transit

- GO bus route (Barrie Transit Terminal to the Aurora GO Transit Station)

Simcoe Lynx Transit

- No significant connections to Innisfil origins or destinations

Innisfil Transit

- Town & Uber on-demand transit (since 2017): **reliable**, **affordable, serving all residents**
- Alcona to/from Barrie South GO Station is a frequent Uber route

Transit Plans and Opportunities

- **Innisfil GO Station** will be located on 6th Line in the heart of the planned Orbit development
- **Innisfil Transit** will be scaled, and fixed bus route alternatives will be explored

Pedestrian Needs and Opportunities

Proposed Pedestrian Improvements

In the 2018 TMP, a total of 7.61km of sidewalk improvements were recommended. These will be further confirmed using the sidewalk prioritization scoring system.

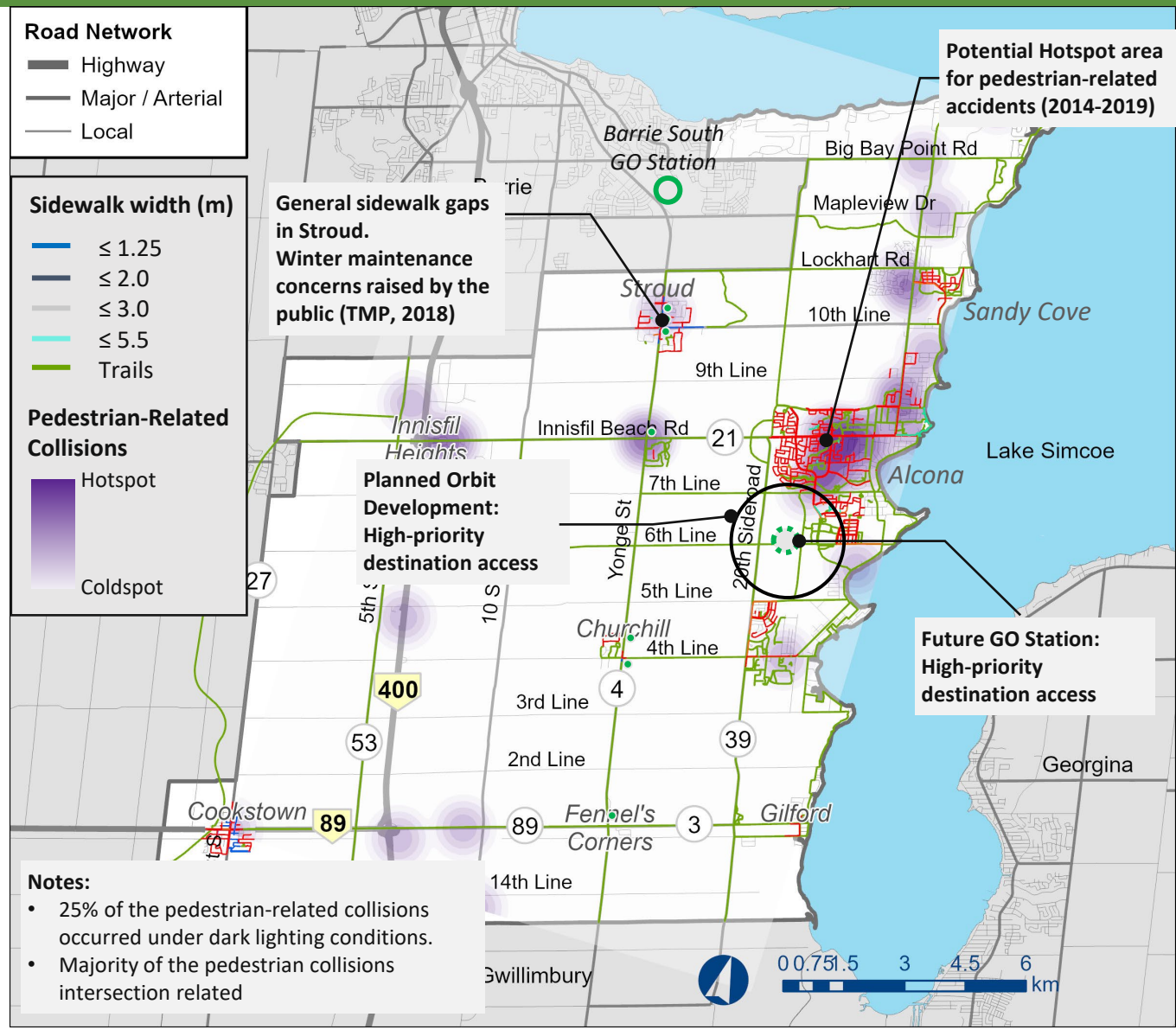
Area	Short Term	Medium Term
Alcona	0.33	3.38
Churchill	-	1.52
Cookstown	0.32	-
Gilford	1.24	-
Lefroy	-	0.14
Leonard's Beach	-	0.68
Subtotal (km)	**1.89**	**5.72**
Total (km)	**7.61**	

Sidewalk Prioritization Policy – Scoring Criteria

- Existing Sidewalk Condition
- AODA Requirements
- Identified in Trail Master Plan
- Land use, trip generators
- Road characteristics
- Public Support
- Constructability / Cost
- Safety Trends

Other Pedestrian Needs and Opportunities

- Pedestrian Crossing needs
- Comfort, convenience and walkability



Cycling Needs and Opportunities

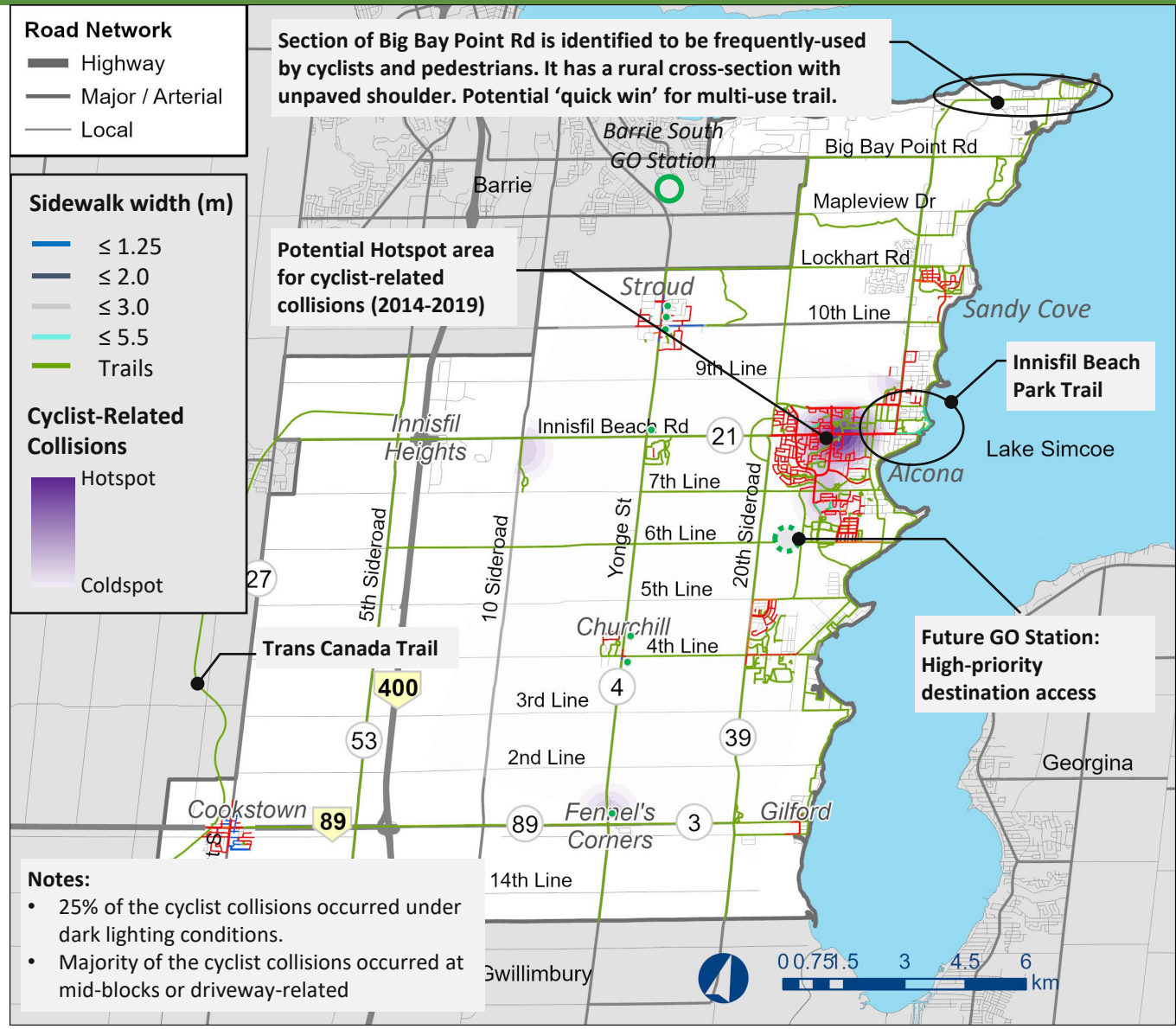
Proposed Cycling Network Improvements

In the 2018 TMP, a total of 74.21km of **cycling network improvements** were recommended. These will be further confirmed with detailed needs justification and analysis.

Area	Short Term	Medium Term	Long Term
Alcona	13.6	6.59	0.51
Churchill	1.37	-	-
Gilford	4.1	-	-
Lefroy	5.45	8.83	3.3
Rural	18.02	2.14	10.3
Subtotal (km)	**42.54**	**17.56**	**14.11**
Total (km)	**74.21**		

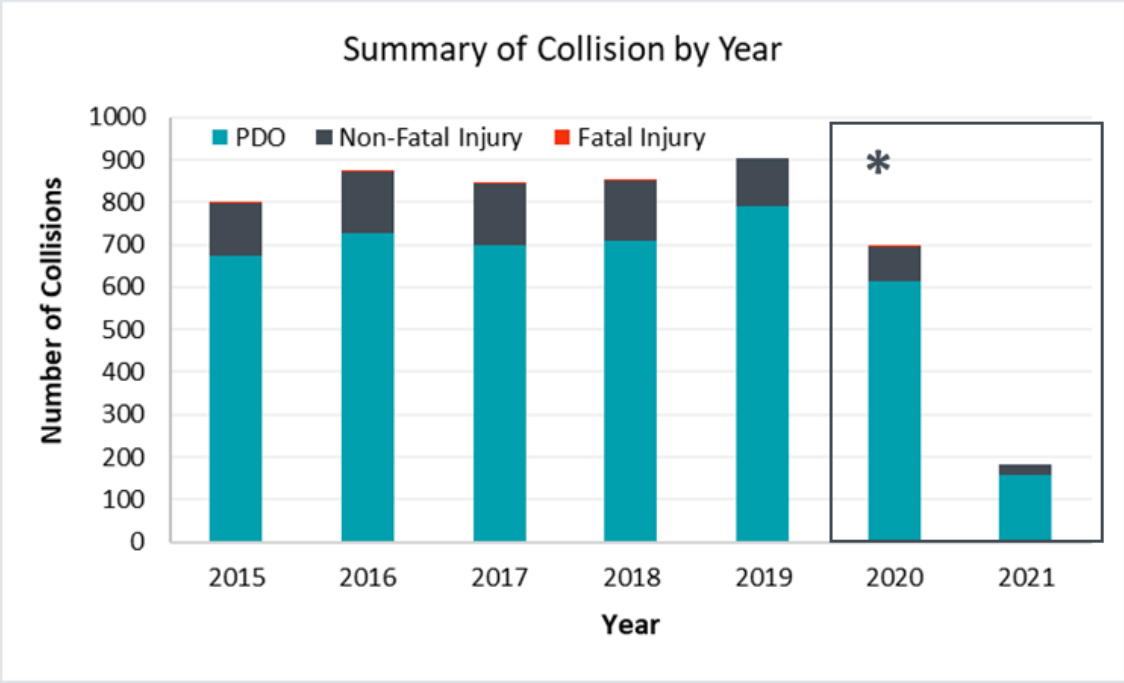
Confirming Cycling Network Improvements

- Routes designated in the Trails Master Plan
- Proximity and connections to major trip generators
- Anticipated cycling demand
- Network connectivity
- Use of street by vulnerable road users
- Safety considerations (vehicle speed and volumes)
- Existing and planned ROW widths
- Natural environment constraints
- Corridor environment (geometry, accesses)

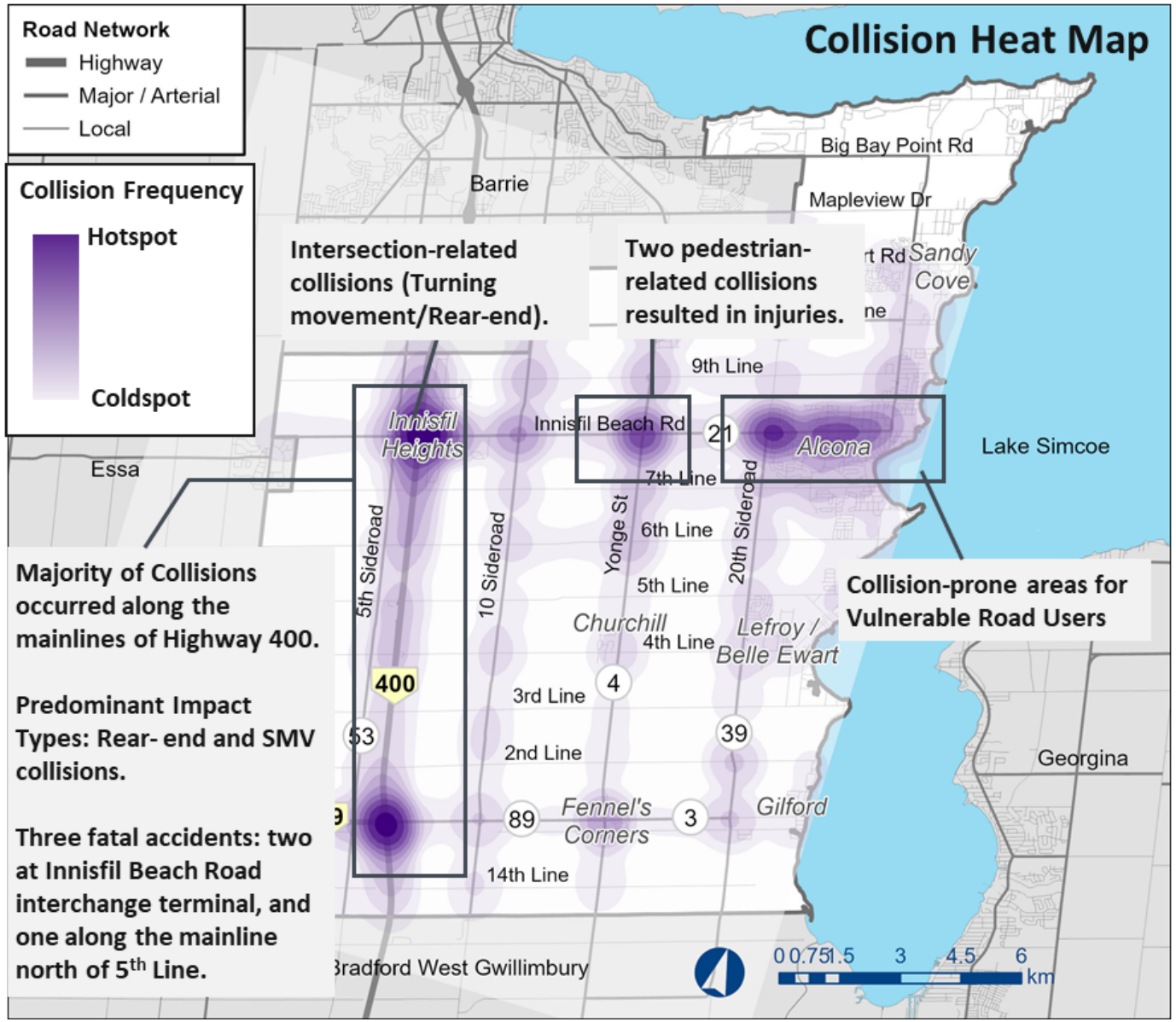


Traffic Safety Needs and Opportunities

- Town's collision data was reviewed
- 5-year of collision records (2015-2019) were used for analysis



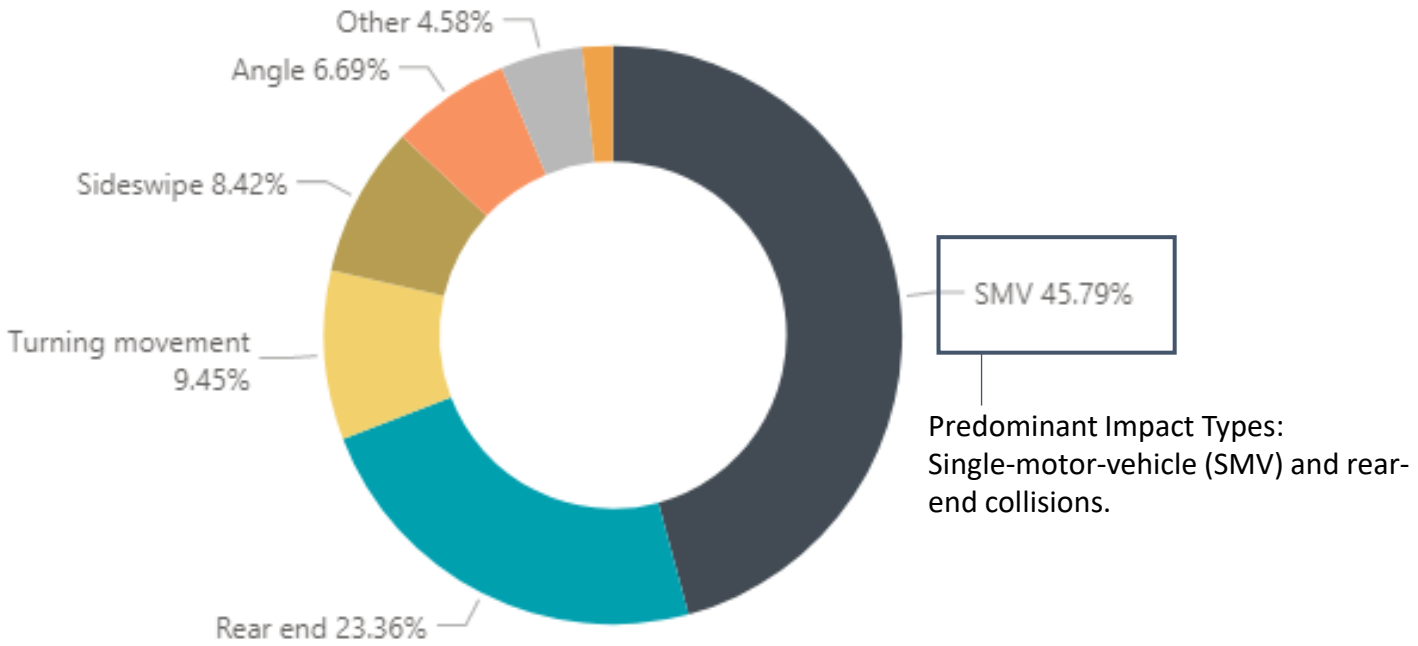
* Covid Period: The reduction in collision is likely due to the reduced traffic exposure due to the pandemic. Data for 2021 is incomplete.



Traffic Safety Needs and Operations

Preliminary Findings (2015 – 2019)

- Approximately 42% of accidents occurred during the winter months between November and February.
- Majority (84%) of the collisions are property-damage-only (PDO), followed by 15% of non-fatal injury and less than 1% of the collisions resulted in fatalities.
- Predominant Impact Types are single-motor-vehicle (SMV) and rear-end collisions.



Predominant Impact Types: Single-motor-vehicle (SMV) and rear-end collisions.

4,276
Total Collisions

25
Pedestrian-related Collision

12
Cyclist-Related Collisions

Preliminary Assessment of Needs and Opportunities

Road Capacity

- Congestion throughout Highway 400 between Highway 89 and Highway 11 requiring extra capacity by 2031
- The need for additional east-west capacity in the Cookstown area
- Improvements to Innisfil Beach Road near Alcona and Innisfil Heights due to congestion
- North-south connectivity in Alcona to the future GO station

Operations and Safety

- Policies required for safe pedestrian crossings
- Protecting vulnerable road users such as pedestrians and cyclists in hot spot areas
- Improving traffic operations at key intersections
- Reviewing road classifications due to future infrastructure (ex. future GO station and interchange)

Active Transportation

- Upgrade active transportation infrastructure in key destination areas such as the future GO Station, Big Bay Point Road
- Introducing sidewalks in Stroud where there are gaps in the sidewalk network
- Assessing require road right-of-way for future improvements

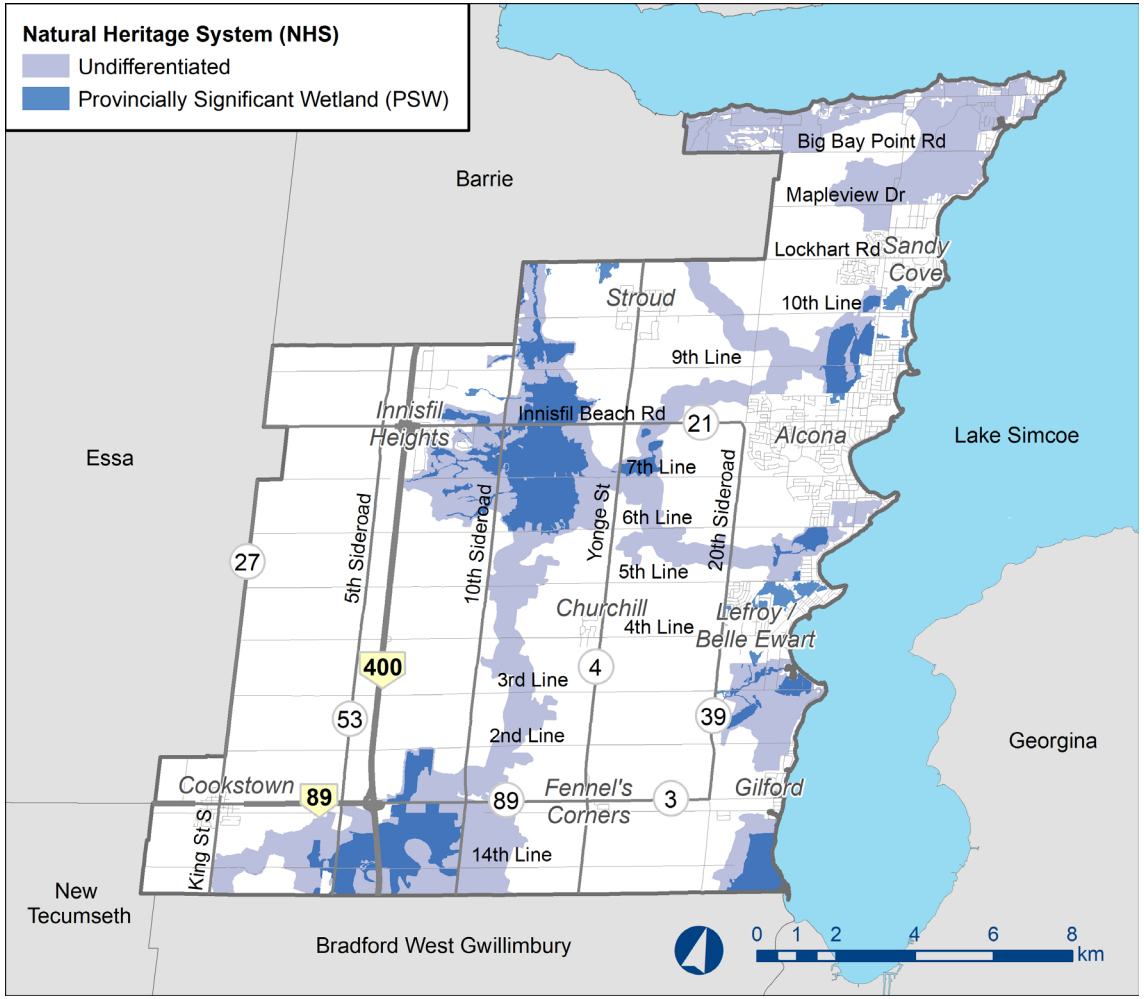
Transit

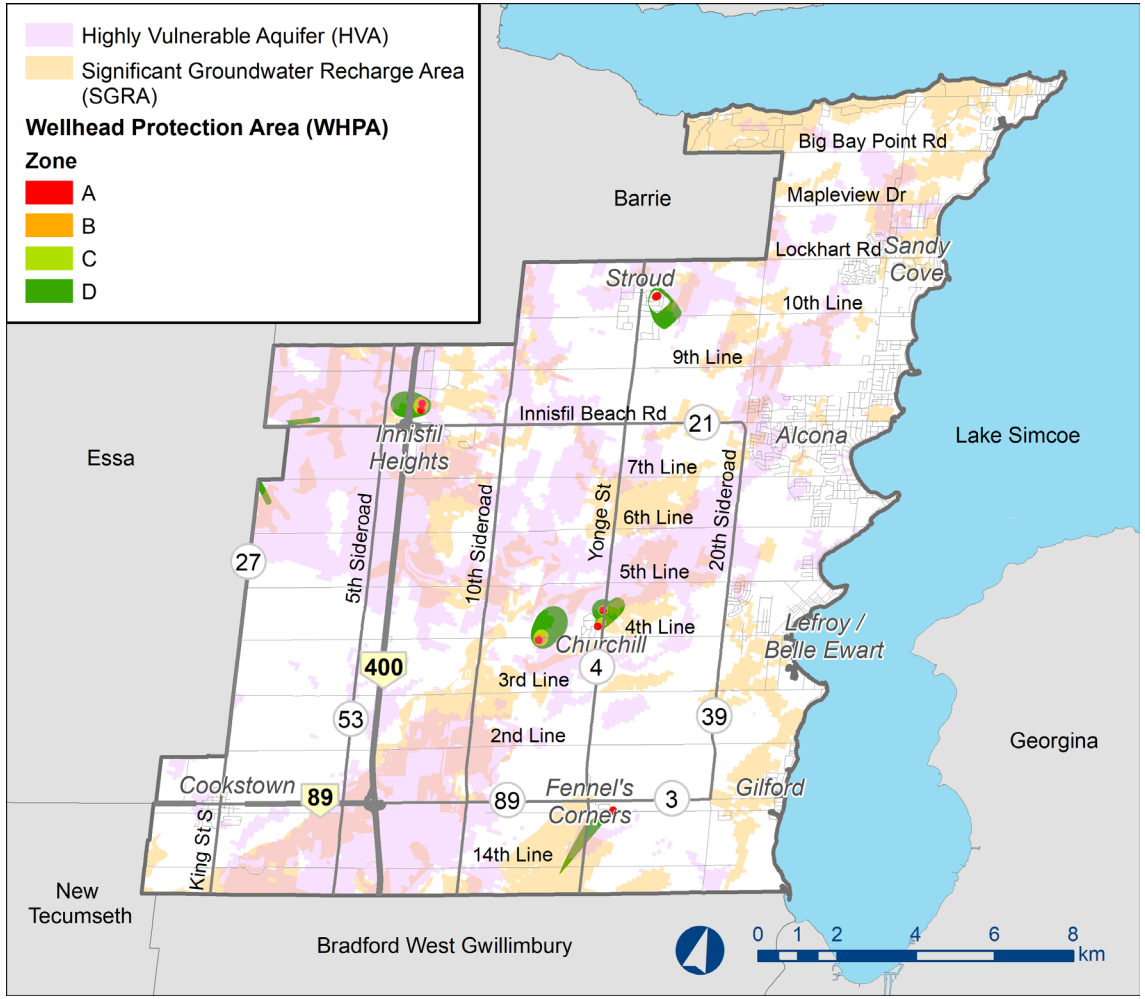
- Maximize efficient connectivity to the new GO Rail station
- Explore dynamic routing and/or fixed route options to enhance the current Innisfil Uber Transit system
- Supplementing first/last kilometre of transit trips by leveraging emerging technologies such as shared bikes, scooters, etc

Environmental, Cultural and Social Objectives

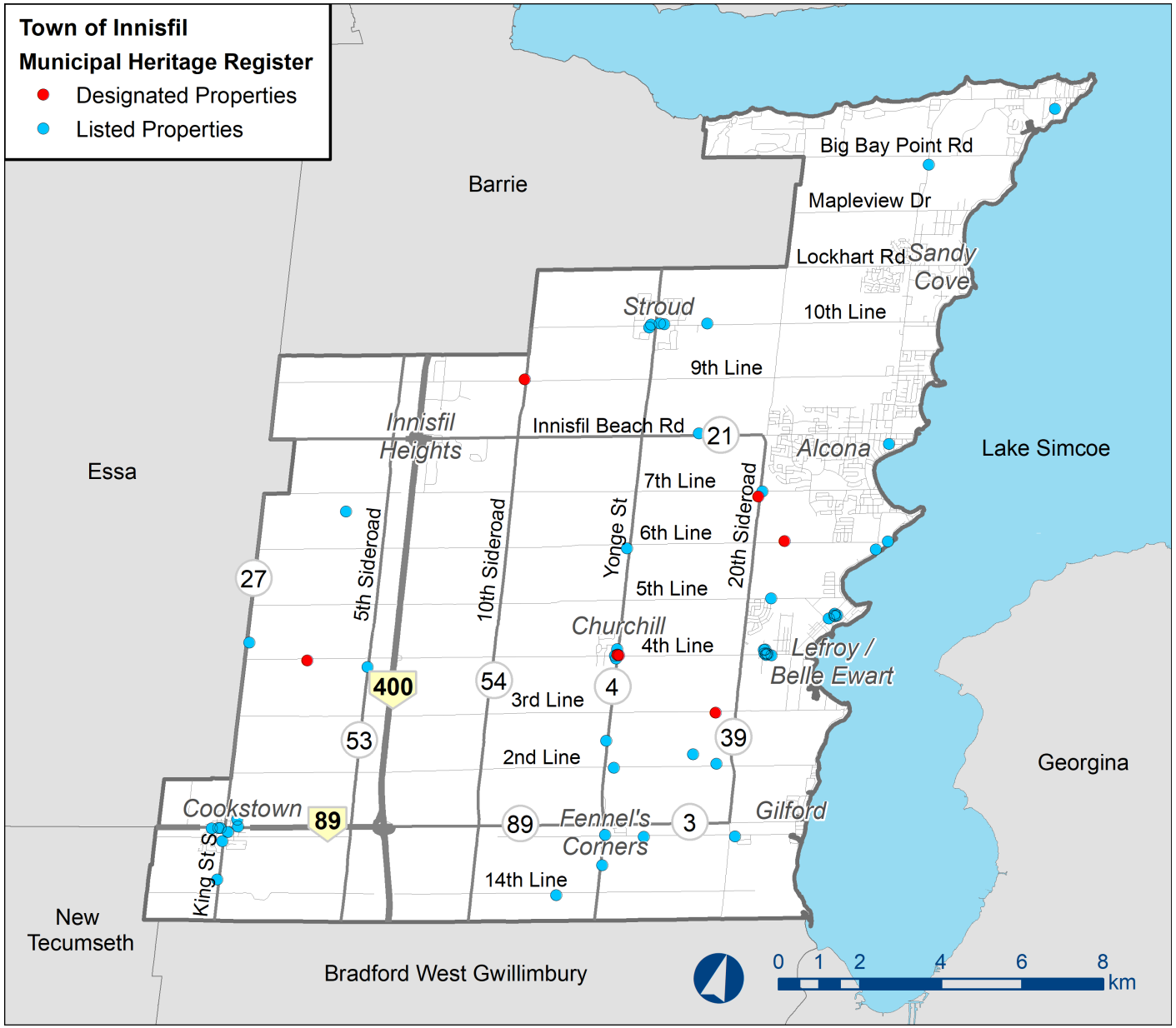
Environmental Objectives

Environmentally significant natural features were identified as potential constraints to future transportation infrastructure and will be protected as assets.



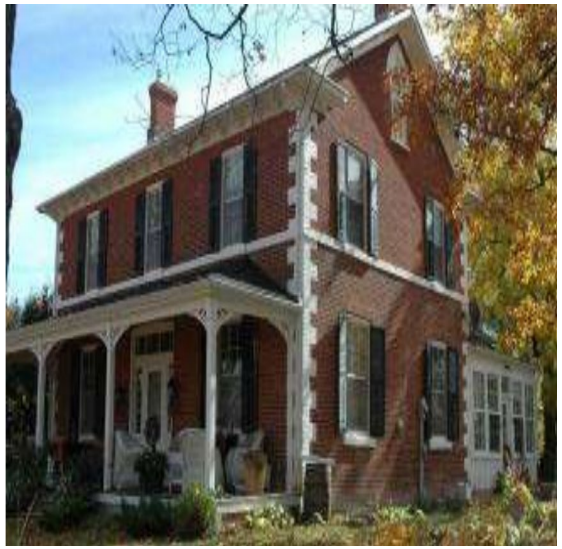


Cultural Objectives



- Culture, creativity, and quality of place are key to community development and growth
- Transportation solutions should support the Town's creative placemaking principles and ensure efficient access to the unique destinations in the Town
- The evaluation of alternatives will value the Town's cultural heritage features

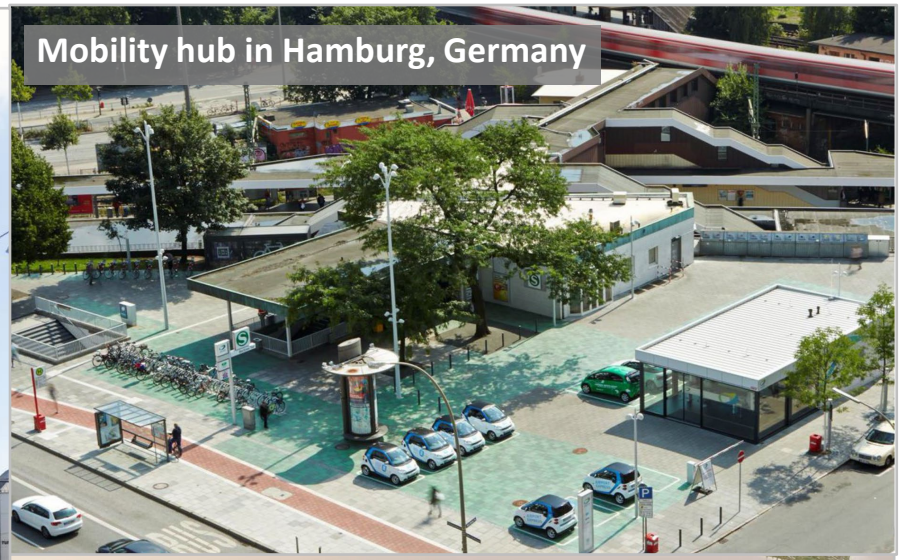
Knock Schoolhouse



Chimney Copse

Social Objectives and Emerging Technologies

Interactive Kiosks, Germany


Mobility hub in Hamburg, Germany


The Orbit, Innisfil

Today

- Innisfil Transit x Uber
- Turo

Tomorrow

- Consider other shared mobility
  - Car-share / Ride-share
  - Bike-share
- EcoMobility Hub
  - A co-location of multiple travel options
  - May include shared mobility, major transit and bus stops
- Autonomous and Connected Vehicles
- Smart Cities

Opportunity

Transform Innisfil into a town where mobility options will be integrated between the different transportation services and options. Getting around town will be more convenient, seamless and enjoyable.

Social Objectives and Transportation Equity

- An equitable transportation system ensures that the distribution of infrastructure and programs allows for different populations to have reasonably equal transportation benefits and impacts.

Populations

- Age
- Agility
- Means
- Race
- Vulnerable road users

Potential Indicators

Mobility

- Affordability
- Accessibility
- Efficiency
- Reliability
- Safety

Environment

- Reduction in greenhouse gases

Economic Opportunity

- Connectivity to employment, education, services, recreation
- Benefiting local businesses and residents

Vision

Innisfil's transportation system connects people and communities, fosters healthy living, and operates innovatively and efficiently across the Town as an environmentally and financially sustainable, resilient system ready for the future.

Alternative Strategies

Base Case

Planned road improvements by MTO and Simcoe County

1 Status Quo

Implement currently planned transportation improvements (consistent with 2018 TMP)

2 Balanced Investment

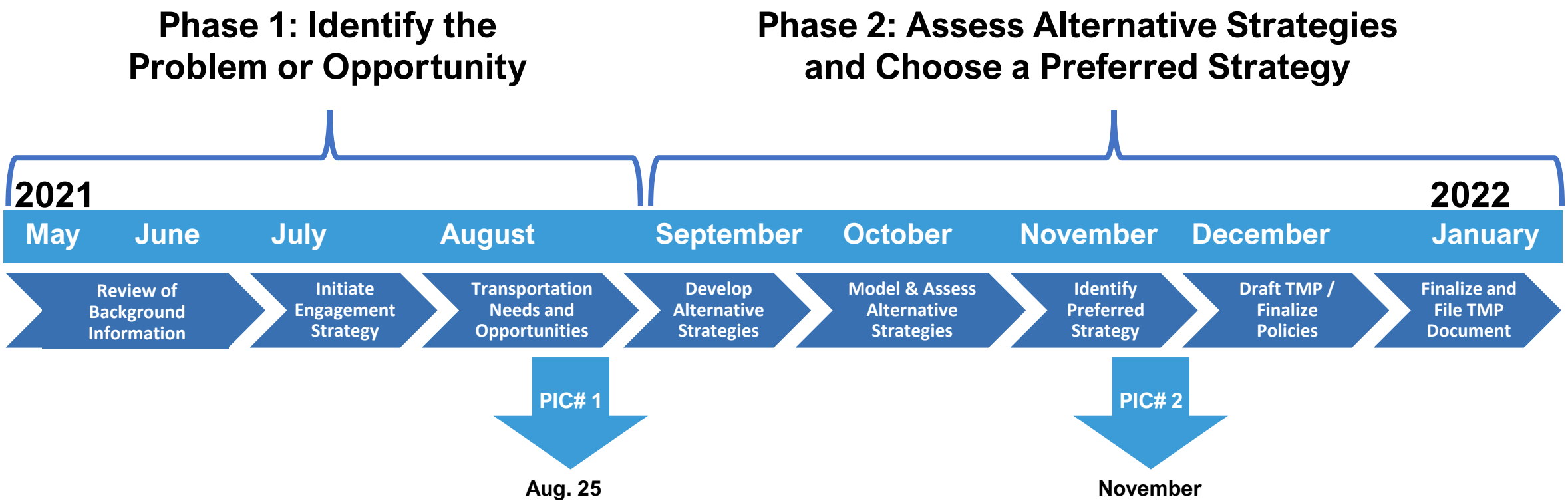
Beyond planned transportation improvements, additional investment will include investment balanced between roads, transit and active transportation

3 Alternative Mode Focused Investment

Beyond planned transportation improvements, additional investment will be focused on scheduled transit, active transportation and new technologies

Next Steps

Timeline


Phase 1: Identify the Problem or Opportunity
Phase 2: Assess Alternative Strategies and Choose a Preferred Strategy
2021
2022
May
June
July
August
September
October
November
December
January
Review of Background Information
Initiate Engagement Strategy
Transportation Needs and Opportunities
Develop Alternative Strategies
Model & Assess Alternative Strategies
Identify Preferred Strategy
Draft TMP / Finalize Policies
Finalize and File TMP Document
PIC# 1
Aug. 25
PIC# 2
November

GET INVOLVED

GetInvolvedinnisfil.ca/TMPlan

Ways to get involved:

- PIC #1 (Today) – Comments today or after the meeting
- Fill out today's survey found on the study webpage
- On-line stakeholder surveys (Summer – Fall 2021)
- PIC #2 (Fall 2021) – Comments today or after the meeting
- Contact the team!

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Capital Project Manager
Engineering

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1-888-436-3710 (toll free)

mgoodwin@innisfil.ca

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Consultant Project Manager
Transportation

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Innisfil

R.J. Burnside & Associates Limited 6990 Creditview Road, Unit 2 Mississauga ON L5N 8R9 CANADA
telephone (905) 821-1800 **fax** (905) 821-1809 **web** www.rjburnside.com

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

Minutes of Meeting

Meeting Date: August 11, 2021 **Project No.:** 300053011.0000

Project Name: Town of Innisfil 2021 Transportation Master Plan

Meeting Subject: Technical Advisory Committee Meeting #1

Meeting Location: Zoom Meeting

Date Prepared: August 12, 2021

Those in attendance were:

Meredith Goodwin	Town of Innisfil
Carolina Cautillo	Town of Innisfil
Paul Pentikainen	Town of Innisfil
Hyder Rajab	Town of Innisfil
Alex Juby	Town of Innisfil
Scott MacKenzie	Town of Innisfil
Mitchel Harris	Town of Innisfil
Suzanna Nilsson	Town of Innisfil
Rod Boynton	Innisfil Accessibility Advisory Committee
Adrianna Spinosa	Simcoe County
Brett Gratrix	City of Barrie
Jason Zimmerman	City of Barrie
Ralph Scheunemann	City of Barrie
David Hegarty	Town of New Tecumseth
Nick Day	Metrolinx
Paul Dubniak	Town of Bradford West Gwillimbury
Ray Bacquie	R.J. Burnside & Associates Ltd.
Gordon Hui	R.J. Burnside & Associates Ltd.
Xinli Tu	R.J. Burnside & Associates Ltd.
Cindy Chung	R.J. Burnside & Associates Ltd.

The following items were discussed	Action by
1. Introductions Meredith Goodwin (MG, Town of Innisfil) introduced the Transportation Master Plan study and the project team from the Town and R.J. Burnside & Associates. **2. Engagement Video** Ray Bacquie (RB, R.J. Burnside & Associates) showed the engagement video that was released to the public. **3. TAC Presentation** RB presented the following information about the study: ▪ Study Objectives ▪ Study Context ▪ Needs and Opportunities ▪ Environmental, Cultural, and Social Objectives ▪ Vision and Alternative Strategies ▪ Next Steps **4. Stakeholder/ TAC Member Comments** Rod Boynton (RB, Innisfil Accessibility Advisory Committee) asked what the role of the Technical Advisory Committee is between now and the date of the first Public Open House (POH) on August 25. RB and MG stated that TAC members can provide issues or opportunities that can be reviewed by the project team and potentially incorporated into the alternative solutions. TAC members, as experts, can provide questions or comments to ensure all concerns are captured in the study. Jason Zimmerman (City of Barrie) provided a reference to Barrie's Transit Vision study: https://www.buildingbarrie.ca/transitvision **5. Next Steps** TAC members can submit questions or concerns to the project team at any time throughout the study. The Public Open House #1 is scheduled for August 25, 2021. More information can be found here: https://www.getinvolvedinnisfil.ca/tmplan	

The preceding are the minutes of the meeting as observed by the undersigned. Should there be a need for revision, please advise Burnside within seven days of issuance. In the absence of notification to the contrary, these minutes will be deemed to be an accurate record of the meeting.

Minutes prepared by:

R.J. Burnside & Associates Limited

Gordon Hui
Senior Transportation Planner
GH:

Enclosure(s) 053011 - TAC 1 Presentation_Final.pdf

Distribution:

All Attendees and listed TAC members by e-mail

Innisfil

Technical Advisory Committee #2

2021 Transportation Master Plan

January 13, 2022

BURNSIDE

Project Team

Town of Innisfil

Meredith Goodwin, C.E.T
Project Manager
Capital Project Manager, Engineering
Town of Innisfil

Carolina Cautillo
Project Manager
Roads, Traffic, and Transportation
Town of Innisfil

Paul Pentikainen, MCIP, RPP
Senior Policy Planner
Town of Innisfil

Consultant Team

Ray Bacquie, P.Eng., MBA
Consultant Project Manager
Sr. Vice President, Transportation
R.J. Burnside & Associates

Gordon Hui, B.A.Sc
Senior Transportation Planner
R.J. Burnside & Associates

Overview

- Summary of Phase 1
- Description of Alternative Strategies and Projects
- Evaluation of Alternative Strategies
- Consultation
- Next Steps

Summary of Phase 1

Study Approach and Consultation

Phase 1
Problem Or Opportunity

- **Identify Natural, Social and Cultural Heritage Assets**
- **Assess Existing and Future Needs and Opportunities**
  - Road, transit, active transportation and safety needs
  - Planned growth and transportation forecasting
  - Future needs and opportunities

Public Information Centre # 1

Phase 2
Alternative Solutions

- **Identify and Analyze Alternative Solutions (Strategies)**
- **Evaluation and Selection of Preferred Alternative**
- **Preferred Network Solution (Strategy)**

Public Information Centre # 2

Future Phases
Not within this study

- **Phase 3:** Alternative Design Concepts for Preferred Solution
- **Phase 4:** Schedule C Environmental Study Report
- **Phase 5:** Implementation

Continuous Collaboration

The Transportation Master Plan will be carried out in accordance with the Municipal Class Environmental Assessment (MCEA) process.

Phase 1 Summary

Phase I

- **Study Context and Objectives**
  - Transportation System Inventory
  - Natural Heritage Environmental Scan
  - Understanding of Social, Cultural, and Equity objectives
- **Transportation Needs and Opportunities**
  - Town Road Safety and Operational Needs and Opportunities
  - Road Capacity Needs and Opportunities
  - Transit Needs and Opportunities
  - Active Transportation Needs and Opportunities
  - Pedestrian Policy and Complete Street Policies
- **Development and Evaluation of Alternative Strategies**
  - Identification of Projects and Project Costing
  - Preliminary Evaluation of Alternatives

Public Open House #1 – What We Heard

Summary of Public Open House #1 Video

Preliminary Assessment of Needs and Opportunities

Road Capacity

- Congestion throughout Highway 400 between Highway 89 and Highway 11 requiring extra capacity by 2031
- The need for additional east-west capacity in the Cookstown area
- Improvements to Innisfil Beach Road near Alcona and Innisfil Heights due to congestion
- North-south connectivity in Alcona to the future GO station

Operations and Safety

- Policies required for safe pedestrian crossings
- Protecting vulnerable road users such as pedestrians and cyclists at collision hot spot locations
- Improving traffic operations at key intersections
- Reviewing road classifications due to future infrastructure (ex. future GO station and interchange)

Active Transportation

- Upgrade active transportation infrastructure in key destination areas such as the future GO Station and Big Bay Point Road
- Increase cycling connectivity with planned routes
- Introducing sidewalks in Stroud where there are gaps in the sidewalk network
- Assessing required road right-of-way for future improvements

Transit

- Maximize efficient connectivity to the new GO Rail station
- Explore dynamic routing and/or fixed route options to enhance the current Innisfil Uber Transit system by increasing reliability between key origins/destinations
- Supplementing first/last kilometre of transit trips by leveraging emerging technologies such as shared bikes, scooters, etc

Vision

Innisfil's transportation system connects people and communities, fosters healthy living, and operates innovatively and efficiently across the Town as an environmentally and financially sustainable, resilient system ready for the future.

Alternate Strategies and Evaluation

Alternative Strategies

Alternative Strategies	Goal	Details
Base Case	To use for benchmarking to understand benefits of each alternative strategy	• Rely on Provincial and County network and service improvements
Status Quo	Improve the current transportation system through road upgrades, active transportation, and fixed route transit for the year 2041	• Road improvements, active transportation improvements, and fixed-route transit
Major Road and Highway Focused	Build upon the status quo by focusing on congestion and commuter flow to work and key destinations for the year 2051	• Additional road improvements • Additional commuter active transportation infrastructure
Safe Alternative Road Focused Investment	Build upon the status quo by improving safe and attractive walking and cycling conditions for all road users regardless of age and ability for the year 2051	• Additional road improvements • Safety Improvements • Sidewalk repair and upgrades • Enhanced active transportation connections • Pedestrian Crossing Policy, Complete Streets Policy
Multi-Modal Strategy with Emerging Technologies	Prioritizing attractive walking and cycling conditions for all road users, while ensuring congestion is minimized through investments in roads, active transportation, and emerging technologies for the year 2051	• Mix of Local Alternative Road Focused Investment + Balanced Investment • Limited additional road improvements

Alternate Strategy Projects

Transportation Initiatives	Alternative 0 Base Case	Alternative 1 Status Quo (2018 TMP)	Alternative 2 Major Roads and Highway Focus	Alternative 3 Safe Active Transportation Focused	Alternative 4 Multi-Modal Strategy with Emerging Technologies
Road Network					
Planned Provincial Highway Improvements	X	X	X	X	X
Proposed East-West Alternating Link	X	X	X	X	X
Planned Town Road Capacity Improvements		X	X	X	X
Proposed Additional Town Road Capacity Improvements			High	Low	Moderate
Safety Improvements				X	X
Planned Intersection Improvements		X	X	X	X
Transit and TDM Services					
Existing/Expand Uber Service		X	X	X	X
On-Demand Transit/Fixed Route Transit		X	X	X	X
Bike Share between Alcona to Innisfil Beach					X
Active Transportation					
Planned AT Improvements		X	X	X	X
Upgrade or New Multi Use Trails			X	X	X
Sidewalk Improvements				High	Moderate
Pedestrian Crossings				High	Moderate
Additional Programs and Infrastructure					
Complete Street Policy Update				X	X
Pedestrian Policy				X	X
Sidewalk Prioritization Policy				X	X
Electric Vehicle Charging Station Implement Strategy					X

Evaluation Matrix

Transportation Service
- Mitigates existing and future congestion
- Improves commuting to essential destinations such as work and key recreational hubs

Climate Change Objectives
- Addresses sustainable transportation objectives (Federal, Provincial, County, and Town)
- Supports clean fuel initiatives

Natural and Cultural Heritage
- Protects the natural environment areas, local streams and aquatic resources, and air quality
- Protect farmland and agriculture
- Does not impact cultural properties

Policy Objectives
- Aligns with the policy objectives from various guiding documents from Simcoe, the Town, Metrolinx, and MTO

Growth and Economic Objectives
- Supports local businesses
- Maximizes land development potential
- Provides opportunities for planned growth

Transportation Equity
- Considers solutions that benefit equity-seeking groups in the Town of Innisfil such as young persons, physically/visually impaired, and access to mobility options regardless of geography
- Contributes to vertical equity by reducing major barriers to any population group
- Provides safe alternative transportation modes

Evaluation of Alternatives

	Scenario 1: Status Quo	Scenario 2: Roads and Highway Focused	Scenario 3: Safe & Alternative Transportation Focused	Scenario 4: Multi-Modal Strategy with Emerging Technologies
Transportation Service				
Climate Change Objectives				
Natural and Cultural Heritage				
Policy Objectives				
Growth & Economic Objectives				
Transportation Equity				
Financial				
Overall	0.71	0.75	0.79	0.86 Recommended

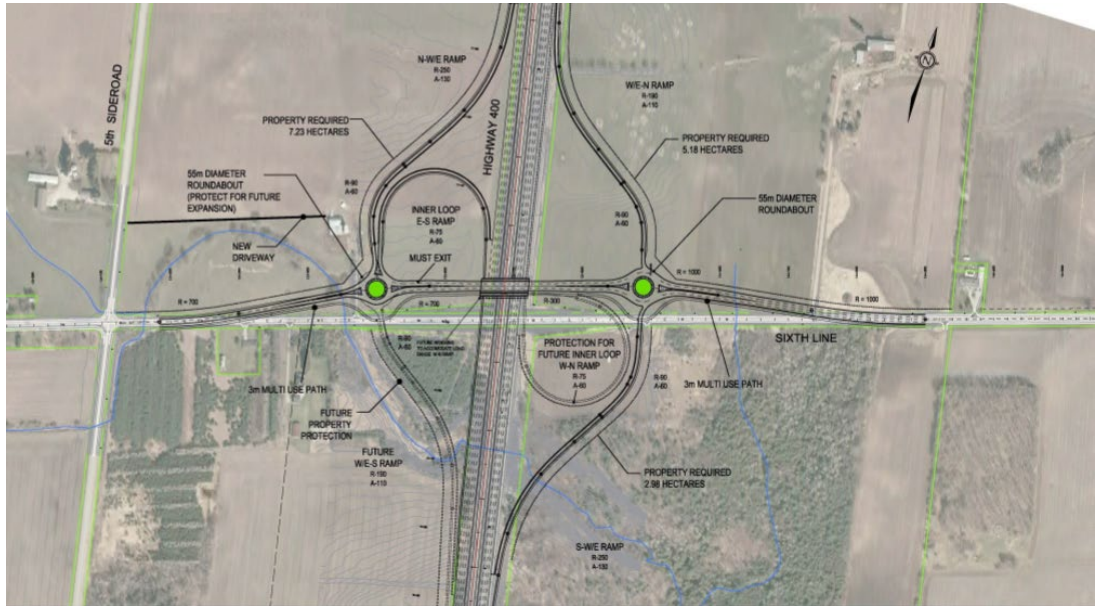
Preliminary Preferred Solution: Scenario 4 Multi-Modal Strategy with Emerging Technologies

Prioritizing attractive walking and cycling conditions for all road users, while ensuring congestion is minimized through investments in roads, active transportation, and emerging technologies for the year 2051

Road Capacity Projects

Provincial Roads - Planned and Budgeted Improvements

Road / Intersection	From	To	Improvement	Timeline	Status	Source
Highway 400	1 km South of Highway 89	Highway 11	3 to 5 lanes (per direction) including a HOV lane	2031	Budgeted	MTO Highway 400 Improvements ESR
6th Line Interchange / Highway 400			New interchange	2031	Budgeted	6th Line ESR
Highway 89 East-West Link Improvements			Cookstown Alternate Route	-	Proposed	2018 TMP



6th Line Interchange

Highway 89 East-West Link Improvements

Road Capacity Projects

County Roads - Planned and Budgeted Improvements

Road	From	To	Improvement	Timeline	Status	Source
County Road 4 (Yonge Street)	County Road 89	Barrie City Limit	2 to 4 lane widening	2031	Proposed *	Simcoe County TMP (2014)
County Road 4 (Yonge Street)	Bradford Boundary (8th Line)	County Road 89	2 to 4 lane widening	2031	Proposed *	Simcoe County TMP (2014)
County Road 21 (Innisfil Beach Road)	County Road 27	County Road 39 (20th Sideroad)	2 to 4 lane widening	2031	Proposed *	Simcoe County TMP (2014)
County Road 53 (5th Sideroad)	County Road 21 (Innisfil Beach Road)	Barrie City Limit	2 to 4 lane widening	2031	Proposed *	Simcoe County TMP (2014)
County Road 54 (10th Sideroad)	County Road 21 (Innisfil Beach Road)	Barrie City Limit	2 to 4 lane widening	Beyond 2031	Proposed *	Simcoe County TMP (2014)

2018 TMP Road Capacity Projects

Planned Recommended Network

Widening Projects include:

- 6th Line, between 20 Sideroad and Angus Street
- 6th Line, between 5th Sideroad to 20th Sideroad

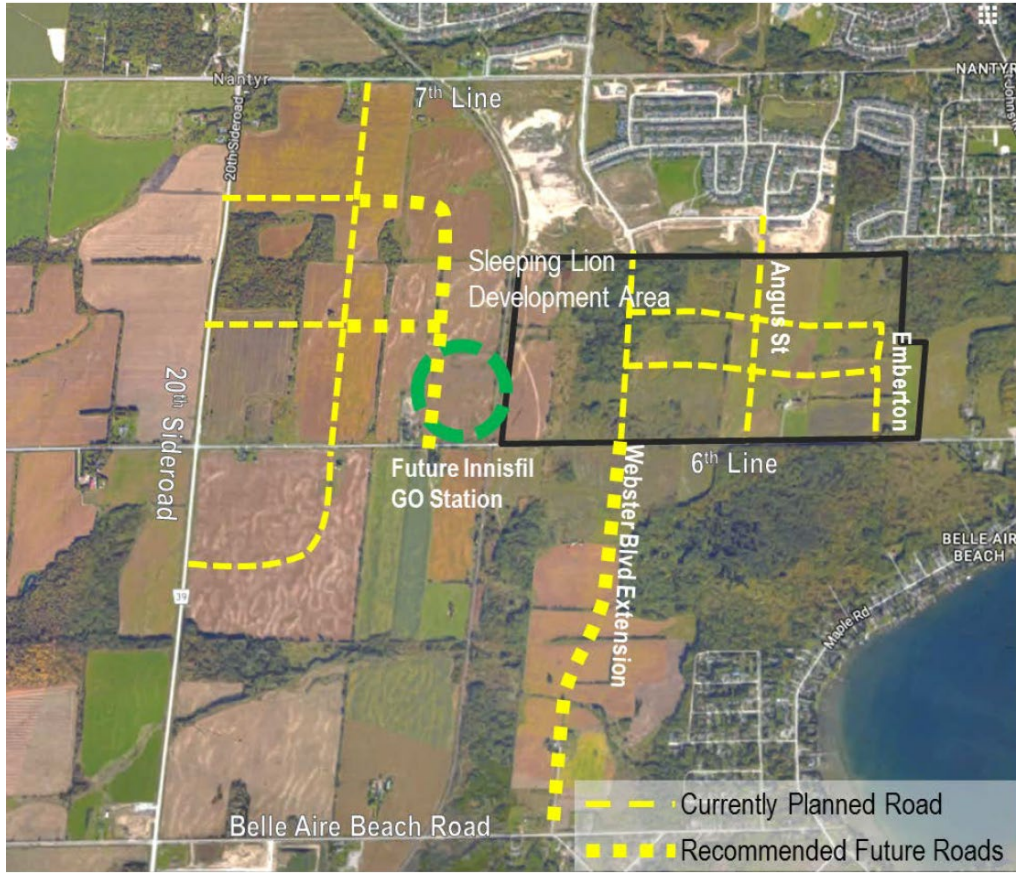
Signalized Intersections at:

- Yonge Street and 9th Line
- Yonge Street and 7th Line
- Yonge Street and 6th Line
- Yonge Street and 5th Line
- Yonge Street and 4th Line
- Innisfil Beach Road & 20th Sideroad Bypass

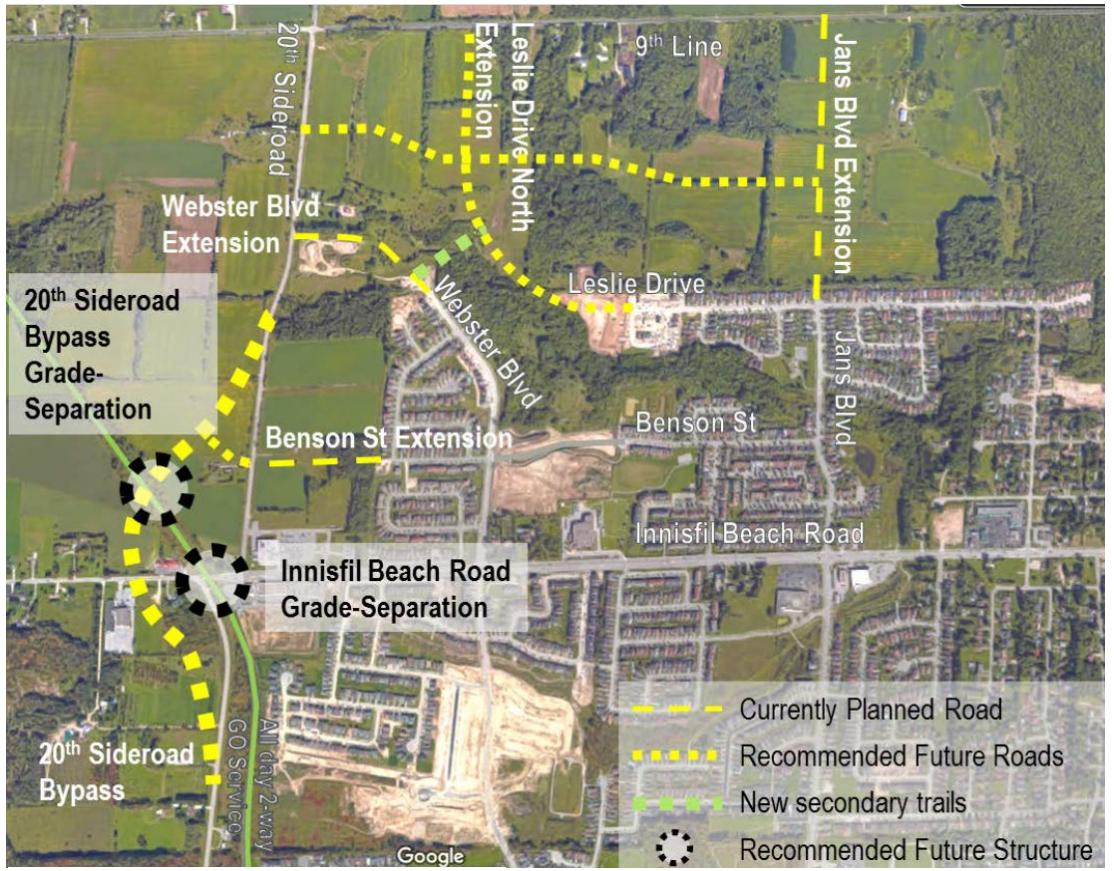
Roundabouts at:

- 20th Sideroad and Lockhart Road
- 20th Sideroad and 9th Line
- 20th Sideroad and 6th Line

2018 TMP Road Capacity Projects



Additional Road Network around the Future Innisfil GO Station



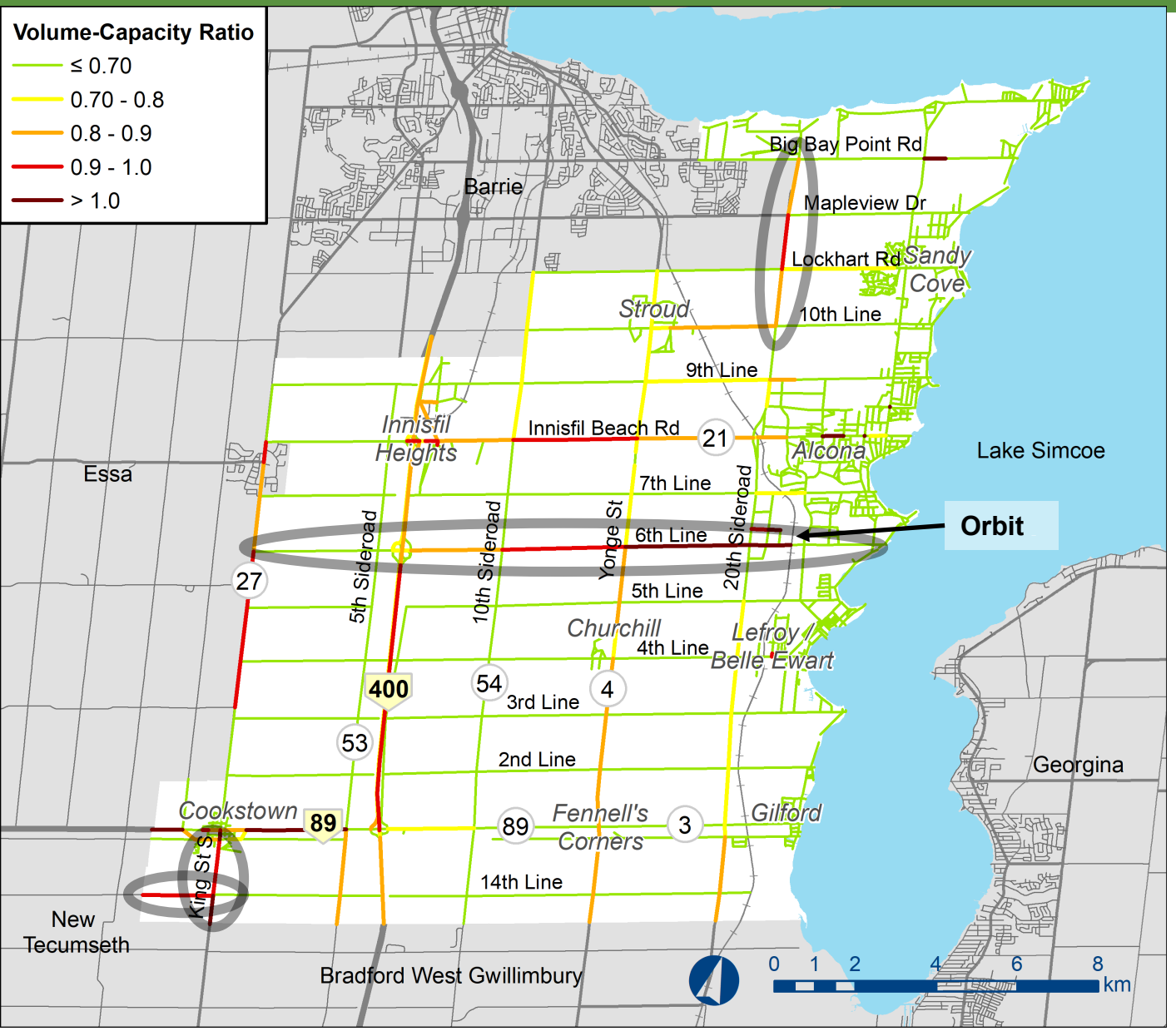
Additional Roadway Extensions in Alcona include:

- Jans Boulevard
- Webster Boulevard
- Benson Street
- Leslie Drive

Two Grade Separations (County Jurisdiction):

- Innisfil Beach Road
- 20th Sideroad By-pass

Additional Road Capacity Projects



Proposed Road Capacity Improvements:

6th Line

- Road widening from 2 to 4 lanes from County Rd 27 to the Planned GO Station

14th Line

- Reconstruct to 2 paved lanes from King St. to Innisfil boundary to increase roadway capacity
- Consistent with New Tecumseth 2019 draft TMP

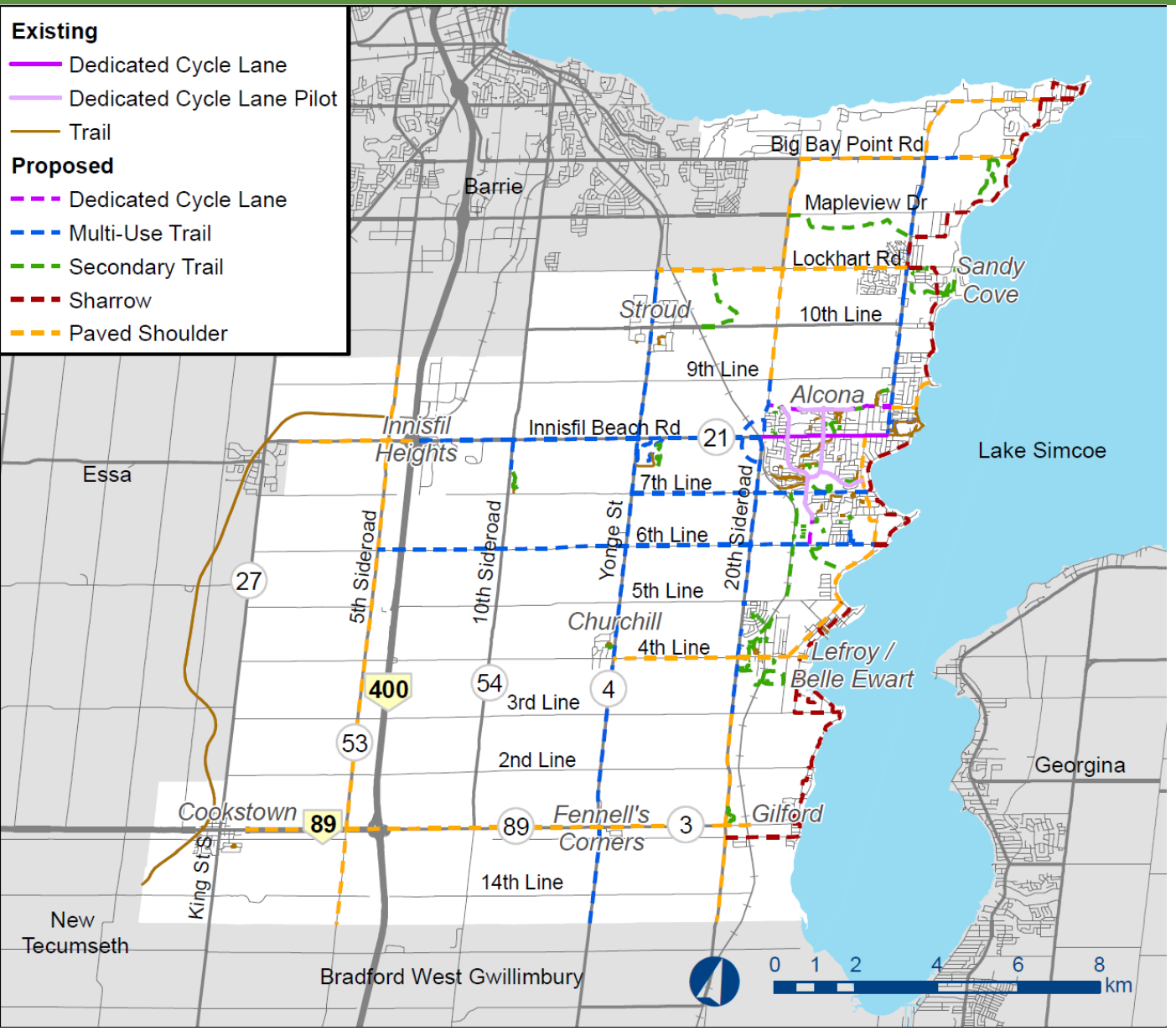
King Street South

- Parking Study with key stakeholders such as BIAs to balance parking and capacity needs
- Consider peak hour peak direction on-street parking restrictions together with additional off-street parking opportunities

20th Sideroad

- Class EA study to assess need / protect for 4-lane cross-section and active transportation

2018 TMP Active Transportation Projects



Planned Bike Lanes

- Webster Boulevard, 6th Line to north limit
- Jans Boulevard, Webster Blvd to north limit

Planned Multi-Use Trail

- Webster Boulevard, 20th Sideroad to Angus St
- 20th Sideroad, 9th Line to 5th Line
- 20th Sideroad, 5th Line to 3rd Line
- 25th Sideroad, Big Bay Point Rd to Innisfil Beach Rd
- 7th Line, Yonge St to St Johns Rd

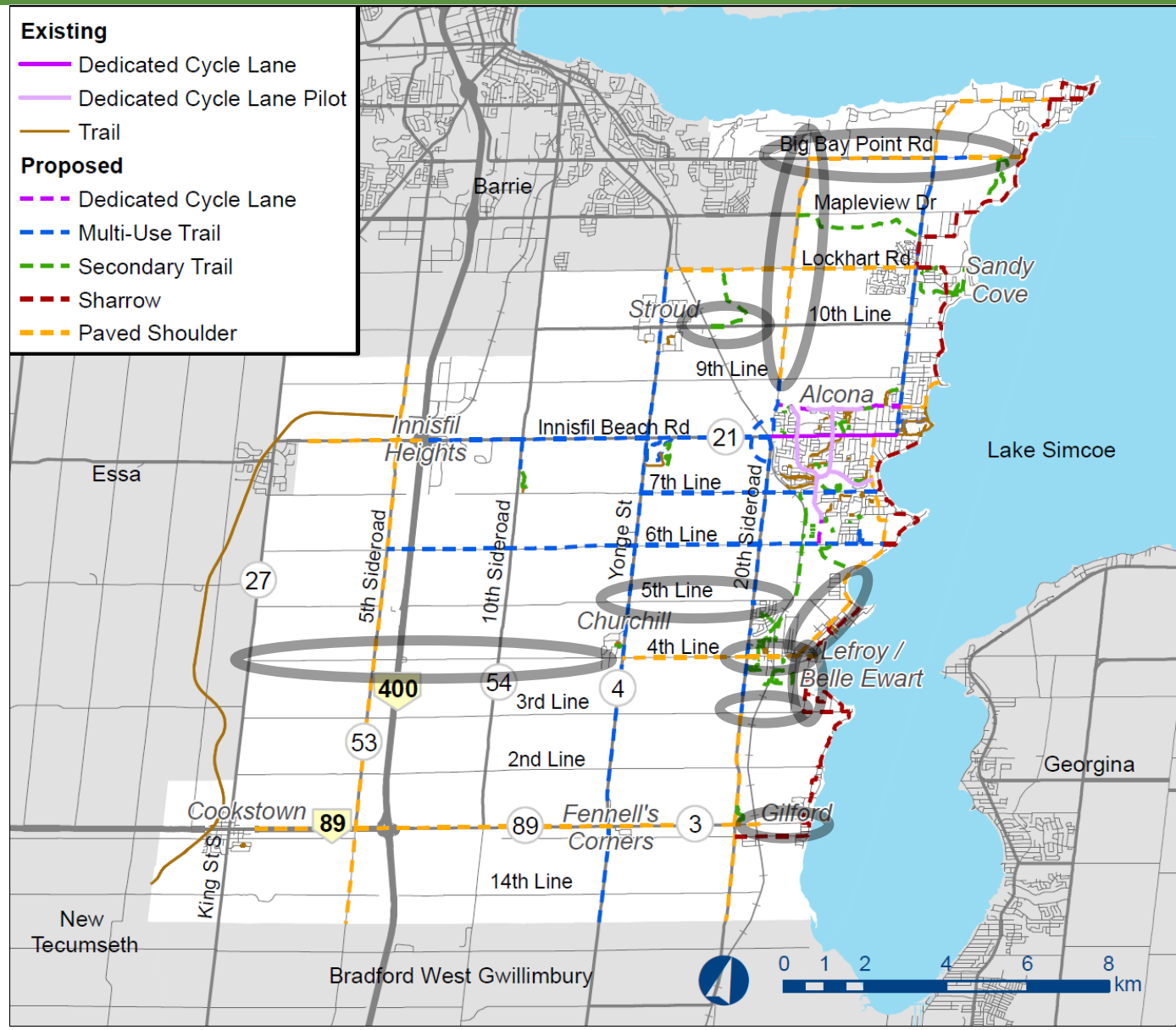
Other active transportation facilities

- Within Alcona
- Within Lefroy/Belle Ewart

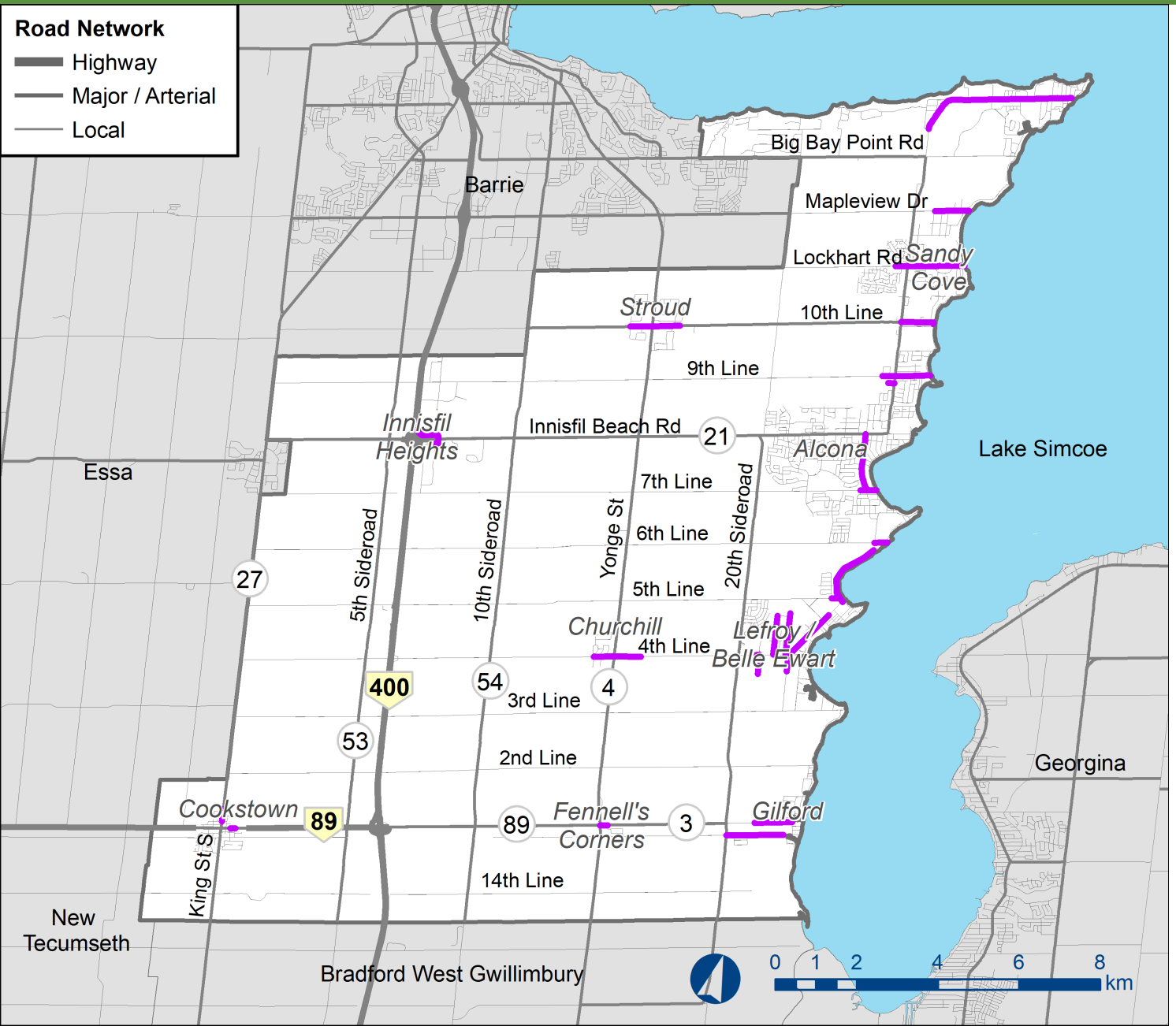
Additional Active Transportation Projects

Additional AT Projects:

- Commuter Active Transportation Infrastructure
- Moderate investments in new sidewalks
- Pedestrian Crossings



Additional Sidewalk Connection Opportunities



Proposed Sidewalk Connectivity

Sidewalk gap analysis identified opportunities to improve connectivity of sidewalks at key locations.

Locations were based on:

- Network continuity
- Connectivity to points of interest with high walking demand (ex. Schools)
- Transit Catchment Areas to GO

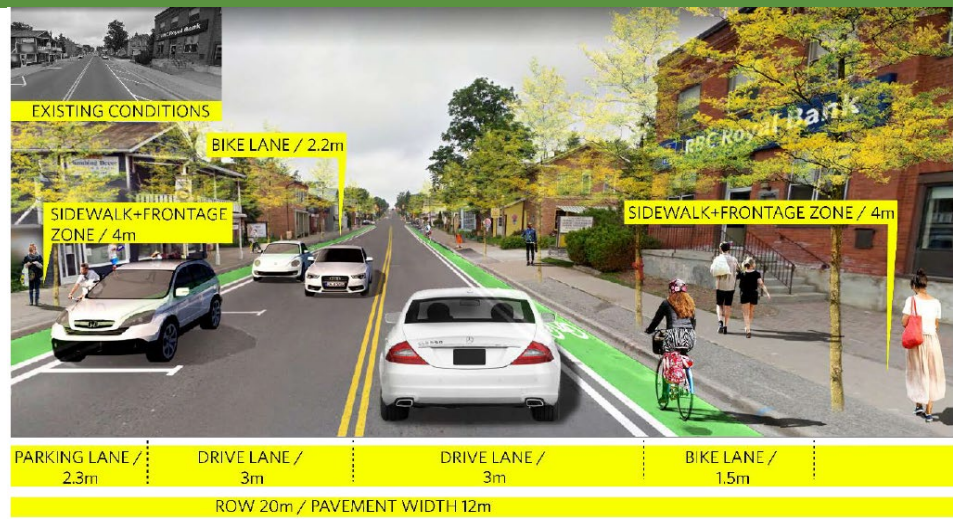
Sidewalk Prioritization is required for new sidewalks based on committed funding.

Update the Complete Streets Policy

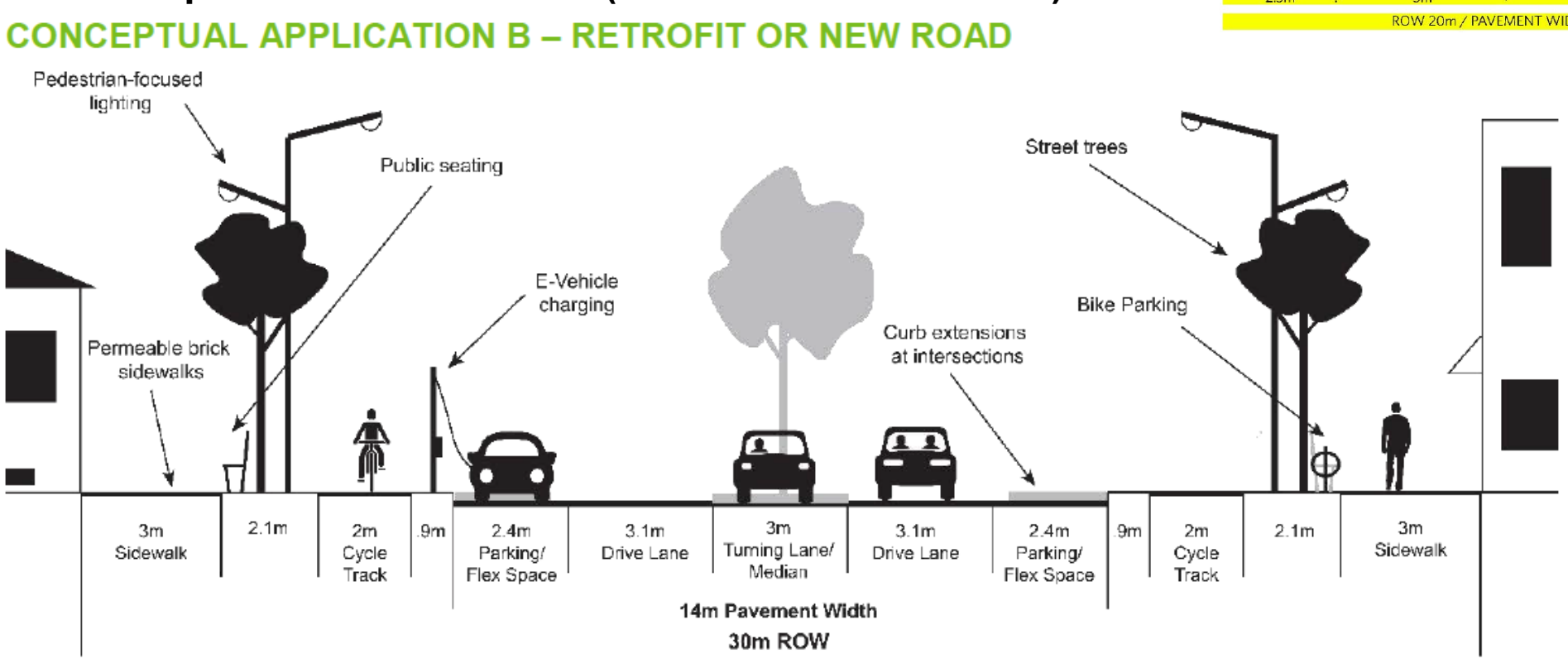
Town Complete Streets Policy

Update with best practices for cyclists and pedestrians

- OTM Book 18 (2021 Update) for accommodating cyclists
- Streetscape guidelines and maintenance requirements
- Other recent publications



2018 Concept of Downtown Road (ex. Innisfil Beach Road)



Pedestrian Crossing Policy

Develop and Implement a Pedestrian Policy

- Define practice for installation of new pedestrian crossings (Traffic signals, PXOs, stop control, school crossings), with the goal of:
  - Encouraging pedestrian activity and addressing existing and future pedestrian demands
  - Improving safety and addressing the concerns of residents (as per Safety Concerns Map)

- Take into consideration the framework and best practices of the following:
  - Current design practices (OTM Book 15 Pedestrian Crossing Guidelines)
  - Town of Innisfil community context and needs
  - Best practices (e.g. Vision Zero framework and Walkability objectives)

- Recognize and design for diversity of pedestrian needs and abilities. The groups considered include, but not limited to:
  - Cognitive ability and age
  - Mobility-impaired pedestrian
  - Visually-impaired pedestrians

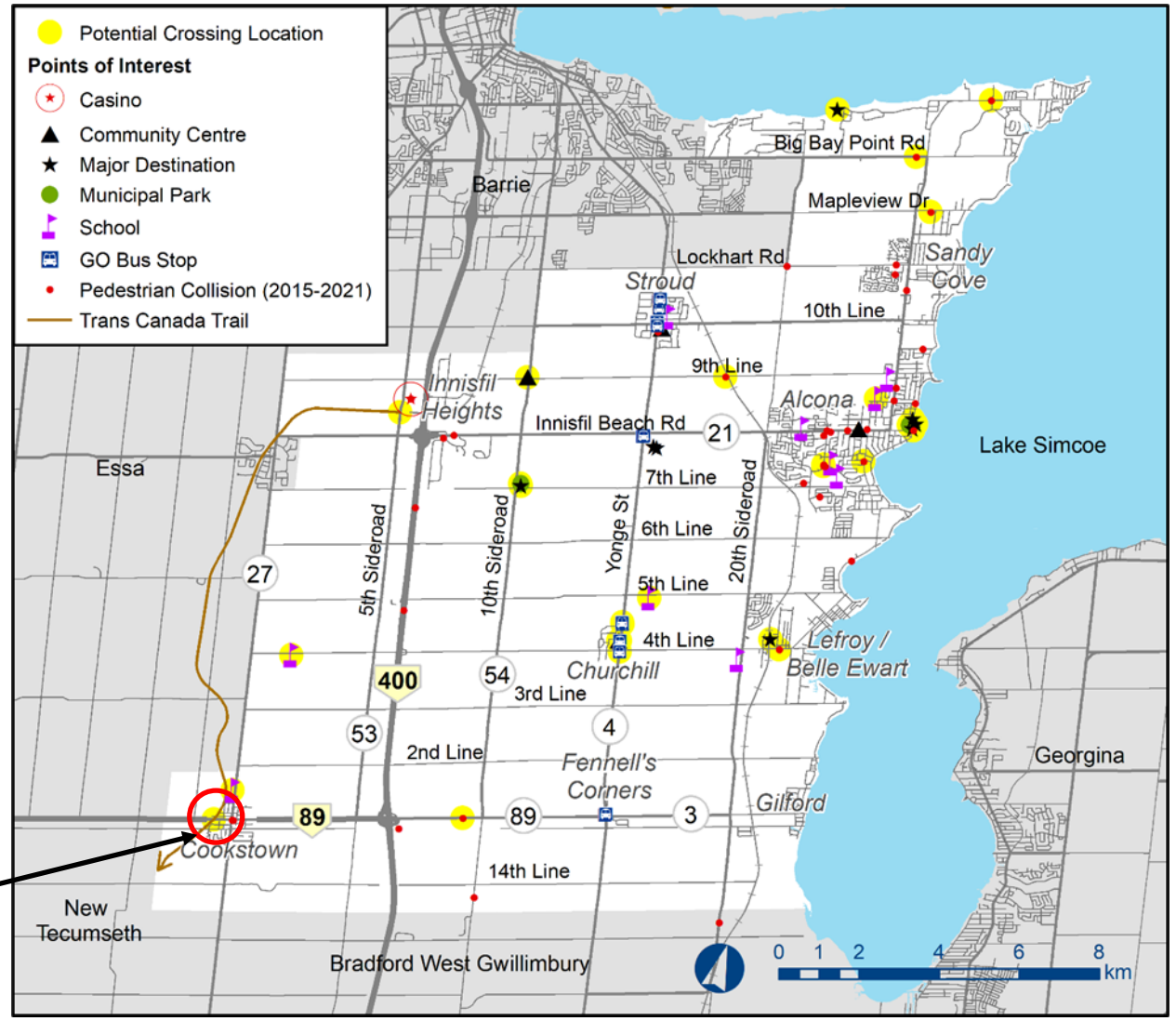
Potential Crossing Improvements

Pedestrian Crossing Locations

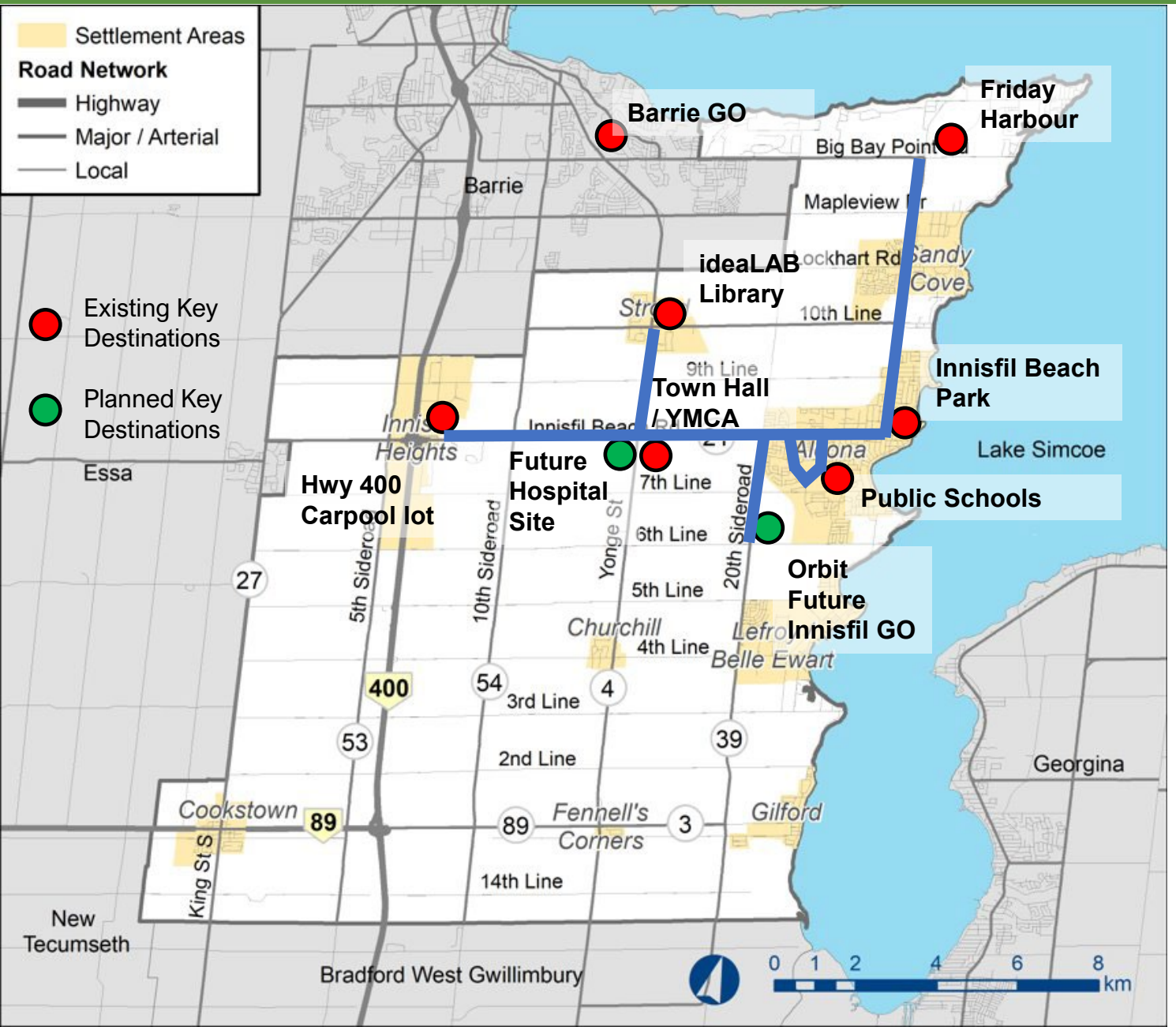
Potential crossing improvements (signals, PXOs, stop control, school crossings) were identified based on:

- A preliminary scan using the Pedestrian Crossing Policy
- Input from stakeholders
- Additional input can be provided on the GetInvolvedInnisfil website: https://www.getinvolvedinnisfil.ca/tmplan/maps/traffic-safety-concerns-mapping
- Implementation priorities will be based on funding commitments

e.g. Pedestrian Crossing in Cookstown would provide safer walking conditions for a route with heavy truck traffic



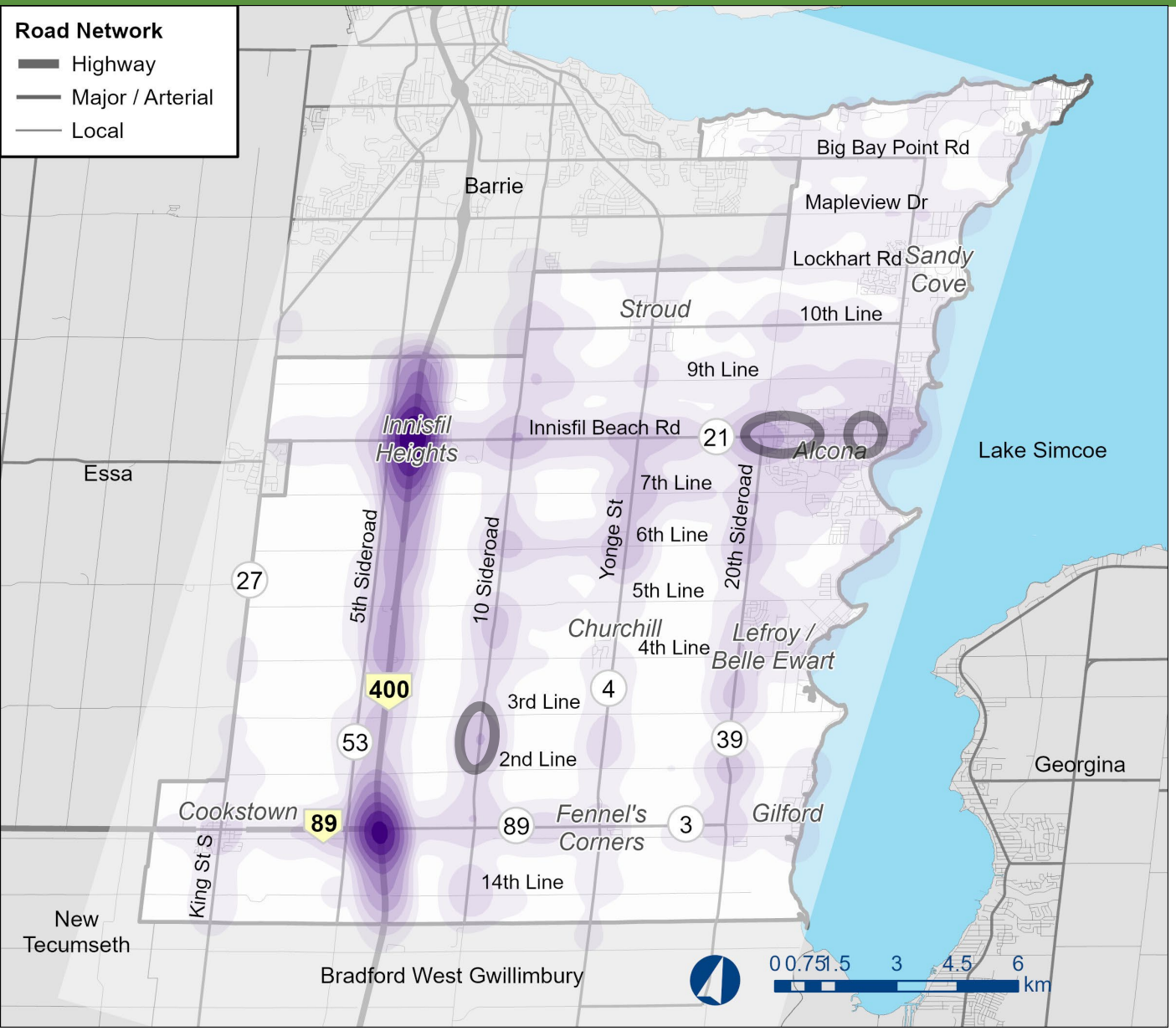
Transit Service Enhancements



Transit Service Opportunities

- Key origin-destination travel was identified through analysis of 2020 Uber Transit data and planned and on-going developments:
  - Barrie GO is a key destination
  - Most surveyed residents who use Barrie GO would switch to the future Innisfil GO Station
  - Innisfil Heights employment area, Innisfil Beach Park, Friday Harbour the planned Hospital are Town and County destinations
- There are opportunities to build on the success of Uber Transit for service to key destinations by strengthening reliability and affordability (e.g. scheduled service, incentivize drivers, etc.)
- Partnerships could be expanded with Uber, Simcoe Transit (LINX) and/or Metrolinx
- Future transit studies are proposed at regular intervals (5-year plans) to consider origin to destination data and routing options

Safety Improvement Opportunities



Safety Related Improvements

Prioritize Safety Improvements on links and at intersections based on collision rate per vehicle. Current areas of potential improvement include:

10th Sideroad north of 2nd Line

- Mainly single-motor crashes
- Consider merits of signage, markings and speed management and illumination, particularly at the horizontal curve 650 m north of 2nd Line

Innisfil Beach Road east of 20th Sideroad

- Mainly angle/turning and rear end accidents at accesses.
- Site investigations will be required to review and implement potential infrastructure improvements.

Innisfil Beach Road and St. Johns

- Mainly collisions involving red light running.
- Signal timing and sightline improvements may be required.

Emerging Technologies

Bike Share Pilot

- Building upon the ShareCycle program launched in Innisfil in 2017
  - 12 bicycles were tracked using GPS sensors and riders were free to openly use and drop off the bikes anywhere in the community.
- Purpose of the bike share program is to reduce obstacles in using alternate modes.
  - Lack of a bicycle was identified as a major obstacle for cycling for health (POH#1 survey)
- 71% of responses from the POH#1 survey were either “Very Interested” or “Somewhat Interested” in bike-share or e-scooters
- A pilot would be able to explore the financial feasibility. The recommended location is between future Innisfil GO Station and Innisfil Beach Park given the population density and trip attraction

Electric Vehicle Charging

- In collaboration with InnPower, enhance the Town’s electric vehicle charging station inventory
- Based on a Transportation Equity framework, EV charging stations would be prioritized in Settlement Areas that lack alternate modes of transportation

Innisfil Youth and Volunteers decorating the donated bicycles from South Simcoe Police Services for the ShareCycle program

(Image from Toronto.com)

GET INVOLVED

GetInvolvedinnisfil.ca/TMPlan

Ways to get involved:

- PIC #1 (August 2021)
- On-line stakeholder surveys (Summer – Fall 2021)
- PIC #2 (Today) – Comments today or after the meeting
- Fill out today's survey found on the study webpage
- Contact the team!

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Capital Project Manager
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Innisfil

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BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

Minutes of Meeting

Meeting Date: January 13, 2022 **Project No.:** 300053011.0000

Project Name : Innisfil Transportation Master Plan

Meeting Subject: Technical Advisory Committee #2

Meeting Location: Zoom Meeting

Date Prepared: January 17, 2022

Those in attendance were:

Meredith Goodwin (MG)	Town of Innisfil
Carolina Cautillo (CC)	Town of Innisfil
Paul Pentikainen (PP)	Town of Innisfil
Hyder Rajab (HR)	Town of Innisfil
Alex Juby (AJ)	Town of Innisfil
Scott MacKenzie (SM)	Town of Innisfil
Mitchel Harris (MH)	Town of Innisfil
Amber Leal (AL)	Town of Innisfil
Leo DeLoyde (LD)	Town of Innisfil
Nicole Bowman (NB)	Town of Innisfil
Alex Papadatos (AP)	Town of Innisfil
Tim Cane (TC)	Town of Innisfil
Mary Nordstrom (MN)	Town of Innisfil
Brian Seed (BS)	Town of Innisfil
Brett Gratrix (BG)	City of Barrie
Ralph Scheunemann (RS)	City of Barrie
David Hegarty (DH)	Town of New Tecumseth
Ray Bacquie (RB)	R.J. Burnside & Associates Ltd.
Gordon Hui (GH)	R.J. Burnside & Associates Ltd.
Xinli Tu (XT)	R.J. Burnside & Associates Ltd.
Cindy Chung (CC)	R.J. Burnside & Associates Ltd.

Ben Krul (BK)	NVCA
Claire Walker (CW)	County of Simcoe
Julie Scruton (JS)	County of Simcoe
Katy Modanessi (KM)	Town of Bradford West Gwillimbury
Marcio Marques (MM)	Town of Bradford West Gwillimbury
Rob Vandenberg (RV)	MTO
Yat Yee (YY)	MTO
Rama Badam (RBa)	Town of Innisfil
Tony Mendicino (TM)	Town of Innisfil
William Van Berkel (WVB)	
Jeremy Walton (JW)	

The following items were discussed		Action by
1.	**Introductions**	
	Meredith Goodwin (Town of Innisfil) introduced the meeting.	Info
2.	**Summary of Survey Results Video**	
	A video summary of the results of the first public survey was played. After the video, Ray highlighted two barriers which were the following: • The barrier for adopting electric vehicles was lack of public charging. • The barrier for using Uber, other than travel patterns, was wait time.	Info
3.	**Presentation Topics**	
	Ray Bacquie (Burnside) presented the following information • Summary of Phase 1 • Description of Alternative Strategies and Projects • Evaluation of Alternative Strategies • Consultation	Info

The following items were discussed	Action by
• Next Steps	
4. Questions and Comments	
Land Use Forecasts	
KM (Town of Bradford West Gwillimbury) asked how the transportation analysis distributes population figures in year 2041 and 2051 given how recent these figures were provided through the County's Land Needs Assessment (LNA). RB responded by saying that the population and employment figures were split in the various settlement areas with specific focus to the Alcona and Friday Harbour areas. The project team will update those numbers once the County's LNA is finalized.	Town/ Burnside
RS (City of Barrie) asked for clarification regarding the population forecasts in the Orbit as the website indicated that it will be above 2051 provincial allocations. GH clarified that the population total for the Town used in this analysis is closer to 96,000 by year 2051 which is closer to the Simcoe's LNA. RB (Burnside) indicated that future Transportation Master Plans (TMPs) will address population forecasts for horizon years beyond 2051 if provincial land use forecasts are updated.	Info
TC (Town of Innisfil) indicated that 150,000 population within the Orbit is currently being considered in the County's LNA.	Info
RS (City of Barrie) expressed concern that waiting for 5-year cycles for TMPs might be too long since the opportunity to protect for the road right-of-way may be lost due to development pressure.	Info
Road Capacity Project Recommendations	
SM (Town of Innisfil) asked for clarification regarding the recommendations for 14th Line and how consistent that recommendation is with the Town of New Tecumseth's plans. DH (New Tecumseth) indicated that widening to four lanes is planned between Industrial Parkway to 10th Sideroad. The recommendation on 14th Line between 10th Sideroad to the New Tecumseth-Innisfil boundary is to maintain 2 lanes but reconstruct for improved road capacity which is consistent with the Innisfil TMP recommendations.	Info

The following items were discussed	Action by
RS (City of Barrie) indicated that there is a transportation connection from McKay Road back to the 10th Line that may not have been reflected in the traffic analysis. Burnside indicated that they would check and incorporate the connection.	Info
LD (Town of Innisfil) expressed concerns about the recommendation to remove parking through Cookstown as this will create a traffic sewer. Parking is also important for the local businesses. RB acknowledged the sensitivity to parking in business areas, noted that the recommendations was to study the merits and committed the project team to revisit the recommendations before the Public Open House.	Town/ Burnside
BG (City of Barrie) asked if there was any pressure to upgrade rural concession roads to accommodate for the growth in the Town of Innisfil. RB (Burnside) indicated that upgrading roads falls between the TMP and Roads Needs Study. There will be coordination between the two studies to understand the capabilities to handle the future traffic volumes. CG (Town of Innisfil) indicated that public requests and council direction has increased for upgrading rural concessions, repaving gravel roads, and surface treating.	Info
Active Transportation Project Recommendations	
LD (Town of Innisfil) asked if there has been any consideration for a waterfront trail between the Town of Innisfil, City of Barrie, and the Town of Bradford West Gwillimbury. KM (Town of Bradford-West Gwillimbury) indicated that a trails strategy will be developed through their TMP. RS (City of Barrie) indicated that there are many private properties and developments along the waterfront so that may be a challenge. However, Big Bay Point Road, 20th Sideroad, and Lockhart Road are opportunities for that waterfront trail system between the City and the Town. RS (City of Barrie) and MG (Town of Innisfil) agreed that further coordination may be required.	Town/ Burnside
Enhanced Transit Service Recommendations	
LD (Town of Innisfil) indicated that the Town is currently having discussions with Friday Harbour and employers in Innisfil Heights which should be reflected in the TMP's transit recommendations. MN (Town of Innisfil) also suggested to review Tanger Outlets as part of the transit service enhancements. LD also indicated that within this	Town/ Burnside

The following items were discussed	Action by
30-year time horizon, the transit system should evolve from on-demand/rideshare.	
Other Comments	
MN (Town of Innisfil) asked for a pedestrian crossing to be considered at the Yonge Street and Innisfil Beach Road intersection due to the future hospital site and Town campus.	Town/ Burnside
LD (Town of Innisfil) expressed concern regarding overflow traffic, and resulting traffic accidents, due to congestion along Highway 400. LD asked if there should be a recommendation to the Province to expedite the timeline of the widening. RB (Burnside) indicated that this is part of the plan.	Info
MN (Town of Innisfil) asked about the importance of the Barrie-Collingwood rail as part of a goods movement strategy. RB (Burnside) indicated that this will be incorporated.	Town/ Burnside
BG (City of Barrie) asked about a potential recommendation for requiring L2 rough-ins for new developments which can be eventually incorporated in the Official Plan. RB (Burnside) indicated that they will explore this recommendation with the project team.	Town/ Burnside

The preceding are the minutes of the meeting as observed by the undersigned. Should there be a need for revision, please advise Burnside within seven days of issuance. In the absence of notification to the contrary, these minutes will be deemed to be an accurate record of the meeting.

Minutes prepared by:

R.J. Burnside & Associates Limited

Rebecca Rust
Transportation Student
RR

Recommended Network Improvements and Strategies For Review

2022 Transportation Master Plan

May 9, 2022

Innisfil

BURNSIDE

Overview

- Study Process
- Draft Recommendations
  - Road
  - Active Transportation and Sidewalks
  - Transit Network
- Supporting Strategies
- Next Steps

Study Process

Study Approach and Consultation

Phase 1
Problem Or Opportunity

- **Identify Natural, Social and Cultural Heritage Assets**
- **Assess Existing and Future Needs and Opportunities**
  - Road, transit, active transportation and safety needs
  - Future needs and opportunities

Public Information Centre # 1

Phase 2
Alternative Solutions

- **Identify and Analyze Alternative Solutions (Strategies)**
- **Evaluation and Selection of Preferred Alternative**
- **Preferred Network Solution (Strategy)**

Public Information Centre # 2

Presentation of Recommendations We are here

Document TMP for Review

Future Phases
Not within this study

- **Phase 3:** Alternative Design Concepts for Preferred Solution
- **Phase 4:** Schedule C Environmental Study Report
- **Phase 5:** Implementation

Continuous Collaboration

The Transportation Master Plan will be carried out in accordance with the Municipal Class Environmental Assessment (MCEA) process.

Consultation Summary

Town-Led Consultation Events

Technical Advisory Committee Meeting #1	August 11, 2021
Public Open House #1	August 25, 2021
School Zone Traffic Safety Advisory Committee Meeting	November 18, 2021
Town of Innisfil and Simcoe County Coordination Meeting #1	October 28, 2021
Town of Innisfil and Simcoe County Coordination Meeting #2	December 13, 2021
Technical Advisory Committee Meeting #2	January 13, 2022
Town of Innisfil Land and Lake Master Plan Coordination	January 13, 2022
Public Open House #2	January 27, 2022
Highway 400 Rail Underpass with MTO, City of Barrie, Simcoe County	March 22, 2022

Project Team Participation in County-Led Consultation Events

County TMP – Technical Advisory Committee	March 23, 2022
County TMP – Active Transportation TAC	March 28, 2022
County TMP – Transit TAC	April 2, 2022

Draft Recommendations
Road, Active Transportation, and Transit Networks

Vision

Innisfil's transportation system connects people and communities, fosters healthy living, and operates innovatively and efficiently across the Town as an environmentally and financially sustainable, resilient system ready for the future.

Road Network

Process

1. Transportation Modelling
   - Incorporate Simcoe County's 2041 and 2051 horizon year growth allocations based on Draft MCR / Land Needs Assessment
   - Review of 2018 TMP for recommendations to 2041 based on new land use allocations
   - Identify road capacity needs by the 2051 horizon year
2. Recommend road widenings or alternatives to widenings based on goals of the TMP

Road Network

Simcoe County Road Recommendations (March 23, 2022)

Draft Road Network Map

Road Uploads to County

A. Industrial Parkway
B. 5th Line
C. 5th Line
D. 10 Sideroad
E. 6th Line

County Road Widenings by 2051

1. CR 10
2. CR 88 / Bond Head Bypass
3. CR 4 (Underway)
4. CR 4
5. CR 89 / CR 3
6. CR 21 (Underway)
7. CR 54
8. CR 53
9. CR 27
10. CR 10

Corridors Deferred Beyond 2051 for Study

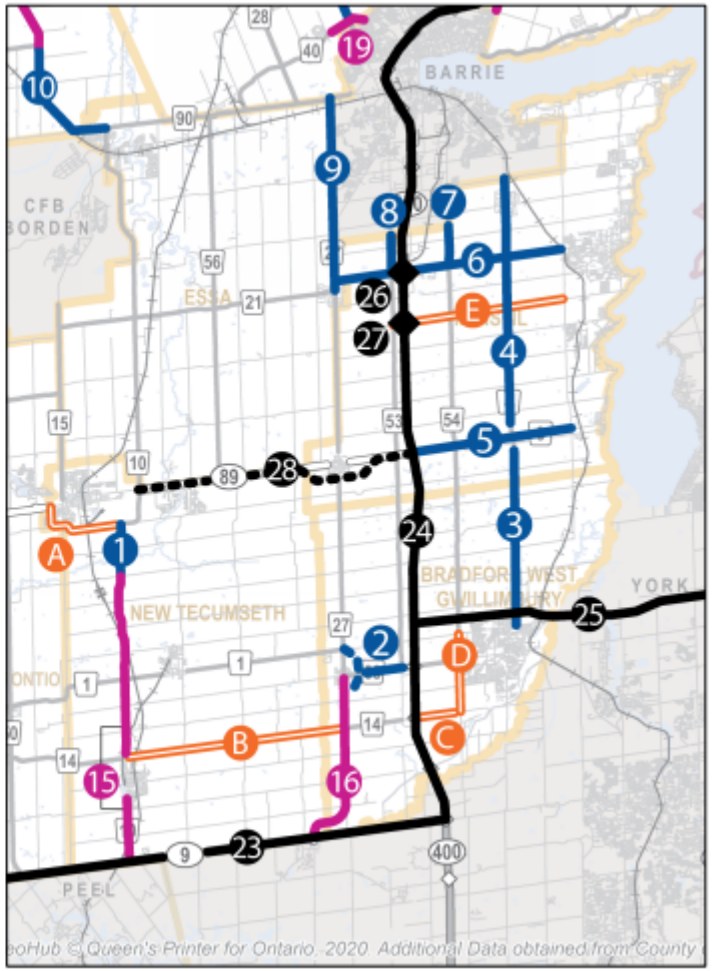
15. CR 10
16. CR 27
19. CR 40

Provincial Road Projects

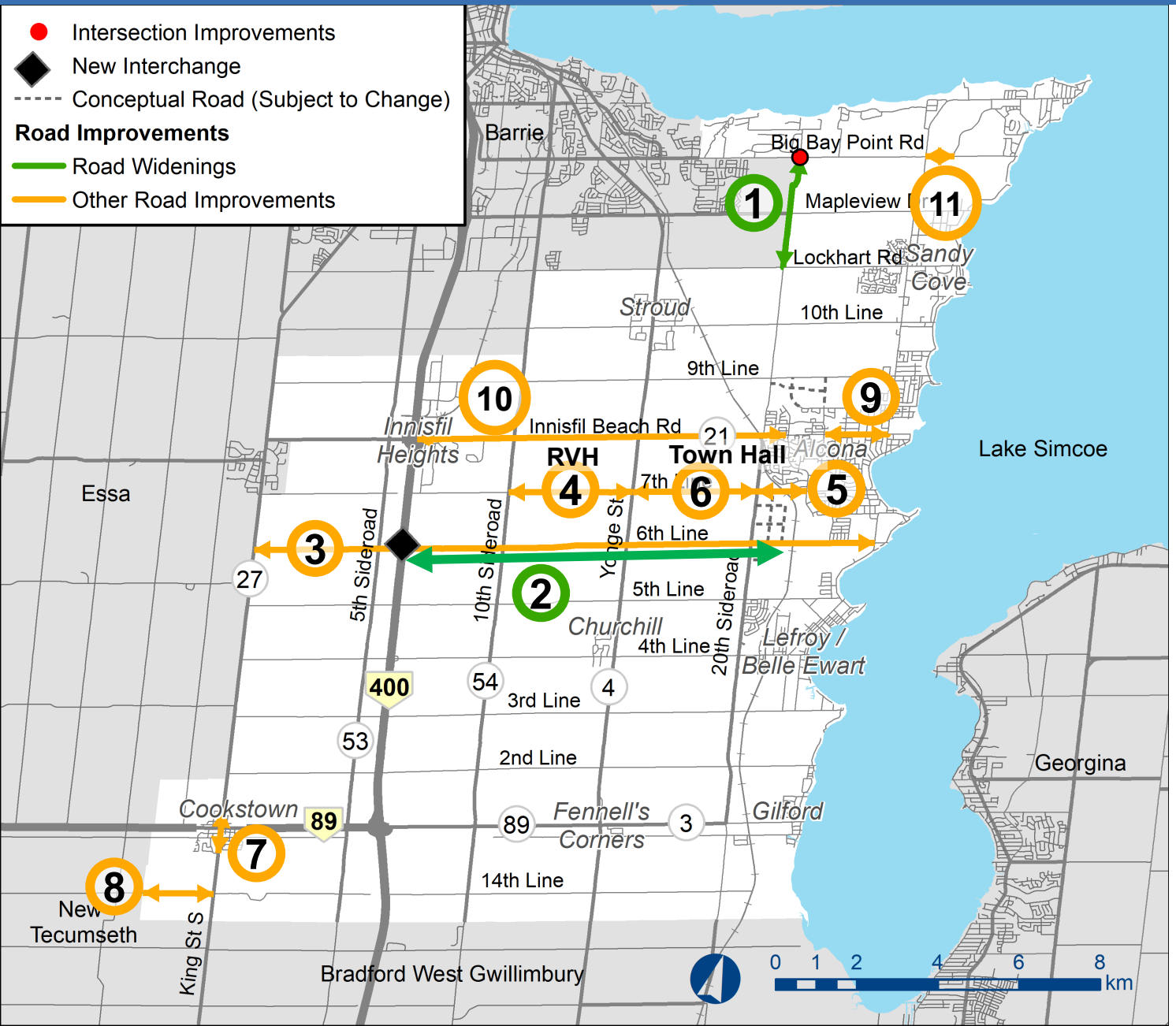
23. Highway 9 New Capacity Expansion
24. Highway 400 New Capacity Expansion
25. Bradford Bypass
26. Highway 400 / IBR Overpass

Unconfirmed Provincial Projects

27. Highway 400 / Line 6 Interchange
28. Highway 89 Easy-West Link Improvement (Concept only)



Road Network



Road Projects in Addition to 2018 TMP

Road Widenings

1. 20th Sideroad from 2 to 4 lanes
2. 6th Line from 4 to 6 lanes

EA Addendum

3. 6th Line from CR27 to St. Johns Rd.
4. 7th Line from 10th Siderd. to Yonge St.
5. 7th Line from 20th Siderd. to Lake Simcoe

EA

6. 7th Line from Yonge St. to 20th Siderd.

Alternative Strategies

7. King Street South: Parking Study
8. 14th Line: Pavement reconstruction
9. Innisfil Beach Road: Sustainable mode focus
10. 6th Line widening to address future Innisfil Beach Road capacity constraints
11. Monitoring of the Friday Drive / 13th Line. and 25th Siderd. / Big Bay Point Rd. intersections for potential improvements

Road Network

Innisfil Beach Road Recommendations

Needs Identified

- Innisfil Beach Road between Jans Boulevard and 25th Sideroad has been identified to have capacity issues by 2051

Preferred Solution

- Focus on the development of IBR as a pedestrian-friendly main street in a future downtown Innisfil, aligning with the Town's Official Plan
- Enhancing sustainable modes and identifying alternative routes (e.g., 9th Line) is preferred

Road Network

Cookstown Recommendations

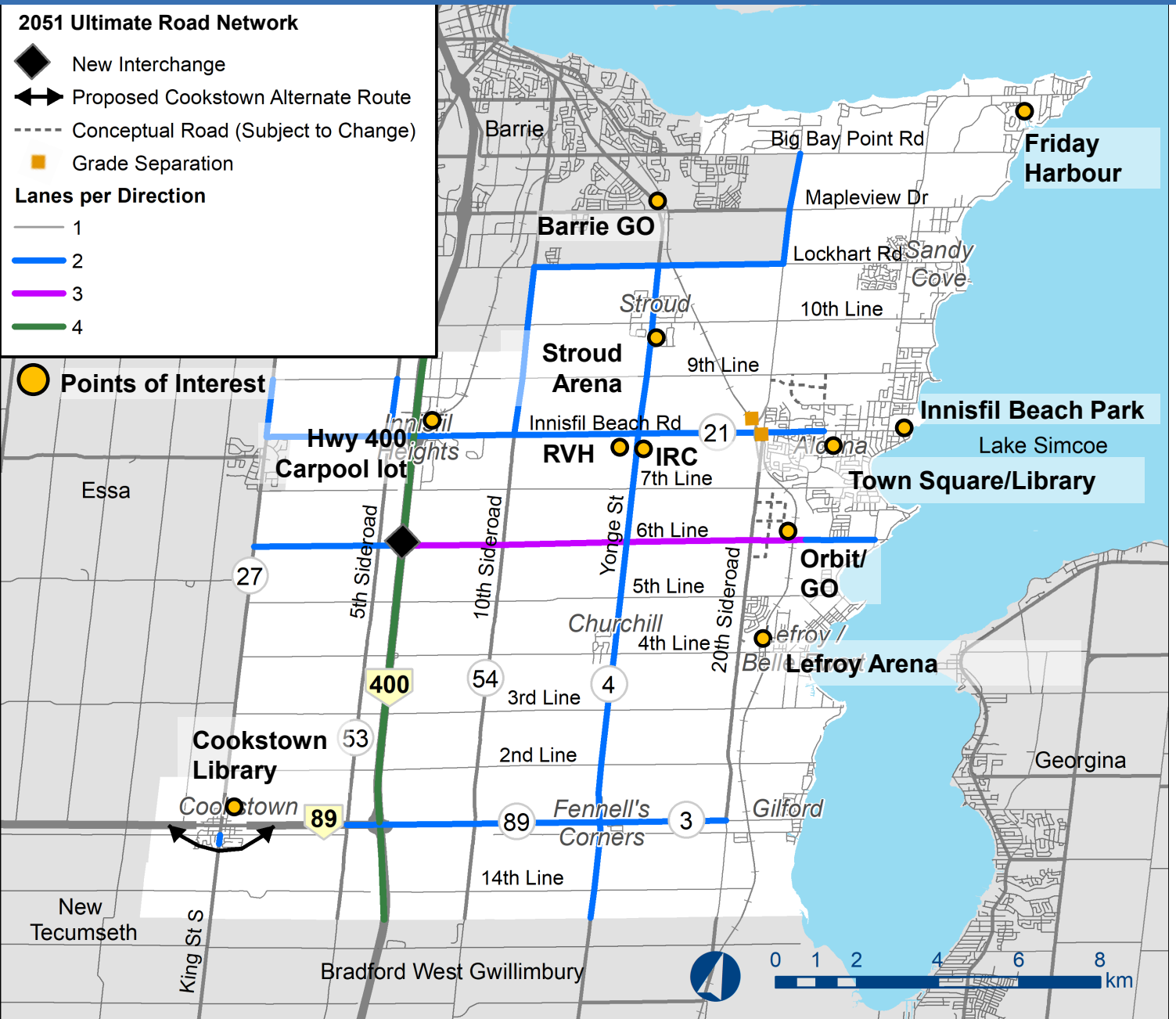
Preferred Solution

- Parking strategy to explore parking solutions in collaboration with local Cookstown businesses and other stakeholders
- Aim to enhance roadway capacity, without widening, and promote Cookstown economic growth

Needs Identified

- King Street South is forecasted to reach capacity by 2051
- County Road 89 through Cookstown is reaching capacity
- Cultural heritage protection and physical constraints limit road widenings

Road Network



Summary of Additional Road Recommendations

- Road Widenings:
  - 20th Sideroad from 2 to 4 lanes
  - 6th Line from 4 to 6 lanes
- Cookstown Parking Study
- 14th Line Reconstruction
- Environmental assessment addendums along 6th Line and 7th Line
- 7th Line Environmental Assessment from Yonge Street to 20th Sideroad
- Confirmation of planned grade separation and re-alignment at 20th Sideroad at IBR
- Continued support for Cookstown East-West Alternate Route

Active Transportation

Process

1. Identify **points of interest** for the general population and vulnerable road users by identifying locations such as schools, community centers, and employment nodes (e.g. Friday Harbour, Innisfil Heights, 400 Flea Market, Tanger Outlet)

2. Identify **gaps in continuity and connectivity** in the existing and planned active transportation network

3. Establish the **proposed AT network** based on a review of the existing network, 2016 Trail Master Plan, Draft 2022 Land and Lake Master Plan and 2022 Draft County TMP

4. Facility selection based on existing AADT, future volume forecasts and best practices (i.e., OTM Book 18)

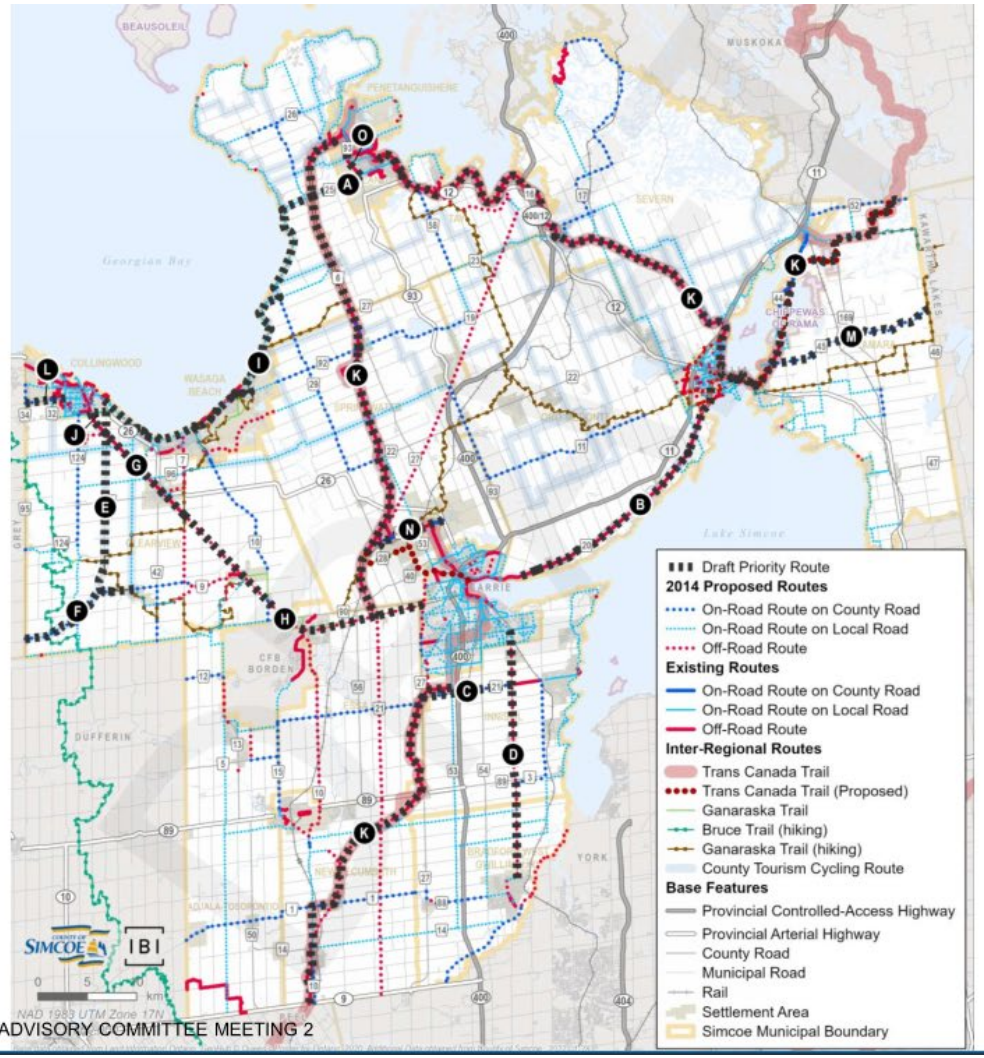
Active Transportation Network

Simcoe County AT Recommendations (March 23, 2022)

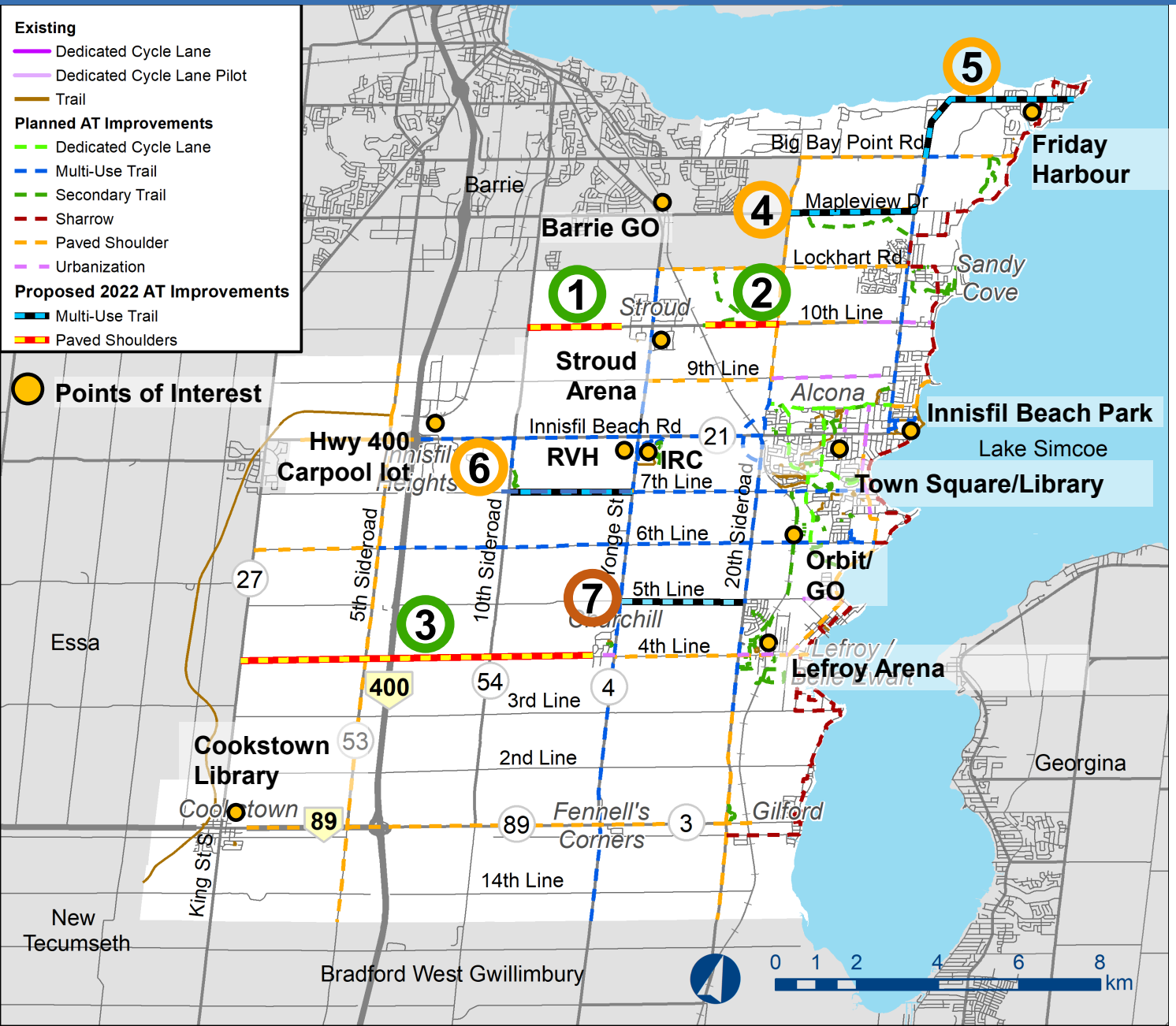
Draft AT Network

The TMP recommends an **ultimate cycling network** comprised of:

- On-road routes on County roads
- On-road routes on local municipal roads
- Off-road routes



Active Transportation



Additional AT Projects by 2041

Paved Shoulders

1. 10th Line from 10th Siderd. To Stroud
2. 10th Line from Stroud to 20th Siderd.
3. 4th Line from Churchill to CR27

Multi-Use Trail

4. Mapleview from 20th Siderd. to 25th Siderd.
5. Big Bay Point from 25th Siderd. to Lake
6. 7th Line from Yonge Street to 10th Sideroad

Additional AT Projects by 2051

Multi-Use Trail

7. 5th Line between Yonge St. to 20th Siderd.

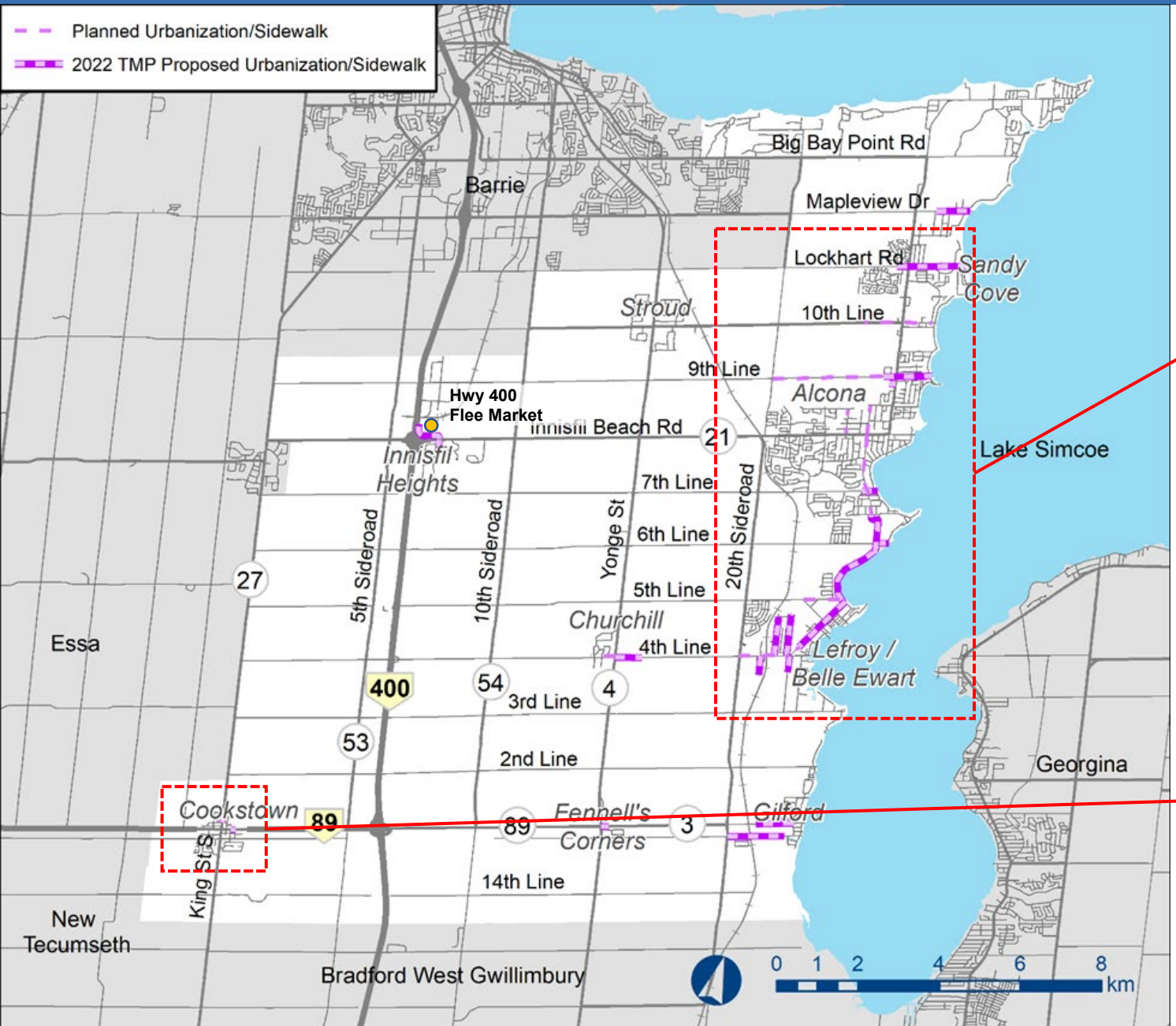
Other Opportunities

- Underpass / Connection between RVH and Town Hall
- Off-road multi-use path using existing rail corridors

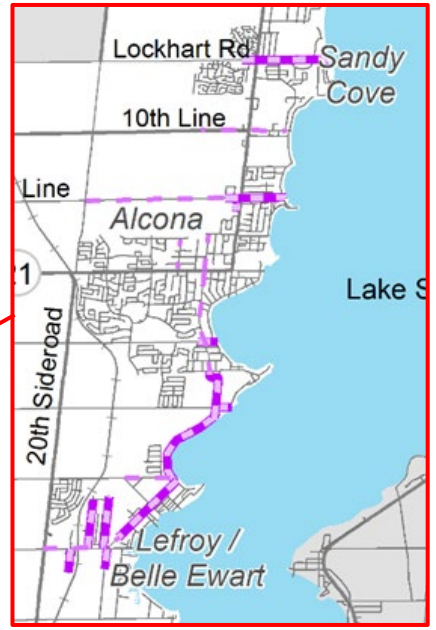
For Consideration beyond 2051

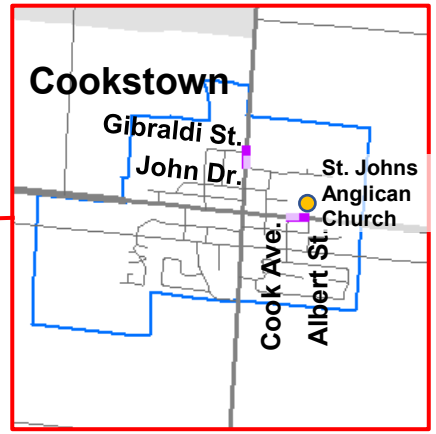
- Paved Shoulders along 3rd Line and Harbour Street
- Multi-use trail on 20th Siderd. between 9th Line to Mapleview Drive

Active Transportation



Proposed New Sidewalks



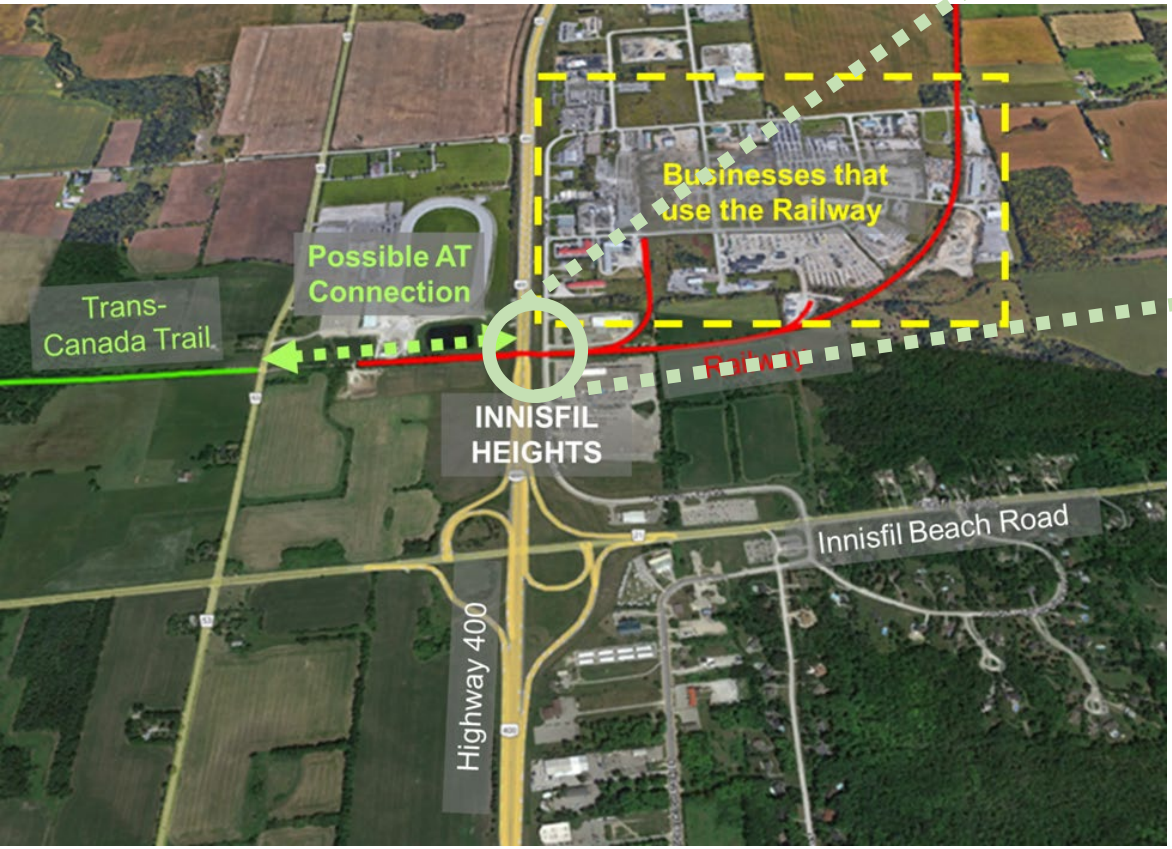


Provides a safe and connected pedestrian-focused corridor between Lefroy and Alcona

Active Transportation

Highway 400 Underpass

Potential Active Transportation Opportunity



Needs Identified

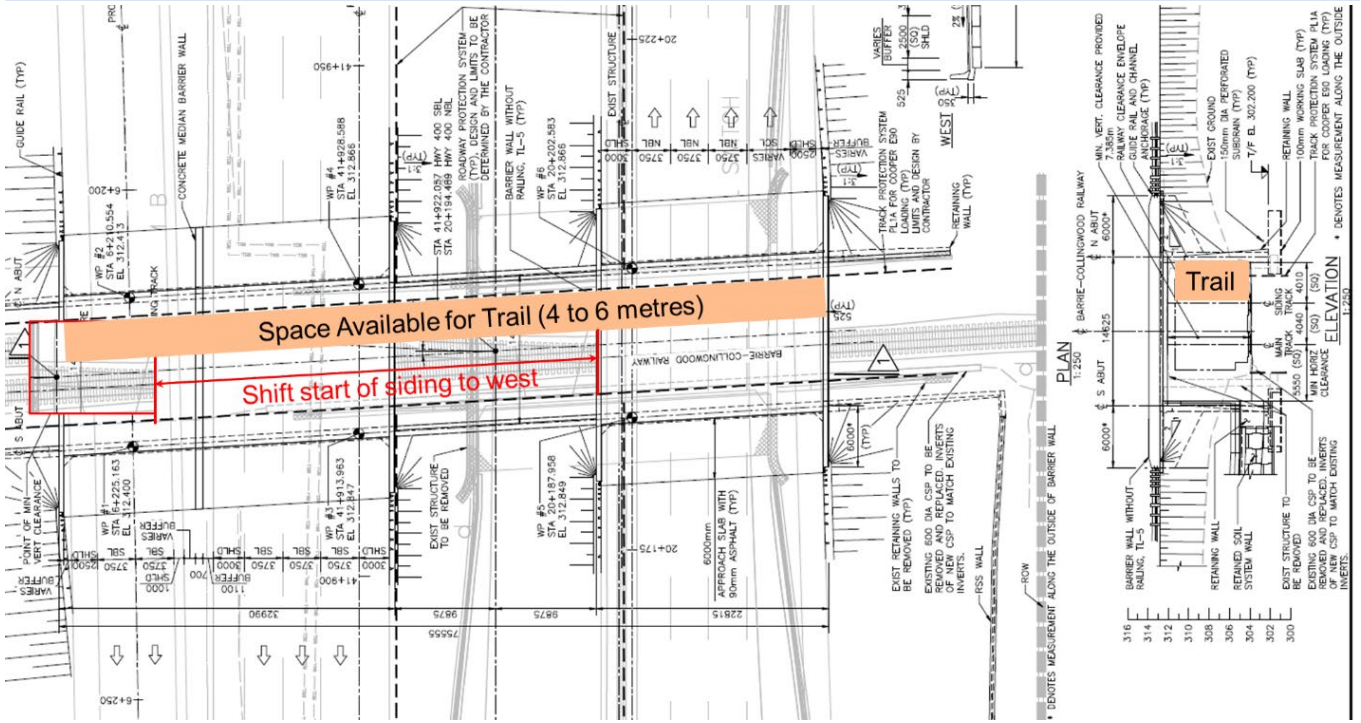
- Highways are usually a barrier for active transportation
- The Highway 400 underpass provides an off-road opportunity to connect to the Trans-Canada Trail
- Rail is currently needed for existing businesses
- Design drawings determine that an AT facility would not be feasible with the existing rail operations

Active Transportation

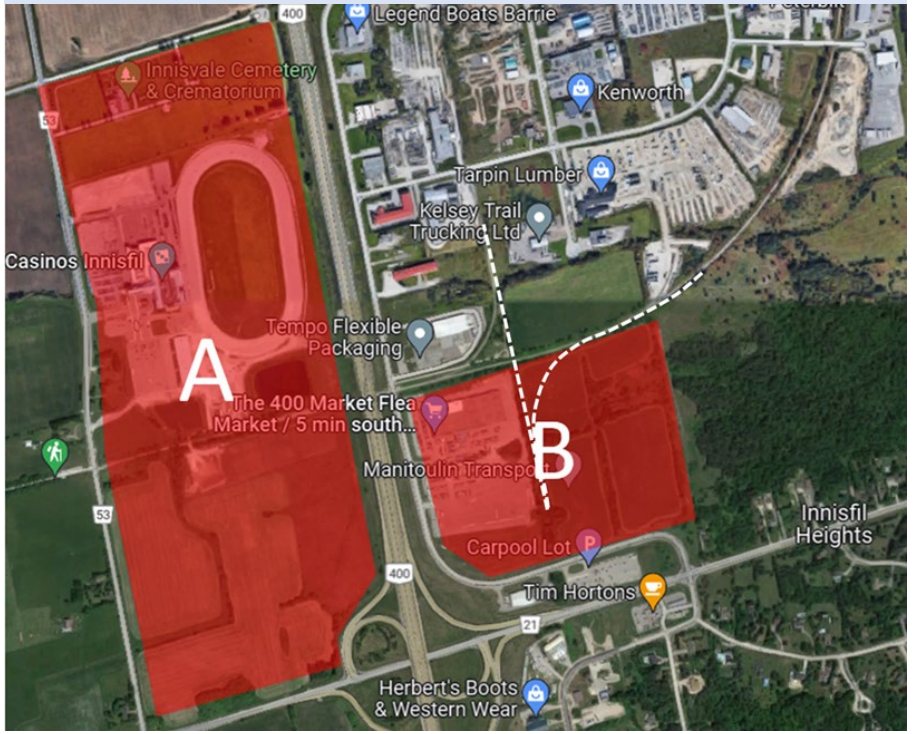
Highway 400 Underpass

Potential Active Transportation Opportunity

Conceptual Solution A



Conceptual Solution B



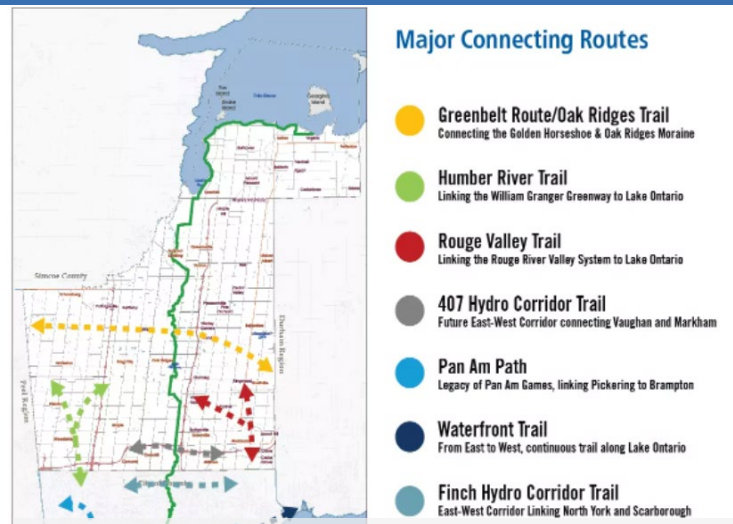
** Solutions would require collaboration with the MTO, City of Barrie, Simcoe County, rail operator, and businesses*

Active Transportation

Lake Simcoe-Adjacent Trail

Potential Active Transportation Opportunity

- Requires coordination between Simcoe County, York Region and local municipal partners
- Provides connections to other municipal active transportation networks
- Common elements include signage installment and marketing including:
  - Establishing a brand identity
  - Mapping
  - Website
  - Marketing material
  - Advertising and promotion



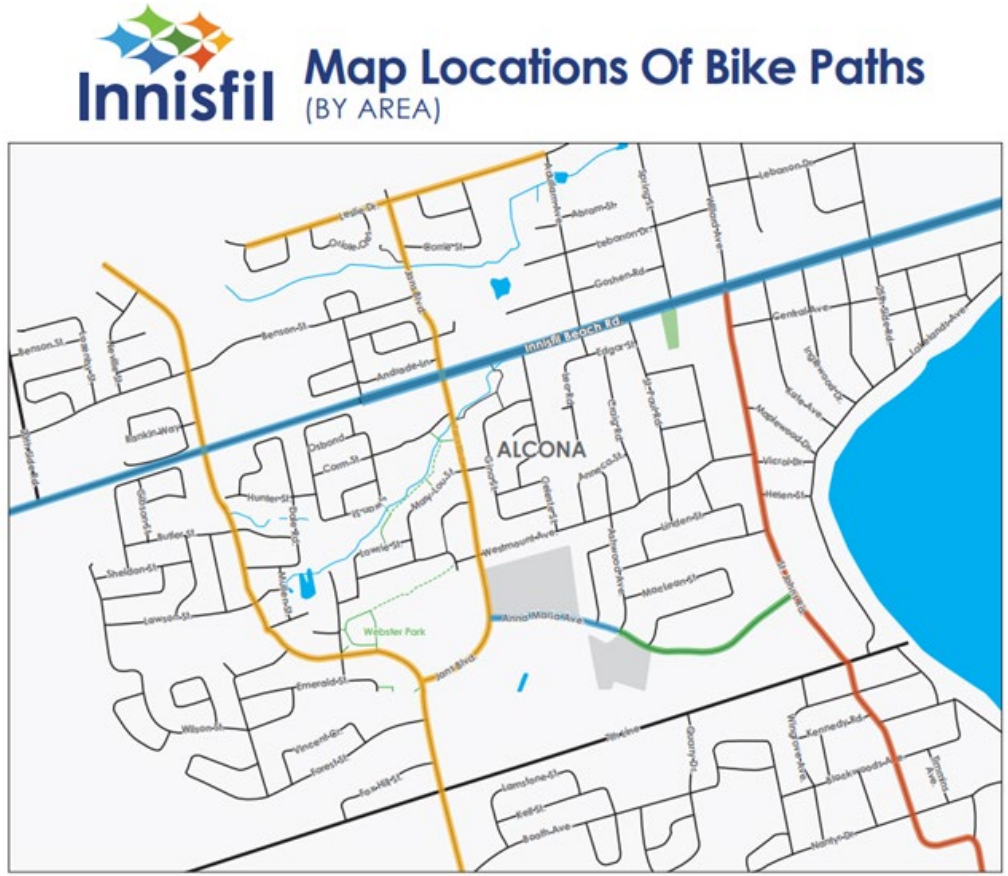
York Region Lake-to-Lake Connection

Conceptual Route Only

Active Transportation

Bicycle Lane Design

Potential Active Transportation Opportunity



The level of **physical separation** (e.g., flex bollards, parking lane) for bicycle facilities should be considered as a function of vehicle speed and traffic volume, as per Ontario Traffic Manual (OTM) Book 18.

Low → Level of Separation → **High**

Flex Bollards	Parking Lane Planters Concrete Curb	Concrete Barrier Guide Rail

Transit Network

Approach

- At the TMP-level, transit is usually recommended at a **high-level**
  - E.g., The 2022 Draft County TMP does not expand on LINX service, but recommendations include a single model Regional transit system and a further transit study
- The TMP recommends that preliminary transit service planning of routes and corridors be further investigated
  - Additional transit needs exist and should not wait until the County's transit study is completed
  - Development of transit cannot wait in order to achieve Town Official Plan transit modal share target of 20%
  - Routes, frequency, and implementation would be confirmed through the next transit study

Transit Network

Simcoe County Transit Recommendations (March 23, 2022)

Transit | Draft Long-Term Actions Beyond 5 Years

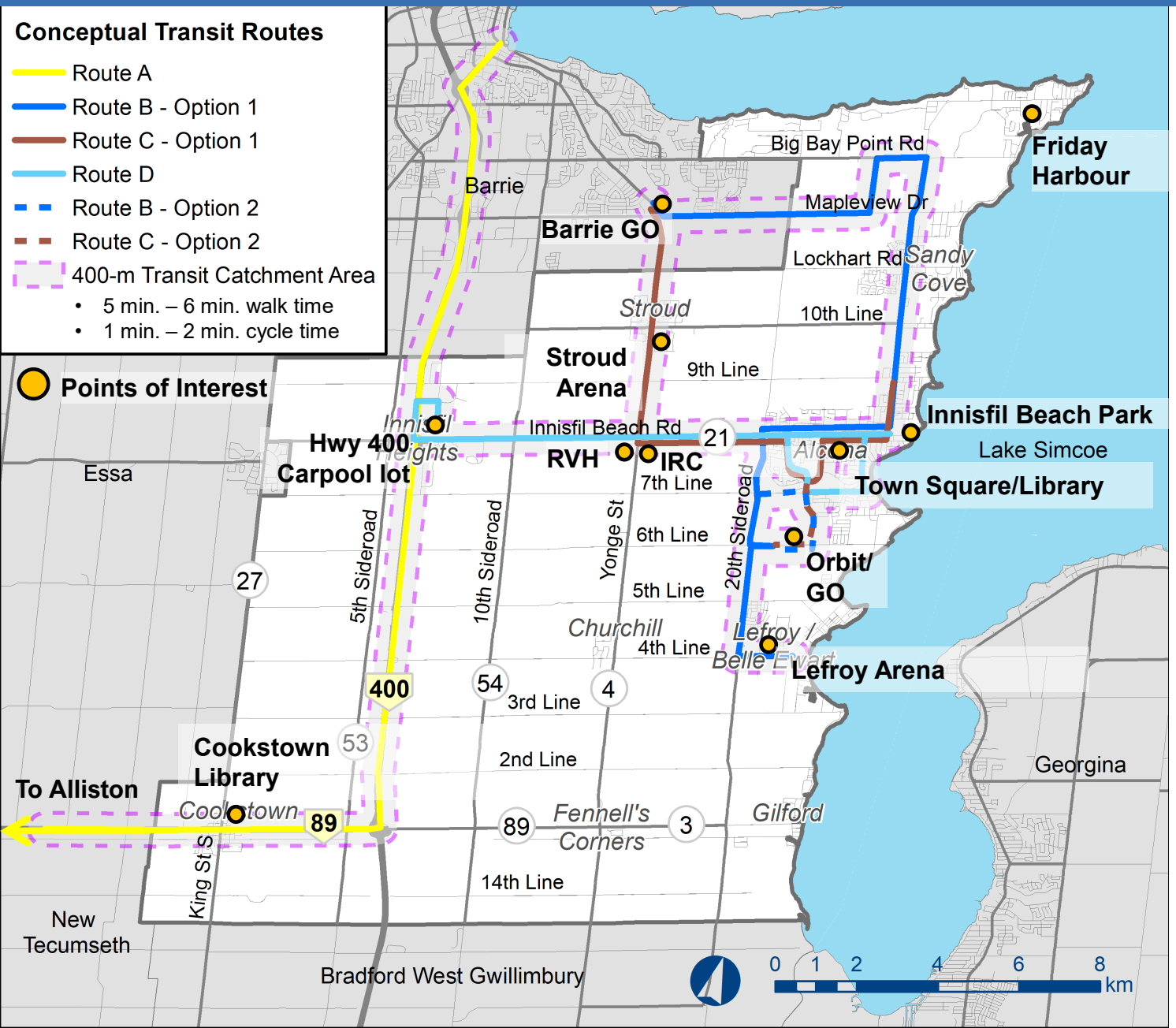
Connectivity and Coordination	• Identify and prioritize improvements at key transit connections in conjunction with service coordination • Review and leverage opportunities for transit service coordination on key corridors
Fare Integration	• Implement fare strategy recommendation developed from short-term action • Monitor best practices at peer agencies for continuous improvement
Accessibility	• Implement design standards framework for bus stops • Ensure that Simcoe County complies with or exceeds AODA standards
Sustainable Infrastructure And Vehicles	• Transition to a zero-emissions buses with garage infrastructure to support new and future technology • Support the efforts of regional transit agencies to green their operations
Governance, Funding And Operating Models	• **Complete implementation of regional transit model** • Continue to refine and improve regionally integrated transit service, including connections to expanded GO Transit and intercity services • Create and implement a five-year transit plan and long-term transit vision

Transit Network

Process

1. Identify **transit options** based on:
   - Inter-municipal and intra-municipal transit needs
   - Available technologies
   - Existing Uber travel patterns
   - Existing travel patterns and modes
   - Future travel patterns, based on changes such as Innisfil GO, Friday Harbour, etc.
   - Modes based on forecasting and benchmarking of municipalities
   - Stakeholder input
2. Evaluate transit options based on future ridership / frequency, accessibility, and preliminary net capital and operational costs
3. Document **trends in transit fleet fuel sources** (electric vs. diesel)
4. Document existing government **funding sources**

Transit Network



Potential Transit Routes and Corridors

- **Proposed Phasing Strategy:**

  Short-term: Incorporate dedicated on- demand ride-share service

  By 2031: Implementation of Route A and Route C

  Beyond 2031: Implementation of Route B and Route D

- Encourage **first-mile and last-mile connections** using AV shuttles or bike share programs

- Explore **fuel sources** in the next Town/County transit study

Draft Recommendations

Supporting Strategies

Supporting Strategies

Electric Vehicle Charging

- Continue discussions with InnPower on Electric Vehicle Charging installation in less dense settlement areas
- Encouraging installation of L2 chargers in new developments

Goods Movement

- Importance of the Barrie-Collingwood railway for Goods Movement
- Encouraging the use of most heavy truck traffic to County Roads and first- and last-mile truck trips on Town roads

Travel Demand Management

- Encourage the use of the MTO carpool lot
- Work with the County to provide an online portal for residents that is employer-based

Policy Development

- Development of the Pedestrian Crossing Policy
- Update to Complete Streets

Next Steps

Organizational Capacity

- Receive comments from other jurisdictions to inform recommendations on the Town's future organizational capacity needs

Transportation Master Plan

- Finalize recommendations
- Draft the TMP document for circulation

6th Line Interchange Needs and Justification

- Additional transportation modelling

GET INVOLVED

GetInvolvedinnisfil.ca/TMPlan

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Ray Bacquie
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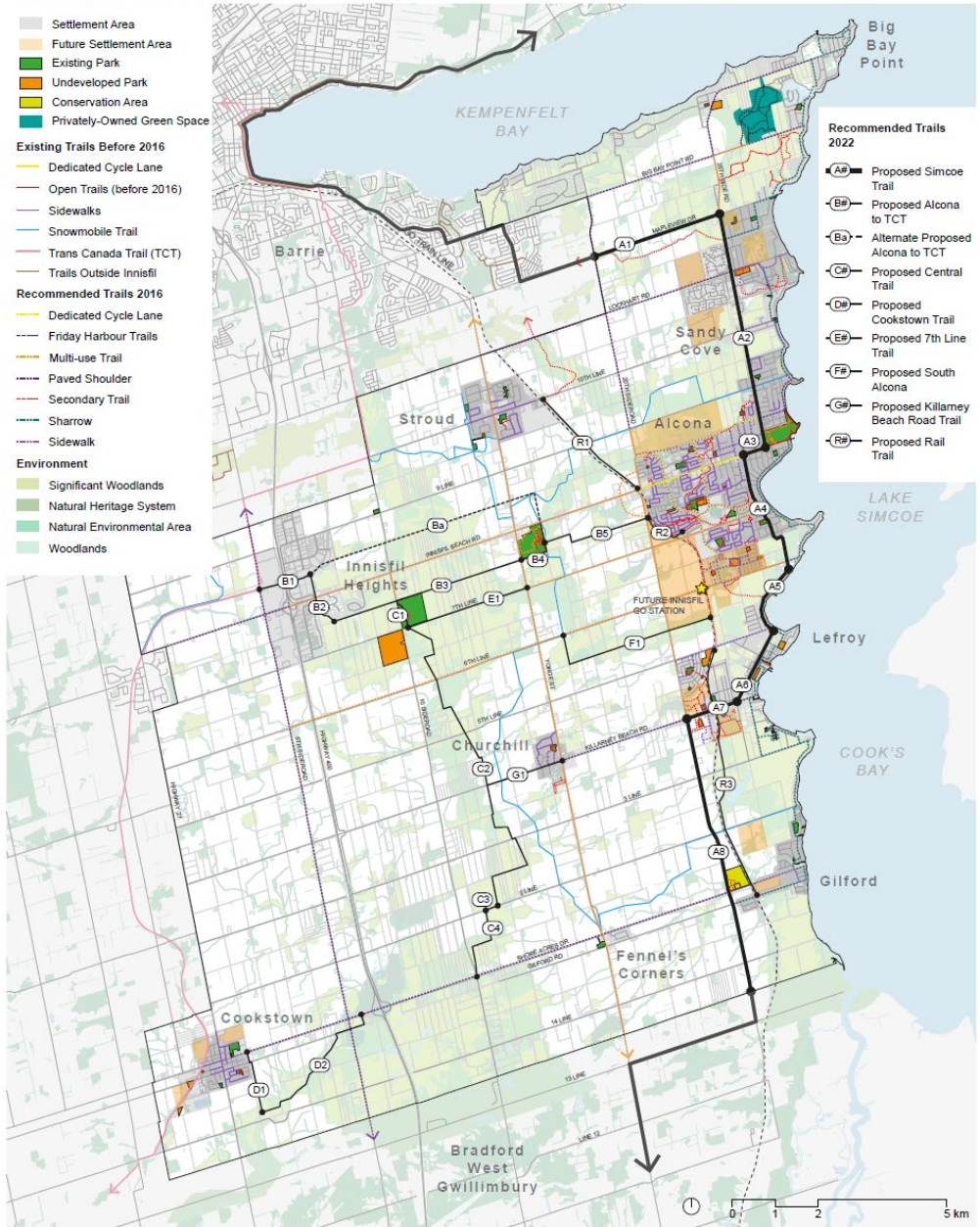
ray.bacquie@rjburnside.com

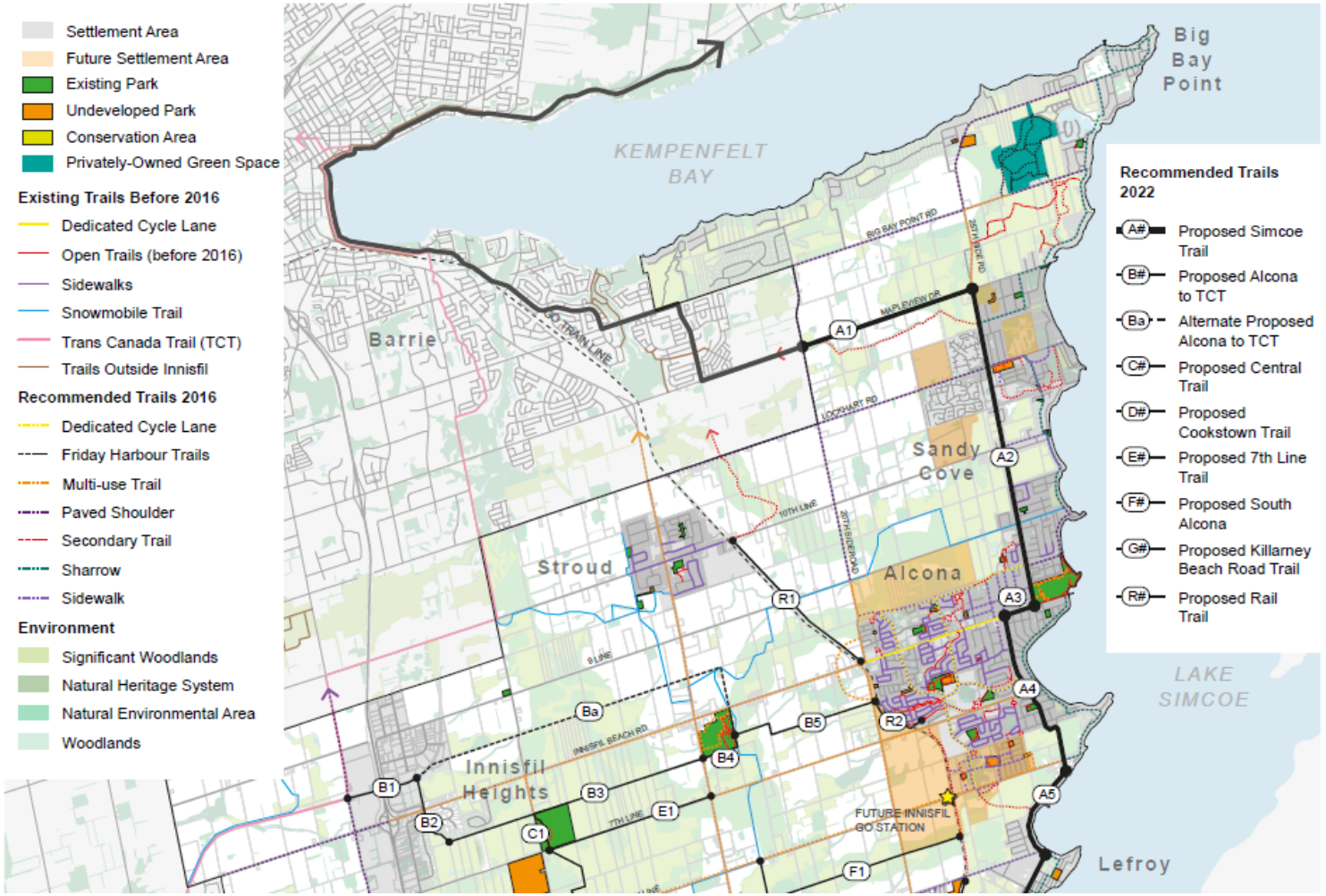

Innisfil

2022 Land and Lake Draft Recommendations

Innisfil - 2022 Recommendations



Innisfil - 2022 Recommendations



R.J. Burnside & Associates Limited 6990 Creditview Road, Unit 2 Mississauga ON L5N 8R9 CANADA
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Minutes of Meeting

Meeting Date: May 9, 2022 **Project No.:** 300053011.000

Project Name : Innisfil Transportation Master Plan

Meeting Subject: Technical Advisory Committee Meeting #3

Meeting Location: Microsoft Teams

Date Prepared: May 25, 2022

Those invited include:

Meredith Goodwin (MG)	Town of Innisfil	mgoodwin@innisfil.ca
Paul Pentikainen (PP)	Town of Innisfil	ppentikainen@innisfil.ca
Carolina Cautillo (CC)	Town of Innisfil	ccautillo@innisfil.ca
Alex Juby (AJ)	Town of Innisfil	ajuby@innisfil.ca
Brian Seed (BS)	Town of Innisfil	bseed@innisfil.ca
Hyder Rajab (HR)	Town of Innisfil	hrajab@innisfil.ca
Mitchel Harris (MH)	Town of Innisfil	mharris@innisfil.ca
Scott MacKenzie (SM)	Town of Innisfil	smackenzie@innisfil.ca
Suzanna Nilsson (SN)	Town of Innisfil	snilsson@innisfil.ca
Tim Cane (TC)	Town of Innisfil	tcane@innisfil.ca
Rod Boynton (RB)	Town of Innisfil	rodboynton@rogers.com
Mary Nordstrom (MN)	Town of Innisfil	mnordstrom@innisfil.ca
Leo DeLoyde (LD)	Town of Innisfil	ldeloyde@innisfil.ca
Amber Leal (AL)	Town of Innisfil	aleal@innisfil.ca
Bill Van Berkel (BVB)	Town of Innisfil	bvanberkel@innisfil.ca
Alex Papadatos (AP)	Town of Innisfil	apapadatos@innisfil.ca
Julie Scruton (JS)	County of Simcoe	julie.scruton@simcoe.ca
Adrianna Spinosa (AS)	County of Simcoe	Adrianna.Spinosa@simcoe.ca
Claire Walker (CW)	County of Simcoe	claire.walker@simcoe.ca
Brendan Matheson (BM)	County of Simcoe	Brendan.Matheson@simcoe.ca
Barb Kane (BK)	Town of New Tecumseth	bkane@newtecumseth.ca

Bruce Hoppe (BH)	Town of New Tecumseth	bhoppe@newtecumseth.ca
Rafique Turk (RT)	Town of New Tecumseth	rturk@newtecumseth.ca
Rick Vatri (RV)	Town of New Tecumseth	RVatri@newtecumseth.ca
David Hegarty (DH)	Town of New Tecumseth	dhegarty@newtecumseth.ca
Khurram Tunio (KT)	Town of Bradford West Gwillimbury	ktunio@townofbwg.com
Paul Dubniak (PD)	Town of Bradford West Gwillimbury	pdubniak@townofbwg.com
Katy Modaressi (KM)	Town of Bradford West Gwillimbury	KModaressi@townofbwg.com
Marcio Marques (MM)	Town of Bradford West Gwillimbury	mmarques@townofbwg.com
Colleen Healey (CH)	Township of Essa	chealey@essatownship.on.ca
Lisa Lehr (LL)	Township of Essa	llehr@essatownship.on.ca
Bob Morrison (BM)	Township of Essa	bmorrison@essatownship.on.ca
Jeremy Walton (JW)	Township of Essa	jwalton@essatownship.on.ca
Michael Mikael (MM)	Township of Essa	mmikael@essatownship.on.ca
Ashley Harrison (AH)	City of Barrie	ashley.harrison@barrie.ca
Ralph Scheunemann (RS)	City of Barrie	Ralph.Scheunemann@barrie.ca
Sherry Diemert (SD)	City of Barrie	Sherry.Diemert@barrie.ca
Brett Gratrix (BG)	City of Barrie	brett.gratrix@barrie.ca
Tom Reeve (TR)	City of Barrie	tom.reeve@barrie.ca
Lukasz Grobel (LG)	MTO	lukasz.grobel@ontario.ca
Robert Vandenberg (RV)	MTO	Robert.Vandenberg@ontario.ca
Philippe Bellon (PB)	Metrolinx	Philippe.Bellon@metrolinx.com
Glenn MacMillan (GM)	Lake Simcoe Region Conservation Authority	g.macmillan@lsrca.on.ca
Lee Bull (LB)	Nottawasaga Valley Conservation Authority	lbull@nvca.on.ca
Ben Krul (BK)	Nottawasaga Valley Conservation Authority	bkrul@nvca.on.ca
Arthur Berdichevsky (AB)	InnPower	adamc@innpower.ca
Tony Mendicino (TM)	InnPower	tonym@innpower.ca
Rama Badam (RB)	InnServices	rbadam@innservices.co
Ray Bacquie (RB)	R.J. Burnside & Associates	Ray.Bacquie@rjburnside.com
Gordon Hui (GH)	R.J. Burnside & Associates	Gordon.Hui@rjburnside.com
Xinli Tu (XT)	R.J. Burnside & Associates	Xinli.Tu@rjburnside.com
Cindy Chung (CC)	R.J. Burnside & Associates	Cindy.Chung@rjburnside.com

The following items were discussed		Action by
1.	**Introductions** MG (Town of Innisfil) introduced the meeting.	Info
2.	**Presentation Overview** GH (Burnside) presented the following information: • Study Process • Draft Recommendations (Road, Active Transportation, Transit) • Supporting Strategies • Next Steps	Info
3.	**Road Network**	
3.1	LD (Town of Innisfil) was concerned with the 6-lane road widening recommendation along 6th Line causing a traffic sewer. • RB (Burnside): The process was sensitive to the impact of a 6-lane road. The TMP will discuss alternatives such as the 7th Line EA Addendums. The major trigger was the introduction of the future 6th Line interchange. • GH: Between the TMP and final implementation, there will be further studies that can re-confirm the recommendations of the 6th Line such as the Orbit Secondary Plan and 6th Line EA Addendum which is a recommendation from this study. The key is to protect for the public right-of-way. • ***Post Meeting Notes:*** The TMP will document the need to monitor capacity requirements of a 6-lane corridor on 6th Line (or other mobility solutions) and to further study the need to protect for 6 lanes. Greater insight will be available when post-2051 information is available from the Orbit study.	Burnside
3.2	LD: The TMP should speak to traffic calming strategies. The Town is currently undertaking a Traffic Calming Strategy for the entire Town with pilot projects moving forward. Should traffic calming also be considered on major arterials? Traffic sewers make roads difficult for pedestrians to cross. • RB: There are two fundamental objectives for traffic calming—to manage volume of traffic that isn't appropriate for the road and to manage speed. Major arterials should be carrying much of the traffic volumes or else traffic will find its way to local roads and infiltrate neighborhoods. However, the TMP will be documenting	Burnside

	The following items were discussed	Action by
	Complete Street typologies that focuses on the design of different types of roads and recommended street elements to cater to all transportation modes. • GH: The last TMP also contained a series of policies including traffic calming and speed. The current TMP will be updating the pedestrian crossing policy.	
3.3	Regarding the 20th Sideroad road widening recommendations from two to four lanes: BG (City of Barrie): The City of Barrie 2041 traffic model shows low volumes along 20th Sideroad [where the two to four lane widening is being proposed]. • RB: Burnside will check the values along this segment • ***Post-Meeting Notes***: The transportation modelling showed that auto volumes are anticipated to approach capacity by 2051. In the 2041 horizon year, the transportation modelling showed that traffic levels were below capacity but congested.	Burnside
4.	**Active Transportation**	
4.1	Regarding sidewalk improvements: SM (Town of Innisfil): The 25th Sideroad design is now finalized and contains both MUT and sidewalks. It is currently not shown on the TMP mapping. SN (Town of Innisfil): The Lockhart Road design is now finalized, and a sidewalk could not be accommodated. This should be removed from the recommendations. • GH (Town of Innisfil): The mapping and recommendations will be revised to be consistent.	Burnside
4.2	City of Barrie staff were supportive in exploring the off-road AT connections under the Highway 400 underpass and were open to future meetings to discuss opportunities and solutions.	Info
5.	**Transit**	
	Discussions focused around extending LINX routes to the Town of Innisfil as there is currently a gap in transit service. The TMP will be highlighting this gap and will be recommending possible extensions of existing LINX service (Route A and C in the transit slide).	Info

The preceding are the minutes of the meeting as observed by the undersigned. Should there be a need for revision, please advise Burnside within seven days of issuance. In the absence of notification to the contrary, these minutes will be deemed to be an accurate record of the meeting.

Minutes prepared by:

R.J. Burnside & Associates Limited

Gordon Hui
Senior Transportation Planner
GH

Enclosure(s)

Distribution:

All invitees Via: Email

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Attachment 3

Indigenous Communities Consultation

Xinli Tu

From: Meredith Goodwin
Sent: Tuesday, July 27, 2021 3:48 PM
Cc: Ray Bacquie; Xinli Tu; Gordon Hui; Carolina Cautillo; Mary Catherine Mehak; Michael Tocher; Peter Heyblom
Subject: Notice of Commencement and Open House for Innisfil's Land and Lake Plans and the Transportation Master Plan Update
Attachments: 2021.07.13 Notice of Commencement and Open House Transportation MP ENG52 (ID 588179).pdf; 2021.07.27 Notice of Commencement and Open House Land and Lake PKS105 (ID 590418).pdf

Bcc: A. Dan Monague (info@chimnissing.ca); Ashley Harrison; Barb Kane- Deputy Clerk ; Beausoleil First Nation- Mike Smith; Bell Access Network- Nicholas Kellar; Brent Black; Chippewas of Georgina Island- Natasha Charles; Chippewas of Mnjikaning First Nation (Rama)- Sharday James; Chippewas of Nawash First Nation- Cheif Greg Nadijwon; County of Simcoe Paramedic- JC Gilbert; Darlene Presley (dpresley@mhbcplan.com); Enbridge Gas Distribution Inc.- Vince Cina; Enbridge Pipelines Inc.; Hydro One Networds; Hydro One Networks ; Infrastructure Ontario- Lisa Myslicki; Innisfil District Association (IDA)- Deborah McGrath; Jason Ryan Metrolinx; Karry Sandy-Mackenzie (inquiries@williamstreatiesfirstnations.ca); Karry Sandy-Mackenzie (k.a.sandy-mckenzie@rogers.com); Kim Benner (kim.benner@ontario.ca); Lester Anoquot (band.admin@saugeen.org); Lester Anoquot (lester.anoquot@saugeen.org); Lisa Lehr; Métis Nation of Ontario- David Dusome; Métis Nation of Ontario- Jesse Fieldwebster; Ministry of Agriculture, Food and Rural Affairs- Carolyn Hamilton; Ministry of Economic Development and Growth- Damien Dupuy; Ministry of Heritage, Sport, Tourism and Culture Industries- Kara Barboza; Ministry of Natural Resources and Forestry Midhurst (Huronia) (Southern Region)- Ken Mott; Ministry of the Environment, Conservation and Parks ; Municipal Affairs and Housing- Hannah Evans; Nation Huronne-Wendat- Louise Lesage; Nation Huronne-Wendat- Mario Gros-Louis; Nation Huronne-Wendat- Melanie Vincent; Rogers Cable- Tony Dominguez; Saugeen First Nation; Saugeen First Nation- Joe Wesley; Simcoe County Clerk; Simcoe County District School Board- Andrew Keuken; Simcoe County District School Board- Katie Kirton; Simcoe Muskoka Catholic District School Board- Christine Hyde; South Simcoe Police- Steve Black; Trans-Northern Pipelines Inc.- Cliff Lee; Union Gas Limited

Good day,

You are receiving this email as you are, or represent a group of very important Innisfil Stakeholders!

We want to inform you that we are working on Master Plans that will shape this wonderful Town!

The * TRANSPORTATION MASTER PLAN
We're updating our Transportation Master Plan (TMP) completed in 2018, to make sure it still reflects the needs of Innisfil residents. This update will allow us to create a long-term transportation vision and strategy to address mobility needs for 2021 and beyond.

The * LAKE & LAKE PLAN (Parks & Recreation Master Plan Update & Lake Simcoe Enjoyment Strategy)

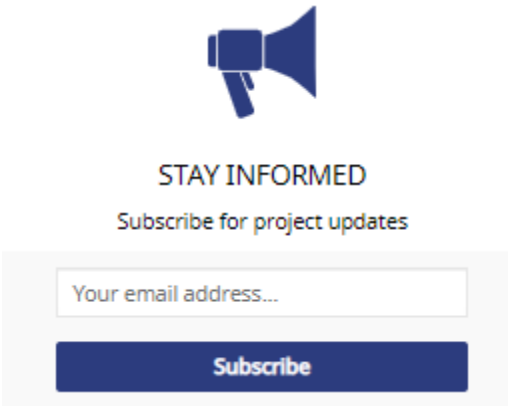
We're updating our Parks & Recreation Plan (Land Plan) and finishing the Lake Simcoe Enjoyment Strategy (Lake Plan). What does this mean for you? Well, Innisfil's parks, waterfront, and recreation programs are only going to get more awesome!

*Links will take you to project websites

MARK IN YOUR CALENDAR AUGUST 25, 2021

- Virtual Open House for Transportation Master Plan August 25, 2021 6:00pm to 7:00pm – Zoom link https://zoom.us/j/94499333271?pwd=Zk9JSEhRVmZLbWIway9weW94K2xGUT09
- Virtual Open House for Land & Lake Plans August 25, 2021 7:00pm to 8:00pm- Zoom link https://zoom.us/j/96439442758?pwd=TmhQeWJ0UnNBYlQ0ektLanVtUjRPZz09

Please subscribe to either projects or both and please feel free to pass this email on as we want get as many people subscribed and engaged as possible to ensure these documents meet the needs of the community! This will also ensure that you receive the project surveys as soon as they are launched!



Meredith Goodwin, C.E.T
Capital Project Manager
705-436-3710 Ext. 3220 | 1-888-436-3710 (toll free)
mgoodwin@innisfil.ca

Town of Innisfil | 2101 Innisfil Beach Road | Innisfil ON L9S 1A1 innisfil.ca

Sylvia Waters

From: Gordon Hui
Sent: Wednesday, August 25, 2021 3:21 PM
To: Sylvia Waters
Subject: FW: Transportation Masterplan

From: Meredith Goodwin <mgoodwin@innisfil.ca>
Sent: Wednesday, August 25, 2021 2:50 PM
To: Lori-Jeanne Bolduc <Lori-Jeanne.Bolduc@wendake.ca>; Ray Bacquie <Ray.Bacquie@rjburnside.com>
Cc: Mario Gros Louis <Mario.GrosLouis@wendake.ca>
Subject: RE: Transportation Masterplan

Good day,

Thank you for your email. No archaeological studies or fieldwork requiring any digging will be necessary. This is a table top exercise.

Thanks,

Meredith Goodwin, C.E.T.
Capital Project Manager
705-436-3740 Ext. 3220
1-888-436-3710 (toll free)

From: Lori-Jeanne Bolduc <Lori-Jeanne.Bolduc@wendake.ca>
Sent: August 19, 2021 3:01 PM
To: Meredith Goodwin <mgoodwin@innisfil.ca>; ray.bacquie@rjburnside.com
Cc: Mario Gros Louis <Mario.GrosLouis@wendake.ca>
Subject: Transportation Masterplan

[EXTERNAL]

Good afternoon,

This confirms receipt of attached letter. Could you please let us know if any archaeological studies or fieldwork will be necessary as part of this project?

Thank you,

Lori-Jeanne

ATTENTION: Please note that Maxime Picard has a new position at the Huron-Wendat Nation Council and is no longer in charge of Ontario consultations. Any new consultation from Ontario must be sent to Mario Gros-Louis (mario.groslouis@wendake.ca) and Lori-Jeanne Bolduc (lori-jeanne.bolduc@wendake.ca).

For inquiries relating specifically to archaeology (fieldwork planning, monitoring, reports review, etc.), please contact Isabelle Lechasseur (isabelle.lechasseur@wendake.ca), Stéphanie B. Nadeau (stephanieb.nadeau@wendake.ca) and Jean-François Richard (jean-francois.richard@wendake.ca).

NATION HURONNE-WENDAT
Bureau du Nionwentsïo

Lori-Jeanne Bolduc, M. ATDR
Conseillère en aménagement du territoire

255, Place Chef Michel-Laveau
Wendake (Qc) G0A 4V0
Téléphone : 418-843-3767 # 2211
Courriel : lori-jeanne.bolduc@wendake.ca

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Attachment 4

Stakeholder Input Summary

Innisfil Transportation Master Plan Update

Stakeholder Input Summary

The following comments were received throughout the study and during the 30-day review period following the Notice of Completion of the Transportation Master Plan.

Date Received	Source	Comment	Project Team Response
5-Aug-22	Developer	I note that the plan still has a sharrow (bike route) along Glenhaven Beach Rd. and through a walking path that for decades has connected Glenhaven to Crescent Harbour. I refer you to Public Inquiry C2016-3811 where you will find correspondence going back to August 2, 2016. In these notices I repeatedly inform you that Glenhaven Beach Rd is a private road, as is Crescent Harbour. The walking path mentioned also goes over two private properties that the owners have graciously allowed local residents to use. In my correspondence I ask that any future plan not include our road. These plans are made without any consultation with the property owners. Yet, here it is again. Presently governments are losing the confidence of citizens. It is no wonder when errors such as this are repeatedly made.I again ask that Glenhaven Beach Rd be left out of the sharrow plan until proper consultation with the property owner(s) is complete.	The Town of Innisfil Transportation Master Plan serves as a guiding document that will advance the Town's transportation network to 2051. The majority of the active transportation network proposed in the Master Plan are on public lands. There are, however, select instances where network connections are unable to be accommodated within public lands or rights-of-way. Any routes proposed on private lands or along private roadways would require the full and voluntary permission of the landowner. Private property rights remain unaffected and in no way does the Plan condone public access to private lands. At the appropriate time, with guidance from the Plan's implementation schedule, the Town may approach landowners to discuss the potential for creating or formalizing a route or exploring alternatives to what is proposed in the Master Plan.

Date Received	Source	Comment	Project Team Response
5-Aug-22	Council	Just reviewing item C.4. regarding the TMP that council is being asked to approve. I find it concerning that the agricultural needs for transporting equipment on our roads are not considered in the 175 page document. Agriculture is not mentioned in the report and farms only in regard to the farmers' market and in passing that Innisfil is home to them. In talking with local grain producers, it is imperative that the east-west concessions that cross the 400 are built to accommodate large farm equipment as well as a route for the north-south sideroad corridors. Traffic from the estimated thousands of new residents coming to Innisfil will significantly affect our farmers in the town and this issue needs to be considered as part of this plan. The 20th sideroad will be considerably urbanized in the next few decades and conflicts and safety issues are a real concern if our plan doesn't address this. The rural-urban character of Innisfil is part of its charm and for agriculture to function properly, parts of the plan should spell this out. Agriculture equipment widths have increased as the economics of farming has intensified. A width of 15 feet for equipment moving down the roads is common now and the TMP should have verbiage regarding this. We can look at municipalities in southwestern Ontario to see how this is done. Gravel shoulders there are wide enough to accommodate agricultural equipment. This needs to be considered in design prior to construction, not after. This document will be the blueprint for many years and the agricultural community needs to be recognized in it before it is	Addressed

Date Received	Source	Comment	Project Team Response
		passed. I look to staff on ways to incorporate these issues into the plan before it can be passed.	
9-Aug-22	Council	Glad that the consultant has made some recognition of agriculture, but it sure feels like there wasn't much effort to really consider our needs. Quoting PPS policy is easy to do. Where we need commitment is in design of roads. Making reference to SMV sign requirements isn't helpful. We (farmers) know that our equipment must have the SMV.	At the Transportation Master Plan level, accommodation of agricultural equipment can be addressed through the provision of paved shoulders. Specific design heuristics of these facilities can be addressed through design / engineering standards.
23-Jun-22	Developer	We had a chance to take a quick look at the draft TMP. The study appears to be assuming much lower densities for TOC1 and TOC2 compared to what is being design: Our initial development phase (NW-1 and NE-1) has 5822 units which translates to approximately 9,000 people assuming typical condo unit sizes. The full buildout of TOC1 + TOC2 is closer to 100k people. Can you please confirm the land use concept you are working with for the Orbit Community?	We will remove that sentence from the TMP to avoid confusion as the densities/ultimate population of the Orbit is still undergoing change. This sentence does not relate to the analysis of the TMP which uses a more aggregate zonal system for the transportation forecasting/modelling. The transportation modelling assumes a population of approximately 29,000 people in the entire Orbit area by year 2051, which is the TMP's ultimate horizon year. The Orbit Potential and Innovation Plan, which is the coordinated Master Servicing Plan and Secondary Plan, will analyze more refined and updated population numbers and densities up to and beyond 2051.This study is currently underway. Any major differences to land uses by 2051 will be addressed through a TMP addenda. We anticipate these numbers to be finalized within a few months at which point, the study team will

Date Received	Source	Comment	Project Team Response
			make the decision. Additionally, future TMPs, which are usually completed every few years, will assess beyond the 2051 horizon year.
29-Aug-22	Hydro One	If possible at this stage, please formally confirm that Hydro One infrastructure and associated rights-of-way will be completely avoided, or if not possible, allocate appropriate lead-time in your project schedule to collaboratively work through potential conflicts with Hydro One, which ultimately could result in timelines identified above. In planning, note that developments should not reduce line clearances or limit access to our infrastructure at any time. Any construction activities must maintain the electrical clearance from the transmission line conductors as specified in the Ontario Health and Safety Act for the respective line voltage. Be advised that any changes to lot grading or drainage within, or in proximity to Hydro One transmission corridor lands must be controlled and directed away from the transmission corridor.	Identification of utility coordination and impacts will be completed at the Class EA process and/or detailed design level for specific projects, notwithstanding that the Town will respond to these concerns during early project stages.
23-Aug-22	Simcoe County	IBR will be transferred to the Town following construction of Phase 1 and CR 21 / 20th Sideroad but there are intersection improvements noted for CR 21 / 20th By-Pass and CR 21 /	Text revised

Date Received	Source	Comment	Project Team Response
		Webster that Innisfil have assumed the County will be responsible for.	
23-Aug-22	Simcoe County	should green line in legend also include “paved shoulders”? Some of the County Roads in this figure have paved shoulders only, not MUTs.	Updated
23-Aug-22	Simcoe County	CR 21 and CR 4 intersection has been reconstructed Should we include which intersections are currently under EA or design? I.e. CR 4 and 4th line is to be reconstructed in 2024	CR 21 / CR 4 removed. Text added to clarify that CR4/4th Line and CR4/9th Line are currently under EA/design
27-Jun-22	MTO	We suggest the following recommendations for the Town’s road network planning work: § Monitoring key developments and considerations for new types of transportation that could affect road infrastructure requirements. § Evaluating the existing road and digital infrastructure (e.g. 5G networks) required for the deployment of advanced mobility modes. § Developing an approach to prepare the Town’s transportation and digital infrastructure and system for the safe deployment of electric (EV), connected, and automated vehicle (CV/AV) technology and increase access to new mobility options.	The TMP is to be updated periodically to account for new developments, along with its impacts on the Town's road network. The Orbit is a key development within the Town; we note in the TMP that "it is anticipated that improvements beyond the 2051 timeframe be analyzed and identified as new information regarding The Orbit development becomes available." Added in Appendix G: "- Evaluating the existing road and digital infrastructure (e.g., 5G networks) in consideration for and support of advanced sustainable mobility modes. - Developing an approach to prepare the Town’s transportation and digital infrastructure and system for the safe deployment of connected, automated and

Date Received	Source	Comment	Project Team Response
			electric vehicle technology and increase access to new mobility options. "
27-Jun-22	MTO	6th Line is missing a marker for a grade separation over the rail corridor. We are not sure if this map is only meant to show new grade separations, but we wanted to point it out just in case. Shouldn't the symbology for 20th sideroad be blue, as a result of the recommendation to widen the road from 2 to 4 lanes?	The map on Slide 13 shows new grade separations only. 20th Sideroad is recommended for widening to 4 lanes between Lockhart Road and Big Bay Point Road, which is shown in blue on the map.
27-Jun-22	MTO	We suggest considering the interests of equity-deserving groups as part of the Active Transportation network planning work in order to identify any gaps that may affect them.	Transportation Equity was explicitly considered in the development of the TMP, as detailed in Appendix F.
27-Jun-22	MTO	Innisfil should consider exploring the availability, convenience and safety of multimodal options for more active transportation infrastructure, including the deployment of e-bikes, bike-sharing services, and e-scooters to promote active transportation for short distances and address commuters' 'last kilometre' needs.	Added to Appendix G: "• Exploring the availability, convenience and safety of multimodal options for more active transportation infrastructure, including the deployment of e-bikes, bike-sharing services, and e-scooters to promote active transportation for short distances and address commuters' last-mile needs. "
27-Jun-22	MTO	We recommend continuous infrastructure that separates micromobility users, including cyclists, from motor vehicles wherever possible. Providing paved shoulders outside of built-up areas, but only shared lanes inside built-up areas may not be sufficient to increase uptake of micromobility and active transportation.	We recognize the importance of providing separation for bicycle facilities, the magnitude of separation is subject to criteria such as AADT and speed as perscribed from OTM Book 18. Connectivity and continuity of AT infrastructure were key considerations in informing AT needs / opportunities to promote the use of active transportation.

Date Received	Source	Comment	Project Team Response
27-Jun-22	MTO	As of now there are plans for dedicated bike lanes and a Secondary Trail north from the Orbit development to the residential community. The possibility of adding a Multi-Use Trail maybe be a good additional option to connect the residential community north of the proposed GO Rail Station location to the station itself.	This opportunity will be further explored as part of the Orbit Master Plan
27-Jun-22	MTO	MTO is concerned about the proposal to modify the use of an active rail underpass (under the 400 highway) to accommodate an active transportation connection to the Trans-Canada Trail, as this could potentially require moving the side track.	Follow-up meetings have been organized to confirm feasibility.
27-Jun-22	MTO	It was not clear if the proposed Lake Simcoe-Adjacent Trail is planned along lakefront. Most lake adjacent properties are privately owned, with woodlots behind them which are often owned by a collective of nearby homeowners in a Home Owners Association framework who would not be incentivized to allow for a trail. MTO wants to flag that this may be expensive and could lead to potential erosion control issues in some areas.	Regarding the Lake Simcoe-Adjacent Trail, any routes proposed on private lands or along private roadways would require the full and voluntary permission of the landowner. Private property rights remain unaffected and in no way does the Plan condone public access to private lands. At the appropriate time, with guidance from the Plan's implementation schedule, the Town may approach landowners to discuss the potential for creating or formalizing a route or exploring alternatives to what is proposed in the Master Plan.
27-Jun-22	MTO	MTO and Metrolinx are very supportive of the Town’s ambitious transit objective (Re: 20% mode share) and the desire to move forward ASAP. The proposed routes on Slide 25 look good as	A review of origin-destination (OD) Uber data indicated that the demand to/from Bradford GO station was not as significant compared

Date Received	Source	Comment	Project Team Response
		there are two that connect to the proposed Innisfil GO Rail Station as well as one that connects to Barrie South. Will there also be plans to connect to Bradford GO in the future? Bradford GO station will be the terminus for 15-minute two-way, all-day service and does not have much room for parking expansion, so if there is demand for that service level an additional route south should be explored.	to other OD patterns (i.e., to Barrie GO). Please note that a connection to Bradford GO is also already provided via GO Bus service along Yonge St / CR 4 and a public survey indicated that the majority of transit users would switch to using the future Innisfil GO Station as their main preferred GO access. However, this input is appreciated and this potential connection to Bradford GO can be further assessed as part of the Town's Transit Feasibility Study.
27-Jun-22	MTO	Innisfil should investigate connections to the planned Northeastern Passenger Rail Service.	Thank you, noted. This can be further assessed as part of the Town's Transit Feasibility Study. However, it is noted that this connection will be provided primarily along County Roads.
27-Jun-22	MTO	Innisfil should explore the use of “micro-transit” which is on-demand, dynamically-routed transit services typically using smaller vehicles such as vans instead of conventional buses, supported by an online application. This approach is specifically effective for low-density areas with limited transit service and can significantly improve mobility options for individuals who do not own a vehicle.	Microtransit was explored and documented as part of Appendix G.
27-Jun-22	MTO	As part of “Encouraging first-mile and last-mile connections using AV shuttles or bike share programs”, MTO suggests exploring how the availability, design, and proximity of mobility hubs could help facilitate these programs and enhance ease of access for different users. The Plan could include additional activities that support preparing	Added in Appendix G: "• Exploring how the availability, design, and proximity of EcoMobility hubs could help support advanced sustainable mobility programs,

Date Received	Source	Comment	Project Team Response
		for connected and automated vehicles (CV/AVs), and for low carbon vehicles (LCVs), such as: planning and assessing the infrastructure needs and impacts of these vehicles and crafts; testing and integrating these technologies into infrastructure and assets; and supporting the testing and integration of these vehicle technologies in transit, intercommunity transportation, and goods movement.	such as AV shuttles or bike-share programs, and enhance ease of access for different users. ", "- Permit testing and adoptions of AVs in transit, intercommunity transportation and goods movement."
27-Jun-22	MTO	MTO asks that the municipality ensure alignment with the GGH Transportation Plan's Strategic Goods Movement Network (SGMN), as part of it's supportive policies related to 'Goods Movement'. The SGMN, included in Connecting the GGH, identifies a coordinated goods movement network, per APTG. It has been developed to guide municipalities on implementing the provincial policies set out in the PPS and APTG related to planning for employment near major goods movement facilities and corridors, and planning for infrastructure to support growth. The SGMN network provides a framework for municipal consistency and conformity with provincial policy, aligning local goods movement planning across the region. Accordingly, it is requested that the TMP align it's trucking routes with the SGMN as a key aspect of its goods movement work. This includes designating local segments of Highway 400 and Highway 80 for goods movement, given their identification within the SGMN.	Added "It is recommended that the Town's truck network aligns with the Greater Golden Horseshoe (GGH) Transportation Plan's Strategic Goods Movement Network (SGMN). The SGMN has been developed to guide municipalities on implementing the provincial policies related to planning for employment near major goods movement facilities and corridors, and planning for infrastructure to support growth. ". The Highway 89 east-west link is recommended within Cookstown to help facilitate regional travel while recognizing the traffic operation and safety concerns of local residents.
27-Jun-22	MTO	MTO recommends that Innisfil staff study the potential and implications of providing road network alternatives for existing industrial customers of rail service. This would help ensure the availability of a safe, efficient transportation alternative to facilitate the continued movement of the goods by existing industrial users while building network resilience/redundancy in the event of a potential disruption of rail service (i.e. Barrie-Collingwood railway).	Thank you, noted. Although, it is recognized that the County road system plays a key role as alternative goods movement routes.

Date Received	Source	Comment	Project Team Response
		Innisfil is encouraged to study goods movement patterns, routes and needs in the Town, both at present and in the future, and the potential for harnessing advantages of new and emerging technologies and business models such as a focus on electric mobility for 'last kilometre' delivery.	
27-Jun-22	MTO	Innisfil is encouraged to explore the installation of public charging infrastructure.	New and emerging technologies and charging infrastructure are explored in Appendix G.
27-Jun-22	MTO	MTO asks that the TMP be aligned with the recently released Connecting the GGH: A Transportation Plan for the Greater Golden Horseshoe [link]. The plan provides a 30-year vision for mobility in the GGH region with new infrastructure, better services and policy directions for all modes of transportation to align ongoing and future investments by the province and other transportation providers. The plan sets out a framework for local transportation planning to support municipalities in coordination and integration of local transportation and land use planning needs with regional infrastructure planning, consistent with Provincial Policy Statement, 2020 direction. Municipalities should work with MTO to incorporate the policies, services and infrastructure set out in the 2051 vision for mobility in updating their official plan and transportation plans.	Reference to the GGH Plan is provided in Section 3.3.3.
27-Jun-22	MTO	Has the Town assessed the impacts of future growth on MTO highways? Will the Town co-ordinate provision of, and funding for, any highway improvements required to accommodate future development?	The operational needs of Highway 400 as an inter-regional facility supporting Provincially mandated growth was not within the scope of this TMP assignment. This TMP incoporated the recommendations of the GGH Plan related to provincial facilities.

Date Received	Source	Comment	Project Team Response
27-Jun-22	MTO	I did not see any mention of Mobility Orbit impacts on Highway 400. Is the Town assuming that an IC at Line 6 would look after associated highway impacts?	This will be reviewed through the Orbit Master Plan. In addition, please note that Orbit was approved by the Minister of Municipal Affairs and Housing through an MZO and assessed as part of GGH.
27-Jun-22	MTO	Is the Town protecting for 6-lane 6th Line over Hwy 400?	A 6-lane widening is not considered within the horizon year of this study. The demand for it would be above and beyond the County's growth allocation. It is recommended that the 6th Line EA be updated to address operational concerns and impacts of the Orbit, as more information becomes available.
27-Jun-22	MTO	Metrolinx would like to be part of future discussions/TAC meetings on their TMP update. Can you please add Janna Flaming Janna.Flaming@metrolinx.com, Nick Day Nicholas.Day@metrolinx.com and Evan Brazeau Evan.Brazeau@metrolinx.com on your list for future meetings?	Please note that the following contacts from Metrolinx were included in the consultation of the TMP: Jason Ryan - jason.ryan@gotransit.com Philippe Bellon - philippe.bellon@metrolinx.com Metrolinx will be involved in any future Class EAs affectign Metrolinx facilities and direct interests that result from the recommendations of the TMP
27-Jun-22	MTO	In developing and later implementing this TMP, Innisfil staff should consult MTO's Transit-Supportive Guidelines and Freight-Supportive Guidelines. o Transit-Supportive Guidelines (MTO, 2012). These guidelines help urban planners, transit planners, developers and others	Thank you, noted. Both guidelines were considered in the development of this TMP.

Date Received	Source	Comment	Project Team Response
		working in communities of all sizes, in creating an environment that is supportive of public transit and developing services and programs to promote transit ridership. o Freight-Supportive Guidelines (MTO, 2016). These guidelines help municipalities better understand and plan for the vehicles that transport goods through their communities. In addition, they provide direction on how to best plan the available land, design sites and manage municipal transportation networks, to keep communities financially stable and competitive.	
30-Sep-22	Simcoe Muskoka Health Unit	To further strengthen the importance of active transportation, SMDHU recommends listing the hierarchy of road users in a way that consistently gives a higher level of priority to active transportation as a priority travel option. Therefore, SMDHU recommends that the executive summary opening sentence reads as "…address existing and future pedestrian, cycling, transit and vehicle needs within Innisfil." Listing transportation options in this order will put the most vulnerable road users at the forefront of the TMP, particularly for the vulnerable population who cannot afford some modes of transportation.	Addressed through the vision and development of the TMP
30-Sep-22	Simcoe Muskoka Health Unit	SMDHU notes that reference is made to The Centre for Sustainable Transportation and A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2022. Both of these documents refer to modes of transportation as choices. SMDHU notes that the mode of transportation is often not a choice for vulnerable populations. Some may be able to only use transit as their primary transportation option and some may only be able to use active transportation, as they do not have enough money to afford transit. For these individuals it is not a choice. To better reflect an equitable approach, we recommend that the word "choice" be	Thank you, acknowledged.

Date Received	Source	Comment	Project Team Response
		replaced with “possibility” wherever it is used in this manner within the TMP.	
30-Sep-22	Simcoe Muskoka Health Unit	SMDHU notes that the TMP plan also considers the needs and the opportunities of infrastructure, services, and funding of other levels of government to provide the following transportation system element; Provincial Highways; County and Town roads; Inter-municipal and local transit; On-demand and local transit; Cycling, pedestrian, and multi-purpose active transportation routes; Railroads and goods movement infrastructure. SMDHU recommends listing the hierarchy of road users in a way that consistently gives a higher level of priority to active transportation as a priority travel option. Listing the needs and opportunities in this order will put the most vulnerable transportation users at the forefront of the TMP. SMDHU recommends that the list of statements reads: • Pedestrian, cycling and multi-purpose active transportation routes • On-demand and local transit • Inter-municipal and local transit • County and Town roads • Railroads and good movement infrastructure • Provincial Highways	Addressed through the vision and development of the TMP
30-Sep-22	Simcoe Muskoka Health Unit	SMDHU commends the Town of Innisfil on their TMP Vision Statement. To strengthen this statement and further recognize the importance of active transportation, SMDHU recommends that the TMP Vision reads as follows: “Innisfil’s transportation system connects people and communities, fosters healthy living through support of active transportation, and operates innovatively and	Thank you, acknowledged. We agree active transportation is of paramount importance. This was the statement that guided the development of the TMP early on in the process and incorporated stakeholder input.

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		efficiently across the Town as an environmentally and financially sustainable, resilient system ready for the future."	
30-Sep-22	Simcoe Muskoka Health Unit	Related to Table 4-3: Previously Planned Road Projects, SMDHU notes the recommendation to widen the 6th and 7th Lines from 2 to 4 lanes and 2 to 3 lanes respectively as these roads are needed to accommodate new growth and the provide access to key destinations within the Town. It is recognized that managing traffic may mean the reduction of congestion through lane additions and road-widening. Caution should be taken if using these traffic management strategies as this may be contrary to long-term planning and best practices in terms of future growth, and the underlying principles of the Provincial Policy Statement as they apply to density targets, building of complete communities, working towards sustainability, public transit, and improved health and well-being. Long term planning must de-emphasize automobile use for both health and environmental reasons, as co-lateral costs may overshadow any increased traffic flow efficiency. Further, research shows that lane-additions and road-widening leads to an increase in mean-speed. Mean speed, in turn, is inversely related to reaction time, and the survivability of any collision, involving any type of transport. While additional lanes add capacity for vehicles, consideration must be given to the safety needs of pedestrian and cyclist traffic. Lane additions create delay/hazards for crossing for all pedestrians and cyclists, and especially the most vulnerable. It is noted that both the 6th and 7th Lines have a multi- use trail as planned active transportation improvements and SMDHU commends the Town for this.	Thank you, acknowledged.

Date Received	Source	Comment	Project Team Response
30-Sep-22	Simcoe Muskoka Health Unit	Also outlined in Table 4-4: Proposed Road Improvements is the 14th Line from the Town Limits to County Road 27 (King Street South) is planned for road reconstruction in 2041. The intersection of Hwy 89 (Queen Street) and County Road 27 (King Street) within Cookstown is currently experiencing high volumes of traffic. Anecdotally and from observation, we know that many school children are driven to the local school as parents/guardians do not feel that this intersection is safe for their children to walk or wheel through on their way to school. Additionally, representatives from Town Council and South Simcoe Police Services were invited to a recent meeting initiated by residents of Cookstown where they expressed their concerns related to the high volumes of traffic (including transport and heavy trucks) and how this impacts pedestrian safety. SMDHU recommends considering prioritizing the reconstruction of the 14th line to a timeframe earlier than 2041 thus re- directing some traffic from this intersection onto the 14th Line.	Thank you, acknowledged. The reconstruction of 14th Line is required on a structural perspective and to align with 14th Line improvements in New Tecumseth. The Highway 89 East-West link plays an important role in addressing the safety concerns within Cookstown.
30-Sep-22	Simcoe Muskoka Health Unit	SMDHU notes that the TMP supports the Highway 89 East-West link south of Cookstown as a project with the Ministry of Transportation (MTO) to address safety concerns at the intersection of Highway 89 and County Road 27 and to facilitate future traffic growth. Building new roads has the potential to disrupt habitats, waterways, agricultural land, and natural heritage. Managing traffic through communities may also positively impact the public perception of safety and support/improve residents to make active transportation choice.	Thank you, acknowledged.
30-Sep-22	Simcoe Muskoka Health Unit	SMDHU commends the Town of Innisfil, through the point of interest analysis, on the identification of missing links between several public facilities and active transportation infrastructures.	Thank you, acknowledged. We recognize that active transportation benefits are wide-reaching and have considered the

Date Received	Source	Comment	Project Team Response
		Ensuring access to these public facilities where residents can meet, connect, and congregate for social interaction will aid in sustaining the well-being of all residents. SMDHU notes that access to food and food related services (i.e., community gardens, grocery stores and farmers' markets) has not been identified as a key element in the review of Active Transportation Needs and Opportunities, with the exception of noting that limited pedestrian connections are provided within the Innisfil municipal civic campus, which includes the farmers' market. Although the review of identifying missing active transportation links to food and services could be implied within the "public facilities" term, SMDHU recommends that the Town clearly identifies whether a review of active transportation options to food and food related services was completed. If it has not been completed, SMDHU recommends that such a review be undertaken. SMDHU notes that ensuring residents have the option to access food and food related services within their community will increase access to healthy foods for all residents in an equitable way. People are more likely to meet their nutrition needs when healthy, affordable, and safe food sources are within easy reach. Households that lack income and access to transportation are affected more than others. Municipalities can ensure there are safe and convenient pedestrian, cycle and transit connections between neighbourhoods and food destinations.	Transportation Research Board (TRB) NCHRP Report 552 - Guidelines for Analysis of Investments in Bicycle Facilities in our assessment of transportation needs and opportunities although not all benefits have been explicitly stated. Access to food and food-related services can also be further assessed as part of economic development.
30-Sep-22	Simcoe Muskoka Health Unit	SMDHU commends the Town of Innisfil for their consideration of a lake-adjacent trail around Lake Simcoe and recommends that this becomes a higher priority for consideration. This would provide residents employed in surrounding communities in York Region and Simcoe County an active transportation network to	Thank you, acknowledged. We note that the lake-adjacent concept will require a multi-jurisdicational initiative

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		get to and from work and may help to address the traffic congestion issue.	
30-Sep-22	Simcoe Muskoka Health Unit	SMDHU commends the Town of Innisfil for identifying and prioritizing sidewalk infrastructure to improve connectivity. As outlined in Table 5-4: Potential Sidewalk Improvements, SMDHU commends the Town of Innisfil for identifying the need for a sidewalk on the north side of Joseph St 80 m west of 25th Sideroad to support students walking or wheeling to Goodfellow Public School. As this is the only higher priority school zone area identified, was there consideration given to other sidewalks in school zones to promote and support active school travel? As an example, was there consideration for a sidewalk along George St. South and Garibaldi St. in Cookstown both of which enter/exit the Cookstown Thornton Trans Canada Trail that leads to /from the Cookstown Central Public School? Sidewalks on these streets would support students to access the trail along their route to school in a safer and more convenient way.	We recognize the importance of providing sidewalk connections leading to trail entrances. This has been included a sidewalk prioritization criteria in Appendix L. Sidewalks along Garibaldi St and George St have been included in the recommendations.
30-Sep-22	Simcoe Muskoka Health Unit	SMDHU notes that achieving a higher non-auto mode split, is dependent in part on the implementation of the future Innisfil GO rail station. This will support improved connectivity to surrounding municipalities and the Greater Toronto Area (GTA) which will enhance employment and social connectivity.	Thank you, acknowledged.
30-Sep-22	Simcoe Muskoka Health Unit	SMDHU commends the Town of Innisfil for exploring the Bike Share Service (making available free bicycles) to help increase the micromobility mode share within the Town and provide further active transportation options. Additionally, would there be consideration for a service available to support the purchase of helmets for those that may face financial constraints?	Thank you, acknowledged. Funding can be considered at the implementation stage

Date Received	Source	Comment	Project Team Response
30-Sep-22	Simcoe Muskoka Health Unit	SMDHU notes that the word “should” is used within some of the active transportation network recommendations. This policy language is more focused on management and implementing principles with some inherent interpretive flexibility. Therefore, to strengthen the recommendations, SMDHU recommends editing the word “should” to “will” as this identifies mandatory requirements with little room for interpretive flexibility. As examples, SMDHU recommends that the following statements read: “Missing links will be identified in a network to identify and address continuity gaps.” and “Connectivity to proposed active transportation facilities between settlement areas and hamlets will be considered in establishing an integrated active transportation network.”	Addressed
30-Sep-22	Simcoe Muskoka Health Unit	SMDHU commends the Town of Innisfil on their plan to investigate additional carpool lots to decrease the number of vehicles on the roadways. Planning for bicycle parking and lockers at this location will encourage cycling to these lots.	This will be assessed as part of the Town's Parking Management Strategy.
30-Sep-22	Simcoe Muskoka Health Unit	To support the Town in their monitoring of the impacts that the infrastructure investments are making in relation to the desired benefits to ensure they are aligned with the vision, SMDHU recommends completing an analysis, such as a Health Equity Impact Assessment or a similar type of analysis. This type of analysis will identify and rectify any potential unintended impacts to vulnerable/disadvantaged/underserved populations such as people living on a low/fixed income, the elderly, the very young, newcomers to the region, marginalized populations, people with special mobility needs or those who do not drive. Through an equity lens, this analysis will ensure that funding and resources	Thank you, acknowledged. Town staff would be interested in the progress of this Health Equity Impact Assessment initiative

Date Received	Source	Comment	Project Team Response
		are allocated in a fair and equitable way, which will also take into consideration the diverse needs/impacts to all users, particularly those who are facing disparities.	
7-Oct-22	MTO	MTO has the rail bridge under Hwy 400, just north of Innisfil Bach Road, being replaced as part of our contract to replace the bridge at Hwy 400 and Innisfil Beach Road. We aren't aware of continuing discussions about this structure, aside from an initial discussion in March 2022.	Follow-up meetings have been organized to confirm feasibility.
7-Oct-22	MTO	The Simcoe Area Multi-Modal Transportation Strategy Needs Assessment was never finalized and has been superseded by MTO's GGH Transportation Plan. "Section 3.3.4 Simcoe Area Multi-Modal Transportation Strategy Needs Assessment" should be removed, and replaced with a section on Connecting the GGH: A Transportation Plan for the Greater Golden Horseshoe (see above).	Addressed. Section removed. Reference to GGH Plan is provided in Section 3.3.3
7-Oct-22	MTO	Please connect with Nick Day Nicholas.Day@metrolinx.com, Janna Flaming Janna.Flaming@metrolinx.com, and Evan Brazeau Evan.Brazeau@metrolinx.com from Metrolinx for support in revising the following sections: o Content in "Section 3.3.3 Regional Transportation Plan, 2018" is not accurate with respect to timing and Metrolinx's role with respect to the RTP. It appears there may be some confusion here between the Metrolinx RTP and the MTO GGH Transportation Plan, noted above. o Content in "Section 6.4.1 Metrolinx/GO Transit Planning Improvements" is not accurate with respect to the "RER" terminology as well as the fact there are no plans for upgraded "two-way and all-day rail services" along the entire line.	Section 3.3.3 and Section 3.3.4 has been updated to reference the GGH Plan and Metrolinx Regional Plan, respectively. Metrolinx were contacted to confirm the contents of Section 6.2.1 and Section 6.4.1. Their comments have been incorporated in the final TMP.

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		o Likewise “Section 6.2.1 Metrolinx GO Transit” should also be confirmed with Metrolinx.	
7-Oct-22	Developer	In particular, we are objecting to any new Right of Way or Road being proposed which would impact our developable areas of lands municipally addressed as 2182 20th Side Road, Innisfil ON, L9S 4J8. We wish to work cooperatively with the Town of course and your consultants in the near future but cannot accept a Road bisecting our lands and again, we hope you are willing to wait a thorough review from our Traffic Engineer, which we will make available ASAP.	No extension will be provided, and the commenting period has closed. We will respond further in regards to the 20th grade separation project which was carried forward from the previous 2018 version of the Transportation Master Plan Update. In recommending road realignments, the Transportation Master Plan addresses the first two phases of the Environmental Assessment (EA) process (i.e., Problem or Opportunity and Alternative Solution); however, this varies based on the type of facility, lanes along the facility and configuration design. The project would also have to seek approval through Schedule C of the EA process, which involves a more detailed assessment of implications. Typically, the EA study following this TMP will re-confirm Phase 1 and Phase 2. Phase 3 will assess various design concepts including the alignment, its feasibility, and impacts to property, environment, natural heritage, etc. This process also contains more extensive consultation, including property owners who may be impacted and affected by the design concepts.

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			The studies for the grade separations are anticipated to begin in 2024.
25-Nov-22	Developer Representative	Further to our letter of March 1, 2022 regarding the 2021 Transportation Master Plan (TMP) Open House 2 and subsequent council approval of the TMP, we wish to reiterate our clients' concerns regarding the following road system improvements: ▪ the realignment of 20 Sideroad both north and south of Innisfil Beach Road; ▪ the extension of Benson Street to 20 Sideroad; and ▪ the provision of grade separations/overpasses of the rail crossings at both the realigned 20 Sideroad and Innisfil Beach Road. As previously noted, our clients plan to develop 2182 20 Sideroad (The Gateway Place), which is bounded by Innisfil Beach Road to the south, 20 Sideroad to the east and the railway (GO Transit) to the west. The noted TMP road improvements have the potential to bisect the subject lands and thus reduce the development potential. It is acknowledged that the noted improvements as illustrated in the TMP are conceptual only at this point and will be subject to further studies (eg. Schedule C Class EAs), during which time different alignments and configurations, potential impacts to abutting lands, etc. will be appropriately considered with additional opportunity for public and stakeholder comments. To ensure opportunity for appropriate consideration in their development process and collaboration with the Town to achieve a solution to the satisfaction and benefit of all parties, our clients request the following: ▪ confirmation of the timing of such future studies (the TMP notes it for the 2031 horizon); ▪ to be added to the stakeholder list for when these studies commence; and ▪ to be provided any preliminary AutoCad or GIS files (or similar)	We will respond further in regards to the 20th grade separation project which was carried forward from the previous 2018 version of the Transportation Master Plan Update. In recommending road realignments, the Transportation Master Plan addresses the first two phases of the Environmental Assessment (EA) process (i.e., Problem or Opportunity and Alternative Solution); however, this varies based on the type of facility, lanes along the facility and configuration design. The project would also have to seek approval through Schedule C of the EA process, which involves a more detailed assessment of implications. Typically, the EA study following this TMP will re-confirm Phase 1 and Phase 2. Phase 3 will assess various design concepts including the alignment, its feasibility, and impacts to property, environment, natural heritage, etc. This process also contains more extensive consultation, including property owners who may be impacted and affected by the design concepts. The studies for the grade separations are anticipated to begin in 2024.

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		that have been prepared with respect to the realignment of 20 Sideroad such that the potential footprint can be considered further in context of the subject lands and development concepts. Once again, we appreciate the opportunity to provide comment and look forward to receipt of the requested information (please ensure any information provided is also copied to Joe Pandolfo and Joseph Falvo at the emails listed below).	

Appendix B

Appendix B

Environmental Context

BURNSIDE

Innisfil

Appendix B | Environmental Context

Date: June 8, 2022 **Project No.:** 300053011.0000

Project Name: Innisfil Transportation Master Plan Update

Submitted To: Town of Innisfil

Submitted By: R.J. Burnside & Associates Limited

The Town of Innisfil (Town) has initiated a Master Transportation Plan Update under the Municipal Class Environmental Assessment (EA) process to assess future land transportation needs.

As part of the Master Plan process, R.J. Burnside & Associates Limited (Burnside) completed a natural heritage information review to identify documented natural heritage features and potential constraints to transportation networks and services in the Town. Relevant federal and provincial environmental policy and regulation, municipal planning documents and available background and database information were reviewed to characterize the natural heritage features of the Town. This information was used to map the natural features of the Town.

Potential impacts to the natural heritage conditions of the Study Area will be assessed through the evaluation of the alternative solutions determined through the EA process and documented in the Master Plan document.

1.0 Natural Heritage

Environmental features, protected properties and natural features have been identified based on a review of available provincial and municipal databases, including the following existing data sources:

- Town of Innisfil Official Plan (Consolidated 2018).
- County of Simcoe Official Plan (2018).
- Greenbelt Plan.
- Lake Simcoe Protection Plan (LSPP).
- Growth Plan for the Greater Golden Horseshoe.
- Ministry of Natural Resources and Forestry, Land Information Ontario (LIO) Make a Map: Natural Heritage Areas.
- Natural Heritage Information Centre (“NHIC”) database.
- Ministry of the Environment, Conservation and Parks (MECP): Source Water Protection Information Atlas.
- Department of Fisheries and Oceans (DFO), Aquatic species at risk map.

- Nottawasaga Valley Conservation Authority (NVCA) and Lake Simcoe Region Conservation Authority (LSRCA) online mapping.
- Ontario Nature Ontario Reptile & Amphibian Atlas.
- Birds Canada Ontario Breeding Bird Atlas.

The following sections document the existing natural features of significance and their implications for the development of transportation facilities.

1.1 Protected Properties

Protected properties are properties in public ownership that are protected for the purposes of conservation and nature-based recreation. No such properties were identified within the Town.

1.2 Natural Heritage Systems

The Town of Innisfil is subject to a variety of land use plans and policies that shape how transportation systems are to be developed within, and around, natural features. The Provincial Policy Statement, Provincial Growth Plan, Greenbelt Plan, Lake Simcoe Protection Plan, Town and Regional Official Plans all include policies to protect significant natural features, including the following:

- Provincially Significant Wetlands.
- Coastal Wetlands.
- Significant Woodlands.
- Significant Valleylands.
- Significant Wildlife Habitat.
- Significant Areas of Natural and Scientific Interest (ANSIs).
- Fish Habitat.
- Habitat of Endangered and Threatened Species.

With respect to lands within the Greenbelt Plan, the following additional natural features are protected:

- All wetlands.
- All Life Science ANSIs.
- Habitat of special concern species.
- Sand barrens, savannahs and tallgrass prairies.
- Alvars.
- Permanent and intermittent streams.
- Lakes (and their littoral zones).
- Seepage areas and springs.

With respect to lands within the Lake Simcoe Protection Plan, the natural areas abutting Lake Simcoe are also protected.

Although policies exist to protect these features, not all features have been identified. For example, habitats of species at risk are not always known. However, the majority of the listed features are protected within Natural Heritage Systems identified through the various provincial plans and upper and lower tier municipal Official Plans. A Natural Heritage Systems is a network of interconnected natural features designed to identify and protect features at the landscape scale. The various Natural Heritage Systems developed under provincial and municipal plans are intended to protect the significant natural features listed above, even where all have not been specifically identified.

Figure 1 of the attached illustrates the following Natural Heritage Systems:

- Natural Heritage System and Urban River Valleys of the Provincial Greenbelt Plan.
- Natural Heritage System of the Provincial Growth Plan.
- Core Areas of the Greenlands System as mapped under Simcoe County's Official Plan.
- Lake Simcoe Protection Plan Area.

Most of the Town of Innisfil's Natural Heritage policies and mapping mirror that of the various other provincial Plans.

New and expanded infrastructure is typically permitted within designated Natural Heritage Systems and associated land use designations, in conjunction with approvals under the *Environmental Assessment Act*. Under the Greenbelt Plan, only infrastructure deemed necessary to the public interest is permitted within the Protected Countryside Area designation and only when all other alternatives have been considered. Other provincial plan and official plan policies include similar requirements.

1.3 Select Key Natural Features

Select natural features of the Natural Heritage Systems are described in the following sections where mapping exists. Other natural features may exist beyond the Natural Heritage Systems and may be identified through field studies carried out during detailed planning and design exercises.

1.3.1 Areas of Natural and Scientific Interest (ANSI)

ANSIs are areas of land and water containing unique natural landscapes or features. These features have been scientifically identified by the Province of Ontario as having life or earth science values related to protection, scientific study or education.

Only Life Science ANSIs are identified in the Town. Life science ANSIs represent biodiversity and natural landscapes. They include specific types of forests, valleys, prairies, wetlands, native plants, native animals and their supportive environments. Life science ANSIs contain relatively undisturbed vegetation and landforms and their associated species and communities. ANSI of provincial and regional significance present in the Town, include:

ANSIs - Life Science:

- Holland River Marsh (Provincial).
- DeGrassi Point Prairie Relict (Provincial).

The Natural Heritage System and ANSIs are illustrated in Figure 1 and Figure 2, respectively, of the attached.

1.3.2 Wetlands

The Province of Ontario identifies wetlands that have been evaluated using the Ontario Wetland Evaluation System as provincially significant or non-provincially significant, as well as wetlands that have not been evaluated, but have been mapped using other procedures. Wetlands are protected through policies of the various provincial plans and Official Plans in effect. Wetlands are also regulated through the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulations administered by conservation Authorities.

Provincially Significant Wetlands and other wetlands have been mapped by the province and are illustrated in Figure 3 of the attached.

1.3.3 Significant Woodlands

The Town of Innisfil Significant Woodlands are identified in Figure 4 of the attached. These are defined within the Town's Official Plan as fulfilling one or more of the following criteria:

- Any woodland of 4 hectares of greater.
- Any woodland containing 1 hectare or more of naturally occurring (not planted) trees listed in Appendix 10 that meet the definition of "woodland".
- Any woodland of 1 hectare or more that contain either.
- 10 or more trees per hectare that are either greater than 100 years or ol 50 cm or more in diameters; or
- A basal area of at least 8 square metres per hectare in native trees than are 40 cm of more in diameters; or
- Any woodlands of 1 hectare or more wholly or partially within 30 cm of:
  - A significant woodland
  - A naturalized lake
  - A permanent stream
  - A significant valleyland
  - A provincially significant wetland
  - Habitat of endangered or threatened species
- Any woodland of 0.5 hectares or more containing:
  - A provincially rare treed vegetation community with an S1, S2, or S3 in its ranking by the Ministry of Natural Resources and Forestry Natural Heritage Information Centre (NHIC), or

- A habitat of a woodland plant species with an S1, S2, or S3 in its ranking or an 8, 9 or 10 in its southern Ontario Coefficient of Conservatism by the NHIC, consisting of 10 or more individual stems or 100 mor square metres of leaf coverage.

1.3.4 Significant Valleylands

The Province of Ontario identifies Significant Valleyland as a Valleyland which is ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system. Significant Valleylands within the Town of Innisfil are identified as part of the Key Natural Heritage Features and Key Hydrological Features of the Town's Natural Heritage System, illustrated in Figure 5 of the attached. These are identified using criteria established by the Province within the PPS.

1.3.5 Fish Habitat

The federal *Fisheries Act, 1985, as amended in 2019,* is administered by Fisheries and Oceans Canada (DFO) and provides protection for fish and fish habitat across Canada. Section 34.4 of the Act states that:

> No person shall carry on any work, undertaking or activity, other than fishing, that result in the death of fish.

Section 35 (1) of the Act states that:

> No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat.

The Act defines fish habitat as waters frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas.

Fish habitat is present within the various lakes and watercourses present throughout the Town of Innisfil. Fish habitat within the Town of Innisfil is identified as part of the Key Natural Heritage Features and Key Hydrological Features of the Town's Natural Heritage System, illustrated in Figure 5 of the attached. Construction of new transportation infrastructure and improvements to existing transportation infrastructure that have the potential to impact fish or fish habitat must be constructed and operated in compliance with the federal Fisheries Act. If works will proceed below the annual high-water mark, then a Request for Project Review should be made to the Fish and Fish Habitat Protection Program. If the death of a fish by means other than fishing, or the harmful alteration, disruption or destruction of fish habitat will likely result from a project, the proponent responsible for the activities is required to obtain an Authorization from the Minister of Fisheries and Oceans Canada (DFO) as per Paragraph 34.4(2) and 35(2)(b) of the Fisheries Act.

1.3.6 Significant Wildlife Habitat

The Ministry of Natural Resources and Forestry (MNRF) has identified White-tailed Deer Overwintering located in the following natural areas:

- Lovers Creek Yard.
- Big Bay Point Yard.
- Cook's Bay.
- Cookstown Hwy 400 Yard.

The Ministry of Natural Resources and Forestry (MNRF) has identified a Waterfowl Staging Area (Staging or Migration Stopover, Diving Duck) located in Cook's Bay.

This type of habitat is protected as Significant Wildlife Habitat under the Provincial Policy Statement. Significant Wildlife Habitat within the Town of Innisfil is identified as part of the Key Natural Heritage Features and Key Hydrological Features of the Town's Natural Heritage System, illustrated in Figure 5 of the attached.

1.3.7 Habitat for Species at Risk

The Endangered Species Act, 2007 (ESA) is the provincial legislation that provides protection for Species at Risk (SAR) and their habitat.

Under the Endangered Species Act, 2007, Section 9(1):

> *"No person shall, (a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario list as an extirpated, endangered or threatened species."*

Furthermore, according to Section 10(1):

> *"No person shall damage or destroy the habitat of, (a) a species that is listed on the Species at Risk in Ontario List as an endangered or threatened species; or (b) a species that is listed on the Species at Risk in Ontario List as an extirpated species, if the species is prescribed by the regulations for the purpose of this clause."*

Federal species at risk legislation also applies to Species at Risk (SAR) and their habitat on federal lands or where federal jurisdiction applies. There are no federal lands within the Town; however, SARA applies to aquatic species at risk in all water bodies. To ensure the protection of SAR, Section 32(1) and (2) of the SARA states,

> *No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species, or a threatened species*

And Section 33 of the SARA states,

> *No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered or threatened species, or that is listed as an extirpated species if a recovery strategy has recommended reintroduction of the species into the wild in Canada.*

The SAR noted in **Table B-1** and **Table B-2** have been recorded in the Town and were identified through publicly available databases as having potential to be present in Innisfil.

Table B-1: Terrestrial Species at Risk

Common Name	Scientific Name	Provincial Status	Federal Status
Amphibians			
Western Chorus Frog (Great Lakes – St. Lawrence – Canadian Shield pop.)	*Pseudacris maculate pop. 1*	NAR	Threatened
Birds			
Bald Eagle	*Haliaeetus leucocephalus*	Special Concern	NAR
Black Tern	*Chlidonias niger*	Special Concern	NAR
Barn Swallow	*Hirundo rustica*	Threatened	Threatened
Bobolink	*Dolichonyx oryzivorus*	Threatened	Threatened
Canada Warbler	*Wilsonia canadensis*	Special Concern	Threatened
Cerulean Warbler	*Dendroica cerulea*	Threatened	Endangered
Chimney Swift	*Chaetura pelagica*	Threatened	Threatened
Eastern Meadowlark	*Sturnella magna*	Threatened	Threatened
Eastern Wood-Pewee	*Contopus virens*	Special Concern	Special Concern
Golden Winged Warbler	*Vermivora chrysoptera*	Special Concern	Threatened
King Rail	*Rallus elegans*	Endangered	Endangered
Henslow's Sparrow	Ammodramus henslowii	Endangered	Endangered
Least Bittern	*Ixobrychus exilis*	Threatened	Threatened
Red-headed Woodpecker	*Melanerpes erythrcephalus*	Special Concern	Endangered
Chimney Swift	*Chaetura pelagica*	Threatened	Threatened
Whip-poor-will	*Caprimulgus vociferus*	Threatened	Threatened
Wood Thrush	*Hylocichla mustelina*	Special Concern	Threatened
Yellow Rail	*Coturnicops noveboracensis*	Special Concern	Special Concern
Insects			
American Bumble Bee	Bombus pensylvanicus	N/A	SC
Rusty-patched Bumble Bee	Bombus affinis	Endangered	Endangered
Nine-Spotted Lady Beetle	*Coccinella novemnotata*	Endangered	Endangered

Common Name	Scientific Name	Provincial Status	Federal Status
Transverse Lady Beetle	*Coccinella transversoguttata*	N/A	Special Concern
Yellow-banded Bumble Bee	*Bombus terricola*	Special Concern	Special Concern
Butternut	*Juglans cinerea*	Endangered	Endangered
Reptiles			
Blanding's Turtle	*Emydoidea blandingii*	Threatened	Endangered
Eastern Milksnake	*Lampropeltis triangulum*	NAR	Special Concern
Midland Painted Turtle	*Chrysemys picta marginata*	N/A	Special Concern
Northern Map Turtle	*Graptemys geographica*	Special Concern	Special Concern
Snapping Turtle	*Chelydra serpentina*	Special Concern	Special Concern

Table B-2: Aquatic Species at Risk

Common Name	Scientific Name	Provincial Status	Federal Status
Silver Lamprey (Great Lakes – Upper St. Lawrence populations)	*Ichthyomyzon unicuspis pop. 1*	Special Concern	Special Concern

Known SAR habitat within the Town of Innisfil is identified as part of the Key Natural Heritage Features and Key Hydrological Features of the Town's Natural Heritage System, illustrated in Figure 5 of the attached. Most of the habitats for these species are yet to be mapped. No critical aquatic habitat is identified within the Town of Innisfil.

Potential habitat of Species at Risk should be avoided where possible. Proposed transportation works would be subject to mitigation measures to avoid direct impact to SAR which may include rules in regulation, timing restrictions for the removal of vegetation, minimizing the footprint of construction, and exclusion of the construction area.

2.0 Hazard Lands

Hazard Lands of the Town of Innisfil Official Plan are those areas that include flood and erosion susceptibility areas, dynamic beach areas, unstable soils and steep slopes, organic soils or wetlands that could result in property or land that could be unsafe for development. These areas may also include environmental features such as Provincially and regionally significant wetlands watercourses and the Lake Simcoe shoreline identified by the Province of Ontario and Conservation Authorities. Permitted land uses are limited.

In the Town of Innisfil, the Lake Simcoe Region Conservation Authority (LSRCA) has jurisdiction over hazard lands within the east of the Town of Innisfil while the Nottawasaga Valley Conservation Authority (NVCA) has jurisdiction over the west side of the Town of Innisfil. A

permit may be required for transportation facilities that affect wetlands, watercourses, and other hazard lands within the regulated area of the conservation authorities.

3.0 Source Water Protection Areas

The Source Water Protection Information Atlas indicates two Source Water Protection Areas (SPA) are located within the Town of Innisfil. The Town is divided between Nottawasaga SPA and Lake Simcoe and Couchiching / Black River SPA.

3.1 Wellhead Protection Areas (WHPA)

Several Wellhead Protection Areas (WHPA) are located within the Town of Innisfil, which are illustrated in Figure 6 of the attached. One Intake Protection Zone is located on the shore of Lake Simcoe between Ninth and Seventh Line.

The Clean Water Act requires a standard 100 metre radius circle be provided around each municipal well; this is called the WHPA – A. The WHPA – B represents the 2-year time of travel. The WHPA – C represents the 5-year time of travel and the WHPA – D represents the 25-year time of travel. In situations where a WHPA was delineated before April 30, 2005, a WHPA-C1 may apply instead of a WHPA-C. A WHPA-C1 represents the 10 year time of travel. A WHPA-E refers to the vulnerable area for groundwater well supplies which are under the direct influence of surface water (GUDI). WHPA-E considers vulnerability of well water supplies with respect to transport of potential contaminants along surface water pathways that influence the GUDI well. WHPA-E is delineated following the same technical rules as an IPZ-2. Vulnerable areas are not always represented by a perfect circle – shape is a function of how water travels underground. It can be influenced by several factors such as slope of land, depth of the well, type of sediment (for example, water travels faster through sand than it does through clay). The “circles” around wellhead protection areas were drawn based on scientific research considering all of these factors. (South Georgian Bay Lake Simcoe Source Protection Region, 2019).

3.2 Significant Ground Water Recharge Area

Several areas within the Town are considered Significant Ground Water Recharge Areas which are areas on the landscape characterized by porous soils, (i.e., sand or gravel) which allow water to seep easily into the ground and flow to an aquifer. Recharge areas are considered significant when they helps maintain the water level in an aquifer that supplies a community with drinking water (South Georgian Bay Lake Simcoe Source Protection Region, 2019).

3.3 Highly Vulnerable Aquifer

Areas of Highly Vulnerable Aquifer are located within the Town of Innisfil. A Highly Vulnerable Aquifer is one that is particularly susceptible to contamination because of either its location near

the ground surface or because of the type of overlying geological materials. The aquifer vulnerability increases as the amount of protection provided by the overlying geological materials decreases (Credit Valley, Toronto and Region and Central Lake Ontario Source Protection Region, 2019).

Any future transportation projects recommended by the Transportation Master Plan update will need to consider impacts to the Source Water Protection Areas.

4.0 Cultural Heritage

Cultural heritage features, protected properties have been identified based on a review of available provincial and municipal databases, including the following existing data sources:

- Town of Innisfil Official Plan (Consolidated 2018).
- Town of Innisfil Municipal Heritage Register.
- Town of Innisfil Cookstown Heritage Conservation District Properties (Part V).
- County of Simcoe Official Plan (2018).
- Ontario Heritage Trust Ontario Heritage Act Register.

Any future transportation projects recommended by the Transportation Master Plan update will need to consider impacts to Cultural Heritage.

4.1 Heritage Designations

Heritage designation is public recognition of the heritage value of buildings, sites or cultural features in a community. The Ontario Heritage Act helps a community to either designate individual buildings (under Part IV of the Act) or several buildings as a district (under Part V of the Act). In the Town of Innisfil, there are:

- 7 designated properties (Part IV, Section 29 OHA).
- 50 listed properties (Section 27, OHA).
- 1 Heritage Conservation District, with 209 designated properties (Part V, OHA).

Innisfil's Cookstown Heritage Conservation District is also identified on the Ontario Heritage Act Register. Ten of the individually designated properties are listed on the provincial heritage registry with details of their designation status. The Town's Designated and Listed properties are shown in Figure 7 of the attached.

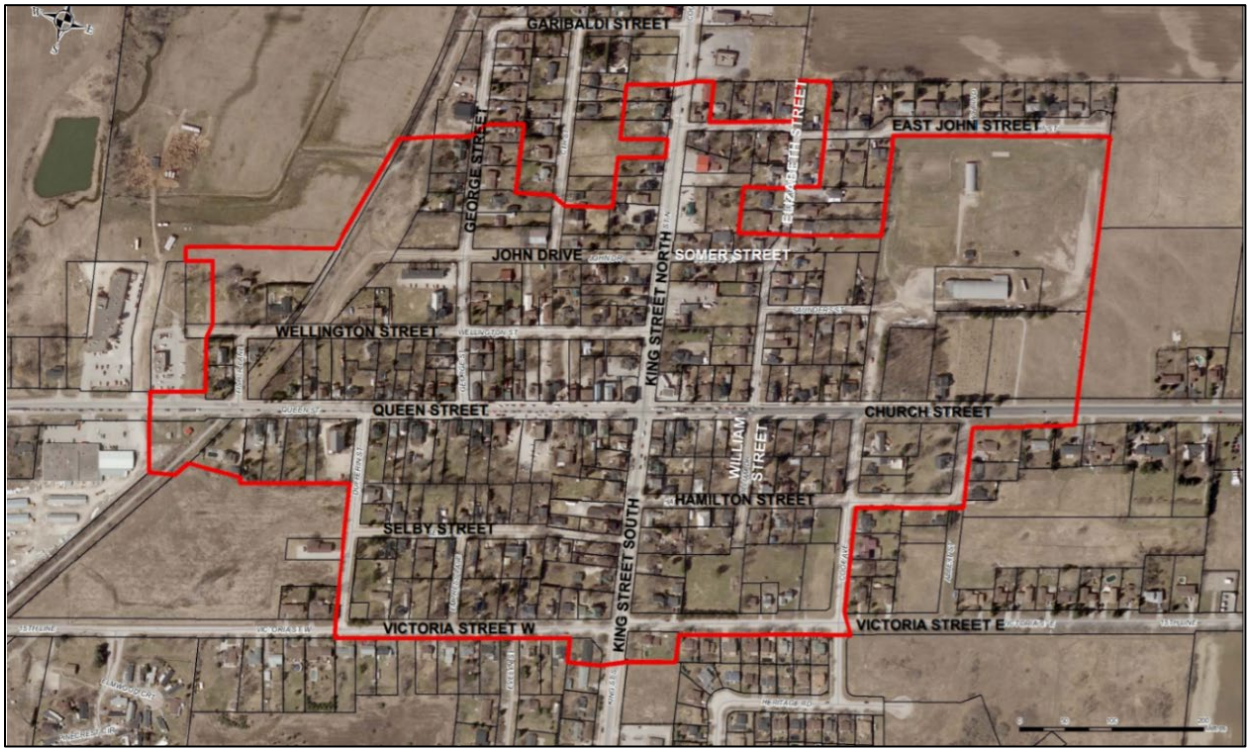
4.2 Innisfil's Heritage Conservation District

The Town of Innisfil has one Heritage Conservation District in the Village of Cookstown as illustrated in Figure B-1.

The Village of Cookstown Heritage Conservation District is Innisfil's only Heritage Conservation District. Settled in the mid-nineteenth century, Cookstown was originally named Perry's Corners.

The Cookstown Heritage Conservation District study area contains approximately 14 blocks which surround the Queen Street and Kind Street intersection. The historical buildings considered in this study were built in between the late 1800s and early 1900s.

Figure B-1: Cookstown Heritage Conservation District Boundary
Source: Cookstown Heritage Conservation District Plan and Design Guidelines



A Heritage Conservation District designation includes buildings, streets, landscapes, and views within a specific area. By designating a Heritage Conservation District, a municipality can manage and guide future change to preserve the identity of a heritage community as outlined in Part V of the Ontario Heritage Act.

4.3 Innisfil's Cultural Heritage Landscapes

A Cultural Heritage Landscape, as defined in the Ontario Provincial Policy Statement, can include buildings, structures, spaces, views, archaeological sites or natural elements that are valued together for their interrelationship.

Cultural heritage landscapes may be properties that have been determined to have cultural heritage value or interest under the Ontario Heritage Act or have been included on federal and/or international registers, and / or protected through official plan, zoning by-law, or other land use planning mechanisms. The Town of Innisfil Official Plan indicates that they will undertake a Cultural Heritage Assessment of countryside landscapes for potential protection under the Ontario Heritage Act.

The PPS outlines the identification, protection, management and use of built heritage resources, cultural heritage landscapes and archaeological resources in a manner that ensures retention of their cultural heritage value or interest under the Ontario Heritage Act. This can be achieved by the implementation of recommendations set out in a conservation plan, archaeological assessment, and/or heritage impact assessment. Mitigation measures and/or alternative approaches can be included in these plans and assessments.

4.4 Archaeological Resources

Archaeological resources are scarce, fragile, and non-renewable and therefore must be managed in a prudent manner if they are to be conserved. Effectiveness in incorporating archaeological resources within the overall planning and development process requires a clear understanding of their physical nature, the variety of forms they may assume, and their overall significance and value to society.

Archaeological potential is defined in the Provincial Policy Statement (2020) as:

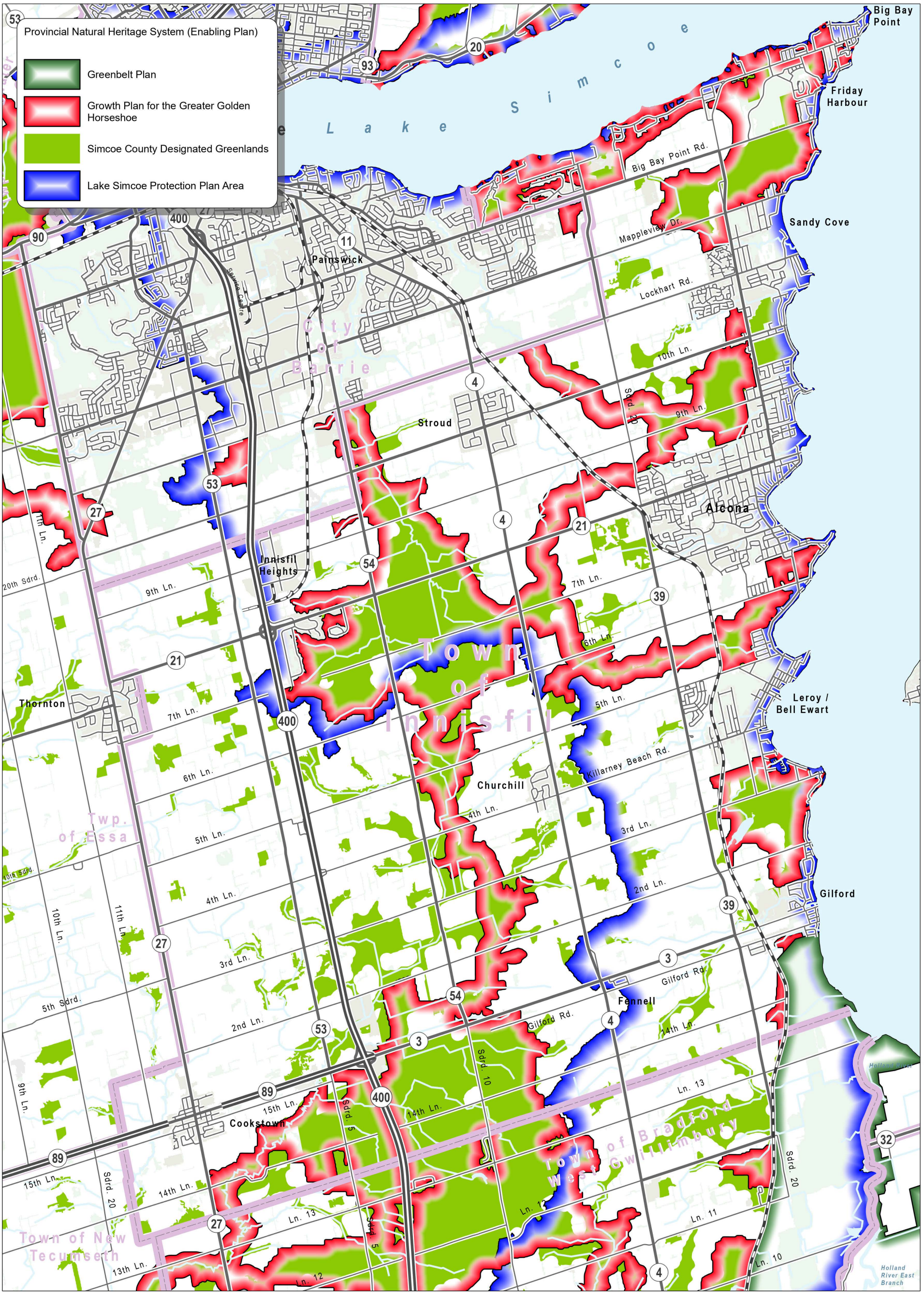
> *…areas with the likelihood to contain archaeological resources. Criteria to identify archaeological potential are established by the Province…*

The County of Simcoe has created an Archaeological Management Plan which was adopted in 2019. In addition to this report, the County has the following supporting technical documents available for viewing:

- Thematic History of Simcoe County and Colonial Period Archeological Potential.
- Contingency Plan for the Protection of Archeological Resources in Urgent Situations.
- Histories of Indigenous Communities with Interest in Simcoe County.

The County of Simcoe has identified areas of Archaeological Potential available on their interactive Geographical Information Systems (GIS) based platform. This map is publicly available and can be used to help determine need for archaeological assessment in advance of soil disturbance.

Future transportation projects recommended in the Town of Innisfil Transportation Master Plan within and located in an area of archeological potential will require (at minimum) a Stage 1 archaeological assessment to determine if archaeological potential survives within the area. Public development projects (i.e., highway or road construction) require an archaeological assessment under the requirements of the Environmental Assessment Act or through a Class Environmental Assessment. An environmental assessment often will determine the need for an archaeological assessment, and it is completed as part of the overall environmental assessment process.



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BURNSIDE

Client

TOWN OF INNISFIL

Map Title

NATURAL FEATURES INFORMATION REVIEW

NATURAL HERITAGE SYSTEM AREAS

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ANSI, Life Science

Lake Simcoe

Barrie

Big Bay Point

Friday Harbour

Sandy Cove

Alcona

Leroy / Bell Ewart

Gilford

Fennell

Painswick

Stroud

Innisfil Heights

Churchill

Thornton

Cookstown

City of Barrie

Town of Innisfil

Twp. of Essa

Town of New Tecumseth

Town of Bradford West Gwillimbury

Big Bay Point Rd.
Mappleview Dr.
Lockhart Rd.
10th Ln.
9th Ln.
Sdrd. 20
Killarney Beach Rd.
7th Ln.
6th Ln.
5th Ln.
4th Ln.
3rd Ln.
2nd Ln.
11th Ln.
20th Sdrd.
10th Sdrd.
5th Sdrd.
Gilford Rd.
14th Ln.
15th Ln.
Ln. 13
Ln. 12
Ln. 11
Ln. 10
13th Ln.
Sdrd. 10
Sdrd. 5
Service Centre

Holland River
Holland River East Branch

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TOWN OF INNISFIL

Map Title
NATURAL FEATURES INFORMATION REVIEW
AREAS OF NATURAL AND SCIENTIFIC INTEREST (ANSI)

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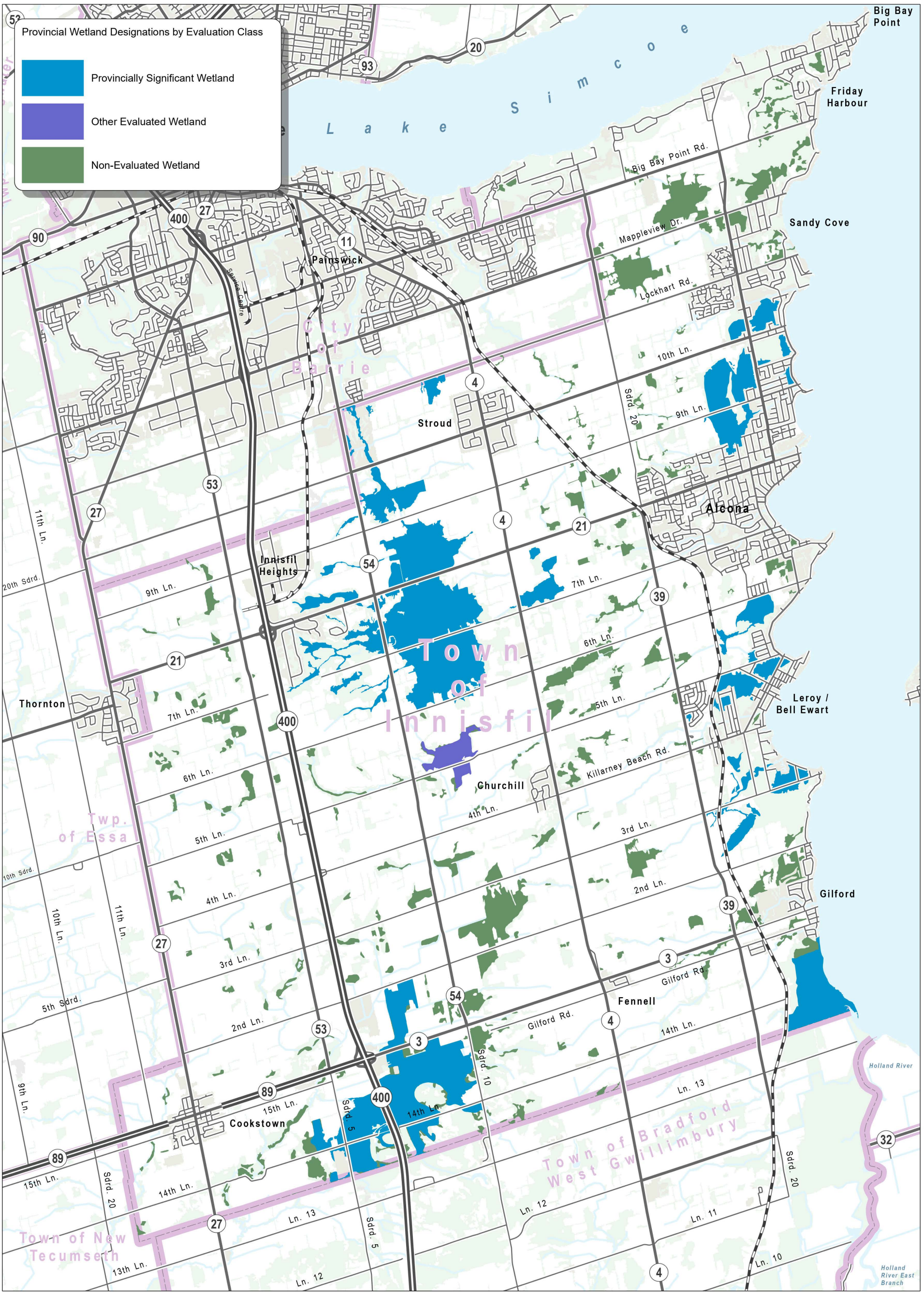

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TOWN OF INNISFIL

Map Title
NATURAL FEATURES INFORMATION REVIEW
WETLANDS WITHIN THE TOWN OF INNISFIL

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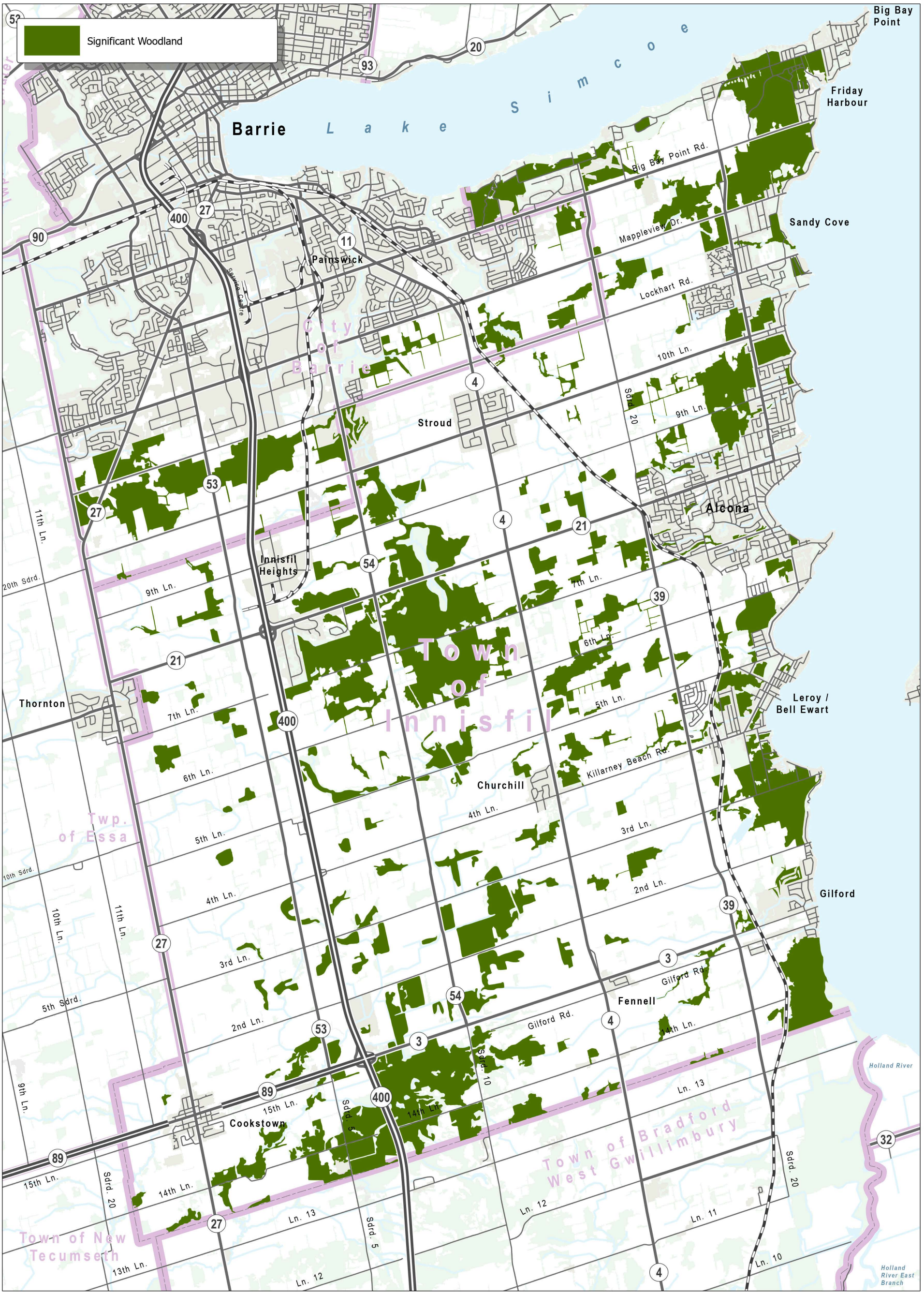

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TOWN OF INNISFIL

Map Title

NATURAL FEATURES INFORMATION REVIEW

MUNICIPAL SIGNIFICANT WOODLAND AREAS

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Key Natural Heritage / Key Hydrological Features

Source: Our Place Land Use

Lake Simcoe

Barrie

Big Bay Point

Friday Harbour

Sandy Cove

Big Bay Point Rd.

Mappleview Dr.

Lockhart Rd.

10th Ln.

9th Ln.

Sdrd. 20

Painswick

Stroud

Alcona

Innisfil Heights

Cookstown

Thornton

Churchill

Fennell

Leroy / Bell Ewart

Gilford

Killarney Beach Rd.

Gilford Rd.

Holland River

Holland River East Branch

City of Barrie

Town of Innisfil

Twp. of Essa

Town of Bradford West Gwillimbury

Town of New Tecumseth

Sarnia Centre

11th Ln.

20th Sdrd.

9th Ln.

7th Ln.

6th Ln.

5th Ln.

4th Ln.

3rd Ln.

2nd Ln.

10th Sdrd.

10th Ln.

11th Ln.

5th Sdrd.

2nd Ln.

9th Ln.

15th Ln.

14th Ln.

13th Ln.

Sdrd. 5

Sdrd. 10

Sdrd. 20

Ln. 13

Ln. 12

Ln. 11

Ln. 10

14th Ln.

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TOWN OF INNISFIL

Map Title

NATURAL FEATURES INFORMATION REVIEW

KEY NATURAL HERITAGE AND KEY HYDROLOGICAL FEATURES

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Wellhead Protection Areas (WHPA)

- WHPA A
- WHPA B
- WHPA C
- WHPA C1
- WHPA D
- Highly Vulverable Aquifer
- Significant Groundwater Recharge Area

Lake Simcoe

Big Bay Point

Friday Harbour

Sandy Cove

Alcona

Leroy / Bell Ewart

Gilford

Fennell

Stroud

Painswick

Innisfil Heights

Churchill

Thornton

Cookstown

Big Bay Point Rd.

Mappleview Dr.

Lockhart Rd.

10th Ln.

9th Ln.

7th Ln.

6th Ln.

5th Ln.

4th Ln.

3rd Ln.

2nd Ln.

Killarney Beach Rd.

Gilford Rd.

20th Sdrd.

10th Sdrd.

5th Sdrd.

11th Ln.

15th Ln.

14th Ln.

13th Ln.

Ln. 13

Ln. 12

Ln. 11

Ln. 10

Sdrd. 20

Sdrd. 10

Sdrd. 5

Holland River

Holland River East Branch

Town of Innisfil

Twp. of Essa

Town of New Tecumseth

Town of Bradford West Gwillimbury

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Map Title
NATURAL FEATURES INFORMATION REVIEW
SOURCE WATER PROTECTION AREAS

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Municipal Heritage Register

Designated Properties

Listed Properties

Lake Simcoe

Big Bay Point

Friday Harbour

Big Bay Point Rd.

Sandy Cove

Mappleview Dr.

Lockhart Rd.

10th Ln.

9th Ln.

Sdrd. 20

Painswick

Stroud

Alcona

Innisfil Heights

7th Ln.

6th Ln.

5th Ln.

4th Ln.

3rd Ln.

2nd Ln.

Leroy / Bell Ewart

Killarney Beach Rd.

Churchill

Thornton

Gilford

Gilford Rd.

Fennell

14th Ln.

15th Ln.

13th Ln.

Ln. 13

Ln. 12

Ln. 11

Ln. 10

Cookstown

Holland River

Holland River East Branch

Sdrd. 5

Sdrd. 10

11th Ln.

20th Sdrd.

10th Sdrd.

5th Sdrd.

Service Centre

City of Barrie

Town of Innisfil

Twp. of Essa

Town of New Tecumseth

Town of Bradford West Gwillimbury

Datum: North American 1983 CSRS

Coord. System: NAD 1983 CSRS UTM Zone 17N

Projection: Transverse Mercator

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Client

TOWN OF INNISFIL

Map Title

NATURAL FEATURES INFORMATION REVIEW

HERITAGE REGISTERED PROPERTIES

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Appendix C

Appendix C

Transportation System

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Innisfil

Appendix C | Transportation System

Date: July 12, 2022 **Project No.:** 300053011.0000

Project Name: Innisfil Transportation Master Plan Update

Submitted To: Town of Innisfil

Submitted By: R.J. Burnside & Associates Limited

1.0 Introduction

The Town of Innisfil's transportation system consists of a road network, active transportation facilities, and on-demand transit to accommodate the movement of goods and people. To respond to the growing population and employment within and around the Town of Innisfil, the Town has planned and budgeted for various transportation system improvements either through infrastructure upgrades or programs to promote the use of certain types of transportation. The existing and planned transportation system and programs are outlined in this memorandum.

2.0 Roads

2.1 Road Classification

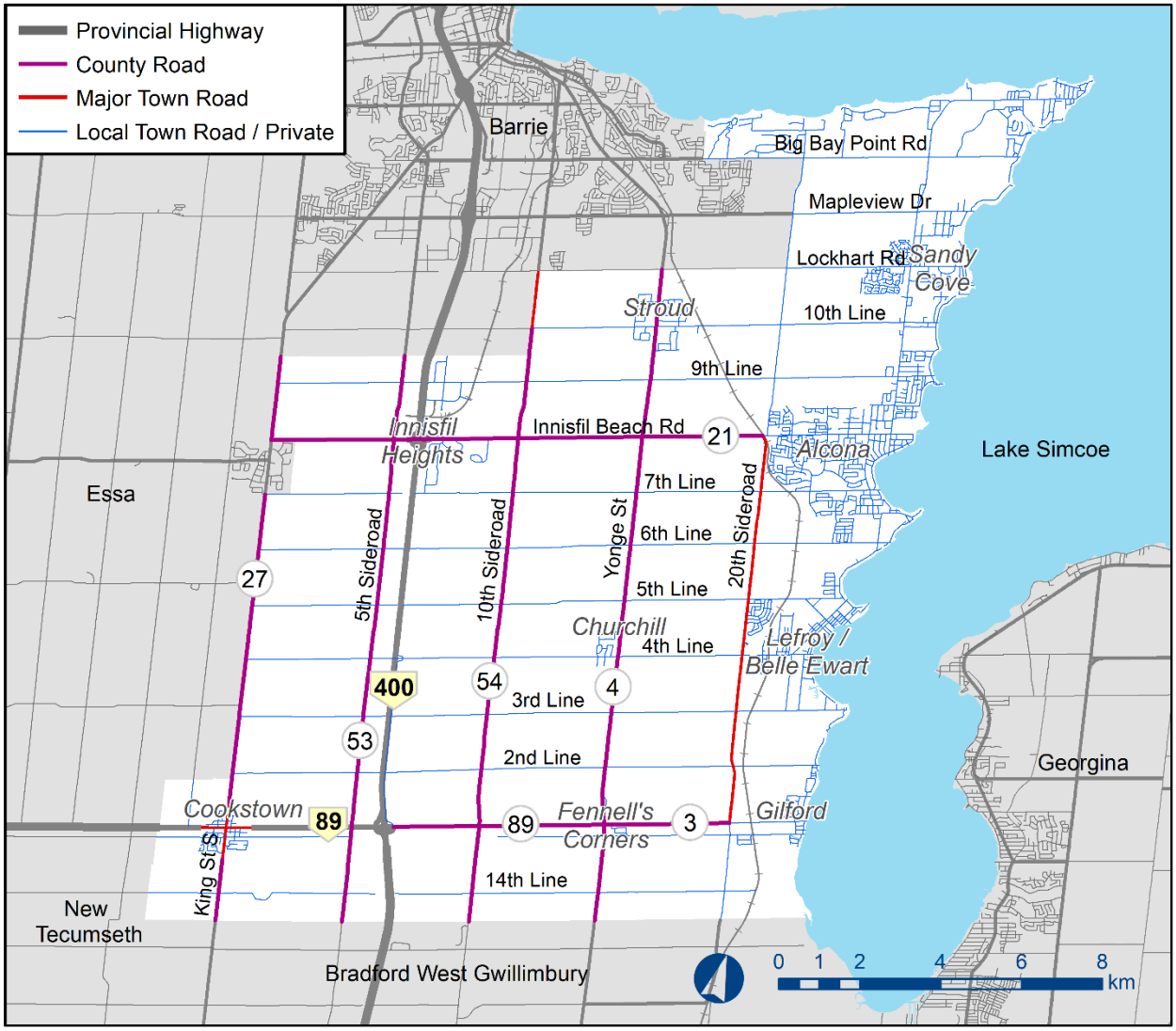
The road network in the Town of Innisfil is comprised of local roads, major roads, and Provincial highways. A small proportion of roads are also classified as private roads or unassumed. Provincial highways carry major inter-regional traffic flows that consist of both personal travel and freight movement between urban population centres or equivalent activity centres. Major roads (typically County roads), provide connectivity to key destinations and provide Town access between settlement areas, urban centres, and major markets. Local roads, provided by the Town, focus on land access and circulation within the municipality. Private roads are those roads not maintained by a municipality, located either on a municipal or private right-of-way providing access to a cluster of residential units. Road classification and right-of-way are shown in Our Place (2018) Schedule C: Transportation Network – Roads.

Most roads within the Town of Innisfil are local roads which are 78% of the total lane-kilometers within the Town. Major roads consist of 16% and highways and highway ramps consist of 7%.

2.2 Road Jurisdiction

Within the Town of Innisfil, roads are either maintained and operated by the Ministry of Transportation Ontario (MTO), Simcoe County, the Town of Innisfil, or are privately owned. Road jurisdictions within the Town of Innisfil are shown in Figure C-1.

Figure C-1: Road Network



Highway 400 is currently a 6-lane provincially owned freeway that has a posted speed limit of 100 km/hr. The role of the freeway, as a higher-order facility, is predominantly to transport personal automobiles and freight between different municipalities due to its higher capacity and higher speeds. The highway runs north and south throughout the southern Greater Golden Horseshoe Area.

Highway 89 is currently a 2 to 3-lane rural highway running east and west connecting Cookstown, Alliston, and Shelburne. Highway 89 is under the jurisdiction of the Town of Innisfil in Cookstown becoming a Simcoe County Road west of Cookstown and is provincially owned between Highway 400 to 20th Sideroad. Highway 89 provides critical higher-order capacity east and west across various Towns and municipalities.

The Country roads in the Town of Innisfil that run east-west include Innisfil Beach Road and Simcoe County Road 89. The County roads that run north-south include 5 Sideroad,

10 Sideroad, and Simcoe Road 27. 20th Sideroad, previously County Road 39, was transferred to the Town effective June 1, 2013.

2.3 Road Maintenance

A Road Needs Study is completed every five years to assess which roads require maintenance. The study evaluates the roadway conditions and rates each road section. By proactively programming road maintenance, roads are not left to deteriorate and then requiring reconstruction instead of resurfacing which costs more over the full lifecycle. To assess current roadway conditions, the Town classifies their road system into urban, semi-urban, and rural roads. Urban roads are generally described as roads with curb, gutter, and storm sewer drainage. Semi-urban roads are generally described as roads in built up areas (development exceeds 50% of the 50% of the frontage) without curb and gutter or curb and gutter on one side only. Rural roads are generally described with development on less than 50% of the frontage.

Town roads have four different surface types which include Earth, Gravel, Surface Treatment (LCB and ICB), and Hot Mix Asphalt (HCB). As of April 2018, 306 km or 80% of the Town's 383 km road inventory were Hot Mix Asphalt (HCB).

The surface type and road environment are summarized in Table C-1.

Table C-1: Road Inventory (2017 Road Needs Study Report)

Surface Type	All Roadside Environments (km)	Rural (km)	Semi-Urban (km)	Urban (km)
Earth	1	1	0	0
Gravel	33	23	10	0
Surface Treatment (LCB and ICB)	42	38	4	0
Hot Mix Asphalt (HCB)	306	125	121	61
Total	**383**	**187**	**135**	**61**

Critical deficiencies represent road characteristics that result in increased maintenance costs or lead to an inadequate level of service. The Town uses the criteria as shown in Table C-2 for critically deficient roads, which is based off the MTO Inventory Manual. If any one of the following characteristics fall below the minimum tolerable standards as defined in the MTO Inventory Manual, the road is considered critically deficient.

Table C-2: Criteria for Critically Deficient Roads

Criteria	Deficiency
Surface Type	Insufficient surface type for traffic volumes
Surface Width	Insufficient width of the road surface, excluding the shoulders
Capacity	Inability of the road to accommodate traffic volumes at peak periods
Structural Adequacy	Inability of the road base to support vehicular traffic
Drainage	Increased frequency of flooding or excessive maintenance effort required to prevent flooding.

If preventative maintenance measures are strategically planned and carried out, the service life of the pavement can be maximized, and substantial reconstruction costs can be deferred for longer periods of time. In the 2017 study, the System Adequacy, which is defined as the percentage of total road kilometers identified as not critically deficient, was 91%.

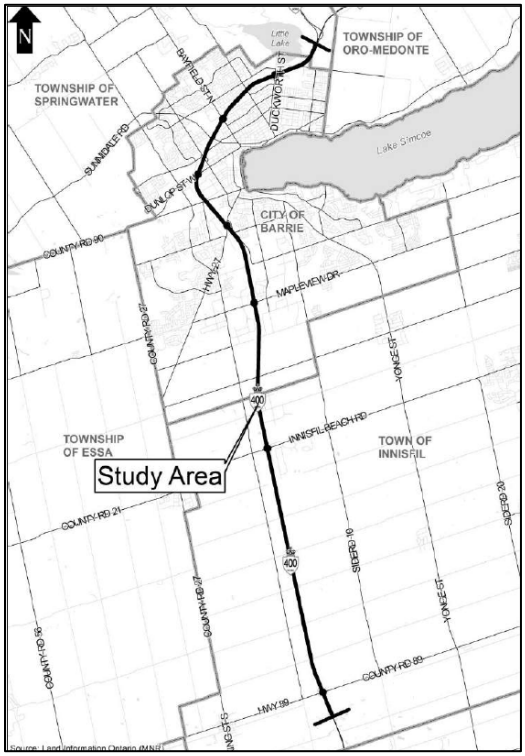
2.4 Planned Improvements

2.4.1 Provincial Highway Improvements

Widening of Highway 400: In 2001, the Ministry of Transportation Ontario (MTO) undertook a Planning and Preliminary Design Study to identify required improvements and widening requirements along 30 km of Highway 400 from 1 km south of Highway 89 to the Junction at Highway 11. A Transportation Environmental Study Report (TESR) received environmental clearance to proceed to further stages of design in 2006.

In 2017, an updated TESR was completed to incorporate 2031 traffic projections. Based off recommendations from the updated study, the recommended plan for Highway 400 is 5 lanes in each direction including 4 general purpose lanes and 1 High Occupancy Vehicle (HOV) lane throughout the study area as shown in Figure C-2.

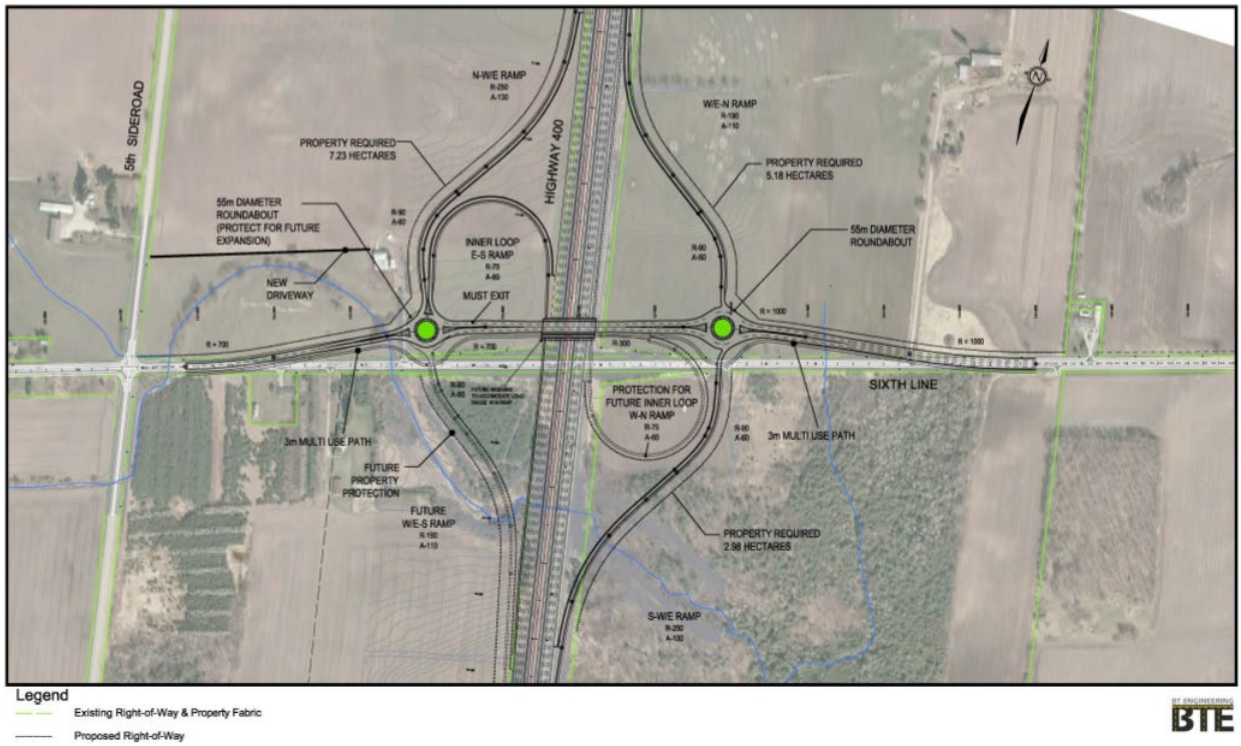
Figure C-2: Study Area for the Highway 400 TESR (2017)



6th Line and Highway 400 Interchange

The Town completed a Class Environmental Assessment (EA) in 2017 for the interchange at 6th Line and Highway 400 to find solutions to the expected increases in traffic through the area by 2031. Based off recommendations from the study, 6th Line is proposed to be a 4-lane arterial with a sidewalk and a Multi-Use Pathway (MUP) for active transportation as shown in Figure C-3.

Figure C-3: Sixth Line at Highway 400 Recommended Plan
Source: Highway 400 / 6th Line Interchange Municipal Class Environmental Assessment



A summary of Provincial improvements is shown in Table C-3.

Table C-3: Planned Provincial Highway Improvements

Improvement	From	To	Improvement	Timeline
Highway 400	1 km South of Highway 89	Highway 11	3 to 5 lanes (per direction) including a HOV lane	2031
6th Line Interchange / Highway 400	-	-	New interchange	To Be Determined

2.4.2 County Road Improvements

Simcoe County completed a Transportation Master Plan in 2014 which identified roads for improvement to 2031.These County Road improvements are summarized in Table C-4.

Table C-4: Planned County Road Improvements

Improvement	From	To	Improvement	Timeline
County Road 4 (Yonge Street)	County Road 89	Barrie City Limit	2 to 4 lane widening	2031
County Road 4 (Yonge Street)	Bradford Boundary (8th Line)	County Road 89	2 to 4 lane widening	2031
County Road 21 (Innisfil Beach Road)	County Road 27	County Road 39 (20th Sideroad)	2 to 4 lane widening	2031
County Road 53 (5th Sideroad)	County Road 21 (Innisfil Beach Road)	Barrie City Limit	2 to 4 lane widening	2031
County Road 54 (10th Sideroad)	County Road 21 (Innisfil Beach Road)	Barrie City Limit	2 to 4 lane widening	Beyond 2031

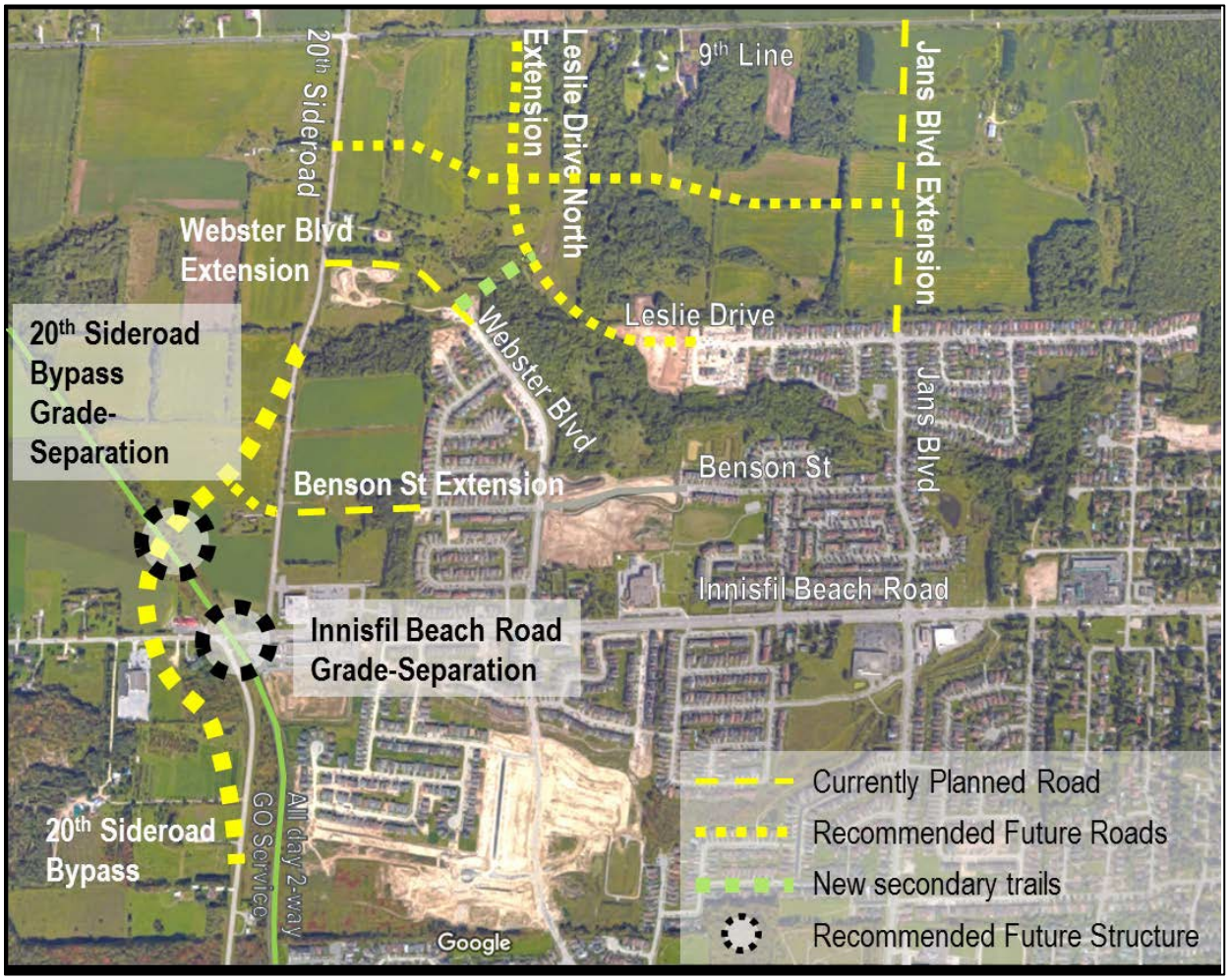
2.4.3 Town Road Improvements

The Town completed a Transportation Master Plan in 2018 which identified roads for improvement to 2041.

Grade Separations at Innisfil Beach Road and 20th Sideroad Bypass

To improve transportation connections, increase safety, and accommodate future traffic volumes, two grade separations were identified in the 2018 Transportation Master Plan at Innisfil Beach Road and a realigned 20th Sideroad Bypass. These proposed future grade separations are shown in Figure C-4.

Figure C-4: Proposed Future Grade Separations
Source: Town of Innisfil Transportation Master Plan (2018)



Highway 89 East-West Link Improvement

Highway 89 carries intraregional traffic consisting of both personal vehicle and freight between Wellington County, Dufferin County, and Simcoe County. Highway 89 also connects the Town of Shelburne, Alliston, and Cookstown near the Town of Innisfil. Because of the role and characterization of Highway 89, the higher volumes, higher speeds, and higher incidents of speeding have caused unsafe conditions within Cookstown.

Although there is a need for east-west capacity improvements through the Cookstown area, property constraints through the downtown Cookstown area have limited the ability to widen Highway 89. The 2018 Transportation Master Plan recommended a conceptual Highway 89 East-West Connecting Link Improvement which provides an alternate east-west route around Cookstown as shown in Figure C-5.

Figure C-5: Proposed Highway 89 East-West Alternative Route
Source: Town of Innisfil Transportation Master Plan (2018)

A summary of the proposed improvements from the Town's 2018 Transportation Master Plan is shown in Table C-5.

Table C-5: Planned Town Road Improvements

Road	From	To	Improvement	Timeline
Webster Boulevard	North Limit	20th Sideroad	Extension	Short-Term
Highway 89 East-West Link*	West of Cookstown	East of Cookstown	Alternate Route	Short-Term
Webster Boulevard	Quarry Drive	6th Line	Extension	Short-Term
Jans Boulevard	North Limit	9th Line	Extension	Short-Term
6th Line	20th Sideroad	Angus Street	Widening	Short-Term
20th Sideroad Bypass	Leslie Drive	South of Innisfil Beach Road	Bypass	Medium-Term (2031)
Webster Boulevard	6th Line	5th Line	Extension	Medium-Term (2031)
6th Line	County Road 53 (5th Sideroad)	20th Sideroad	Widening	Long-Term (Beyond 2031)

*Currently not in MTO's 5-Year Southern Ontario Highway Improvement Program

Intersection Improvements

The 2018 TMP proposed the following intersection improvements:

- Yonge Street and 9th Line
- Yonge Street and 7th Line
- Yonge Street and 6th Line
- Yonge Street and 5th Line

- Yonge Street and 4th Line / Killarney Beach Road
- 20th Sideroad and Lockhart Road
- 20th Sideroad and 9th Line
- 20th Sideroad and 6th Line
- Innisfil Beach Road and 20th Sideroad (North leg)
- Innisfil Beach Road and 20th Sideroad (South leg)
- 20th Sideroad and 5th Line
- 25th Sideroad and Big Bay Point Road / 13th Line
- 25th Sideroad and 9th Line
- St. John's Road and 7th Line

The 2018 TMP stated that the intersection at Yonge Street and 9th Line warrant exclusive turning lanes at all approaches.

2.4.4 Roundabouts

Currently the Town of Innisfil does not have any roundabouts.

The 2018 TMP proposed that following intersections be considered for roundabouts:

- 20th Sideroad and Lockhart Road
- 20th Sideroad and 9th Line
- 20th Sideroad and 6th Line
- 20th Sideroad and 5th Line
- 25th Sideroad and Big Bay Point Road/ 13th Line
- 25th Sideroad and 9th Line
- St. John's Road and 7th Line

3.0 Active Transportation Infrastructure

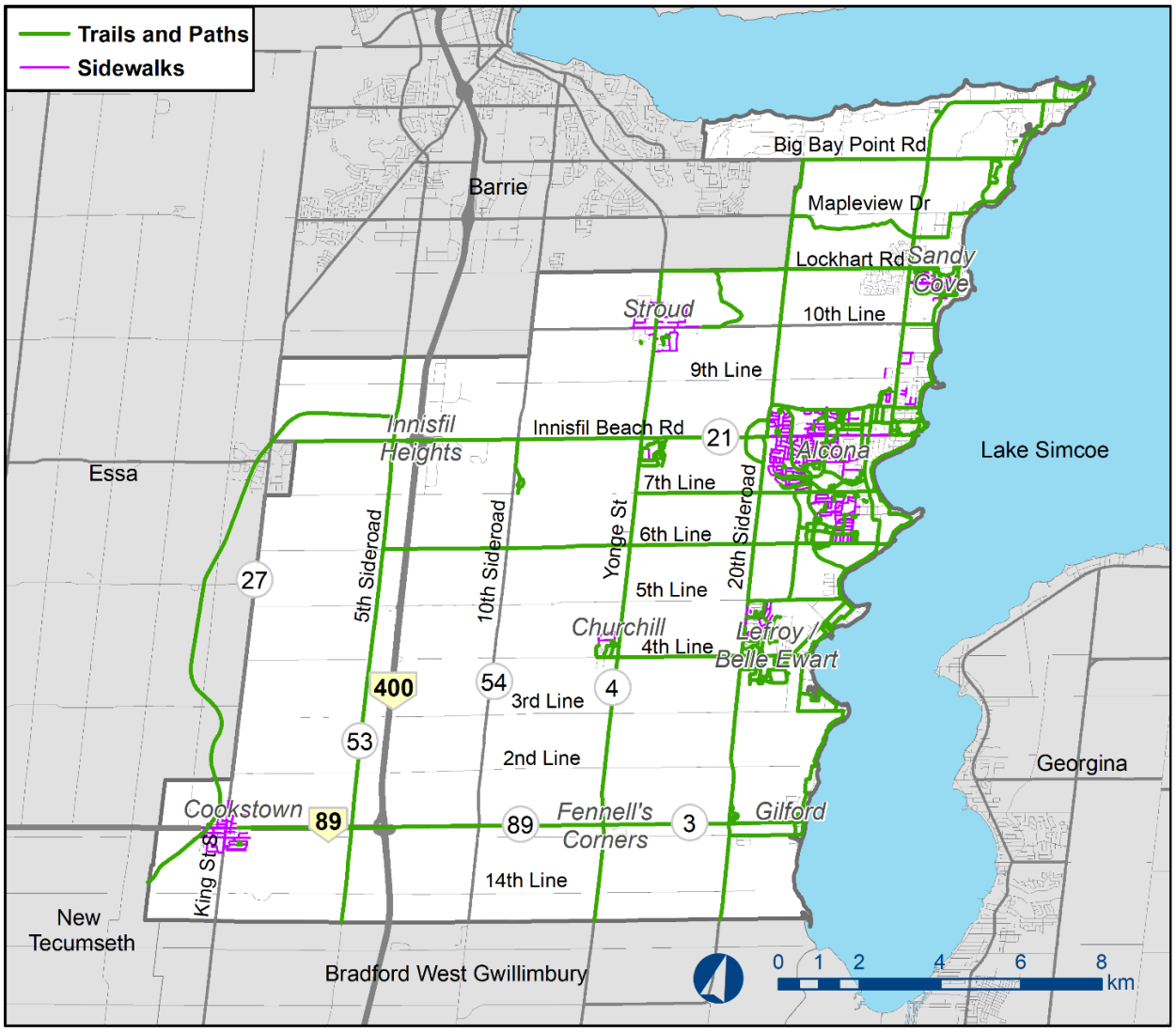
3.1 Existing Active Transportation Network

Active transportation infrastructure allows Town of Innisfil residents and other trip users to use self-propelled modes of transportation requiring human energy such as walking, cycling, skating, jogging, rolling, and skiing. These modes help to promote sustainable transportation which reduces the impact to the environment and healthy lifestyles. Active transportation is supported in the Provincial Policy Statement as an important component to a multi-modal transportation system.

The Town of Innisfil owns and maintains sidewalks, trails, on-street bicycle lanes, sharrows, multi-use paths, and paved shoulders. Supporting features or furniture are helpful to increase the comfort and security of trip takers of all abilities and ages. These features include benches, picnic tables, benches, shade and bicycle parking or racks.

Previous Town of Innisfil Transportation Master Plans and the Trails Master Plan (2016) has guided the development of the Town's active transportation and trail network. The current active transportation inventory is shown in Figure C-6.

Figure C-6: Active Transportation Infrastructure



3.2 Planned Active Transportation

Planned improvements to the Town's active transportation network, as per the 2018 Transportation Master Plan, are summarized in Table C-6.

Table C-6: Planned Pedestrian and Cycling Facilities

From	To	Location	Type
Innisfil Beach Road	-	I.R.C. Loop	Multi-use Trails
25 Sideroad	-	Innisfil Beach Park Trail	Multi-use Trails
6th Line	-	Sleeping Lion Loop	Multi-use Trails
-	-	Centennial Park	Secondary Trails
-	-	Innisfil Recreation Complex	Secondary Trails
-	-	Luck Conservation Area	Secondary Trails
Laurand Street	Future Street	Alcona Community Park & Webster Park	Secondary Trails
Lebanon Drive	Goshen Road	Andrade Memorial Park	Secondary Trails
Anna Maria Avenue	-	Anna Maria Park	Secondary Trails
Maclean Street	Existing Walkway	Woodlot Walkway	Secondary Trails
Webster Boulvard	Anna Maria Park	Future Park / Open Space Trail	Secondary Trails
Future Street	Future Street	Future Sleeping Lion Park Trail	Secondary Trails
Future Street	Future Street	Future Sleeping Lion Walkways	Secondary Trails
Future Street	Webster Boulevard	Future Stormwater Management Pond (Alcona Capital)	Secondary Trails
Future Street	Innisfil Beach Road / Taggart Court	Future Stormwater Management Pond (Alcona Capital)	Secondary Trails
Nantyr Drive	Booth Avenue	Unnamed Stormwater Management Pond Trail	Secondary Trails
Jack Crescent	Warrington Way	Unnamed Trail	Secondary Trails
-	-	Coral Woods Park	Secondary Trails
Broderick Way	-	Future Stormwater Management Pond (Churchill Downs)	Secondary Trails
Lillian Street	Future Street	Future Park / Open Space Trail (Innis Village West)	Secondary Trails
Future Street	Future Street	Future Park / Open Space Trail (Innis Village West)	Secondary Trails
Lockhart Road		Future Park / Open Space Trail	Secondary Trails

From	To	Location	Type
Lillian Street	-	Future Stormwater Management Pond (Innis Village East)	Secondary Trails
Lockhart Road	Future Street	Future Stormwater Management Pond (Innis Village West)	Secondary Trails
Lormel Gate Avenue	Wharram Way	Future Park / Open Space	Secondary Trails
Lormel Gate Avenue	Bardeau Street	Future Walkways	Secondary Trails
Innisfil Beach Road	Lebanon Drive	Spring Street	Sidewalk
Proposed Secondary Trail	Anna Maria Avenue	Maclean Street	Sidewalk
Albert Street	Settlement Boundary	Church Street	Sidewalk
Shore Acres Drive	Gilford Road	Neilly Road	Sidewalk
Settlement Boundary	Neilly Road	Shore Acres Drive	Sidewalk
Jans Boulevard	St. John's Road	Anna Maria Avenue	Cycle Lane Retrofit (Pavement Markings and Signage Only)
Webster Boulevard	Jans Boulevard	Leslie Street	Cycle Lane Retrofit (Pavement Markings and Signage Only)
Pinegrove Avenue	Lockhart Road	25 Sideroad	Sharrow
West Street	30 Sideroad	Big Bay Point Road	Sharrow
Crescent Harbour Road	25 Sideroad	Maple Drive / Cove Avenue / Pinegrove Avenue	Sharrow
25 Sideroad	Rose Lane	Lockhart Road / Lillian Street / Ireton Street / Leonard Street	Sharrow
Big Bay Point Road	13th Line	West Street / Maple Road	Sharrow
7th Line	St. John's Road	Cross Street / Cedar Grove Avenue / Cedarvale Drive	Sharrow
		/ Chandos Avenue	Sharrow
Innisfil Beach Road	7th Line	Lakelands Avenue / Adams Road / Simcoe Boulevard	Sharrow
Rose Lane	9th Line	Leonard Street	Sharrow
Ewart Street	3rd Line	Claver Avenue / Frederick Street / Sheppards Trail / Wisker Avenue / Barry Avenue / Harbour street / 3rd Line	Sharrow

From	To	Location	Type
2nd Line	20 Sideroad	Dempsey Street / Parkview Drive / Lakeshore Boulevard / Acres Street / Beach Road / Gilford Road	Sharrow
25 Sideroad	Crystal Beach Road	Roberts Road	Shoulder
Roberts Road	9th Line	Crystal Beach Road / Goodfellow Avenue	Shoulder
-	-	20 Sideroad Proposed Realignment	Multi-Use Trails
13th Line	Crescent Harbour Road	Unnamed Trail	Secondary Trails
Future Street	Future Street	Future Sleeping Lion Park Trail	Secondary Trails
6th Line	7th Line	Future Sleeping Lion Trail	Secondary Trails
6th Line	Webster Boulevard	Future Stormwater Management Pond (Sleeping Lion)	Secondary Trails
Adullam Avenue	Willard Avenue	Leslie Drive	Secondary Trails
Jans Boulvard	Innisfil Beach Road	Unnamed Park Loop	Secondary Trails
Pine Avenue	Future Street	Future Park / Open Space Trail (LSAMI P3)	Secondary Trails
Killarney Beach Road	Future Street	Future Park / Open Space Trail (LSAMI P3)	Secondary Trails
20 Sideroad / Killarney Beach Road (south)	Future Street	Future Park / Open Space Trail (LSAMI P4)	Secondary Trails
Church Drive Dead End	Future Street	Future Park / Open Space Trail (LSAMI P4)	Secondary Trails
Stewart Road	Future Street	Future Stormwater Management Pond (LSAMI P3)	Secondary Trails
Squire Street	Walter Street / Lefroy Arena	Future Trail	Secondary Trails
20 Sideroad / Killarney Beach Road (north)	Bardeau Street / Church Street Park / Church Street Drive	Future Trail (LSAMI P2)	Secondary Trails
Spring Street	Deadend	Goshen Road	Sidewalk
Willard Avenue	Andrade Memorial Park	Lebanon Drive	Sidewalk
Willard Avenue	25 Sideroad	Lebanon Drive	Sidewalk
Leslie Drive	Lebanon Drive	Mildred Avenue	Sidewalk

From	To	Location	Type
Westmount Avenue	Lakeshore Branch Library	Mountbatten Avenue	Sidewalk
Leslie Drive	Lebanon Drive	Richard Street	Sidewalk
Lebanon Drive	Leslie Drive	Spring Street	Sidewalk
Sloan Circle	Yonge Street	4th Line	Sidewalk
4th Line	Meadowland Street	Sloan Circle	Sidewalk
4th Line	4th Line	Valleyview Drive	Sidewalk
Corner Avenue	Lefroy Arena	Walter Street	Sidewalk
10th Line	Rose Lane	Leonard Street	Sidewalk
Jans Boulvard	25 Sideroad	Leslie Street	Cycle Lane Retrofit (Pavement Markings and Signage Only)
6th Line	Belle Aire Beach Road	Unnamed Trail	Secondary Trails
6th Line	Maple Road	Unnamed Trail	Secondary Trails
Lockhart Road	10th Line	Unnamed Trail	Secondary Trails
20 Sideroad	25 Sideroad	Unnamed Trail	Secondary Trails
Webster Boulvard	-	Future Sleeping Lion Park Trail	Secondary Trails
Future Street	Future Street	Future Sleeping Lion Walkways	Secondary Trails

4.0 Transit

4.1 Innisfil Transit

The Innisfil Transit service is a program that currently partners with Uber to provide on-demand ridesharing. The fare structure has changed since the inception of the program. Individuals are only permitted 30 trips per month unless they are granted an exemption. There are certain origins and destination that have fixed fares as shown in **Table C-7**.

Table C-7: Innisfil Transit Fixed Fares

Origin/Destination	Fixed Fare
To/From Innisfil Recreation Complex/Town Hall area	$4
To/From closest GO bus stop along Yonge Street	$5
To/from Barrie South GO train station	$6
To/from Innisfil Heights Employment Area and Highway 400 carpool lot	$6
To/from IdealLab and Lirbary (Alcona)	$4
To/from South Innisfil Community Centre (Lefroy)	$4

A $4 discount is provided off regular fare for custom origin and destinations within Innisfil that are a minimum of $4 per trip. Annual ridership is estimated to be approximately 80,000 users

(Innisfil Transit System Performance, Ryerson, 2021) with 220,000 Innisfil transit trips undertaken between May 2017 and February 2020.

4.2 Metrolinx GO Service

The #63 GO bus route serves the Town of Innisfil with two bus lines which are the #68 bus line and #68B bus line.

The southbound stops in Innisfil are located at the following locations:

- Yonge Street at Lynn Street
- Yonge Street at Victoria Street
- Yonge Street at Innisfil Beach Road
- Highway 11 at Meadowland Street
- Yonge Street at 4th Line
- Yonge Street at County Road 89

The northbound stops in Innisfil are located at the following locations:

- Yonge Street at Lynn Street
- Yonge Street at Glenn Avenue
- Yonge Street at Victoria Street
- Yonge Street at Innisfil Beach Road
- Yonge Street at Meadowland Street
- Yonge Street at Killarney Beach Road
- Yonge Street at Shore Acres Drive

This GO bus connects Barrie Transit Terminal to the north with the Aurora GO Transit Station to the south. More schedule details are shown in Table C-8.

Table C-8: GO Bus #68 Schedule Details

Day	Direction	Frequency
Weekday	Southbound	Approximately 45 minutes to 1 hour between 4:10 AM and 10:00 PM
Weekday	Northbound	Approximately 1 hour to 1 hour 20 minutes between 6:10 AM and 9:52 PM Final bus departs at 11:52 PM.
Weekend	Southbound	Approximately 45 minutes to 1 hour between 6:10 AM and 8:17 PM Final bus departs at 10:15 PM
Weekend	Northbound	Approximately 1 hour between 8:02 AM AM and 1:05 AM

The GO bus timetables show that the #68 bus route has more frequent service in the southbound direction than the northbound direction for both weekday and the weekend travel as it is the peak direction. The frequency between the weekday and weekend for both northbound and southbound travel, respectively, are approximately the same.

Weekday service for both the southbound and northbound bus routes begins two hours earlier than the weekend service. The weekday northbound service also ends two hours earlier than the weekend service.

The GO Barrie Line passes through Innisfil, however there are currently no stops in the Town. The closest GO rail stations are the Barrie GO Station to the north of Innisfil and Bradford GO Station to the south.

4.3 Planned Innisfil GO Station

The Innisfil GO station will be located on 6th Line in Innisfil as part of Metrolinx's Regional Express Rail (RER) expansion program. Metrolinx is planning for a multi-use path on the west side of the corridor with potential pedestrian/bike connections north and south along the rail corridor. Other design elements include bicycle parking and passenger pick up and drop off areas to accommodate the Uber transit service.

5.0 Transportation Programs

5.1 EcoMobility Hub

An EcoMobility hub is a multi-modal one-stop point intended to facilitate smart and easy access to mobility services. They include facilities to accommodate personal and electric vehicles, bicycles, and transit. Facilities include transit stops, parking, electric vehicle charging, and bicycle racks. They also act as a central location for ride sharing, car sharing, and bike sharing. EcoMobility Hubs also incorporate facilities and services to act as a resting stop such as Wi-fi, wayfinding information, benches and other street furniture. The Town has planned for an EcoMobility pilot program located in popular areas such as Recreational Complex, Town Hall, Tanger Outlets, Friday Harbour, or the planned Innisfil GO Station.

5.2 Bike-Share Program

ShareCycle was a bikeshare pilot project that was implemented by the Town between August 26, 2017, when it launched at the Great Trail Event, and October 2018. This pilot was free to residents and provided 12 bicycles which were distributed throughout the community. The bicycles were tracked using GPS sensors and riders were free to openly use and drop off the bikes anywhere in the community. The aim of this pilot was to encourage riders to take recreational trips, explore Innisfil's amenities, and connect people to new opportunities and grow a sense of community.

5.3 Walking and Cycling Education Programs

The Town has invested in educational and promotional programs for walking and cycling which are important tools for making road users more comfortable with active transportation modes.

Appendix D

Appendix D

Travel Characteristics

BURNSIDE

Innisfil

Appendix D | Travel Characteristics

Date: July 12, 2022 **Project No.:** 300053011.0000

Project Name: Innisfil Transportation Master Plan Update

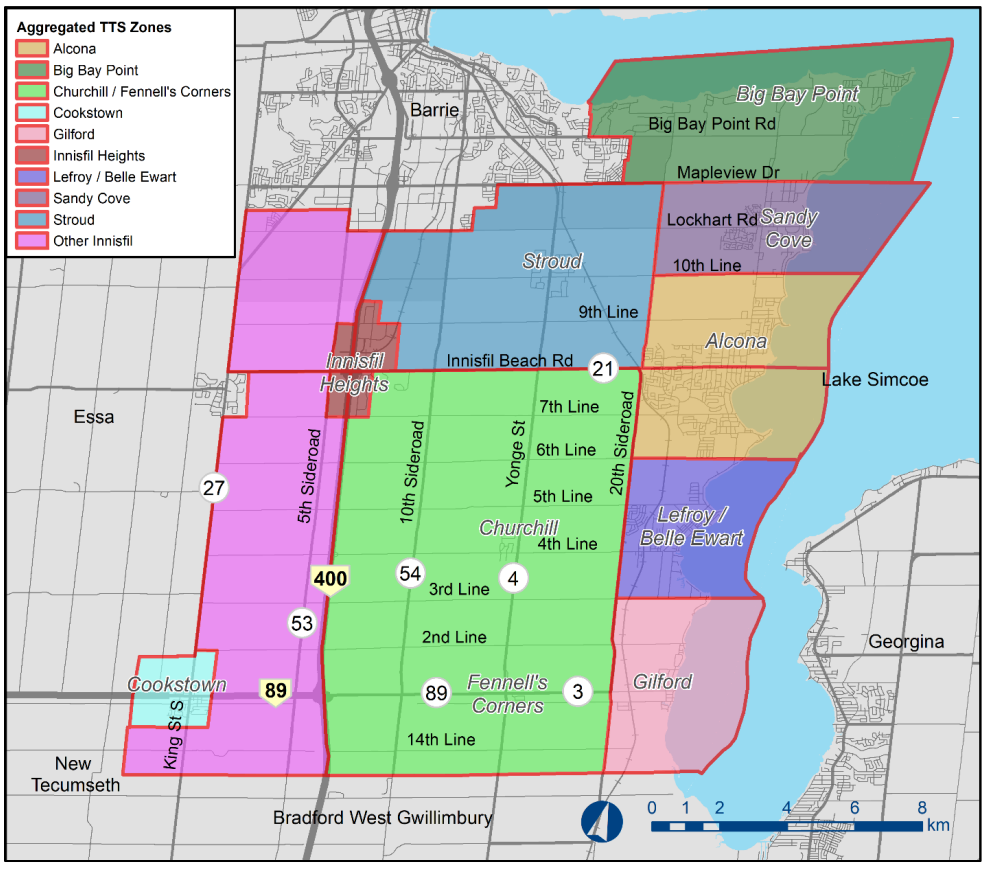
To: Town of Innisfil

From: R.J. Burnside & Associates Limited

1.0 Background

Recent travel patterns were derived based on 2016 data from Transportation Tomorrow Surveys (TTS), as supplied by the Data Management Group at the University of Toronto. This reflects an update to the travel trend analysis previously conducted in the Town's 2018 Transportation Master Plan (TMP), which utilized 2011 TTS data. This information was used to establish the Town's existing travel demand on a high-level. TTS data established a zonal system as illustrated in Figure D-1, which was aggregated to derive travel characteristics for each sub-area within the Town.

Figure D-1: Aggregated TTS Zone System



2.0 Historical Trends

The Town's TMP reviewed historical TTS trends between 2006 and 2011, which revealed:

- An increase in average vehicle ownership per household from 1.8 to 2.0.
- An increase in the total number of trips to or from Innisfil during the PM peak period from 19,500 to 23,300, which amounts to a 19% increase during the five-year period.
- An increase in auto mode share (including auto driver and passenger) from 91% to 94%, along with a corresponding decrease in other modes, including walking, cycling, transit and school bus.
- A slight decrease in the daily trip rate per person and per household, which was also observed in the surrounding municipalities.

An updated TTS trend analysis between 2011 and 2016 was not conducted due to the variation in survey expansion methods between 2016 and pre-2016 data, which would not yield comparable results.

3.0 Travel Factors

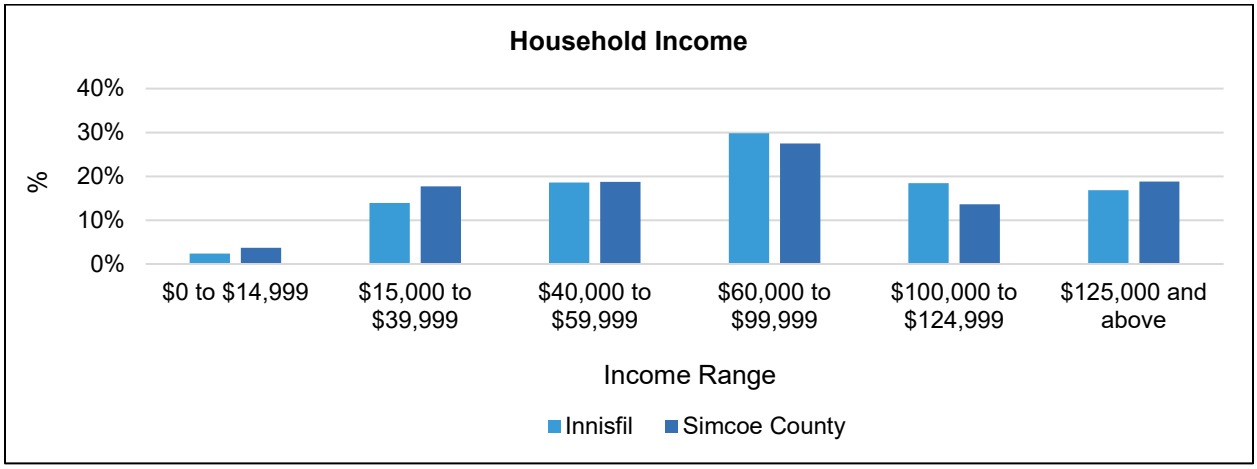
Most recent (2016) household and person characteristics were extracted from TTS to better inform the number and type of trips made by residents within Innisfil. There are approximately 13,400 households in Innisfil, with an average of 2.7 persons, 2 drivers, 2.1 vehicles and 5.3 total daily trips per household. These household characteristics are slightly higher compared to those of Simcoe County as a whole, as summarized in Table D-1. A breakdown of employment status by average full-time, part-time and home workers per household indicates that Innisfil also has a higher proportion of full-time workers per household compared to the County. There is also a greater proportion of households in Innisfil with higher income ranges ($60,000 to $124,999), as shown in Figure D-2 which may be attributed in part to the high proportion of full-time workers per household.

Table D-1: Household Characteristics

	Innisfil	Simcoe County 1
Households	13,376	117,566
Average Persons per Household	2.7	2.6
Full-Time Workers	1.2	1.0
Part-Time Workers	0.3	0.3
Home Workers	0.1	0.1
Students	0.5	0.5
Other (children and retired workers)	0.7	0.7
Average Drivers per Household	2.0	1.9
Average Vehicles per Household	2.1	2.0
Average Total Daily Trips per Household	5.3	5.1

Note: 1. Simcoe County does not include the City of Barrie and Orillia, as they are politically independent single-tier municipalities.

Figure D-2: Household Income

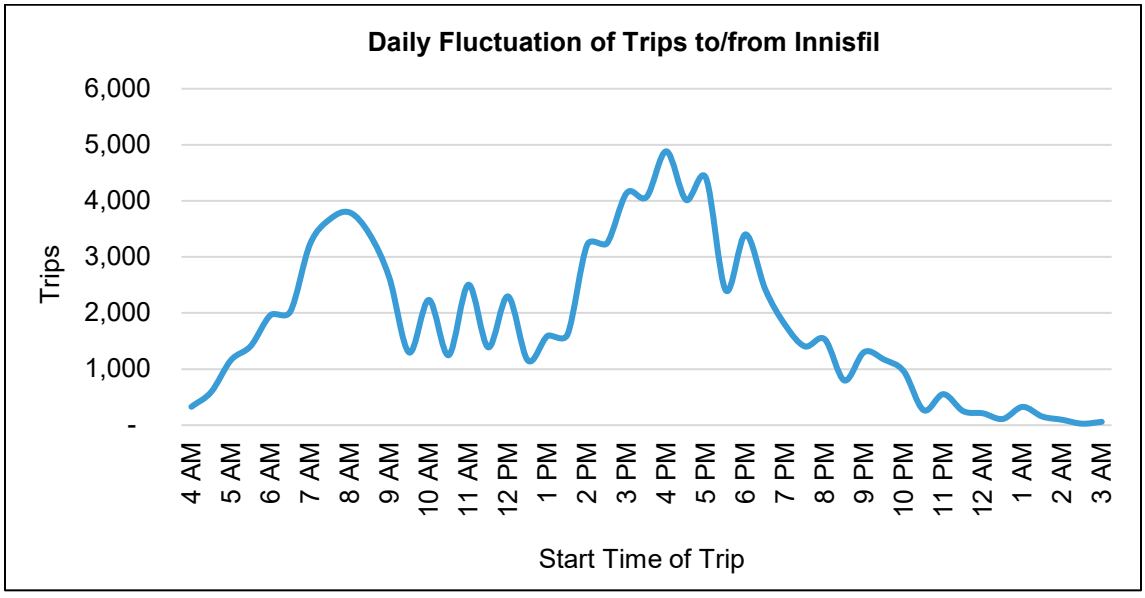


4.0 Trip Patterns

4.1 Peak Periods

Daily trips travelling to/from the Town fluctuates, but evidently peaks during the morning AM period between 6:30 AM – 9:30 AM and evening PM period between 3:30 PM – 6:30 PM, as shown in Figure D-3. As mentioned previously, this data reflects 2016 surveyed data. Travel patterns have changed in recent years as a result of the COVID-19 pandemic but appears to be on a gradual return to pre-pandemic levels. However, considering this trip database is the latest pre-pandemic data available, peak periods from this data were used for the purpose of assessing travel trends.

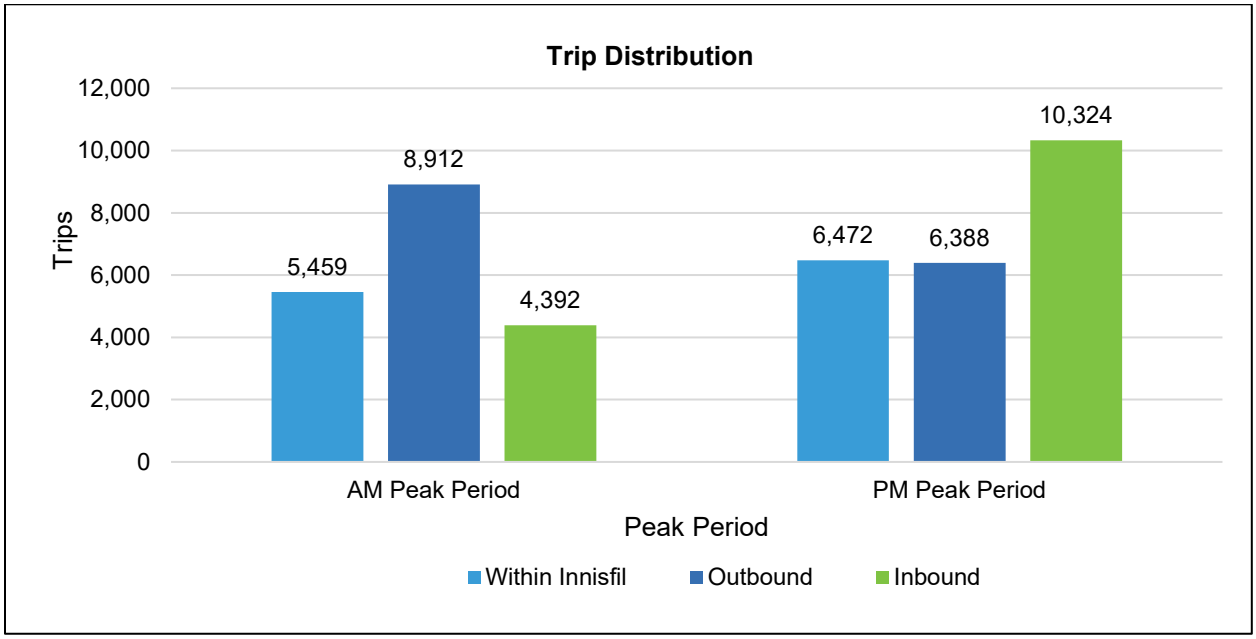
Figure D-3: Daily Trip Fluctuation by Hour



4.2 Distribution

There are approximately 5,500 and 6,500 internal Town trips during the AM and PM peak period, respectively. During the AM peak period, there are more outbound trips compared to inbound; this pattern is reversed in the PM peak period as shown in Figure D-4.

Figure D-4: Trip Distribution



4.3 Internal Trips

A review of trip distribution patterns within Innisfil for the AM and PM peak period, as shown in Figure D-5 and Figure D-6, respectively, indicates that most internal Town trips occur within Alcona, particularly during the AM peak period. During the PM peak period, there are more trips travelling between Alcona and Churchill / Fennell's Corners as well as travelling within Cookstown, compared to the AM peak period.

Figure D-5: Trip Distribution within Innisfil (AM Peak Period)

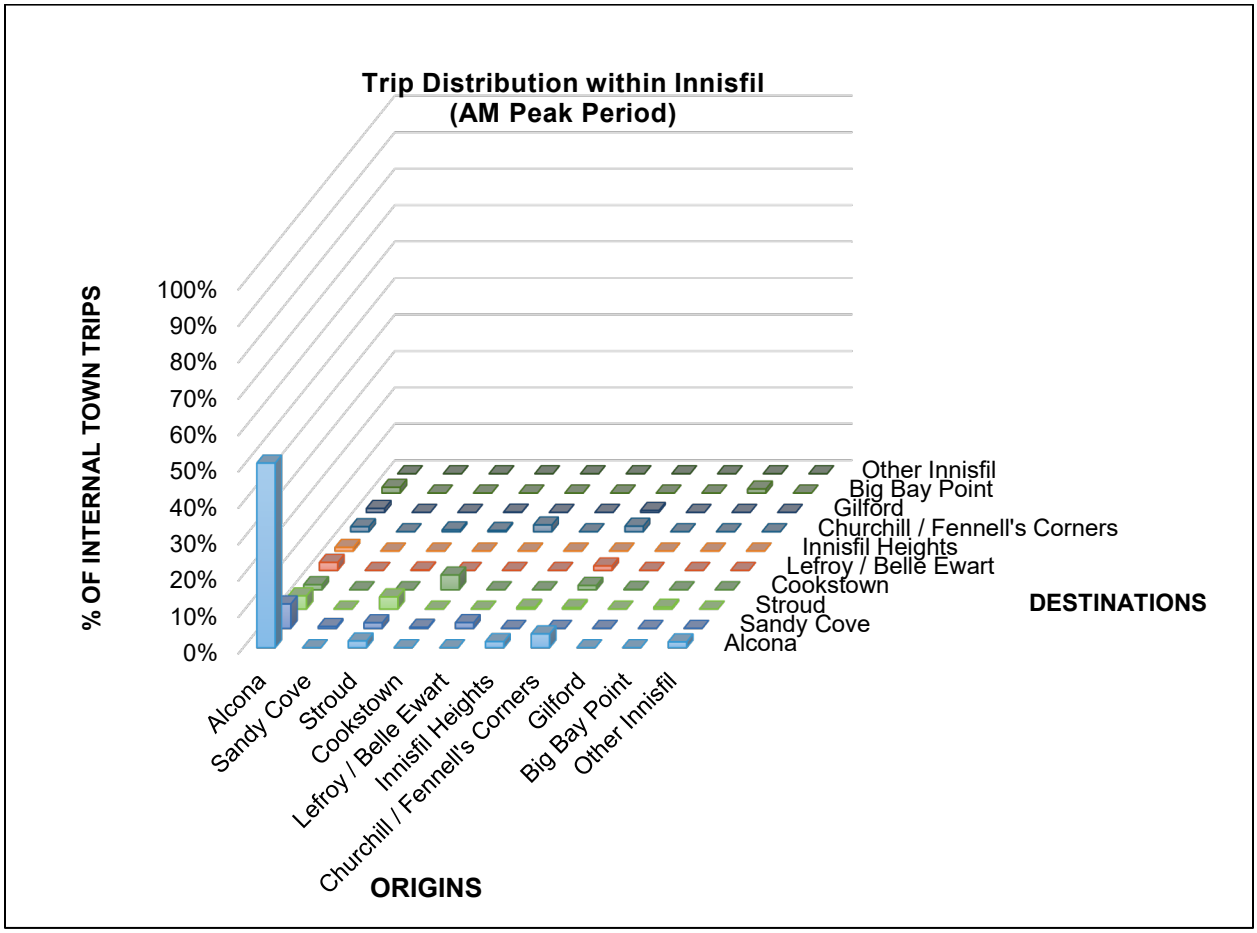
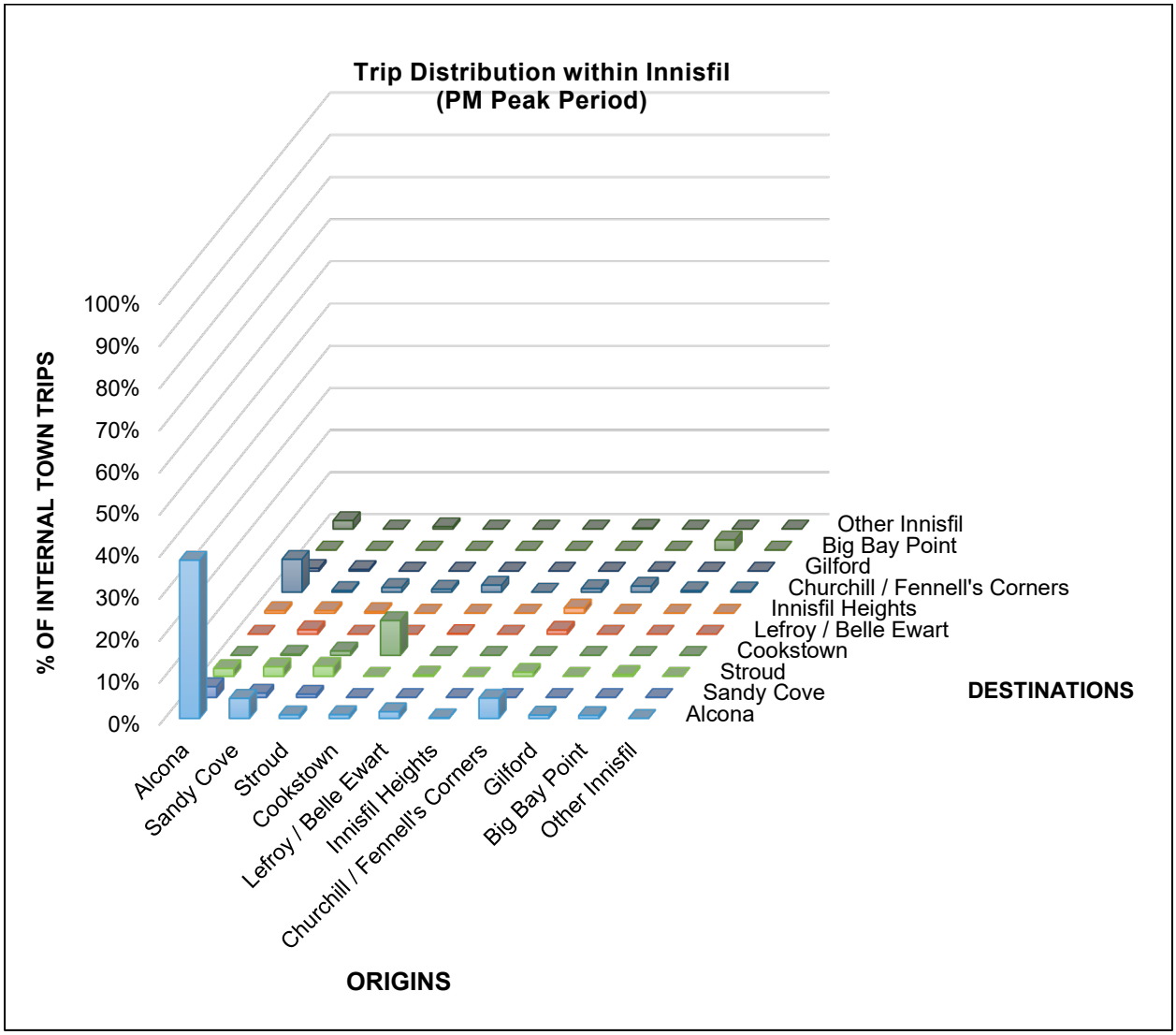


Figure D-6: Trip Distribution within Innisfil (PM Peak Period)



4.4 External Trips

A review of inbound trips from outside of Innisfil reveals that most trips originate in Barrie during the AM and PM peak periods, as shown in Figure D-7 and Figure D-8, respectively. During the AM peak period, the second most common origin for inbound trips is the rest of Simcoe County (including Orillia) and then York Region, whereas during the PM peak period, there are more inbound trips originating in York Region compared to the rest of Simcoe County (including Orillia).

During the AM peak period, most external inbound trips are travelling to Alcona (~4,700), followed by the Churchill / Fennell's Corners area (~1,400). Similarly, the external inbound trips during PM peak period also consists largely of destinations to Alcona (~8,000), followed by the

Churchill / Fennell's Corners area (~2,000). There does appear to be a greater proportion of trips travelling to Sandy Cove during the PM peak period by a magnitude of approximately 1,200 trips compared to the AM peak period.

Figure D-6: Inbound Trips (AM Peak Period)

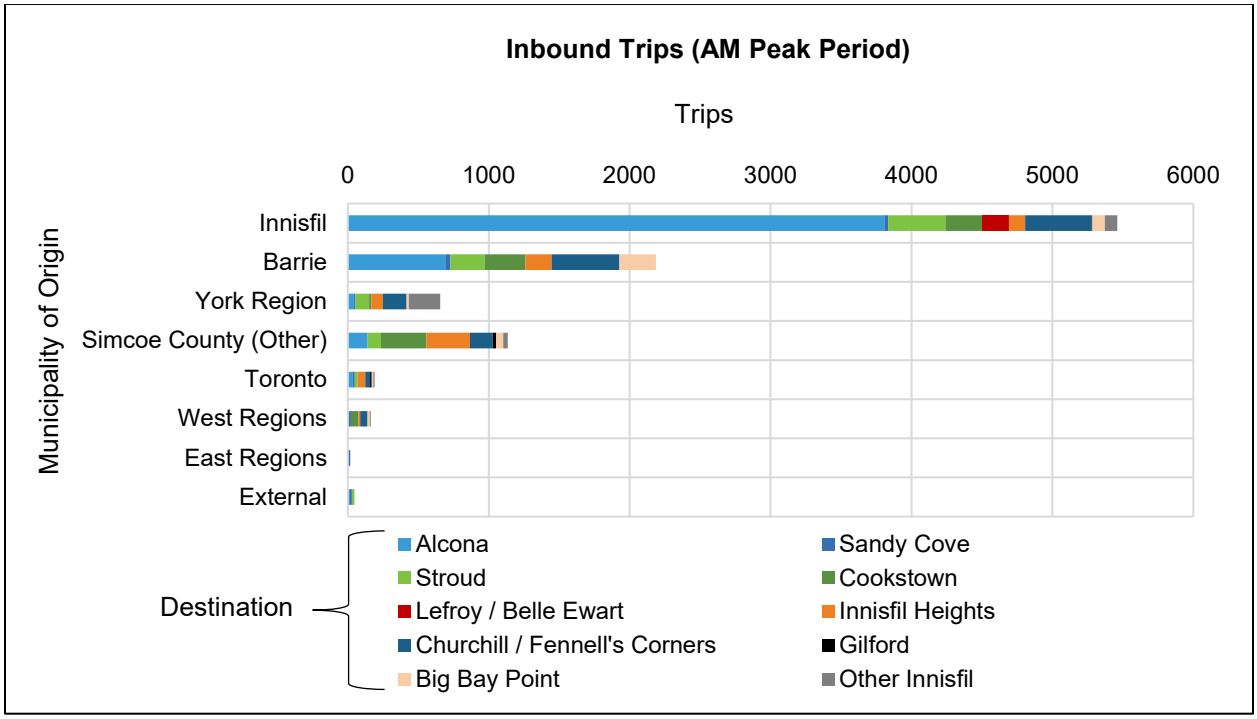
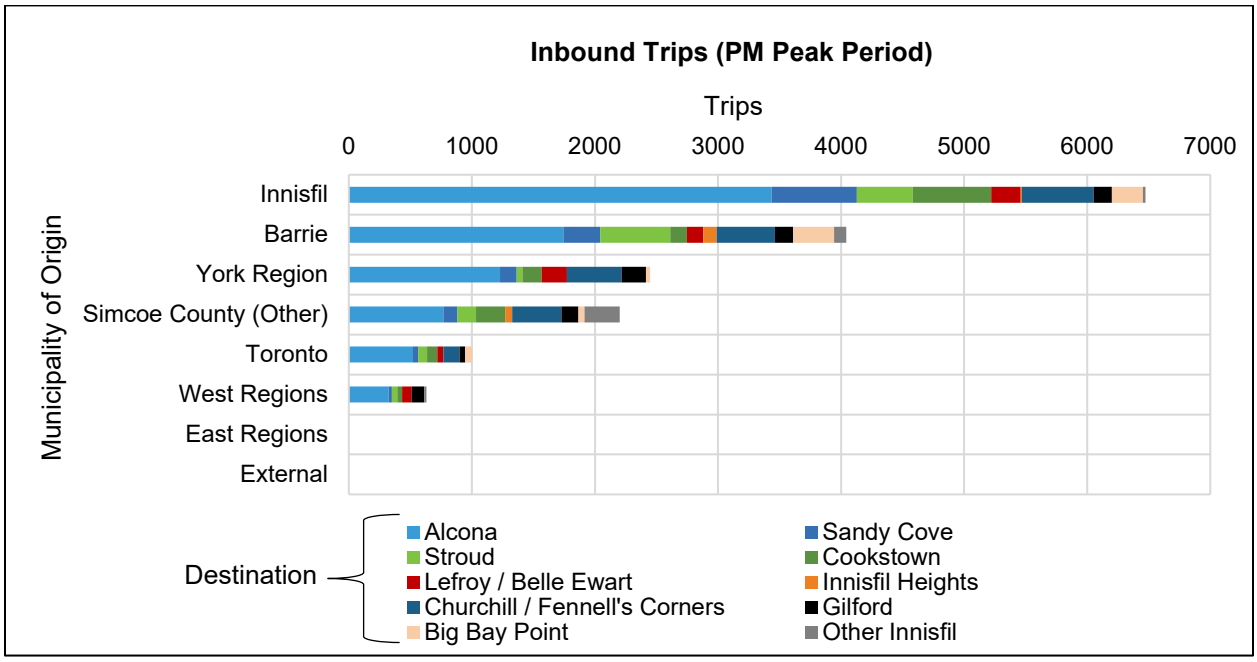


Figure D-7: Inbound Trips (PM Peak Period)



A review of external outbound trips reveals that most trips originate in Alcona during the AM and PM peak periods, as shown in Figure D-9 and Figure D-10, respectively; however, unlike the AM peak period, there are approximately 1,000 more outbound trips originating from both the Churchill / Fennell's Corners area and Innisfil Heights during the PM peak period. This is likely attributed to the employment lands within Innisfil Heights and near Yonge Street / Innisfil Beach Road (Barclay) that is driving work-to-home trips.

During the AM peak period, most external outbound trips are travelling to Barrie (~4,200), followed by York Region (~2,000) and then the rest of Simcoe County including Orillia (~1,600). In comparison, the external outbound trips during PM peak period consists largely of destinations to Barrie (~3,400), followed by the rest of Simcoe County including Orillia (~1,500) and then York Region (~700).

Figure D-8: Outbound Trips (AM Peak Period)

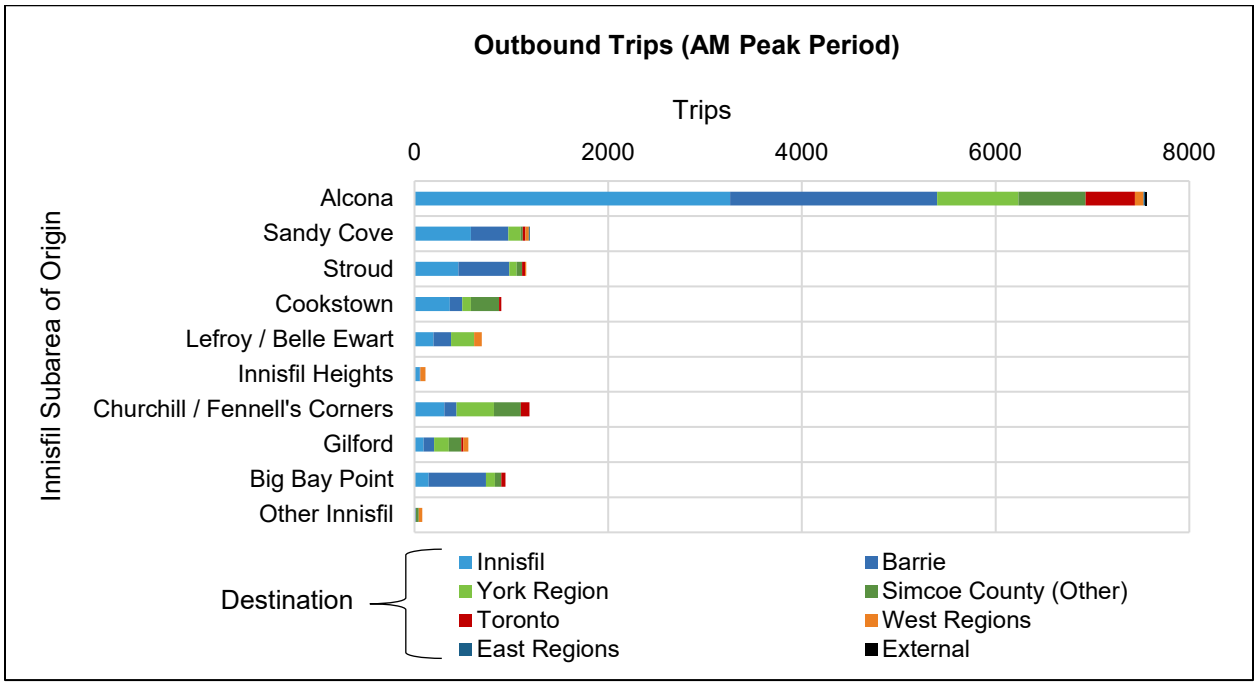
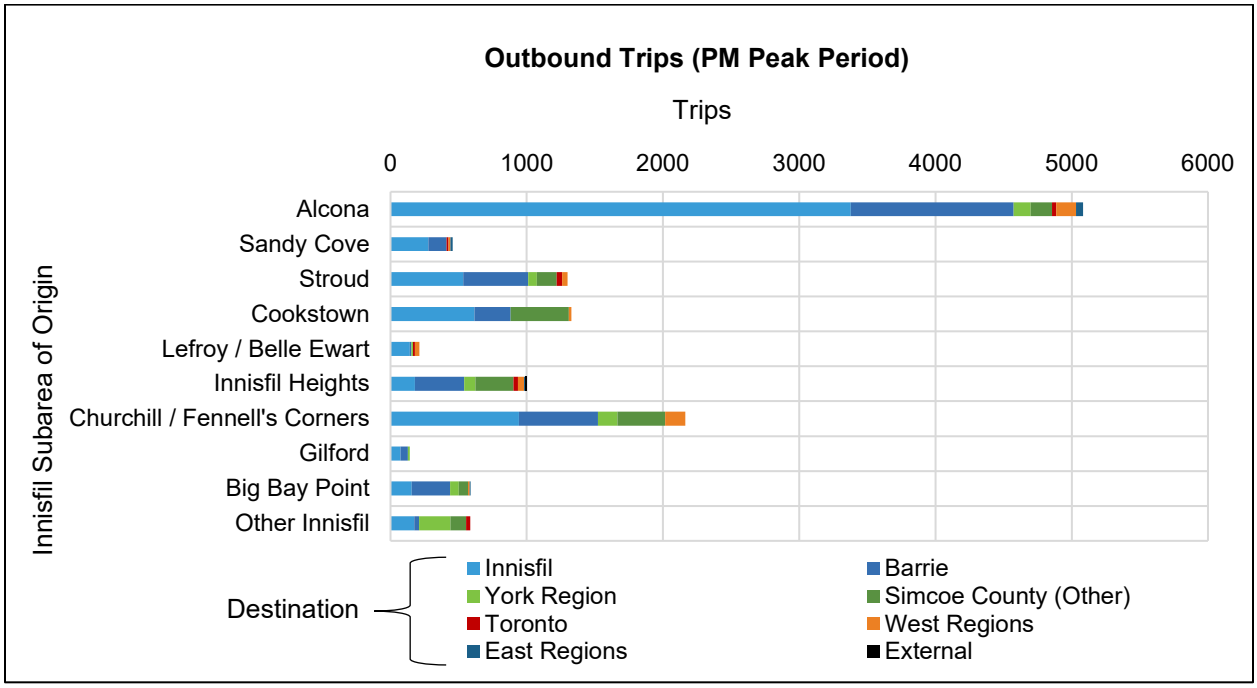


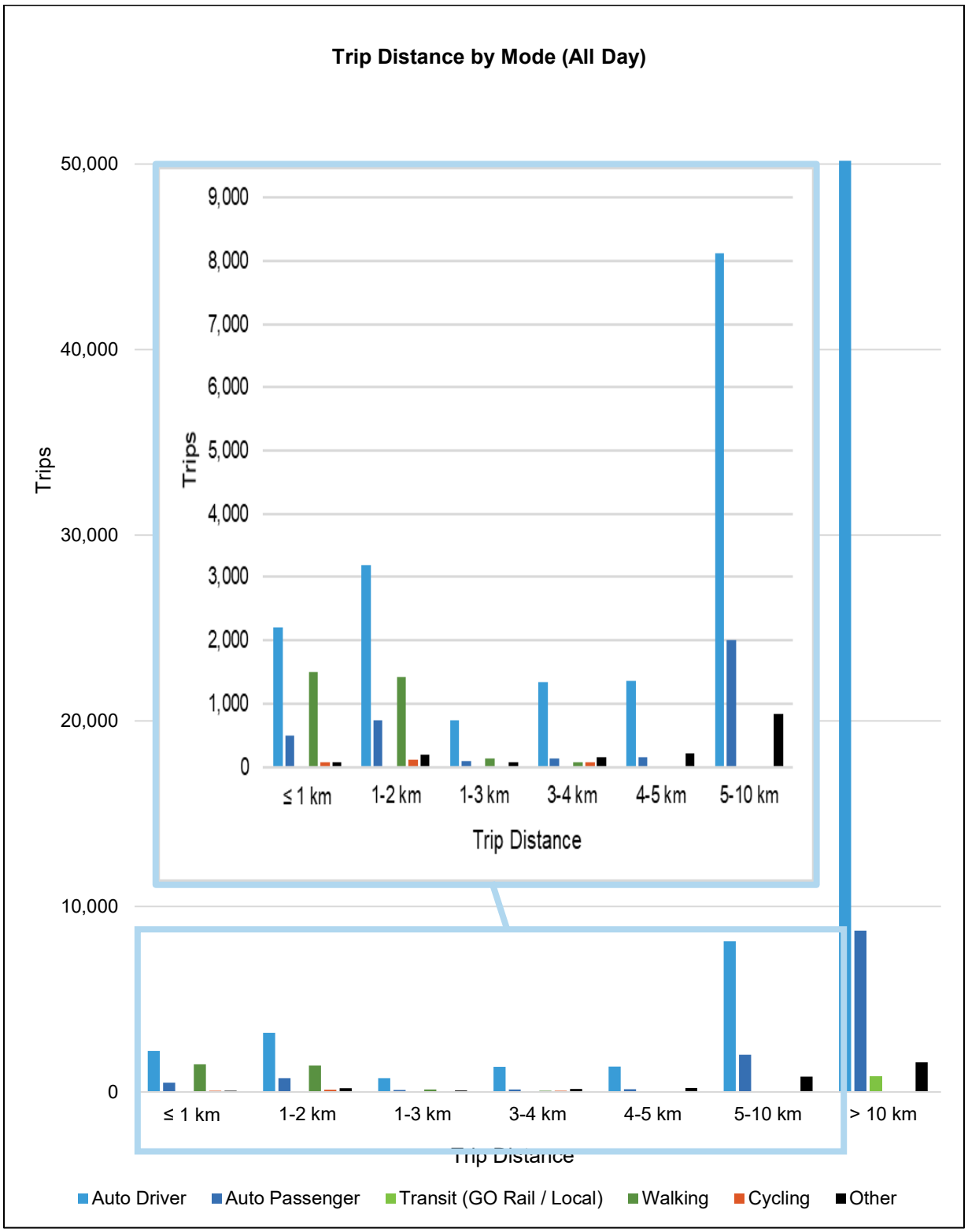
Figure D-9: Outbound Trips (PM Peak Period)



4.5 Travel Distance

An assessment of trip distances by mode indicates that the vast majority (71%) of daily trips are over 10 km; this is reasonable given most trips using the Town's road network is travelling to/from external municipalities. Almost all of these trips (96%) use automobile. The trip distance breakdown by mode is illustrated in Figure D-11. Since this information was derived based on TTS data, which is expanded from household survey data, it should be recognized that shorter, recreational trips are underreported. As a result, a shortfall in the data includes the underrepresentation of the number of shorter trips, particularly taken by walking or cycling.

Figure D-10: Daily Trip Distance by Mode



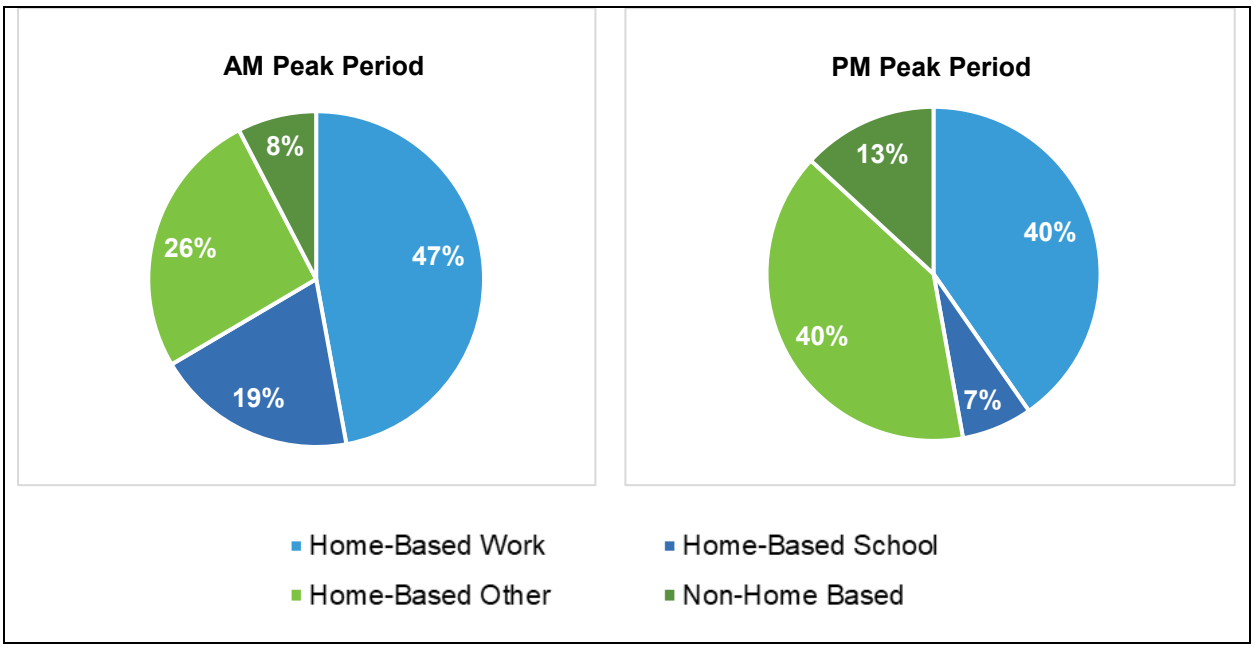
Note: 1. 'Other' modes include school bus, motorcycle and others.

5.0 Trip Purpose

A comparison between the trip purpose for the AM and PM peak periods was conducted. As illustrated in Figure D-12, work forms the main purpose of travel during the AM peak period, followed by other discretionary trips to/from home (e.g., recreational, errands-based, etc.). During the PM peak period, there is a decrease in the proportion of work-related trips and a substantial increase in the proportion of home-based other trips. Note that these trips include those that start or end in Innisfil and are not distinguished by direction (e.g., home-based work trips include home to work and work to home trips).

these include trips that start or end in Innisfil.

Figure D-11: Trip Purpose



Appendix E

Appendix E

Sustainability, Growth Policies and Economic Objective

BURNSIDE

Innisfil

Appendix E | Sustainability, Growth Policies and Economic Objectives

Date: June 8, 2022 **Project No.:** 300053011.0000

Project Name: Innisfil Transportation Master Plan Update

To: Town of Innisfil

From: R.J Burnside & Associates Limited / MHBC

1.0 Sustainable Transportation Planning

Sustainable transportation planning refers to the development of a transportation network that reduces resource use, including energy, while still meeting the transportation needs of the community. The Centre for Sustainable Transportation defined a sustainable transportation system as one that:

- Allows individuals and societies to meet their access needs safely and in a manner consistent with human and ecosystem health, and with equity within and between generations.
- Is affordable, operates efficiently, offers choice of transport mode, and supports a vibrant economy.
- Limits emissions and waste within the planet's ability to absorb them, minimize consumption of non-renewable resources, limits consumption of renewable resources to the sustainable yield level, reuses and recycles its components and minimizes the use of land and the production of noise.

1.1 Principles of Sustainable Transportation Planning

The Transportation Association of Canada (TAC) has outlined 12 principles of sustainable transportation planning [1]. They can be grouped into the following three themes:

- Transportation and community sustainability (Table E-1).
- Transportation system perspective (Table E-2).
- The way ahead (Table E-3).

[1] Strategies for Sustainable Transportation Planning. *Transportation Association of Canada*. May 2007.

Table E-1: Transportation and Community Sustainability

#	Principle	Strategies
1	Integrate transportation and land use planning	Conduct transportation planning and land use planning concurrently, to accommodate the effects of land use on transportation demand and supply, as well as the effects of transportation systems on the demand for, and patterns of, land development. Use transportation plan policies to encourage supportive land use form and design (e.g., compact, mixed-use, pedestrian-friendly). Highlight the importance of supportive land use policies to the achievement of transportation objectives (e.g., modal shifts, trip length reductions).
2	Protect environmental health	Recognize ways that transportation systems can help achieve environmental goals and provide support in the plan's strategic directions. Use environmental criteria (e.g., emissions of greenhouse gases and other air pollutants, consumption of non-renewable resources) in the strategic evaluation of alternative land use or transportation scenarios. Identify strategies to "lead by example" and reduce the environmental impacts of government fleets, contractor operations, business travel and staff commuting. Identify strategies to mitigate the impacts of transportation activities on air quality (e.g., anti idling campaigns, promotion of alternative fuels, economic incentives and disincentives). Identify strategies to mitigate water, land and ecosystem impacts of transportation activities (e.g., right-of-way minimization, stormwater runoff management, watershed impact assessment).

#	Principle	Strategies
3	Incorporate social objectives	Recognize ways that transportation systems can help achieve social goals and provide support in the plan's strategic directions. Identify strategies to maximize access to opportunity for disabled and low-income persons, recent immigrants, youth and the elderly, such as by reducing the dependency on personal automobiles and improving transit. Identify strategies to provide access and mobility for persons with disabilities, such as by making transit and pedestrian infrastructure barrier-free. Identify strategies to improve public health and safety, such as by encouraging active transportation, improving air quality, and reducing road collisions. Identify strategies to reduce negative "quality of life" impacts of transportation facilities and activities (e.g., traffic calming, noise attenuation measures, truck route designation).
4	Support economic development	Recognize ways that transportation systems can support economic development and provide support in the plan's strategic directions. Identify strategies to support effective and efficient goods movement to and from major gateways (e.g., ports, airports, border crossings) and in key corridors. Identify strategies to support development or redevelopment of priority areas such as downtowns, suburban town centres, brownfield sites and tourism nodes. Identify strategies to maximize the flexibility of the transportation system to respond to changes in energy supply or price.

Table E-2: A Transportation System Perspective

#	Principle	Strategies
5	Take a strategic approach	Establish a comprehensive strategic framework with a vision, goals and other elements, and clearly show linkages to other community goals. Consider alternative futures for land use and transportation systems and evaluate their requirements and implications. Set deliberate, realistic and quantitative objectives, identify conditions needed for their achievement, and show the implications of failing to achieve them.

#	Principle	Strategies
6	Consider all modes	Identify strategies to increase walking, cycling, transit, ridesharing and teleworking. Recognize synergies and tensions among different modes (e.g., seasonal shifts between cycling and transit, competition between transit and ridesharing), and their implications for transportation objectives. Identify strategies to make transit operations more sustainable. Identify strategies to make motor vehicle use more sustainable (e.g., incident management, signal optimization, traveller information). Identify strategies to achieve transportation goals through parking management. Identify strategies to make the intersection points between urban and intercity transportation systems more effective and efficient (e.g., transit service to airports, rail-road grade separations). Identify strategies to make freight activity more sustainable (e.g., modal shift from road to rail, efficient routing practices).
7	Manage transportation demand	Place strategic priority on transportation demand management (TDM) as a complement to managing transportation supply. Identify strategies for a range of TDM approaches in areas that include development approvals, pricing, incentives and outreach. Identify key stakeholders in TDM implementation along with their roles, responsibilities and resource requirements.
8	Manage transportation supply	Identify strategies to maximize the multimodal capacity of current infrastructure (e.g., transit priority, access management). Identify a policy target for minimum roadway level of service standards based on an evaluation of alternative standards and their implications. Identify strategies to manage recurring and nonrecurring congestion. Identify strategies to manage transportation assets (e.g., maintenance, repair, rehabilitation, renewal).

Table E-3: The Way Ahead

#	Principle	Actions
9	Provide implementation guidance	Identify a long-range implementation strategy that is based on desired outcomes and explains key facility, service, program and policy priorities. Identify a short-term implementation strategy that prescribes early actions to build momentum and lay the foundation for long-term change. Identify criteria for ongoing refinement of the implementation strategies (e.g., operational reasons to accelerate or defer projects, principles to guide budget decisions). Identify subsequent planning efforts that are needed to guide implementation (e.g., area or modal plans, facility plans, management strategies).
10	Provide financial guidance	Identify expected future transportation revenues and capital and operating costs (including the cost of programs, services, fleets, facility construction and maintenance). Identify expected funding gaps and illustrate implications by contrasting a “fiscally constrained” scenario (costs limited to revenues) and a “fiscally unconstrained” scenario (costs exceed revenues). Identify options for overcoming funding gaps. Identify principles for balanced spending to maximize results from available funds.
11	Measure performance	Highlight the need for a performance measurement program to monitor progress toward planning goals. Identify a performance measurement framework that is tied to the plan’s strategic framework and monitors outputs, outcomes and external influences. Identify a reporting strategy to effectively communicate performance measurement results.

#	Principle	Actions
12	Create a living plan with public involvement	Involve the public in the transportation planning process and identify ways for public involvement to enhance future program and project implementation. Identify a minimum frequency to review or update the plan (both may occur in tandem with parallel community plan processes), as well as key criteria that could trigger a plan review (e.g., based on development activity or performance measurement results). Identify a process for regular updates to the implementation program, as an extension of the plan. Identify other processes (e.g., area plans, modal plans, management strategies) that will represent extensions or updates to the plan, and whether/how they will be integrated into the plan through future updates.

1.2 Federal Departmental Sustainable Development Strategy

Transport Canada's Federal Departmental Sustainable Development Strategy (FDSD) is prepared every three years. The 2020 to 2023 strategy is the fourth strategy since the Federal Sustainable Development Act came into force in 2008. The basic principle of the Federal Sustainable Development Act states that sustainable development is based on an efficient use of natural, social and economic resources [2]. The vision of the FDSD is a transportation system in Canada that is recognized worldwide as safe and secure, efficient and environmentally responsible. The three guiding principles includes:

- The highest possible safety and security of life and property, supported by performance-based standards and regulations.
- The efficient movement of people and goods to support economic prosperity and a sustainable quality of life, based on competitive markets and targeted use of regulation and government funding.
- Respect of the environmental legacy for future generations of Canadians, guided by environmental assessment and planning processes in transportation decisions and selective use of regulation and government funding.

The five key theme areas of the FDSD include:

1. Enhancing the experience of the Canadian traveler.

2. Building a safer, more secure transportation system that earns the confidence of Canadians.

[2] https://tc.canada.ca/en/corporate-services/transparency/corporate-management-reporting/departmental-plans/transport-canada-2021-2022-departmental-plan/transport-canada-s-departmental-sustainable-development-strategy-2020-2023-2021-2022-update

3. Investing in a greener, more innovative transportation sector that embraces new technologies to improve Canadians' lives.

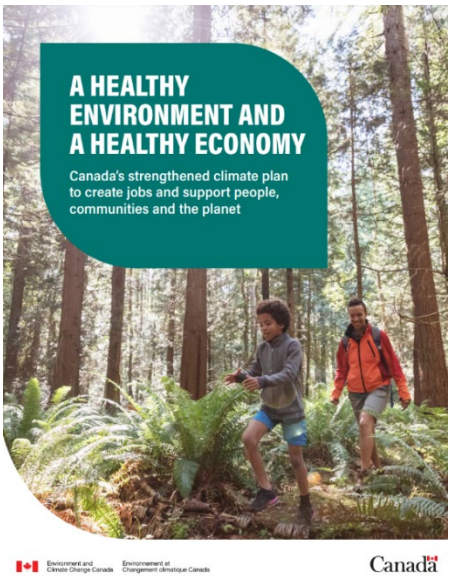
4. Protecting Canada's waterways, costs, and the North.

5. Improving Canada's transportation infrastructure and trade corridors to get products to global markets more efficiently.

1.3 Federal Climate Change Commitments

In December 2020, the Government of Canada introduced A Healthy Environment and a Healthy Economy, a climate plan that builds off the 2016 Pan-Canadian Framework on Clean Growth and Climate Change (PCF). This plan aims to exceed its 2030 Paris Agreement emission reduction target and aims for a net-zero emission future by 2050.

A major component to this updated plan is making clean, affordable transportation and power available in every Canadian community. The commitments made by the Government of Canada include expanding the supply of clean electricity, investing in next-generation clean energy and technology, encouraging cleaner modes of transportation such as zero-emission vehicles, transit, and active transportation.



Federal targets on zero-emission vehicles include:

- 10% of light-duty vehicle sales are zero-emission by 2025.
- 30% of light-duty vehicle sales are zero-emission by 2030.
- 100% of light-duty vehicle sales are zero-emission by 2035.

Action items related to this component include the following:

- Invest an additional $287 million over two years to continue the Incentives for Zero-Emission Vehicles (iZEV) program until March 2022.
- Include a 100-percent tax write off for commercial light-duty, medium-duty, and heavy-duty zero-emission vehicles.
- Develop a national active transportation strategy and explore ways to deliver more active transportation options.
- Develop a plan to electrify public transit systems and provide permanent public transit funding.

2.0 Provincial Growth Objectives

A Place to Grow ("Growth Plan") is the Ontario government's initiative to plan for growth and development in a way that supports economic prosperity, protects the environment, and helps communities achieve a high quality of life. This provincial policy framework supports the achievement of complete communities with access to transit networks, protected employment zones and an increase in the amount and variety of housing available.

A Place to Grow outlines policies for managing growth. Relevant growth management policies can be found in Table E-4.

Table E-4: Growth Management Related Provincial Policies

Policy	Description
2.2.1	Managing Growth Population and employment forecasts contained in Schedule 3 or such higher forecasts as established by the applicable upper- or single-tier municipality through its municipal comprehensive review will be used for planning and managing growth in the GGH to the horizon of this Plan in accordance with the policies in subsection 5.2.4. Forecasted growth to the horizon of this Plan will be allocated based on the following: • The vast majority of growth will be directed to settlement areas that have a delineated built boundary, have existing or planned municipal water and wastewater systems; and can support the achievement of complete communities. • Growth will be limited in settlement areas that are rural settlements, are not serviced by existing or planned municipal water and wastewater systems; or are in the Greenbelt Area. • Within settlement areas, growth will be focused in delineated built-up areas, strategic growth areas, locations with existing or planned transit, with a priority

Policy	Description
	on higher order transit where it exists or is planned, and areas with existing or planned public service facilities. • Development will be directed to settlement areas, except where the policies of this Plan permit otherwise. Upper- and single-tier municipalities will undertake integrated planning to manage forecasted growth to the horizon of this Plan, which will: • Establish a hierarchy of settlement areas, and of areas within settlement areas in accordance with policy 2.2.1.2. Be implemented through a municipal comprehensive review and, where applicable, include direction to lower-tier municipalities.
2.2.2	Delineated Built-up Areas Simcoe County, through the next municipal comprehensive review, each establish the minimum percentage of all residential development occurring annual that will be within the delineated built-up area, based on maintaining or improving upon the minimum intensification target contained in the applicable upper- or single-tier official plan. All municipalities will develop a strategy to achieve the minimum intensification target and intensification throughout delineated built-up areas which will: • Identify strategic growth areas to support achievement of the intensification target and recognize them as a key focus for development. • Identify the appropriate type and scale of development in strategic growth areas and transition of built form of adjacent areas. • Encourage intensification generally throughout the delineated built-up area. • Ensure lands are zoned and development is designed in a manner that supports the achievement of complete communities. • Prioritize planning and investments in infrastructure and public service facilities that will support intensification; and • Be implemented through official plan policies and designations, updated zoning and other supporting documents.

Policy	Description
5.2.4	Growth Forecasts All references to forecasted growth to the horizon of this Plan are references to the population and employment forecasts in Schedule 3 or such higher forecasts as are established by the applicable upper- or single-tier municipality through its municipal comprehensive review. The population and employment forecasts and plan horizon contained in the applicable upper- or single-tier official plan that is approved and in effect as of August 28, 2020 will apply to all planning matters in that municipality, including lower-tier planning matters where applicable, until the upper- or single-tier municipality has applied the forecasts in Schedule 3 in accordance with policy 5.2.4.2 and those forecasts are approved and in effect in the upper- or single-tier official plan. Notwithstanding the policies of this Plan regarding planning and managing forecasted growth to the horizon of this Plan, including the time horizon for making sufficient land available to meet projected needs, lower-tier municipalities cannot designate land beyond the horizon established in the applicable upper-tier official plan that is approved and in effect. Within delineated built-up areas, municipalities may plan for development beyond the horizon of this Plan for strategic growth areas that are delineated in official plans and subject to minimum density targets, provided that: • Integrated planning for infrastructure and public service facilities would ensure that the development does not exceed existing or planned capacity. • The type and scale of built form for the development would be contextually appropriate. • The development would support the achievement of complete communities, including a diverse mix of land uses and sufficient open space.
5.2.5	Targets The minimum intensification and density targets in the Growth Plan, including any alternative targets that have been permitted by the Minister, are minimum standards and municipalities are encouraged to go beyond these minimum targets, where appropriate, except where doing so would conflict with any policy of this Plan, the PPS or any other provincial plan. The minimum intensification and density targets in this Plan or established pursuant to this Plan will be identified in upper-and single-tier official plans. Any changes to the targets established pursuant to this Plan may only be implemented through a municipal comprehensive review. For the purposes of implementing the minimum intensification and density targets in this Plan, upper-and single-tier municipalities will, through a municipal

Policy	Description
	comprehensive review, delineate the following in their official plans, where applicable: • Delineated built-up areas. • Urban growth centres. • Major transit station areas. • Other strategic growth areas for which a minimum density target will be established. • Excess lands. For each applicable delineated area, the minimum density targets in this Plan are to be implemented through: • Upper-tier official plan policies that identify the minimum density targets and require lower-tier municipalities to undertake planning, such as secondary plans, to establish permitted uses and identify densities, heights, and other elements of site design. • Single-tier official plan policies that identify the minimum density targets and, through secondary planning or other initiatives, establish permitted uses within the delineated area and identify densities, heights, and other elements of site design. • Zoning all lands in a manner that would implement the official plan policies. The use of any applicable legislative and regulatory tools that may establish area or site-specific minimum densities, heights, and other elements of site design.

Section 6 of the Growth Plan has specific growth management policies for Simcoe County, the City of Barrie, and the City of Orillia, which are known in the Growth Plan as the "Simcoe Sub-Area". Relevant Simcoe Sub-area growth management policies are found in Table D-5.

Table D-5: Growth Management Policies for the Simcoe Sub-Area

Policy	Description
6.2	Growth Forecasts Through the next municipal comprehensive review, Simcoe County will allocate the growth forecasts in Schedule 3 to lower-tier municipalities in accordance with policy 5.2.3.2 e) in a manner that implements the policies of this Plan, such that a significant portion of population and employment growth is directed to lower-tier municipalities that contain primary settlement areas. There are no primary settlement areas identified in the Town of Innisfil. The employment forecasts in this Plan include employment located in the strategic settlement employment areas and economic employment districts. Innisfil Heights has been identified as a strategic employment settlement area.

Policy	Description
6.3	Managing Growth The Town of Innisfil, in planning to meet their employment forecasts, may direct appropriate employment to the Innisfil Heights strategic settlement employment area respectively.
6.4	The Minister, in consultation with affected municipalities and stakeholders, has determined the location and boundaries of strategic settlement employment areas, and has established as appropriate the following: • Permitted uses, and the mix and percentage of certain uses. • Permitted uses for specific areas within the strategic settlement employment areas. • Lot sizes: and any additional policies and definitions that apply to these areas. For lands within strategic settlement employment areas and the economic employment districts the municipality can identify the natural heritage systems, features, and areas for protection.

On August 28, 2020, Amendment 1 to A Place to Grow and Proposed Lands Needs Assessment Methodology came into force and effect. The upper- and single-tier municipalities were then required to conduct a Municipal Comprehensive Review (MCR) to ensure that their Official Plans conformed with provincial plans and policies. Lower-tier municipalities were then required to conduct an Official Plan Review to conform with their respective upper-tiers. These processes are currently on-going for Simcoe County and the Town of Innisfil.

As a part of the amendment, Schedule 3 of the Growth Plan contain population and employment forecasts within Ontario for the updated horizon year of 2051. Population forecasts for Simcoe County and the City of Barrie are found in Table E-6.

Table E-6: 2051 Population and Employment Forecasts

Jurisdiction	2051 Population	2051 Employment
Simcoe County	555,000	198,000
City of Barrie	298,000	150,000

In addition, Schedule 7 of the previous Growth Plan, which established population and employment forecasts to 2031 for lower-tier municipalities, has been removed from the current Plan.

3.0 Town Growth and Economic Objectives

3.1 The Orbit: Innisfil

In November 2019, Innisfil Council adopted the vision for the Orbit, a planned community to be developed east of 20th Sideroad, directly south of Alcona and centred around the future Innisfil GO Station.

As the population of Innisfil continues to grow, the Orbit is intended to allow for this growth to occur in a way that maintains the natural landscapes and environment by consolidating it all into one location. The Orbit is intended to create a healthy community by including active transportation, low-impact development, water management, and energy saving into its design.

The November 2019 staff report DSR-154-20 outlined the requirement for an expedited planning approval process to enable the creation of the Orbit. To facilitate this, a request for Ministerial Zoning Order (MZO) was prepared with the support of the County of Simcoe to establish the outer limit of the Orbit as a Major Transit Station Area and support initial stages, including the proposed GO Station and planning controls for future development.

The MZO submitted by the Town of Innisfil proposes land use permissions for a radius of 425 m from the proposed GO Station. The ultimate vision for the Orit and Major Transit Station Area Boundary is to support the development of a walkable community within approximately 20-minutes radius of the proposed GO Station. The MZO would apply broadly to the lands surrounding the GO Station and propose a framework and phasing of development standards radiating outwards.

The first concentric zoning ring proposed in the MZO would apply to lands within a 225-metre radius of the Orbit centre and permit mixed use development, including minimum densities of 200 residential dwelling units per net hectare and a combined minimum of 11,000 square metres of non-residential floor area at various levels. Building heights are generally proposed at a minimum of 6 storeys. The second concentric ring proposed in the MZO would apply to lands within a 225-425m radius of the Orbit centre and permit a minimum of 150 residential dwelling units per net hectare and a minimum 1,000 square metres of non-residential floor area is proposed.

The final MZO report was brought before Innisfil Council on November 4, 2020 and forwarded to the Ministry of Municipal Affairs and Housing for consideration. The Province of Ontario subsequently approved the council endorsed MZO on August 9, 2021, allowing for work to progress on preparing a Secondary Plan for the area.

3.2 Cookstown Heritage Conservation District

In May 2012, Town of Innisfil Council approved a recommendation to create a steering committee and prepare a study to create a Heritage Conservation District (HCD) for Cookstown. Cookstown was originally settled in the mid 1800's as Perry's Corners. The hamlet grew to become a vibrant commercial core, with the majority of the buildings along Queen Street,

Church Street, and King Street within Cookstown dating back to the early settlement. The HCD comprises a 14-block area surrounding the intersection of Queen Street and King Street, and includes a number of historical buildings from the late 1800's and early 1900's.

The HCD Study prepared in 2013 identified Cookstown's unique history of development and street pattern, largely resulting from the convergence of four former townships. The 14 block HCD boundary contains the commercial core, single-detached residential dwellings, institutional properties, and open space areas which are key contributors to the unique character and history of Cookstown.

Through the HCD Study, a number of recommendations and observations were made, including the following:

- Cookstown contains a unique blend of architectural styles, including Victorian and Edwardian. The building composition includes intricate brick and wood patterns that are well preserved within the proposed HCD boundary.
- The community is located at the intersection of four historical townships: Innisfil, West Gwillimbury, Tecumseth and Essa resulting in unique lot and road patterns. Numerous buildings were constructed in the late 19th and early 20th centuries and are maintained in good condition within the proposed HCD Boundary.
- Three churches are located within the proposed HCD boundary and are key historical landmarks within Cookstown. Gateways into Cookstown exist along the four main roadways King Street North/South, Church and Queen Streets. Distinct views through and from within Cookstown exist from key locations within the proposed boundary.
- Town policies and strategic planning documents promote the development of an HCD in Cookstown. Policies speak to the importance of protecting and reinforcing the unique characteristics of Cookstown and utilizing the provisions of the Ontario Heritage Act to do so.
- A central transportation network was established along the former township borders. The former CN Railway station and line have historical significance in the development of Cookstown. The current use of the rail line as a trail provides views and vistas to outlying areas.

The Cookstown Heritage Conservation District, under the Ontario Heritage Act, provides specific policies and guidelines intended to protect and enhance the features that give Cookstown a unique identity. These policies are intended to prevent inappropriate development and demolition applications within the HCD, provide economic opportunities for small businesses within the unique character, and set clear guidelines and policies for new development.

3.3 Innisfil Heights Strategic Settlement Employment Area (IHSSEA)

Innisfil Heights is defined as a Strategic Settlement Employment Area within the Town and identified within A Place to Grow: Growth Plan for the Greater Golden Horseshoe. Innisfil Heights is located along the east and west sides of Highway 400, focused on the intersection with Innisfil Beach Road. In 2012, the Simcoe Sub-Area Amendment under the Growth Plan

came into effect to implement the IHSSEA. In 2013, the Minister of Infrastructure issued a directive setting out the permitted uses for the IHSSEA, which limits permitted uses to a range of employment uses "that depend on access to, and the efficient movement of goods on, Highway 400" and employment-supportive uses. Major retail and residential uses are not permitted within the IHSSEA.

In July 2020, Innisfil Council adopted the Final Amendment to the Town's Our Place Official Plan to expand the boundary of the IHSSEA, north to the City of Barrie Border and south to 6th Line. This was enabled by the Province, which expanded the boundary through an amendment to the Growth Plan for the Greater Golden Horseshoe. The expanded area provides approximately 200 additional gross hectares of land within the IHSSEA.

3.4 Alcona North Secondary Plan and South Secondary Plans

The Alcona North Secondary Plan is to guide growth and development within north Alcona, from 20th Sideroad to 9th Line. As a result of projected population and job expansion throughout Simcoe County and the Greater Toronto Area, transportation demand in the area will double over the next 20 years. The current structure of the Innisfil road network will be insufficient to accommodate this expansion. The community is expected to have a gross density of 67 people and jobs per hectare. Single and semi-detached dwellings will account for 52% of residential development, while townhouses and apartment units will account for 48%. The neighbourhood will include a road system made up of collector and local roads that will form a modified grid of connected streets. While enabling future transit, it will be built to promote efficient vehicle and bicycle traffic, as well as comfortable and walkable pedestrian travel. On all collector roads, dedicated cycling lanes will be provided. The road network will be complemented by a trail system that connects Alcona to the rest of the Town by utilizing natural environmental features.

The Alcona South Secondary Plan is to guide growth and development within south Alcona and plans for five neighbourhoods and an overall density of 67 persons and jobs per hectare. The secondary plan area is to be designed to be compact and walkable, supporting fixed route transit in the future. The road system is to consist of collector and local roads within a modified grid pattern, and it shall be designed to facilitate efficient auto and bicycle travel, comfortable and walkable pedestrian travel, and future transit service. Dedicated bicycle lanes are planned for all collector roads, supported by a trail system connecting to the rest of Alcona.

3.5 Tourism Destination Master Plan

The Town of Innisfil recognizes the importance of tourism promotion and investment, and it is one of the Town's strategic goals. In December 2015, the Tourism Destination planning process began. Tourism is an economic engine, especially for a town that drives its revenue from cottage country. Tourism generates tax revenues that may be redirected to infrastructure, health care, education, research, and social service programs.

The process ensures the strategic development of facilities, amenities, activities, services and experiences available to attract visitors while simultaneously providing business growth opportunities within the broader destination and its local communities.

An assessment of Innisfil's tourism businesses was a necessary first step to help define what Innisfil must offer. The assessment identified 141 tourism assets. Through the assessment process three unique themes were identified that differentiate Innisfil from other destinations:

- Fast-Paced Entertainment (motorsports, harness racing, gaming, unique sports events).
- Rural Retail & Arts (agri-tourism, antiques, hands-on experiences, unique/specialty shopping, artists, galleries, studio tours).
- Friday Harbour All Seasons Resort.

Friday Harbour All Seasons Resort contains a mix of land uses, facilities, and services including:

- Residences such as townhouses, condominiums.
- A slip marina for boat storage, docking, members facilities, and fueling, dining.
- Golf and other recreational activities.
- Dining and shopping.
- Culture centre.
- Hotel and conference centre.

The resort is positioned by Lake Simcoe and its range of housing and other recreational, and business services make the resort a key tourist destination appealing to local and visitor markets.

Appendix F

Appendix F

Transportation Equity

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Appendix F | Transportation Equity

Date: June 8, 2022 **Project No.:** 300053011.0000

Project Name: Innisfil Transportation Master Plan Update

To: Town of Innisfil

From: R.J. Burnside & Associates Limited

1.0 Introduction

1.1 Overview

Equity is a quality of being fair and impartial. An equitable transportation system ensures that the distribution of infrastructure and programs allows for different populations to have reasonably equal transportation benefits and impacts. Recent transportation planning principles have taken equity into consideration. For example, *Vision Zero* seeks to ensure that vulnerable road users such as pedestrians and cyclists are provided infrastructure to ensure robust safety and protection. *Complete Streets* seeks to ensure that a transportation system is built for all road users regardless of age or ability.

An equitable transportation system requires that the planning process takes into consideration the needs of the community. This involves ensuring that project outreach and public engagement is representative of all different demographics including race, age, and gender. Working people may have trouble finding the time or resources to attend public meetings especially if they require childcare or require special mobility needs. This can lead to planned projects and improvements to be disconnected from the needs of the community.

To ensure infrastructure planning decisions are equitable, an equity analysis is undertaken taking into consideration several indicators. Examples of transportation equity indicators can include access, affordability, reliability, and safety. Transportation equity analysis is challenging because there are several types of equity, many ways[1] to measure equity, and many different viewpoints of what is considered fair. Additionally, equity has not been an explicit part of the planning process, historically, and usually considered during or after implementation. There is also not an established framework or set of best practices for equity evaluation tools.

However, transportation equity analysis is important as transportation planning decisions can have significant impacts to the community. The impacts of these decisions include:

- Household expenditures: Transportation and living costs usually make a significant portion of household spending.

[1] Todd Litman, 'Evaluating Transportation Equity', Victoria Transport Policy Institute, Victoria, British Columbia, https://www.vtpi.org/ (Accessed: October 22, 2021)

- Access to jobs: Employment opportunities are limited to people having reasonable and consistent access to mobility choices.
- Transportation infrastructure imposes indirect and external costs such as pollution, vehicular accidents, and congestion delay. These costs usually affect certain populations such as low-income neighbourhoods disproportionally.

1.2 Types of Equity

Horizontal equity treats people in identical situations, primarily those with equal access to wealth and resources, the same way[2]. In this system, the benefit-to-cost ratio is the same regardless of access to wealth and resources. The user receives exactly what is paid. Because people in identical situations are treated the same, horizontal equity attempts to eliminate discrimination on race, gender, and other socio-economic factors.

Vertical equity aims to redistribute resources from those who have greater access to wealth and resources to those with less. In this system, those with greater access bare more of the costs relative to the same benefits. Vertical equity in transportation aims to create a universal system that accommodates people with diverse needs and abilities, planning for affordability, and provide special benefits to disadvantaged groups. For example, the Innisfil Uber transit's Fair Transit Program provides 50% all rides for low-income households.

1.3 Transportation Affordability

In the Greater Toronto Hamilton Area (GTHA), low-income households are more likely to be in areas with better transit accessibility but participate in substantially fewer daily activities than wealthier households[3]. Low-income households with no vehicle ownership had the lowest activity rates. These households were shown to have a significant positive relationship between transit accessibility and activity participation. Best practices in existing transportation evaluations rarely consider the benefits derived from unlocking suppressed demand for out-of-home activity participation among households with fewer mobility choices.

The traditional benchmark of housing affordability is no more than 30% of household income. However, a considerable proportion of a household's expenditure can be transportation[4]. Another benchmark has recently been considered considering geographic affordability which combines both housing and transportation costs. Typically, the benchmark for affordability using this measure is no more than 45% to 50% of a household's income. There is a common perception that housing in areas farther away from densely populated city centres is more affordable. However, in many cases, the increase transportation costs to work due to longer

[2] Todd Litman, 'Evaluating Transportation Equity', Victoria Transport Policy Institute, Victoria, British Columbia, https://www.vtpi.org/ (Accessed: October 22, 2021)
[3] Dr. Steven Farber et al, 'Planning for Transit Equity in the GTHA', University of Toronto, Toronto, Ontario, https://uttri.utoronto.ca/files/2019/06/Planning-for-Transit-Equity-in-the-GTHA-Report-May-29-2019.pdf (Accessed: October 22, 2021)
[4] Eric Miller et al, Travel and Housing Costs in the Greater Toronto Area, Neptis Foundation, https://neptis.org/sites/default/files/toronto_metropolitan_region_travel_and_housing_costs/travel_housing_costs_executive_summary.pdf (Accessed: October 22, 2021)

average trip lengths, reliance on the automobile, and higher automobile ownership offsets the potential savings of housing in a sub-urban or rural setting.

1.4 Emerging Technologies and Equity

Ride-sharing apps, micro-mobility such as electric scooters, on-demand transit and other emerging transportation technologies are disrupting traditional transportation systems. When these technologies are introduced by private providers, there can be a risk that the social benefits that are produced are not the same for everyone. Certain populations may encounter barriers to access these technologies such as affordability or physical access. Socio-economic impacts are usually considered after implementation and not during the planning process. Utilizing an equity framework in the planning process means that equity and fairness issues are recognized early in the process and implementation plans focus on remedying any imbalances. A few technologies that will be discussed in this memo are described below.

Rideshare

Much like existing ride-sharing services, on-demand transit offers a flexible, cost-efficient and environmentally safe alternative to traditional fixed-route mass transit. It allows riders to book their trip via an app, which uses an algorithm to program the most fast and fuel-efficient route for the bus driver to pick-up and drop-off passengers. The fleet for on-demand transit can consist of small/medium vehicles such as buses, taxes and vans. Tech companies specializing in the development of on-demand transit apps include Pantonium, Rideco, Spare and more.

Demand-responsive transit ensures that no buses are running empty, as can be seen for fixed-route buses servicing areas of lower transit-demand during off-peak periods; this ultimately achieves better fuel and cost economy as it would require a much smaller bus fleet with efficient routing. Additionally, hybrid on-demand routes that make scheduled stops at major destinations, such as senior homes, may also be considered.

The primary limitation of on-demand transit is the need for users to own smartphones. The use of the transit app may be a challenge for low-income people, seniors and potentially those that struggle with English.

Since the onset of the stay-at-home orders and social distancing regulations due to the COVID pandemic, a few municipalities within Ontario have taken the opportunity to fast-track or expand their on-demand transit. Belleville, for example, began experimenting with the on-demand transit model in 2018 via a night bus. This service proved successful and was expanded to include 3 service buses.

Carshare

Car sharing is a short-term rental of a vehicle. Payment is usually done by the hour. Conventional use of car sharing is done with established car rental agencies where they use their existing fleet to rent to trip takers. Other businesses have agreements with municipalities or private institutions such as condominiums to allow their fleet to be parked and stored in exchange for their use. These businesses can have a subscription model depending on the number of required uses by the member.

Car-sharing operators such as Zipcar sometimes make agreements with businesses or condominiums which allows the operator to store and park their fleet there and in exchange the operator provides discounted subscriptions to users who work in that business or live in the condominium. Users can find and pay for their carshare using a smartphone application. This allows these shared vehicles to be used outside of office hours and does not require an employee to confirm the car-sharing agreement. Technological innovations have also allowed the sharing of people's private automobile to others using smartphone applications such as Toro.

Bikeshare

Bike sharing is a shared transport service in which bicycles are made available for shared use to trip takers on a short-term basis. The bike is usually locked and unable to be used until the trip taker pays for the short-term rental. Most bike share systems use a system where the bike is locked to a dock and payment is made at booths adjacent to these docks. Users then input their payment information to unlock the bicycle. Users then finish their bike-share trip by locking their bicycle to the same or different dock.

Alternatively, bike share programs can have dockless or floating bikes. With recent technological innovations, these dockless bicycle programs have their bicycle inventory connected to GPS and users can find and pay for their use using a smartphone application.

2.0 Equity Evaluation

An equity evaluation requires the identification of equity-seeking groups and a set of mobility equity indicators that targets the needs of those groups. This evaluation understands and takes into consideration that the needs of communities differ for each equity-seeking group.

2.1 Categorizing Populations

Equity evaluation requires populations to be categorized by demographic and geographic factors to evaluate their needs and measure the benefits and costs of the services and goods they receive. How these populations are categorized depend on the vision of system that is aiming for equity. A list of common equity-seeking categories as it relates to transportation can be found in Table F-1.

Table F-1: Equity-Seeking Groups

Equity-Seeking Groups	Description
Vulnerable Road Users	Pedestrians, cyclists, motorcyclists, and transit users are more vulnerable on roads as they are not protected within the confines of their personal automobile.
Geography	Various neighbourhoods can have different access to transportation services.
Ability	Person with disabilities or English proficiencies or special medical needs.
Age	There are mobility constraints with children as they are too young to drive, and they are usually walking or cycling to school. The elderly may have physical limitations causing mobility challenges.
Financial Means	This includes persons with low income, unemployed persons, single parent families, and households who devote a larger proportion of income to transportation.
Race and Heritage	This includes Racialized groups, recent immigrants, or Indigenous peoples.
Gender	This includes women and other gender identities.
Caregiver	This includes those with children or independents.

2.2 Equity Indicators

Transportation services, infrastructure, and programs provide benefits and costs to a number of different factors. Traditionally the focus in mobility and transportation planning was reducing congestion. However, by addressing the need of communities with clean, sustainable mobility options, communities will also receive societal benefits, including positive health impacts, increased quality of life, and greater employment and education opportunities. Potential solutions and strategies should undertake an evaluation based on a set of indicators. The indicators that are presented in Table F-2 take into consideration more than congestion and mobility, but also consider environmental and economic opportunities and benefits[5].

[5] Creger et al., Mobility Equity Framework', *Greenlining Institute*, Oakland, California. https://greenlining.org/publications/2018/mobility-equity-framework/. (Accessed October 21, 2021)

Table F-2: Transportation Indicators

Indicators	Description
Affordability	This metric will vary by location. A common threshold is that a household should spend no more than 20% of budgets on transportation costs.
Accessibility	Physically accessible, accessible with various culture/languages, accessible payment systems (not relying on 1 method such as the smartphone)
Efficiency	Frequency of transit, travel times, time spent in traffic, optimal availability of parking, etc
Reliability	Consistency and variability of travel times
Safety	Collision rate and severity
Reduction in Greenhouse Gas Emissions	Quantities of greenhouse gas reduction
Air Quality	Quantities of air pollutants (PM, NOx) reduction, level of physical activity
Reduction in Vehicle-Kilometres Traveled	Compact and transit-oriented development, and land use
Connectivity to Places of Employment, Education, Services, and Recreation	Number of households by income within walking distance to schools and services. Number of households within 30-minute transit ride or 20-minute auto ride to employment centers.
Inclusive of Local Business and Economic Activity	Local hire agreements, increased foot traffic to local businesses, new businesses created, increased property values, benefiting the local community without displacing residents, etc.

3.0 Needs Depending on Land Use Categories

Another method of assessing transportation needs is by understanding that transportation needs are different depending on the rural or urban structure of the community.

Urban areas are defined as areas of mixed-use development, high density, and connectedness of destinations. Caltran's Smart Mobility Framework[6] recommends prioritization of transportation projects and programs that:

- Improve the connectivity of employment and transportation hubs.
- Allocate street space to benefit high-occupancy and non-motorized modes.
- Promote complete streets (streets designed to enable safety for all users, including pedestrians, cyclists, motorists, and transit riders of all ages and abilities).

Suburban areas are defined as areas that are lower-density area or mixed-use development outside of a larger city. The Smart Mobility Framework recommends prioritization of transportation projects and programs that:

- Invest in complete streets and safer walking and biking conditions.
- Increase commute transit service and ridesharing.
- Improve connectivity to reduce trip lengths and increase non-auto trips.

Rural areas are defined as areas with very low population density and highly dispersed destinations. The Smart Mobility Framework recommends prioritization of transportation projects and programs that:

- Create and maintain walkable rural towns and safety improvements on rural roads.
- Connect networks of schools, services, and employment destinations.

An example of this framework being applied to 10 transportation modes using the equity evaluation and indicators found in Section 2.2 is shown in Table F-3.

Table F-3: Example Smart Mobility Framework

Priority	Urban	Suburban	Rural
1	Active Transportation	Active Transportation	Rideshare
2	Electric Public Transit	Electric Public Transit	Active Transportation
3	Conventional Public Transit	Conventional Public Transit	Personal Electric Vehicles
4	Rideshare (Car/Vanpool, Microtransit)	Rideshare (Car/Vanpool, Microtransit)	Electric Public Transit
5	Bikeshare	Ridehailing	Conventional Public Transit
6	Carshare	Bikeshare	Personal Gas Vehicles

[6] Creger et al., Mobiility Equity Framework', *Greenlining Institute*, Oakland, California. https://greenlining.org/publications/2018/mobility-equity-framework/. (Accessed October 21, 2021)

Priority	Urban	Suburban	Rural
7	Taxis	Carshare	Carshare
8	Ride-hailing	Personal Electric Vehicles	Ridehailing
9	Personal electric vehicles	Taxis	Bikeshare
10	Personal Gas vehicles	Personal Gas Vehicles	Taxis

In urban areas, sustainable and clean modes such as active transportation and electric public transit are prioritized the highest. There are also local economic benefits in construction, operation, and maintenance of a transit system and transit employees are usually unionized and the employer practices fair employee rights. Ride-hailing, carshare, and bikeshare scored in the middle due to their lack of accessibility and affordability in low-income areas. Gas-powered and single occupancy vehicle modes scored lower as they did not reduce air pollution and greenhouse gas emissions. Ride-hailing is scored lower than taxis.

The priorities of sub-urban areas are similar to urban areas, however there is more emphasis on the first and last mile connections to conventional public transit as stops are more spaced. Although taxis have stronger labour practices (ex. Unionized), ride-hailing was deemed more accessible and feasible to implement in this suburban example.

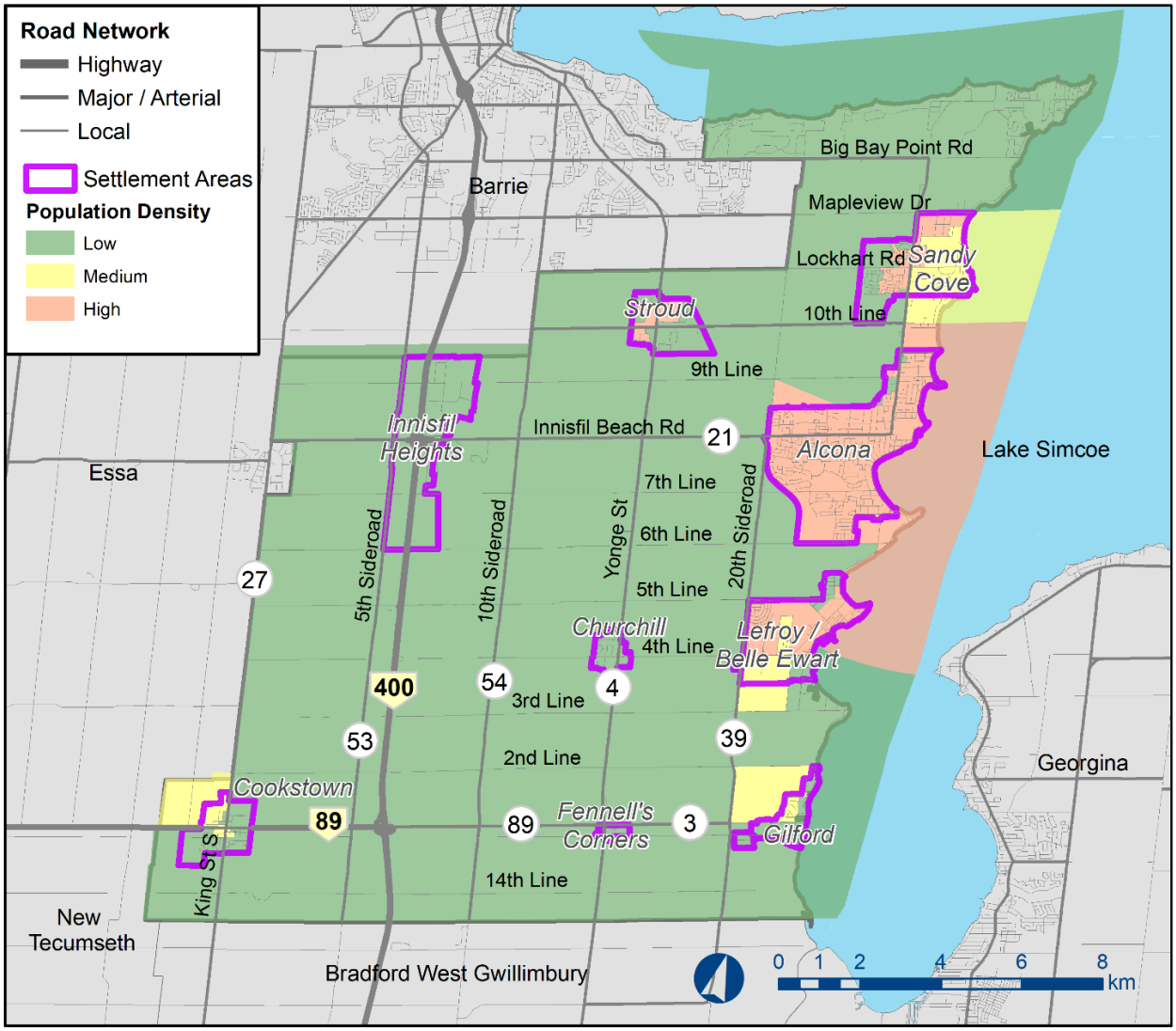
In a rural setting, rideshare and microtransit are most prioritized as on-demand transit can be adapted and scaled to rural communities. Due to dispersed housing and destinations, personal vehicles are prioritized higher than in sub-urban and urban settings. However personal electric vehicles are prioritized higher due to its environmental benefits.

To apply an equity framework to the Town of Innisfil, the Town would have to be divided into similar land use categories such as “urban”, “sub-urban”, and “rural” areas. Statistics Canada categorizes population centres as areas that have a population of at least 1,000 persons and a population density of at least 400 persons per square kilometre. The 400 persons per square kilometre is considered a primary population density threshold. A secondary population density threshold is 200 persons per square kilometre.

Given the overall rural nature of the Town of Innisfil, the three land use categories that were be used will be high-density, mid-density, and low-density areas. A high-density area will have a population density of over 400 persons per square kilometre. A medium-density area will have a population density of between 200 and 400 persons per square kilometre, A low-density area will have a population density of below 200 persons per square kilometre.

These definitions were applied to the Town of Innisfil using Statistics Canada’s Dissemination Area geography and 2016 Census data which reports population, land area, and population density. The results are found in Figure F-1.

Figure F-1: Rural, Sub-urban, and Urban Areas in the Town of Innisfil

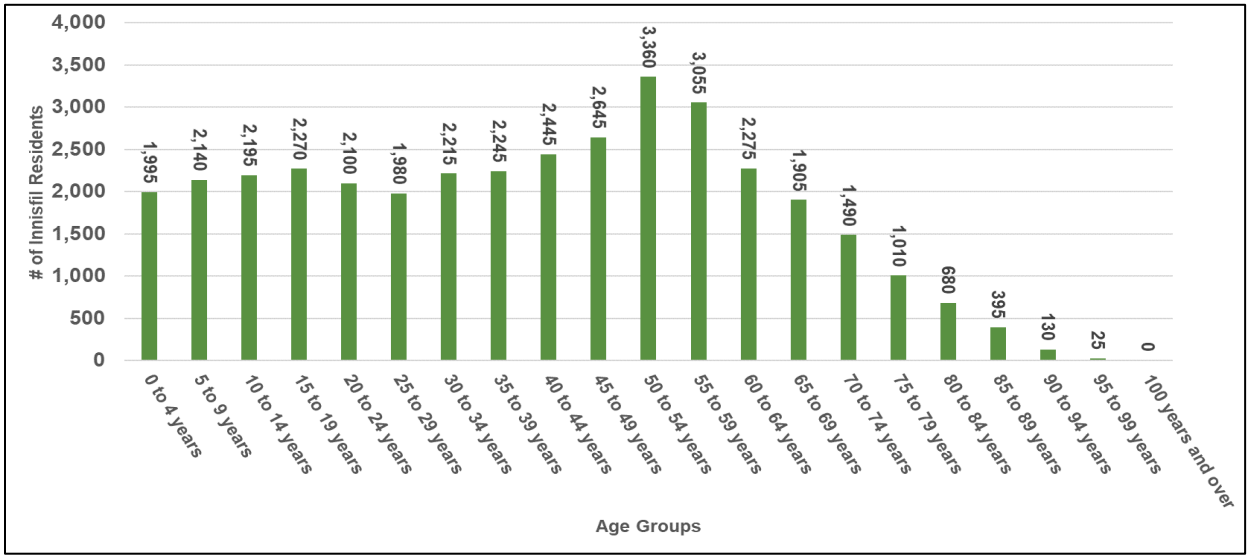


4.0 Transportation Equity in the Town of Innisfil

4.1 Sociodemographic Factors

Sociodemographic factors for Town of Innisfil residents were assessed based on 2016 Statistics Canada Census data. At the time of writing, 2021 Census data was not available and is predicted to be available early-2022. The age profile of residents in the Town of Innisfil are shown in Figure F-2.

Figure F-2: Town of Innisfil Residents Age Profile (2016)



The average age of Town of Innisfil residents is 40.7 years old, which is similar to that of the Province of Ontario which is 41.0 years old.

The private household size for Town of Innisfil residents is shown in Figure F-3. Average household size is 2.7 persons per household. According to Burnside analysis of the 2016 Transportation Tomorrow Survey data, average vehicle ownership per household is 2.2 vehicles per household.

The gross annual household income is shown in Figure F-4.

Figure F-3: Town of Innisfil Private Household Size (2016)

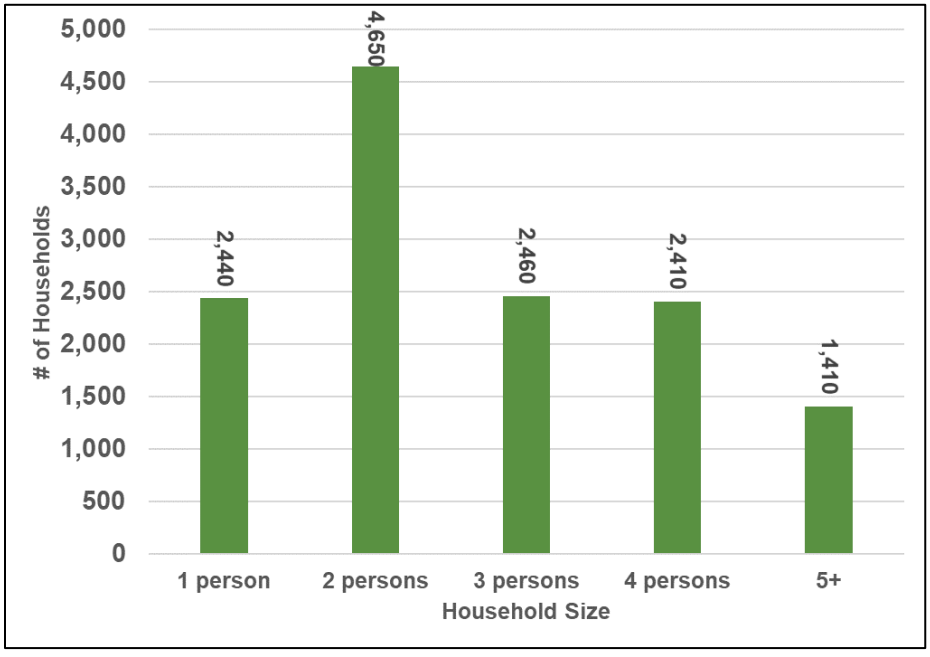
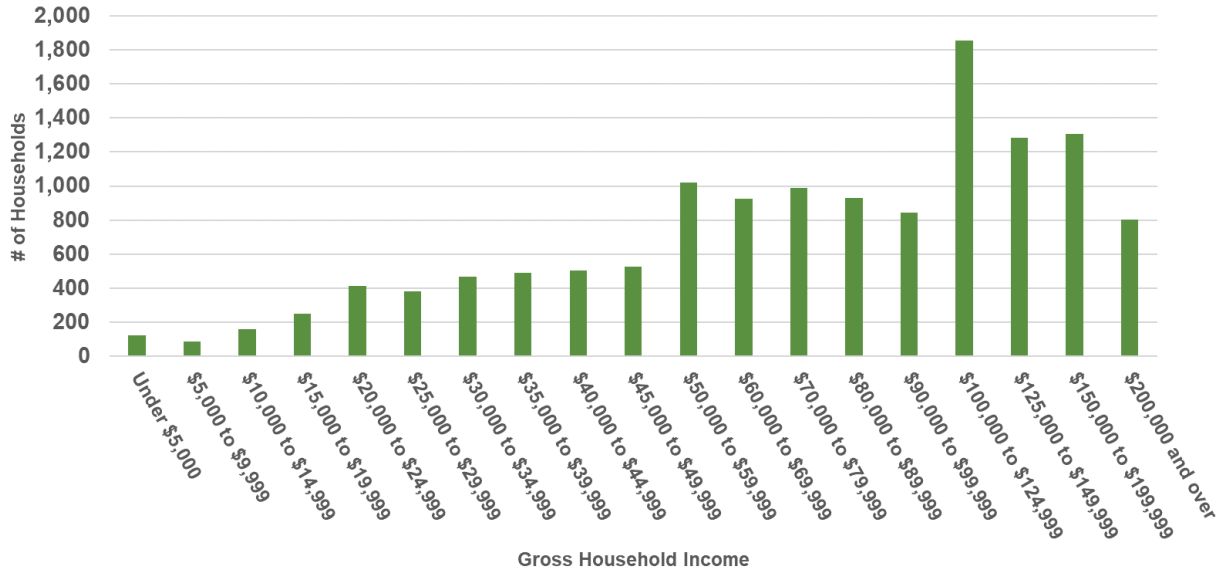


Figure F-4: Town of Innisfil Gross Household Income (2015)



4.2 Innisfil's Fair Transit Program

The Innisfil Transit service is a program that currently partners with Uber to provide on-demand ridesharing. The fare structure has changed since the inception of the program. Individuals are only permitted 30 trips per month unless they are granted an exemption. There are certain origins and destination that have fixed fares as shown in Table F-4.

Table F-4: Innisfil Uber Transit Fixed Fares

Origin and Destination	Fare
To/From Innisfil Recreation Complex/Town Hall area	$4
To/From closest GO bus stop along Yonge Street	$5
To/from Barrie South GO train station	$6
To/from Innisfil Heights Employment Area and Highway 400 carpool lot	$6
To/from IdealLab and Lirbary (Alcona)	$4
To/from South Innisfil Community Centre (Lefroy)	$4

A $4 discount is provided off regular fare for custom origin and destinations within Innisfil that are a minimum of $4 per trip. Annual ridership is estimated to be approximately 80,000 users (Innisfil Transit System Performance, Ryerson, 2021) with 220,000 Innisfil transit trips undertaken between May 2017 and February 2020.

Innisfi's Fair Transit Program aims to remove financial barriers to transit for low-income households in Innisfil. To be eligible for this program, your income must be below a certain threshold based on family size. These thresholds include:

- Family size 1 with Income after tax below $17,536.
- Family size 2 with Income after tax below $21,344.
- Family size 3 with Income after tax below $26,577.

- Family size 4 with Income after tax below $33,157.
- Family size 5 with Income after tax below $37,757.
- Family size 6 with Income after tax below $41,874.
- Family size 7+ with Income after tax below $45,989.

4.3 Innisfil's Transit for Teens

Innisfil's Uber Transit system allows teens from ages 13 to 17 to use Uber Transit with special consent from parents. The parental consent allows increased accessibility for teens.

4.4 Equity Assessment

There are inherent vertical and horizontal equity built into the existing Innisfil transportation system. The current urban and rural structure of the Town of Innisfil, wide range of income groups and age categories, and average household size being greater than the average household car ownership suggest that planning for a multi-modal transportation system is critical to achieve social objectives. There are opportunities for alternative transportation strategies to strive to maintain and build upon these achievements.

Appendix G

Appendix G

Technology And Innovation

BURNSIDE

Innisfil

Appendix G | Technology and Innovation

Date: October 26, 2022 **Project No.:** 300053011.0000

Project Name: Innisfil Transportation Master Plan Update

To: Town of Innisfil

From: R.J. Burnside & Associates Limited

1.0 Introduction

Transportation is undergoing a rapid evolution due to the change in lifestyle, increase in environmental awareness and shift in social trends seeking convenience and flexibility. As well, in the last decade, people are placing a stronger emphasis on sustainability and affordability. In response to this phenomenon are emerging transportation technologies and the concept of Mobility as a Service (MaaS). These innovated solutions help improve transportation efficiency by increasing travel options and capacity.

MaaS aims to integrate different transport services seamlessly into one on-demand mobility service allowing travelers to plan and manage their trip. Services can include, but are not limited to, transit, ride/car/bike-sharing, taxi and/or private automobile.

The approach addresses transportation services as a system, which ultimately provides a more convenient and attractive option to the use of a private vehicle, reducing congestion on the road network. Improvements to MaaS is conducive to achieving a higher sustainable mode share. It is also integral in supporting transit use as it ensures safe access to transit stops.

In the Greater Toronto and Hamilton Area (GTHA), there are on-going projects that are considered pilot MaaS projects including the Innisfil Transit and Uber partnership. The project provides servicing to areas of the Town that may have been difficult to achieve through conventional transit services. Details are provided in the following sections. In addition, the following sections explore emerging transportation technologies and mobility models that brings the Town a step closer to MaaS. They identify any potential impact these may have to the Town and discuss how the Town could prepare for this new trend through policies, initiatives and / or infrastructure improvements.

2.0 Shared Mobility

The concept of shared mobility allows individuals to share a transportation service and / or travel mode either simultaneously as a group or one after another. This creates a hybrid between a personal vehicle and mass public transport. Shared mobility has become a popular method with the increase in access to on-demand services and the desire to reduce the

financial burden of vehicle ownership. Shared mobility takes on various forms:

Car-share / Ride-share

Bike-share

Scooter-share

Private Bus / Microtransit

Shared mobility influences travel behaviour i.e., when, and how people travel. It can improve transportation system efficiency. In addition, ease parking pressure and can help manage parking demand through the decrease of single-occupancy vehicles on the roads. Municipalities are discovering these potential impacts of shared mobility on transportation policy and planning process including:

- Zoning Management: shared mobility affects land use related planning factors such as:
  - Parking minimums: with a decreased need for parking, adjustments could be made to reduce the parking space requirement,
  - Substitute general parking spaces for shared mobility parking spaces,
  - Consider opportunities for future conversion of parking to floor space if parking demand declines due to MaaS,
  - Allowance for additional density,
- A component to a Transportation Demand Management Strategy for any new development, and
- Appropriate allocation within public right-of-way for space dedicated to shared mobility such as on-street parking, curb space and biking infrastructures.

Apart from public sectors, some organizations have incorporated shared mobility into their planning processes such as Leadership in Energy and Environmental Design (LEED) certification program. LEED provides certification credits for incorporating carshare, bikeshare, and rideshare services into a development project. Implementing shared mobility into both public and private sector planning processes and program is the key to integrating it into the transportation network and allowing individuals to recognize it as one of a number of potential transportation options available. Details for the various forms of shared mobility are discussed in the following sections.

2.1 Automobile-based

Within the Greater Golden Horseshoe Area (GGHA), there are numerous of emerging automobile sharing options including car and ride share services.

Car-Sharing

Car-sharing services connect individuals to short term (by hours) car rentals. Renters can enjoy the convenience of driving without the worry and hassle of ownership, maintenance and insurance. There are two types of car-sharing services within the GGHA - fleet operator and peer-to-peer platforms.

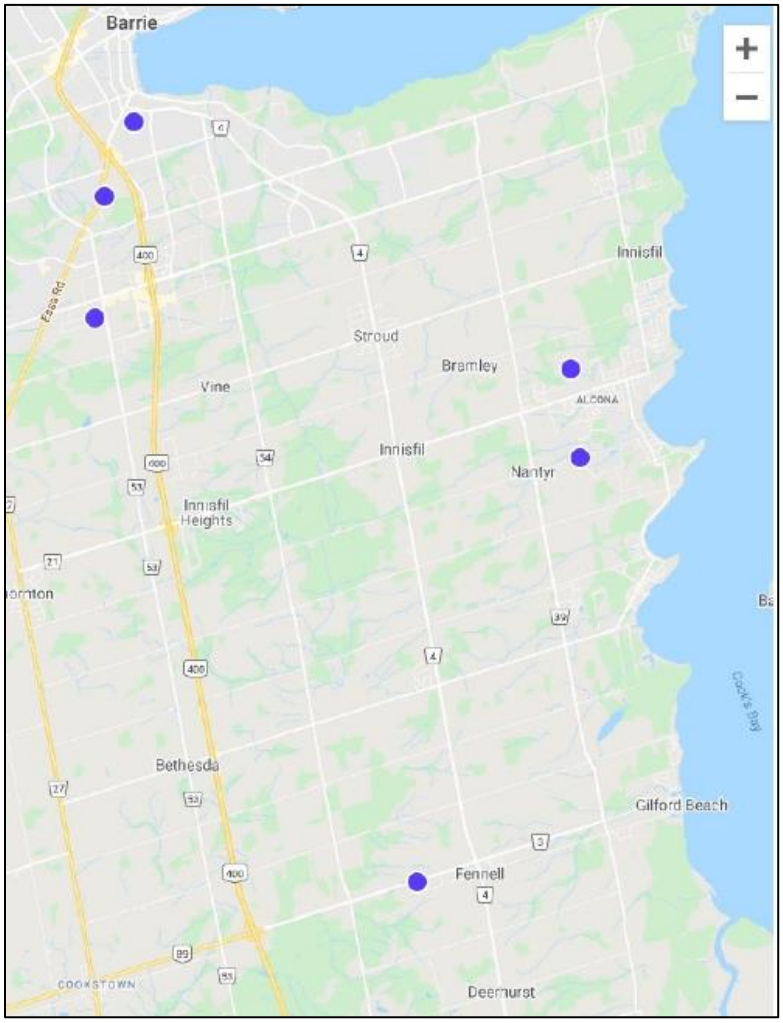
Fleet operators are typically owned and operated by a single organization offering short term vehicle rentals. In comparison to the traditional car rentals, vehicles are not located in a centralized location but scattered throughout a city. Figure G-1 illustrates an example from car share provider, Communauto. From their online application users can see the available vehicles within a set service boundary.

Figure G-1: Communauto Toronto Boundary and available vehicles and stations
Source: https://ontario.communauto.com/

Advance technology, such as a telematic device, can be installed on the vehicle allowing renters to open and close a vehicle with their smartphone or Radio Frequency Identification (RFID) card. In addition, devices can provide real-time information to relay back to the provider such as location, fuel level and state of vehicle. Access can be convenient and flexible (anywhere, anytime). Most of the operators are using recent car models with emission control, fuel-efficient options, plug-in hybrids and electronic vehicles contributing to environmental efficiency.

Peer-to-Peer platforms allow vehicle owners to rent out their cars to members on the same platform on an agreed price and time period. Currently, Turo is the only peer-to-peer platform available in the GGHA. As seen in Figure G-2, there are currently three listings in Innisfil and three listings in the neighbouring City of Barrie.

Figure G-2: Turo available vehicles
Source: https://turo.com/ca/



Car owners will list their vehicles on the platform providing the make and model of the car. Renters can browse through the list and instantly reserve a vehicle that matches their requirement. Arrangements can be made for the vehicle to be drop-off and picked up at a desired location.

Aside from the operators mentioned previously, there are several other car-sharing operators across the GGHA and are summarized in Table G-1.

Table G-1: Car-Share Options

Service Provider	Where has it been implemented
Fleet Operators	
Enterprise [1]	Across GGHA, the closest location for the Town is in the City of Barrie.
ZipCar [2]	• Toronto • Scarborough • North York • Etobicoke • Mississauga • Oakville • Hamilton • St. Catherines • Waterloo
ShiftRide [3]	• Toronto • Richmond Hill • Mississauga • Kitchener
Communato [4]	• Toronto • Hamilton • Waterloo • Kitchener • Cambridge • London • Guelph • Kingston • Ottawa
Peer-to Peer Platforms	
Turo [5]	Across GGHA, depended on location of the vehicle owners. 3 current listing in Town.

Sources:[1] https://www.enterprise.ca/
[2] https://www.zipcar.com/en-ca
[3] https://www.shiftride.com
[4] https://ontario.communauto.com/
[5] https://turo.com/ca/

Ride-Sharing

Ride-sharing or ride-sourcing is the act of sharing a ride with another passenger, typically both passengers are travelling in the same direction. It has become popular over the last decade, but dates back the 1940s. With technological advancement i.e., smartphone, it has modernized ride-shares and transformed into an on-demand mobility service. The provides the upfront cost and offer different options of rides such as carpooled rides. Vehicles will be equipped with GPS system to allow for automatic ride matching, deployment and tracking.

Table G-2 summarizes where both these services have been implemented in the GGHA.

Table G-2: Ride-Share Options

Service Provider	Where has it been implemented	
Lyft [1]	• Ajax • Brampton • Hamilton • Mississauga	• Newmarket • Oshawa • Richmond Hill • Toronto
Uber [2]	• Ajax • Aurora • Barrie • Brampton • Belleville • Bowmanville • Burlington • Hamilton • Innisfil • Kitchener - Waterloo	• London • Markham • Milton • Newmarket • Niagara Region • Oshawa • Toronto • Vaughan

Sources:[1] https://www.lyft.com/
[2] https://www.zipcar.com/en-ca

The Innisfil arrangment with Uber to provide on-demand services is Canada's first ridesharing and transit partnership. With a population of 37,000 residents spread over 262 km^2, this partnership helps respond to the need for efficient and effective transit service for lower densities of population. Residents can travel to and from places within Town for flat rate of $4 to $6 (e.g., Town Hall, Community Centres, GO Station, Highway 400 carpool lots). This partnership has been successful according to Colleen Shaefer[1], Transit Partnership manager at Uber. The partnership showcases an innovated way of catering to specific transportation needs within the Town and the flexibility of ride-share services.

> *"Innisfil was way ahead of the curve with this one… And over the years, we've learned so much from the town of Innisfil, who have been incredible partners, by the way. I mean, our team continues to focus public transit use cases and partnering with agencies using many of the same insights from Innisfil as a foundation for innovation. So, over the years together, we've evolved the offering to better suit the needs of the Innisfil community, especially as its population has grown, and the need for additional services becomes more apparent."*

Opportunities

- Investigate the viability of a local car and ride-sharing service throughout the Town. To create and opportunity such that residents have more flexibility.

[1] Innisfil Accelerates, 'Uber and the Orbit', *Innisfil Accelerates*, Town of Innisfil, https://innisfilaccelerates.ca/operation-innovation-uber-and-the-orbit/, (Accessed 11 September 2021)

This ride-share partnership provides a unique opportunity to quantify transit demand and identify opportunities for conventional scheduled transit service. In the longer-term ride-share can be focused on the challenges associated with first-mile / last-mile of conventional transit. A Burnside survey of ride-share partnerships that have been coordinated with conventional transit service, such as:

- City of Belleville and their partnership with Pantonium to coordinate on-demand services for their night bus routes.
- City of Stratford has on-demand weekend services managed by Pantonium.
- Pinellas Suncoast Transit Authority in Pinellas County, Florida and Marin Transit in Marin County, San Francisco are both working with Uber to facilitate the first / last mile connection to and from existing transit stops.

2.2 Micromobility

Micromobility is the ability of movement through minimalistic means on short distances (usually within 10 kilometers) using lighter vehicle mode such as bicycle and scooters. The COVID-19 pandemic accelerated the shift in preference for this method of transportation. With fewer points of contact and ease of maintaining physical distancing, it is considered the less risky mode of travel. Policies makers around the world has observed this trend and are starting to increase their focus on providing more active transportation infrastructure such as bicycle lanes and multi-use pathways.

Shared micromobility such as bike-share and scooter-share has grown in use over the past 10 years. Both these options are summarized in detail below.

Bike-Share

Bike-sharing services enable individuals to rent and access bicycles within a designated area on a short-term basis. These services can be carried out using a dock system where bicycles are locked into docks as illustrated in

Figure G-3. There are fixed stations scattered throughout a boundary area. In the GGHA, Bike Share Toronto, in the City of Toronto, is the largest bike-share program. There are approximately 625 stations with 6,850 bikes.

Figure G-3: Bike Share Toronto station at Front Street & Yonge Street
Source: https://www.thestar.com/news/city_hall/2018/08/15/torontos-bike-share-system-expanding-again.html

Advance technology such as solar-powered station, keypads to unlock the bicycles and kiosks are implemented. The latter element will assist individuals without smartphones as the kiosks can provide information on how to use the bicycles, buy passes and redeem gift certifications.

In comparison to the dock system is the dockless model. As the name implies, bicycles can be retrieved and returned without the need of a physical dock. Built-in GPS would be required to track the bicycle location and the lock mechanism will be activated with a smartphone. This alternative approach is common in Germany and China. Users can retrieve a bicycle from one location and drop it off at another within a set time period. The Town had explored this service through a pilot project called ShareCycle, which started August 2017 and ended October of the same year. Twelve bicycles donated by South Simcoe County Police Services with tracking system were available in the following sites:

- Innisfil Beach Park
- Sobeys Alcona Beach
- Rotary Trail
- Sandy Cove Acres
- Stroud Arena
- Foodland – Stroud
- Church Street Park, Lefroy
- Various libraries including Lakeshore libraries and Cookstown

The ShareCycle initiative was a free service. The project connected various groups in the community as illustrated in

Figure G-4 and allowed users to explore amenities within the Town.

Figure G-4: Innisfil Youth and Volunteers decorating the donated bicycles from South Simcoe Police Services for the ShareCycle program
Source: https://www.toronto.com/news-story/7540237-free-bike-sharing-service-launches-in-innisfil/

Other parts of the GGHA where pilot programs for dockless bike-share, Dropbike, was launched included the City of Kingston in 2017, the University of Toronto's St. George campus in 2019 and the Region of Waterloo (Cambridge, Kitchener and Waterloo) in 2019. Dockless bike-share provides more convenience and freedom for user. However, the scattered returns pose a drawback related to bicycle maintenance, durability, sustainability and lack of visibility in comparison to stationed bicycles.

The City of Hamilton adopted a hybrid of both these models in their Social Bicycles Hamilton (also known as SoBi Hamilton) program. There are approximately 129 stations with 825 bicycles servicing the downtown, Westdale and Dundas areas of the City. Users can retrieve bicycles at any stations and return them at another or for an extra fee; the bicycle can be returned on any post or regular bike rack.

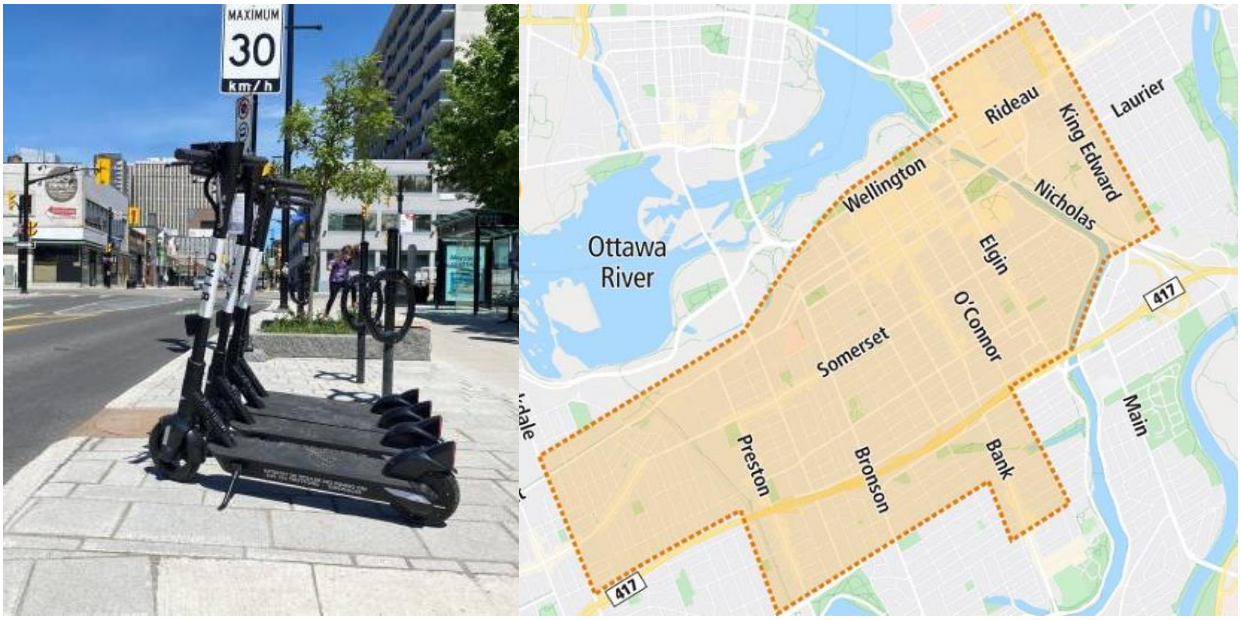
Scooter-Share

Similar to the concept of bike-share is the scooter-share programs. The scooters are in a form of electric motorized scooters (also known as e-scooters). Scooter-share programs adopt on the dockless model. The Province of Ontario has launched a five-year pilot program which started January 1, 2020 to examine shared e-scooters within a given community. The province has developed best practices, general guidelines, and regulations to ensure the safety of users. Each municipality that partakes will be responsible for passing by-laws to allow the use of e-scooters and determine where it will be permitted to operate. There are several cities

investigating the potential of implementing a scooter-share program, while a few have implemented pilot programs. The cities and the stage of investigation are as follows:

- City of London: collecting public input (September 2021).
- Waterloo Regional Municipality: consultation with stakeholders (September 2021).
- City of Brampton, City of Mississauga and City of Hamilton are in consideration .
- City of Windsor: one year e-scooter pilot program with Bird Canada started May 2021.
- City of Ottawa: passed an E-Scooter By-law 2020-174 on June 10, 2020.
  - Ottawa is considering three fleet companies-Bird Canada, Lime, Neuron. The three companies are providing e-scooters in Ottawa as part of their 2021 program.
  - A specific deployment area where the scooters can be picked up and dropped off.
  - Figure G-5 illustrates Bird Canada e-scooters in Ottawa and its deployment area.

Figure G-5: Bird Canada deployment area in the City of Ottawa
Source: https://www.thestar.com/news/city_hall/2018/08/15/torontos-bike-share-system-expanding-again.html



Opportunities

The Town should consider:

- Investigating the viability of a local bike and scooter sharing programs to help increase micromobility mode share within the Town. Similar to the ShareCycle program, these services can promote amenities and attraction in Innisfil. The program can be integrated with transit programs to provide residents with more mobility choices.
- Exploring the availability, convenience and safety of multimodal options for more active transportation infrastructure, including the deployment of e-bikes, bike-sharing services, and e-scooters to promote active transportation for short distances and address commuters' last-mile needs.

2.3 Microtransit

Microtransit is considered a form of flexible transit or on-demand responsive transit. Much like existing ride-sharing services, microtransit offers a flexible, cost-efficient and environmentally safe alternative to traditional fixed-route mass transit. It allows for users to request for rides on-demand along routes that are fixed or dynamic. Requests are usually made through a mobile application where an algorithm calibrates the most fast and fuel-efficient route for the bus driver to pick-up and drop-off passengers. The fleets generally consist of small/medium vehicles such as vans, minibuses and shuttlebuses. They are usually smaller than the typical public transit. Companies specializing in the development of on-demand transit application include Pantonium, Rideco Inc., Spare Labs Inc. among others.

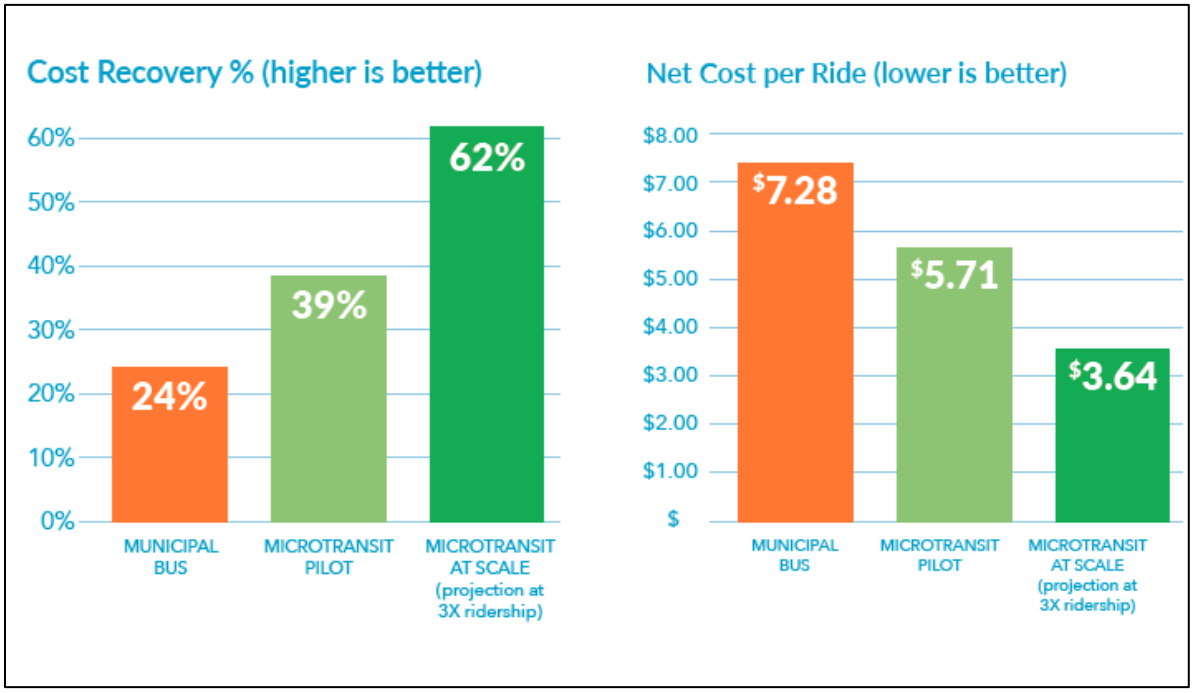
Microtransit can be a solution to some of the limitations of traditional transit. This can include that the reduction in the likelihood of buses running empty or riders facing infrequent service, especially during the off-peak hours. Additionally, on-demand routes can still make scheduled stops at major destinations, such as senior homes, grocery stores and pharmacies, can also be considered. As a result, it is advantageous in lower-density neighborhoods.

The COVID-19 pandemic has presented serious challenges to transit agencies. However, this provided an opportunity to accelerate the implementation of microtransit and bridged the gap between local transit agencies and private operators within the GGHA. Some examples include:

- Regional Municipality of Durham: Durham Region Transit partnered with Spare to launch on-demand transit services for 25 local bus routes in Ajax, Clarington and Pickering.
- Regional Municipality of Niagara: pilot program NRT OnDemand started August 2020 enabling on-demand services in the region's major transit hubs and inter-municipal transit services in Grimsby, Lincoln, West Lincoln, Pelham and Wainfleet.
- City of Belleville: on-demand services deployed by Pantonium for their night bus routes

The Town's partnership with Uber is also an example of microtransit. In addition, a detailed review is provided for the partnership between Metrolinx, Town of Milton and RideCo Inc. This was a one-year pilot on-demand transit project in 2015 called "GO Connect." The project was an answer to the congestion and parking issues experience at its GO Station. Riders were provided specific pickup and drop-off time and shared rides with other individuals heading in the same direction. All pickup and drop off locations were within a 3-minute walk or less, resulting in approximately 240 stops within the Town. The responses were positive from stakeholders with 45% of riders switching from driving to using RideCo. The financial results including cost recover and net cost per ride from the project are provided in Figure G-6.

Figure G-6: Financial results from GO Connect, Town of Milton
Source: https://blog.rideco.com/how-transit-operators-are-getting-on-board-with-microtransit-b0e65540f476



The cost recovery for the microtransit is higher in comparison to the municipal bus.

Opportunities

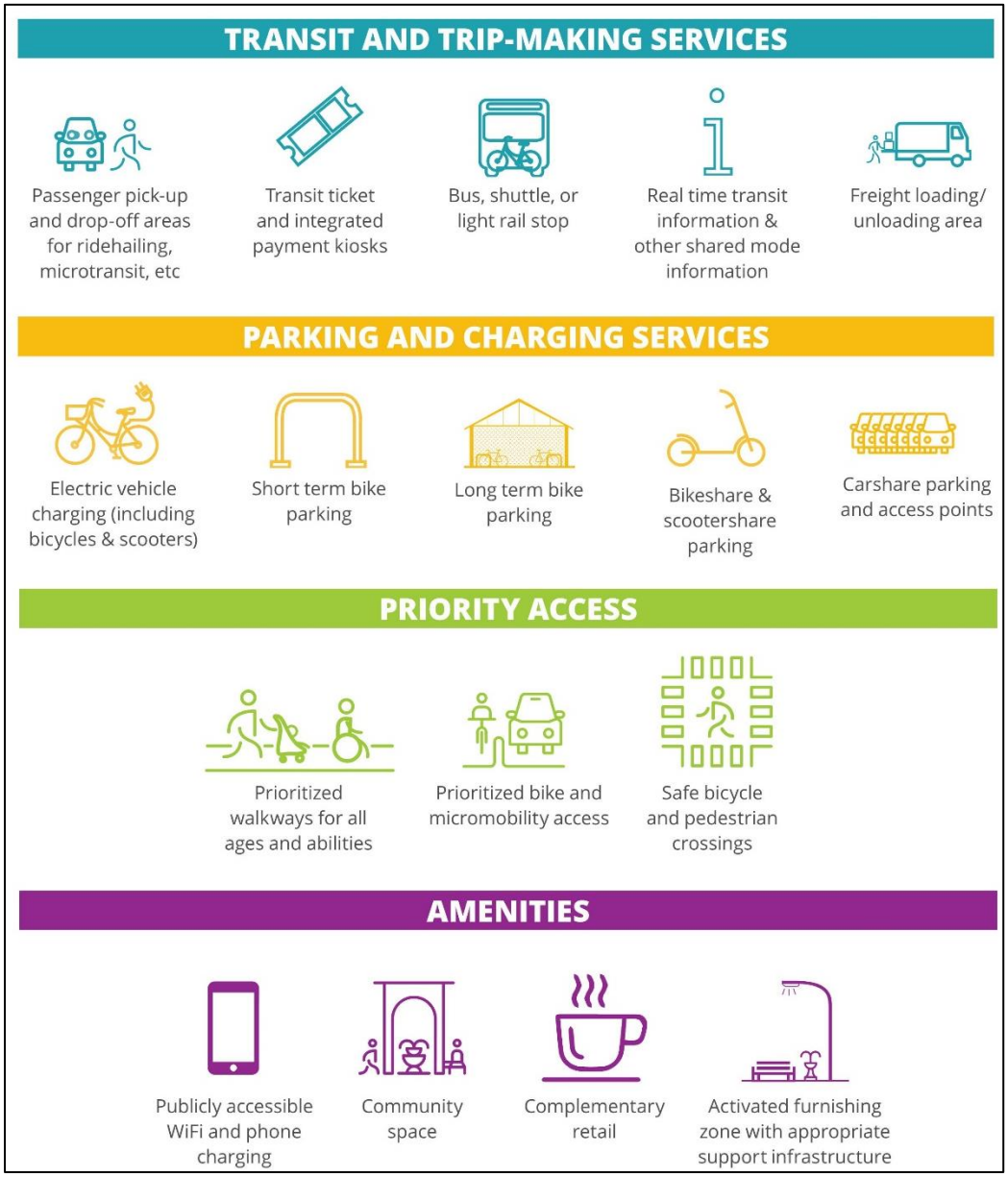
- With Innisfil Heights as a major employment area adjacent to Highway 400, microtransit could be as an option to service this area. Pick-ups can be available from major nodes of the communities such as parking lots in Alcona. This option could reduce single-occupancy automobile trips.

3.0 Mobility Hub

A mobility hub can be defined as a centralized location with high urban activities where different modes of transportation are integrated seamlessly. The Portland Bureau of Transportation's *Mobility Hub Typology Study* (PBOT Mobility Hub Typology Study), dated June 2020, had defined potential elements within a mobility hub.

Figure G-7 is an excerpt from this study describing these nodes.

Figure G-7: Elements of a Mobility Hub
Source: *Mobility Hub Typology Study,* prepared by PBOT, dated June 2020.



It is important to note that the designs of these hubs are focused on the users. As a result, the size of mobility hubs can vary from major transit station to integrated bus-stops and are not limited to the above elements. In addition, these hubs are not restricted to be in central city or within a regional gateway, it can also be within local area of towns.

Many European cities including Bremen in Germany, Den Haag in Netherlands, London in the United Kingdom, Madrid in Spain and many more have led the implementation of mobility hubs. However, over the last decade, within the GTHA, Metrolinx has facilitated several mobility hub projects using their Mobility Hub Guideline established in 2011. It provides the framework of planning and developing mobility hubs. Section 3.1 provides an overview of some of Metrolinx's

projects and other municipalities that have and are at the final stages of implementing mobility hubs.

3.1 Examples of Mobility Hubs

Partnership with Metrolinx – Kipling Station, Toronto[1]
Elements in the Mobility Hub:

- Access to GO Transit, Toronto Transit Commission (TTC) and Mississauga Transit (MiWay).
- Pedestrian bridge and underground tunnel connect to TTC Passenger Pick-Up and Drop-Off.
- Covered bike parking and indoor bike lockers

Kennedy Station, Toronto[2]
Elements in the Mobility Hub:

- To be completed 2022.
- Mixed-use neigbourhood – high density residential (with some ground floor commercial) and single storey commercial.
- Significant amount of redevelopment.
- TTC subway, TTC bus routes, Scarbourgh RT, GO Station for Stouffville Line and future Eglinton Crosstown Light Rail Transit.
- Potential for new pedestrian plaza.

Others – Allandale and Downtown Mini Hub, City of Barrie [3]
Elements in the Mobility Hub:

- Construction phase to be complete by 2022.
- Access to Barrie Transit and GO rail and buses.
- Pedestrian canopies and shelters in waiting area.
- Charging stations for electric vehicles.
- Increase in covered bike shelters and parking.

Source [1]http://www.metrolinx.com/en/greaterregion/projects/kipling-mobility-hub.aspx
[2]https://blog.metrolinx.com/2019/05/30/take-a-walk-through-tour-of-kennedy-station/
[3]Allandale Mobility Hub Study, prepared by City of Barrie and WSP, dated May 2018

3.2 EcoMobility Hub Concept

With the increased awareness of the need for the reduction in global emissions, mobility hubs strive to be sustainable and environmentally friendly. This has contributed to the concept of Ecomobility Hubs. It is a mobility hub that encourages non-motorized transport. The Toronto Parking Authority, Smart Commute program and other businesses in the City of Toronto piloted the EcoMobility Hub concept. This concept was presented in the City of Toronto's *ConsumersNext Transportation Master Plan*, dated May 2017 and followed the example taken from Sophia von Berg's concept of EcoMobility as illustrated in Figure G-8.

Figure G-8: Example of EcoMobility Hub Concept
Source: Multi Mobility, Sophia von Berg, 29014

The Town's Orbit project illustrated in

Figure G-9 is an example of an EcoMobility Hub where an urban community will be situated around a new GO Station. Enhanced pedestrian and cycling infrastructures are proposed to connect to the GO Station becoming a one-stop point for multimodal system.

Figure G-9: The Orbit Project, Innisfil

Opportunities

The Town should consider:

- Determining opportunities to incorporate EcoMobility hubs in new development and / or existing popular areas such as recreational complex, town hall, Tanger Outlets, Friday Habour Resort and 6th Line GO station.
- Exploring how the availability, design, and proximity of EcoMobility hubs could help support advanced sustainable mobility programs, such as AV shuttles or bike-share programs, and enhance ease of access for different users.

4.0 Clean Energy Vehicles

In July 2021, the federal government had announced that Canada will move forward to target all car sales to be zero-emission vehicles by 2035. This goal is a step to reduce greenhouse gas emission and is part of the climate change strategy. The Government has also established the Zero Emission Vehicle Infrastructure Program (ZEVIP), which is a 5-year $280 million program to address the lack of charging and refueling stations. The focus will be on supporting electric vehicle charging infrastructure in:

- Parking areas intended for public use such as service stations, retail, restaurants, medical offices etc.
- On-street.
- Workplaces.
- Multi-unit residential buildings.
- Commercial and public fleets.

Through this program, Natural Resources of Canada (NRCan) contributes up to 50% of the total project cost for a maximum of $5,000,000 per project. As a result, the electric vehicles (EV) represent a significant opportunity. There are several municipalities within the GTHA area that has taken advantage of the ZEVIP program fundings. For example, the City of Guelph received $100,000 fundings from the ZEVIP to install majority of their charging stations. Currently, Guelph has 21 public EV charging stations and 1 private EV charging station for electric vehicles throughout their city. Guelph has both Level 3 and Level 4 charging ports and currently costs $1.50 per hour to use city wide for all city and non-city owned charging stations in Guelph. In Ontario, there are approximately 1,300 level 2 and 3 charging stations with over 4,000 charging outlets.

The Town has plans for installing EV charging stations at the Town Hall and potentially other locations such as a coffee spot on Innisfil Beach Road (Alcona Tim Horton's). Once the Town acquires electric vehicles for their municipal fleet, these stations can be used for recharge overnight. This also acts as a step towards establishing an EcoMobility Hub.

Opportunities

- With the Provincial Goverment actively seeking public and private sector partners to create a network of fast-charging EV stations, the Town needs to take initiative and establish an electric vehicle charging station network strategy. To meet the travel needs of the residents

and support businesses and tourism, a plan for electric charging station infrastructures could be established.

5.0 Autonomous and Connected Vehicles

Vehicle automation will drastically reshape and redefine the transportation systems and travel behaviour. Autonomous and connected vehicles may facilitate and accelerate the adoption of the mobility models discussed earlier, including car sharing, ride-sharing and sourcing, and microtransit.

Automated vehicles (AV) allow the vehicle to control some of the driving functions by utilizing a combination of sensors, controllers and software instead of a human driver. Transport Canada and SAE International has identified six levels of automation ranging from level 0 (no automation) to level 5 (full automation). Currently, most vehicles in Canada are in the lower range of level 0 to 2 with features including lane assistance, cruise control and automatic emergency breaking.

To compliment AVs, are the technology in connected vehicles (CV). These vehicles utilize wireless communication, vehicle sensors, on-board computer processor and other advanced technologies to allow vehicles to communicate and connect with the driver's mobile phone, other vehicles and transportation infrastructure such as intersection traffic signals.

The development of automated and connected vehicles can benefit in the following ways:

- Create safer roads
  - Providing drivers earlier warning and alert them of dangerous situation
  - Applying emergency breaking when danger is detected
  - Assist in better decision making
- Provide a better opportunity of mobility for everyone
  - Seniors, youths, people with disabilities, low-income families and rural communities
  - better logistical and delivery services
- Improve the environment
  - Lower fuel use and emissions
  - Increase road capacity
- Generate new jobs in various sectors including transportation services, digital technology, manufacturing and many more.

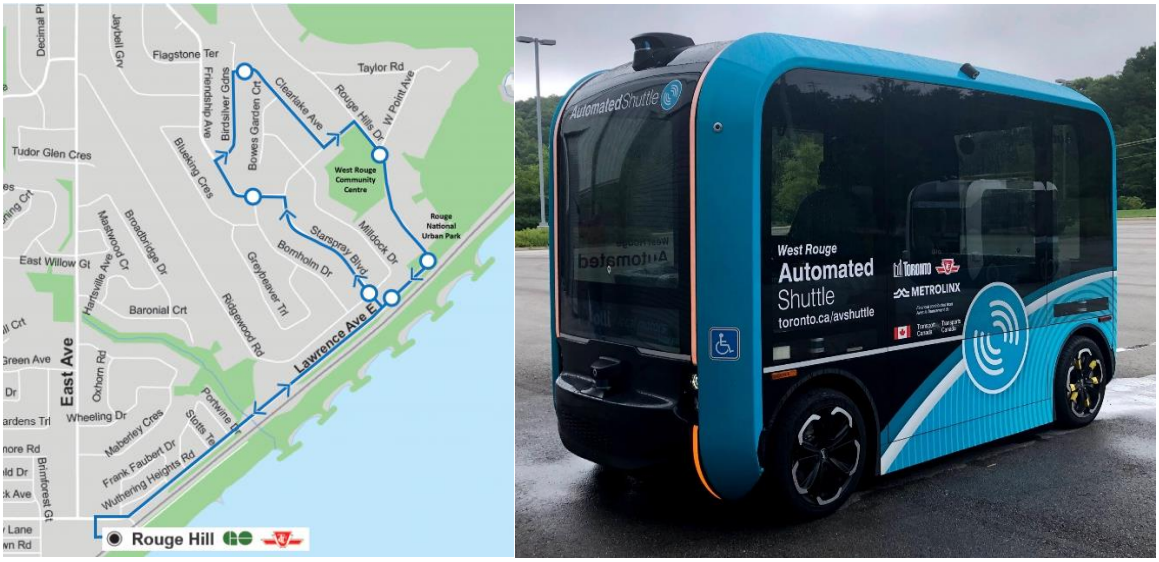
The Canadian Government has established several projects funded by the Program to Advance Connectivity and Automation in the Transportation System. One of the notable projects in the GGHA is the West Rouge Automated Shuttle Trial in the City of Toronto. It is a partnership between the City, the TTC and Metrolinx. The program is free shuttle services taking riders to and from the Rouge Hill GO station, West Rouge Neighborhood, Rouge Community Centre and Rouge National urban Park. The shuttle is self-driving with fixed stops; however, a human attendant will be on-board in case of emergency. During the weekday, the shuttle will operate with 30 minutes frequency from 6:00AM to 9:00AM and 3:30Pm to 6:30PM. During the weekend, the shuttle will also operate with 30 minutes frequency from 9:00AM to 11:00AM and

1:00PM to 3:00PM. The first shuttle was launched October 2021 and the project will be completed February 2022.

Figure G-10 illustrates the type of shuttle bus used and the route it will take.

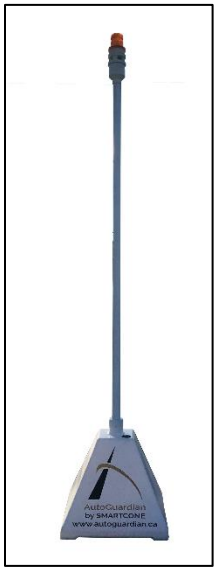
Figure G-10: West Rouge's Route and Automated Shuttle

Source: https://www.toronto.ca/services-payments/streets-parking-transportation/transportation-projects/automated-vehicles/automated-vehicles-pilot-projects/automated-shuttle-trial/



The province continues to pursue the research into autonomous vehicle technologies. As a result, in 2017 the province invested in the Autonomous Vehicle Innovation Network (AVIN). This allows researchers to test driverless cars under different traffic scenarios and conditions. An additional project supported by the AVIN is the Whitby Autonomous Vehicle Electric (WAVE) shuttle pilot project for their DRT Route 300. Vehicle testing started in the summer 2021 and will be followed by public ridership later 2021. The shuttle will operate at 20 km/h and a trained human attendant will also be on board. The bus will operate between 8:30 AM and 3:30PM during the weekdays and 7:00AM and 7:00PM during the weekends. The off-peak times were chosen to minimize traffic impact. There will be approximately 70 pieces of advance technology equipment used for this pilot including Smart Torch (illustrated in Figure G-11). It will be installed along the route to help eliminate blind spots and provide real-time audio and visual alerts to surrounding road users to ensure safety.

Figure G-11: Smart Torch used in WAVE
Source: https://connectwhitby.ca/ridetheWAVe



The deployment of AV in the Town has the potential to drastically change travel behaviour. For example, if an automated vehicle is owned by a single family, it could be used for several individual trips to service everyone's needs. However, if an automated vehicle is shared between several families, some of whom work in the same area or attend the same school, trips are shared between several users. The extent of the impact of autonomous vehicles on travel behaviour is currently being explored as there are many possibilities to consider.

Opportunities

- To be aware of the rise of AVs and CVs and adapt accordingly. It is recommended that the Town consider:
  - Permit testing and adoptions of AVs in transit, intercommunity transportation and goods movement.
  - Launching an open-data to make road and traffic information available to public
  - Repurposing unneeded transportation infrastructure to better prepare for AVs
  - Integrating AV ready infrastructure into asset management
  - Investing in educating the benefits of AVs and new mobility models
  - Evaluating the existing road and digital infrastructure (e.g., 5G networks) in consideration for and support of advanced sustainable mobility modes.
  - Developing an approach to prepare the Town's transportation and digital infrastructure and system for the safe deployment of connected, automated and electric vehicle technology and increase access to new mobility options.

6.0 Smart Cities

There are many ways to define smart cities and the definition changes with time. Smart cities harness technology and data to build infrastructure, to help make decisions and enhance the quality of life for residents. Overall, it is to provide a better flow and connectivity within a city. It is

establishing a city that can evolve year by year, which prevents rebuilding. In contrary to the belief that a futuristic city is beyond the reach of residents and businesses; smart cities are about responding to and designing for daily fundamental processes.

Recognizing the potential benefits of smart cities, government officials, non-governmental organization and industries are dedicating resources to this field. In August 2019, FedDev Ontario had invested $53.3 million in six Toronto-based organizations including Innovate Cities. This organization is a "*not-for-profit network of innovators working towards to creating inclusive, livable and sustainable cities*"[2]. They provide innovators with data collected from commercial and residential developments and offer them a space to experiment. The funding is put forth to create a cloud-based platform to help with collaboration and education. The first platform is called CommunityHub where innovators can communicate to develop solutions to key urban issues. The second platform will be a series of programs educating customers, in the private and public sectors, on the emergence of smart cities. This is all done while protecting the privacy of the data collected by the citizens.

Within the GGHA, there are other examples of smart cities and are summarized in Table G-3.

Table G-3: Other examples of Smart Cities within the GGHA

Municipalities	Project	What has been Implemented
Toronto	Free Wi-Fi Pilot Project	25 residential apartment buildings in low-income neighborhoods are provided free internet access for a year.
	Chatbot	Uses artificial intelligence technology to answer questions about the City's services.
	Automated water meters	Sends water usage data to the City and allows residents to check their water usage.
	Transportation Innovation Zones	Emerging transportation approaches and technologies will be tested in a real-world environment. Program will take place at the Exhibition Place. First official challenge will be in Fall 2021.
Stratford	City-wide Wi-Fi	Municipally-owned fiber broadband network and city-wide Wi-Fi.
University of Waterloo	5G Application	Partnership with Rogers Communications Testing 5G application in real-world settling such as smart city infrastructure monitoring and alerting system.

[2] Innovate Cities. 'About Us'. *Innovate Cities*. https://innovatecities.com/about-us/. (Accessed 11 September 2021)

Municipalities	Project	What has been Implemented
Several municipalities	Open Data Portal	Including York Region, Toronto, Durham Region and many more. Free and open data-sharing portal providing access to geographical maps and other data related to the municipality

Opportunities

- Town to explore developing a Smart City guideline for future development. As well, be aware of any federal and provincial fundings and leverage available funding together with industry.

7.0 Challenges

As the GGHA continues to explore the best way to deploy MaaS and the emerging technologies; the associated challenges will need to be addressed. These challenges may include

- The lack of a consumer protection framework enacted or proposed in Canada, which would ensure performance standards that allow for safe and reliable service across the different travel modes.
- The need for data protection and security measures for users.
- Contractual arrangements to address data sharing between transport operators and other organizations.
- Ensuring a common platform, in order to efficiently execute any of the projects / programs.
- Requirements for access to smartphone or smart device. This may lead to social inequality as it difficult for older population or individuals with lower income.
- Additional funding may be required. Corporations may need to be on board to ensure financial stability.

The implementation of MaaS also requires the proper planning policy and framework to support and encourage these emerging technologies.

8.0 Conclusion

Mobility has become a vital role in everyone's daily life and defines the way we work, live and play. The use of emerging technologies and viewing Mobility as a Service (MaaS) will transform Innisfil into a town where mobility options will be intentionally linked between the different transportation services. As a result, getting around Town will be more convenient, seamless and enjoyable. In addition, with strategic partnership the Town can be an innovative space to foster more entrepreneurial enterprises and businesses.

Appendix H

Appendix H

Road Capacity Analysis and Safety Review

BURNSIDE

Innisfil

Appendix H | Road Capacity Analysis and Safety Review

Date:	July 12, 2022	**Project No.:**	300053011.0000
Project Name:	Innisfil Transportation Master Plan Update		
To:	Town of Innisfil		
From:	R.J Burnside & Associates Limited / TraffMobility		

1.0 Road Capacity Analysis

A road capacity analysis was conducted for existing and future conditions using EMME, a modelling software for travel forecasting. The travel demand model for the Town of Innisfil was previously developed by HDR Inc. as part of the 2018 Transportation Master Plan.

The model was updated as part of the 2022 Transportation Master Plan Update through network refinements and input changes to reflect existing “base” conditions, planned improvements and land uses, and the latest population and employment allocations. Updates to the model have been documented and summarized below. This updated model was used to inform future traffic conditions and recommended improvements as part of this TMP.

1.1 Previous EMME Model

The model was developed to reflect the worst-case peak hour travel conditions, which occurs during the PM peak period for the Town. The geographic scope of the model covers the Town of Innisfil and connectors that represent travel to the surrounding municipalities. Data from the 2011 Transportation Tomorrow Survey (TTS) was used to determine trip rates and mode shares as inputs to the base year model.

1.1.1 Base Model Calibration and Validation

The model was calibrated using hourly vehicle count data provided along Town, County and Provincial roads to better reflect existing conditions. The validity of the model was assessed based on a screenline analysis, whereby modelled and observed peak hour volumes crossing Town boundaries and major corridors were compared. The results showed that most of the modelled screenline volumes were within a 10% difference of observed volumes, which indicates an acceptable level of model accuracy.

1.1.2 Previous Growth Forecasts

A key input in the travel forecasting model is future population and employment, as it directly impacts travel demand. Growth projections for the Town and adjacent municipalities were

derived based on the latest Provincial Growth Plan targets and Simcoe County 2041 targets. The Town's growth forecasts were allocated to the various settlement areas based on the 2012 Innisfil Town-Wide Water and Wastewater Master Servicing Plan. Allocation of growth within settlement areas accounted for intensification of the lands near the future GO Rail Station (i.e., The Orbit), the Sleeping Lion Town Settlement area, Friday Harbour (located in Big Bay Point) and the potential economic expansion areas near Innisfil Heights. The 2041 population and employment forecasts used for the previous 2018 TMP is summarized in Table H-1. Note that the 2051 forecasts were not included in the scope of the previous TMP.

Table H-1: Previous 2041 Population and Employment Forecasts

Location	2041 Population	2041 Employment
Big Bay Point	9,911	1,233
Sandy Cove	9,551	303
Leonard's Beach	1,238	-
Alcona North Expansion Area	4,000	-
Alcona North Existing Settlement	13,075	974
Alcona South Existing Settlement	13,075	755
Alcona South Expansion Area	7,150	770
Big Cedar Point	819	-
Lefroy - Belle Ewart	8,218	534
Gilford	2,141	139
Fennell's Corners	196	-
Churchill	761	155
Campus Node	-	-
Stroud	2,494	509
Hwy 400 & 89 Employment Lands	-	-
Cookstown	3,477	709
Innisfil Heights Expansion	-	3,600
Innisfil Heights	321	5,388
Total	76,400	15,100
Place to Grow Target	67,100	15,070

1.2 EMME Model Updates

As part of the updated TMP, the model was reviewed and updated to account for all future proposed road improvements, the latest 2041 and 2051 population and employment forecasts and changes in mode split.

1.2.1 Network Refinements

The modelled road network, along with its associated model attributes, were reviewed to confirm all planned road improvements are incorporated into the model. The network was also reviewed for discrepancies. Table H-2 summarizes the changes made to the model network.

Table H-2: Network Refinements Summary

Road	From	To	Network Edit
"Existing" Base Conditions			
King Street (County Road 27)	Riley Street	Kidds Lane	Capacity changed from 400 veh/lane to 900 veh/lane 1
King Street (County Road 27)	Kidds Lane	Victoria Street	Changed to 4 lanes
20th Sideroad	Innisfil-Bradford Boundary	Shore Acres Drive (County Road 3)	Capacity changed from 400 veh/lane to 800 veh/lane 2
Innisfil Beach Road	20th Sideroad	Jans Boulevard	Changed to 4 lanes
By 2041			
Lockhart Road	Huronia Road	20th Sideroad	Widened to 4 lanes (Hewitt's Secondary Plan)
County Road 89 / County Road 3 (Shore Acres)	County Road 53 (5th Sideroad)	County Road 39 (20th Sideroad)	Widened to 4 lanes (Simcoe County 2014 Transportation Master Plan)
6th Line	County Road 27	St. Johns Road	Widened to 4 lanes (6th Line Class EA)
McKay Road / Hwy 400 interchange3	-	-	Parclo-A3 interchange coded

Notes: 1. Capacity increased to reflect a freer flow condition, with few accesses along this road segment.
2. This segment is considered a local road; however, it interfaces with the segment of 20th Sideroad that is designated as a major Town road and does not restrict flow.
3. Interchange recommended as per the City of Barrie 2019 Transportation Master Plan.

1.2.2 Updated Growth Forecasts

After the completion of the Town's 2018 TMP, the County of Simcoe undertook a Municipal Comprehensive Review (MCR), as required by A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2020 (Growth Plan). In the process of bringing the Official Plan of the County of Simcoe and all 16 lower-tier municipalities into conformity with the Growth Plan, the MCR allocates amongst all lower-tier municipalities, the population and employment forecasts contained in Schedule 3 of the Growth Plan for the County of Simcoe to the year 2051.

Draft 2041 and 2051 population and employment allocations for the Town, as summarized in Table H-3 were provided from Simcoe County in October 2021 as part of the County's Growth Management and Lands Needs Assessment.

Table H-3: Draft Growth Allocations for Innisfil (Simcoe County, October 2021)

Horizon Year	Population	Employment
2041	68,880	19,650
2051	84,570	26,190

The modelled 2041 and 2051 population and employment to settlement areas within the Town were allocated based on these draft targets, as summarized in Table H-4. It is understood that these are interim growth allocations, and the model will need to be re-run when growth allocations have been approved.

Table H-4: Updated 2041 and 2051 Population and Employment Assumptions

Location	Population		Employment	
	2041	2051	2041	2051
Big Bay Point	9,400	9,881	1,608	2,380
Sandy Cove	7,987	9,736	395	585
Leonard's Beach	1,035	1,088	0	0
Alcona North Expansion Area	3,345	4,951	0	0
Alcona North Existing Settlement	9,010	13,338	1,270	1,403
Alcona South Existing Settlement	10,934	11,493	985	1,088
Alcona South Expansion Area (i.e., The Orbit MTSA)	18,550	28,999	1,004	1,338
Big Cedar Point	685	685	0	0
Lefroy - Belle Ewart	6,872	7,405	696	769
Gilford	1,790	1,882	181	200
Fennell's Corners	164	164	0	0
Churchill	636	636	202	246
Campus Node	0	0	2,000	2,000
Stroud	2,086	2,420	664	885
Hwy 400 & 89 Employment Lands	0	0	0	0
Cookstown	2,908	3,374	925	1,021
Innisfil Heights Expansion	0	0	4,694	6,949
Innisfil Heights	268	268	7,026	9,364
Total	75,670	96,320	21,650	28,228
Place to Grow Target	68,880	84,570	19,650	26,190

1.2.3 2041 Growth Assumptions

The 2041 growth allocations to settlement areas within Innisfil were developed to consider the updated 2041 population and employment target of 68,880 persons and 19,650 jobs, respectively.

The 2041 population target was allocated to the various settlement areas within the Town based on the same proportions as the 2018 Transportation Master Plan (TMP), except in the Alcona South Expansion Area (i.e., the lands surrounding The Orbit) and Friday Harbour area (Big Bay Point). A population of 18,550 was assumed in The Orbit by 2041. Future population from the development in Friday Harbour (+6,790 people) was included in addition to the growth targets, like the 2018 TMP.

The 2041 employment target was allocated to the settlement areas in the same proportion as the 2018 Transportation Master Plan (TMP), except for the Campus Node which represents the location of the future Royal Victoria Regional Health Centre (RVH) campus. The RVH was assumed to provide an additional 2,000 jobs by 2041.

1.2.4 2051 Growth Assumptions

The approach to derive 2051 population and employment allocations include applying compounded annual growth rates to settlement areas that are expected to grow based on discussions with Town staff and Council reports.

The 2051 population allocations to settlement areas within Innisfil were developed to consider the updated 2051 population target of 84,570 persons. In addition, growth assumptions consider the following excerpt from the Town's Council Report, subject "County of Simcoe Municipal Comprehensive Review - Update No. 2" (September 22, 2021), which noted the following:

> *Based on the above Provincial and County policy directions, the majority of Innisfil's population growth will therefore be directed to Alcona, which is the Town's sole designated PSA in the Growth Plan. Furthermore, the majority of Alcona's growth will be directed to The Orbit/Innisfil GO Station (Major Transit Station Area) as well as intensification of the Downtown Commercial Area along Innisfil Beach Road. Outside of Alcona, only a limited amount of growth may be considered for the Town's other fully serviced settlements of Sandy Cove and Lefroy, and only to Cookstown and Stroud if the current servicing restrictions are planned to be resolved.*

Therefore, the following assumptions were applied to derive population in 2051:

- 0.50% per annum growth from 2041 to 2051 in Big Bay Point, Leonard's Beach, Alcona South Existing Settlement, and Gilford.
- 0.75% per annum growth from 2041 to 2051 in Lefroy-Belle Ewart.
- 1.50% per annum growth from 2041 to 2051 in Stroud and Cookstown.
- 2.00% per annum growth from 2041 to 2051 in Sandy Cove.
- 4.00% per annum growth from 2041 to 2051 in Alcona North Expansion Area and Alcona North Existing Settlement.
- A population of 29,000 was assumed for The Orbit MTSA.
- Additional population in Friday Harbour (+6,790 people) was added, like the 2041 population assumptions.

The 2051 growth allocations to settlement areas within Innisfil were developed to consider the updated 2051 employment target of 26,190 jobs.

The following assumptions were applied to derive employment in 2051:

- 1.00% per annum growth from 2041 to 2051 in Alcona North Existing Settlement, Alcona South Existing Settlement, Lefroy-Belle Ewart, Gilford, and Cookstown.
- 2.00% per annum growth from 2041 to 2051 in Churchill.

- 3.00% per annum growth in Alcona South Expansion Area, Stroud, Innisfil Heights.
- 4.00% per annum growth in Big Bay Point, Sandy Cove, and Innisfil Heights Expansion.

1.2.5 External-External Trip Growth

The previous model derived existing external-to-external (through) trips using 2011 Transportation Tomorrow Survey (TTS) data, which was then distributed based on directional splits from existing traffic counts. Future external-to-external trips were estimated based on population and employment growth in surrounding municipalities.

A comparison between previous (2018 TMP) and updated (based on the 2019 Barrie TMP and County's Growth Management and Lands Needs Assessment) population and employment forecasts are summarized **in** Table H-5 and Table H-6, respectively. These updated population and employment allocations were used to inform the growth rates used to estimate 2051 external-to-external trips.

Table H-5: Population Growth in Surrounding Municipalities

Municipality	Updated Population		Previous Population	
	2041	2051	2041	2051
City of Barrie	253,000	298,000	253,000	-
Town of Bradford West Gwillimbury	72,290	85,610	60,267	-
Township of Essa	30,730	34,800	25,658	-
Town of New Tecumseth	68,540	81,530	66,831	-

Table H-6: Employment Growth in Surrounding Municipalities

Municipality	Updated Employment		Previous Employment	
	2041	2051	2041	2051
City of Barrie	129,000	150,000	132,000	-
Town of Bradford West Gwillimbury	23,170	30,470	21,543	-
Township of Essa	12,330	13,890	10,772	-
Town of New Tecumseth	29,970	35,780	31,717	-

1.2.6 Orbit Mode Split Adjustment

Considering The Orbit is planned be developed surrounding the future GO station at 6th Line and 20th Sideroad, it is expected that trips generated to/from this area would have a greater non-auto mode share due to the proximity to higher-order transit and the potential for the station to be serve as a transit hub for a Town-wide transit system.

According to the Metrolinx GO Rail Station Access Plan (December 2016), the daily auto mode split (including carpooling passengers, pick up/drop off and drive and park) for trips accessing the station is estimated to be 77% by 2031. The current daily auto mode share for Town trips is 94%. Therefore, auto trips travelling to/from The Orbit development were factored down accordingly for the future 2041 and 2051 horizon year.

2.0 Safety Analysis

A safety assessment was conducted using the most recent pre-COVID (2019 and prior) five-year collision data. A hotspot analysis was performed at a macro level to highlight locations where collisions are more frequent. Any observed trends or patterns were further analyzed to understand the potential casual factors and to determine areas of safety improvements.

The collision dataset contains attributes pertaining to impact type, severity, time of year and day of week, road surface conditions, lighting conditions and locations. These attributes were analyzed to identify any trends and patterns that may inform future transportation improvements.

2.1 Collisions by Month

The number of collisions by month is illustrated in Figure H-1. A total of 4,276 collisions were recorded between 2015 and 2019. Majority (3,595 or 84%) of collisions were property-damage-only (PDO), followed by non-fatal injury (671 or 16%) and fatal collisions (10 or less than 1%).

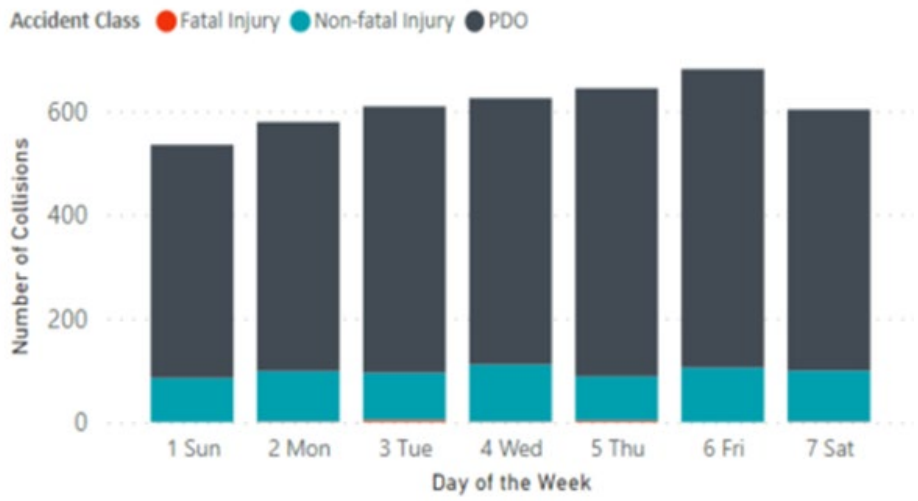
Higher number of collisions has been observed during the winter months between November and February when compared to any other time of the year. During the winter months, lack of visual clarity due to environmental conditions such as snow and rain was a contributing factor to 46% of collisions, which is 18% higher than the yearly average. More collisions have also occurred outside of daylight hours during the winter months when compared to the annual average (47% vs. 33%). Road conditions do not appear to be a contributing factor to vehicle collisions during winter months as 84% of collisions occurred on a dry road surface.

Figure H-1: Collision Summary by Month

2.2 Collision by Day of the Week

Collision trends by day of the week are illustrated in Figure H-2. There appeared to be a steady increase in PDO collisions from Sunday to Friday. No other patterns can be observed with respect to the day of the week.

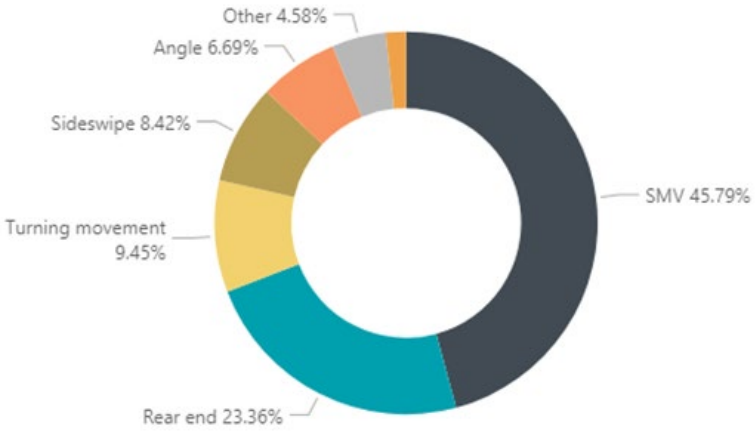
Figure H-2: Collision Summary by Day of the Week



2.3 Collisions by Impact Types

Collision by impact type is illustrated in **Figure H-3**. The predominant impact type is Single-Motor-Vehicle (SMV) collisions (46%), followed by rear-end (24%), turning movement or angle (16%), sideswipe (8%) and other (5%). SMV and rear-end collisions were further analyzed to identify any specific patterns and contributing factors that might warrant special attention.

Figure H-3: Collision Summary by Impact Type

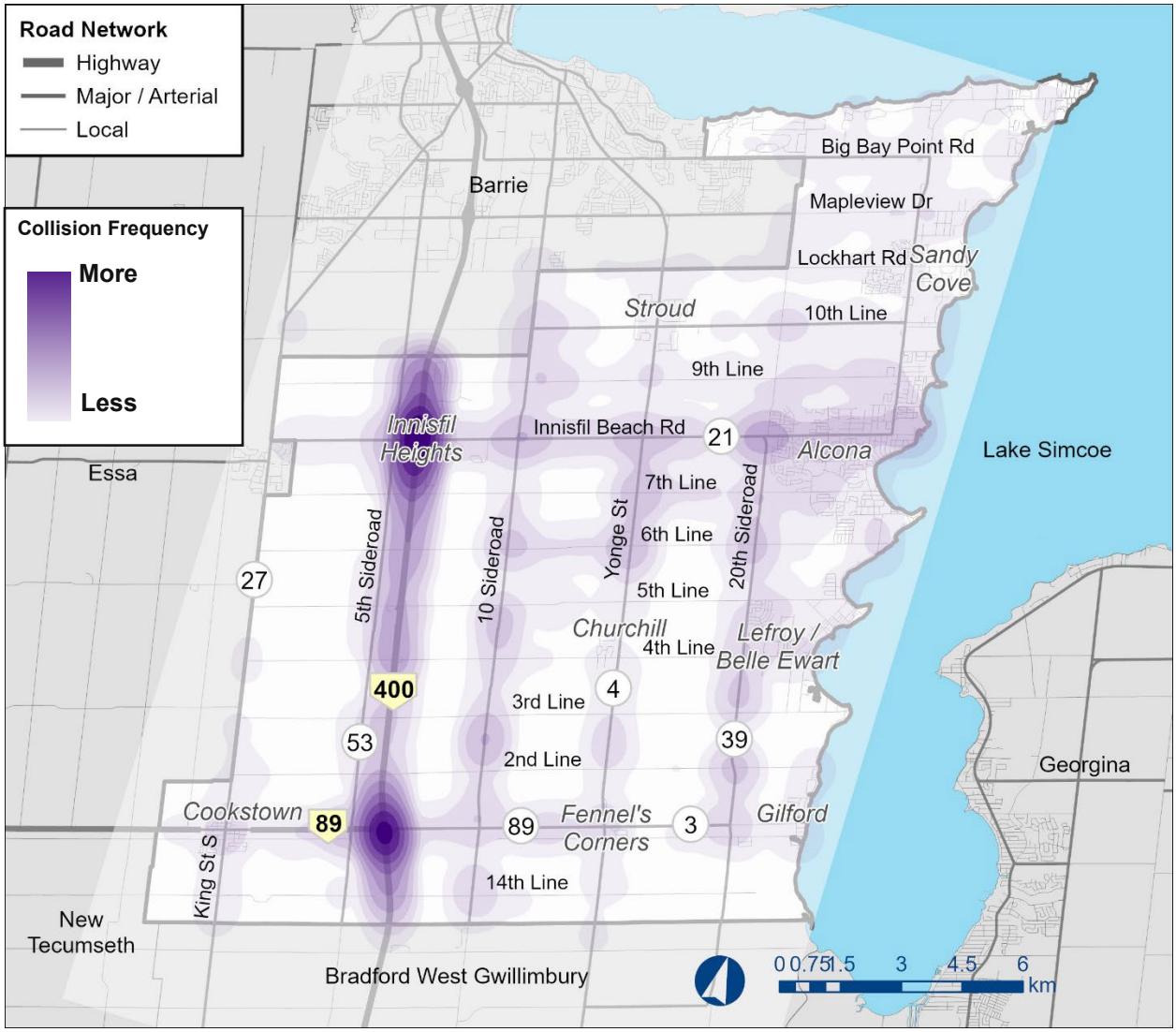


2.3.1 Single Motor Vehicle Collision Analysis

Single-Motor-Vehicle (SMV) collisions may include a vehicle colliding with an object along the roadside (i.e., a guardrail), losing control, running off the road, and/or flipping over. There are 1958 (or 46%) SMV collisions that have been recorded during the analysis period, 255 (13%) and 3 (0.2%) of which resulted in injuries and fatalities, respectively.

A geospatial hotspot analysis has been performed for the SMV collision subset and can be seen in Figure H-4. As expected, majority (77%) of SMV collisions occur at mid-blocks. The roadways that have the highest recorded number of SMV collisions are along Highway 400 and Innisfil Beach Road. Collision density along Highway 400 increases near the interchanges.

Figure H-4: SMV Collision Hotspot Map



Approximately half of the SMV collisions occurred during the winter months between November and February. Lack of daylight is attributed to 46% of all SMV collisions and (50%) of SMV collisions during the winter months. This is 18% and 3% higher than the yearly and winter months averages for all impact types on the Town roads. No patterns can be observed with road surface conditions.

Figure H-5 illustrates the yearly lighting conditions for all collisions as well as collisions involving SMVs and Figure H-6 compares lighting conditions between SMVs and all impact types during the winter months.

Figure H-5: Collision Summary by Lighting Conditions – Complete Dataset

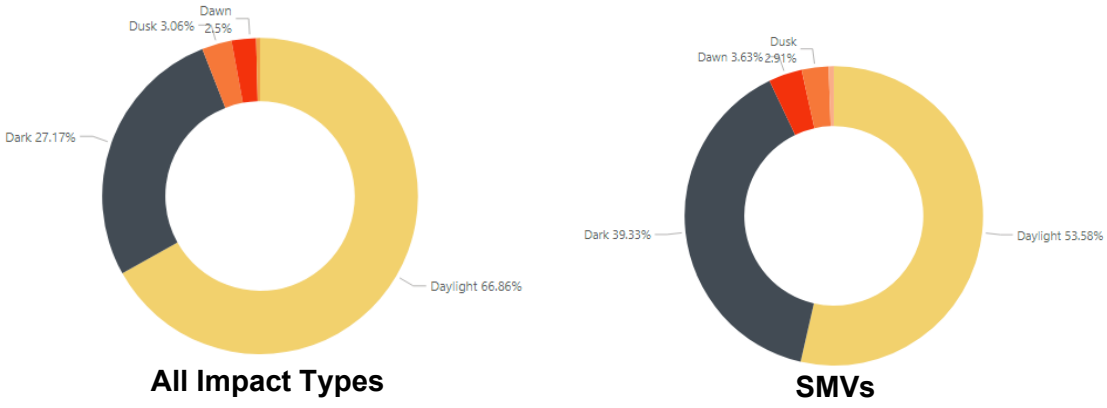
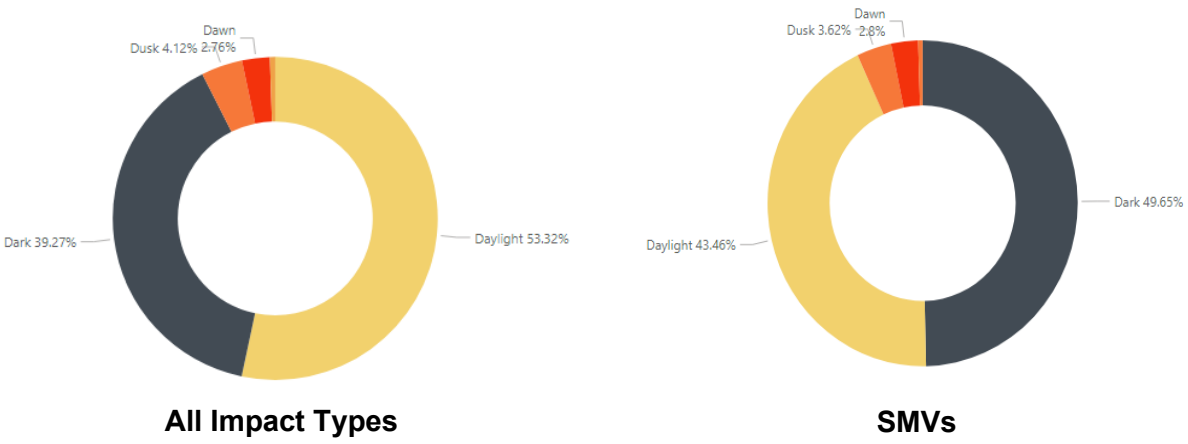


Figure H-6: Collision Summary by Lighting Conditions – Winter Months Only



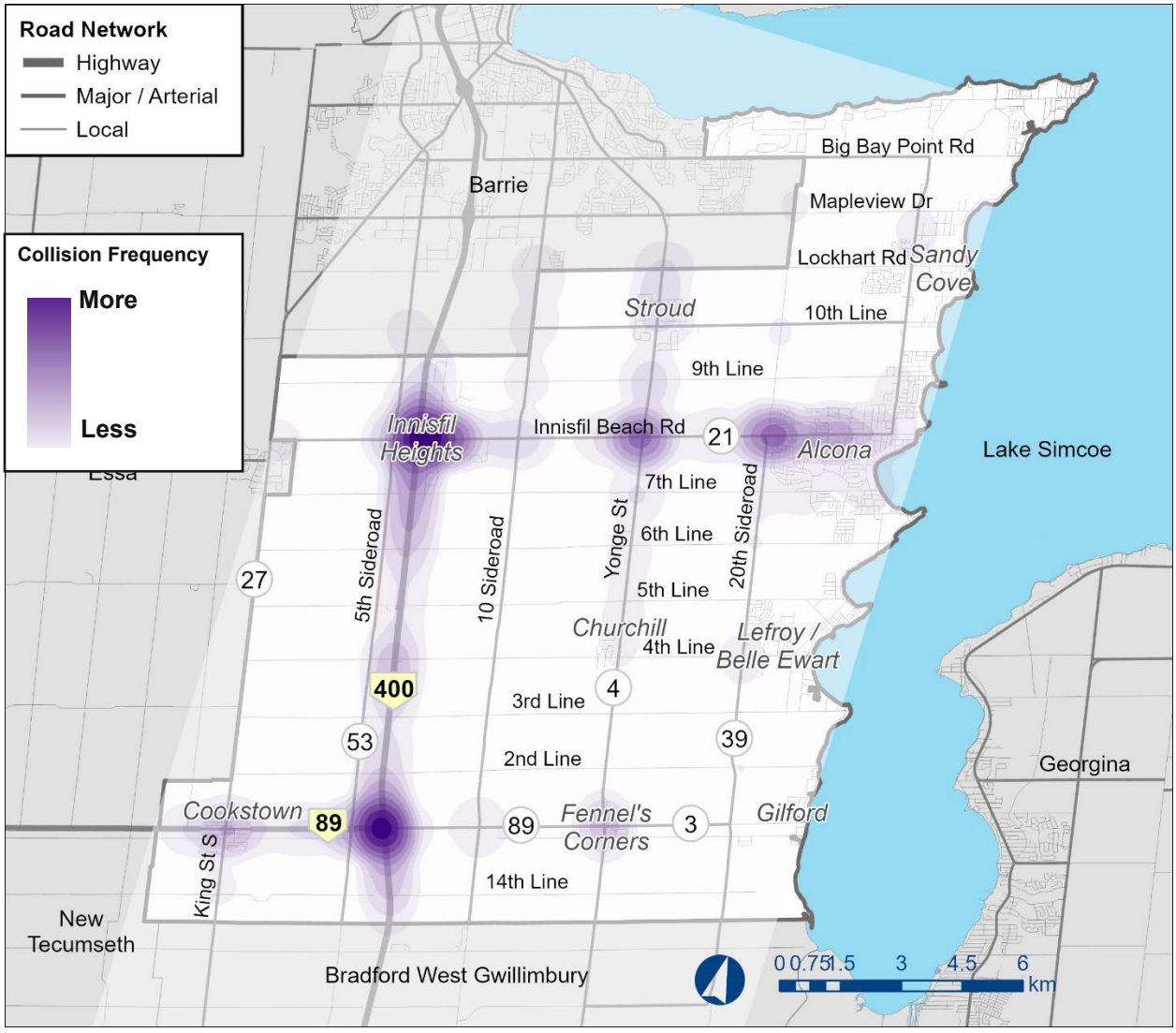
Furthermore, the SMV subset analysis indicates that more incidents of this type occur along undivided two-way roadways (54%) when compared to divided roadways with restraining barriers (25%). Approximately 33% of SMV collision involved impacts with wild animals.

2.3.2 Rear End Collision Analysis

Rear-end collisions made up 23% of the studied five-year dataset (999 instances), out of which 167 (16%) resulted in injuries and 2 (0.2%) resulted in a fatality.

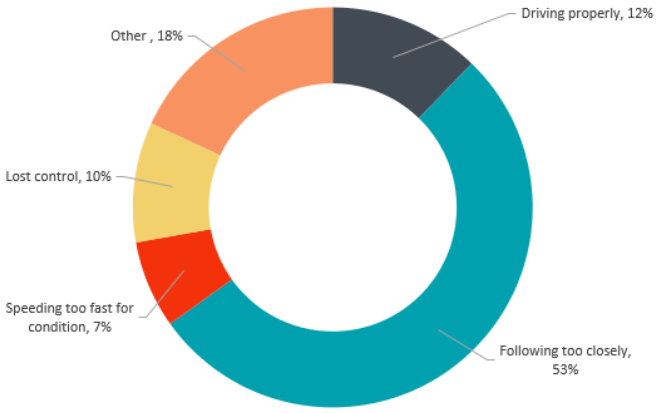
A hotspot analysis was performed for the rear-end collisions, as shown in Figure H-7. Majority of the rear-ended collisions have occurred along major roads. The highest concentration of rear-end collisions can be observed along Highway 400 mainlines followed by Innisfil Beach Road between Highway 400 interchange and 25th Side Road as well as along Highway 89 between the western Town boundary and Highway 400. Out of north-south arterials, Yonge Street has the highest number of rear-ended collisions. In general, higher density of rear-ended collisions can be observed near intersections.

Figure H-7: Rear End Collision Hotspot Map



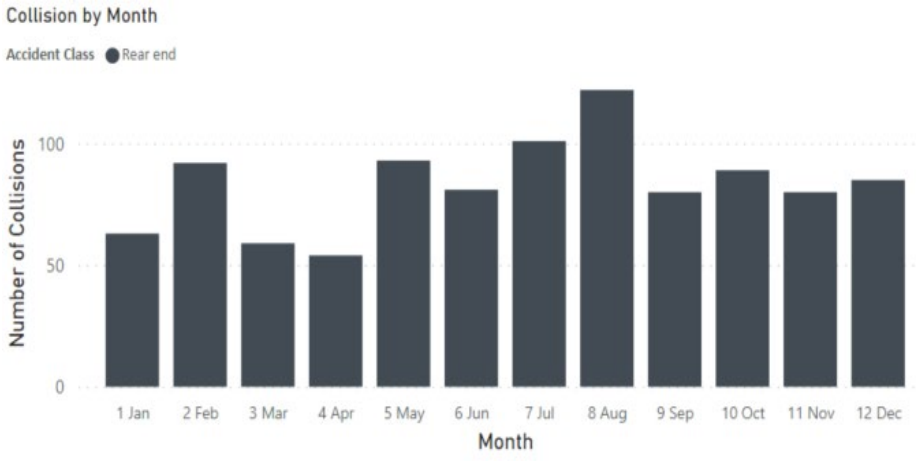
Majority (922 or 92%) of rear-end collisions occurred on dry road surface. Lack of visual clarity due to environmental conditions and time of day was a contributing factor to 22% and 21% of rear-end collisions, respectively. Like the SMV subset, lower number of rear-end collision occurred along divided roadways with restraining barriers (338 or 34%) when compared to those along undivided two-way roadways (600 or 60%). Half (523 or 52%) of rear-ended collisions were associated with drivers following another vehicle too closely. Figure H-8 illustrates rear-end collisions by apparent driver act.

Figure H-8: Rear End Collisions by Apparent Driver Act



The five-year collision dataset also indicates that most of rear-ended collisions have happened in August. Figure H-9 provides a summary of rear-end collisions by month.

Figure H-9: Rear End Collisions by Month

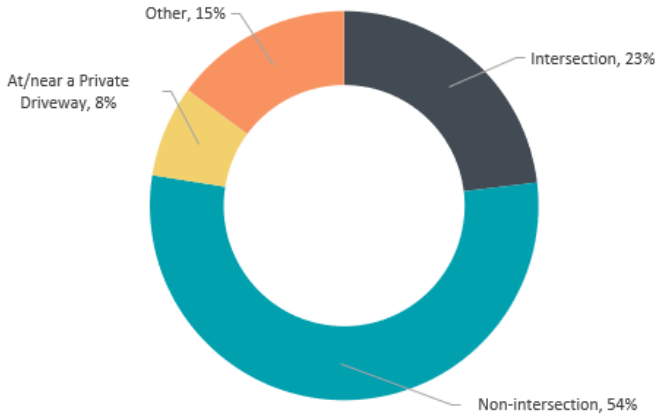


2.4 Collisions by Location

Collisions by location is illustrated in Figure H-10. Approximately 61% of all collisions occurred at mid-blocks, followed by intersection (26%) and near private driveways (9%). Collisions that

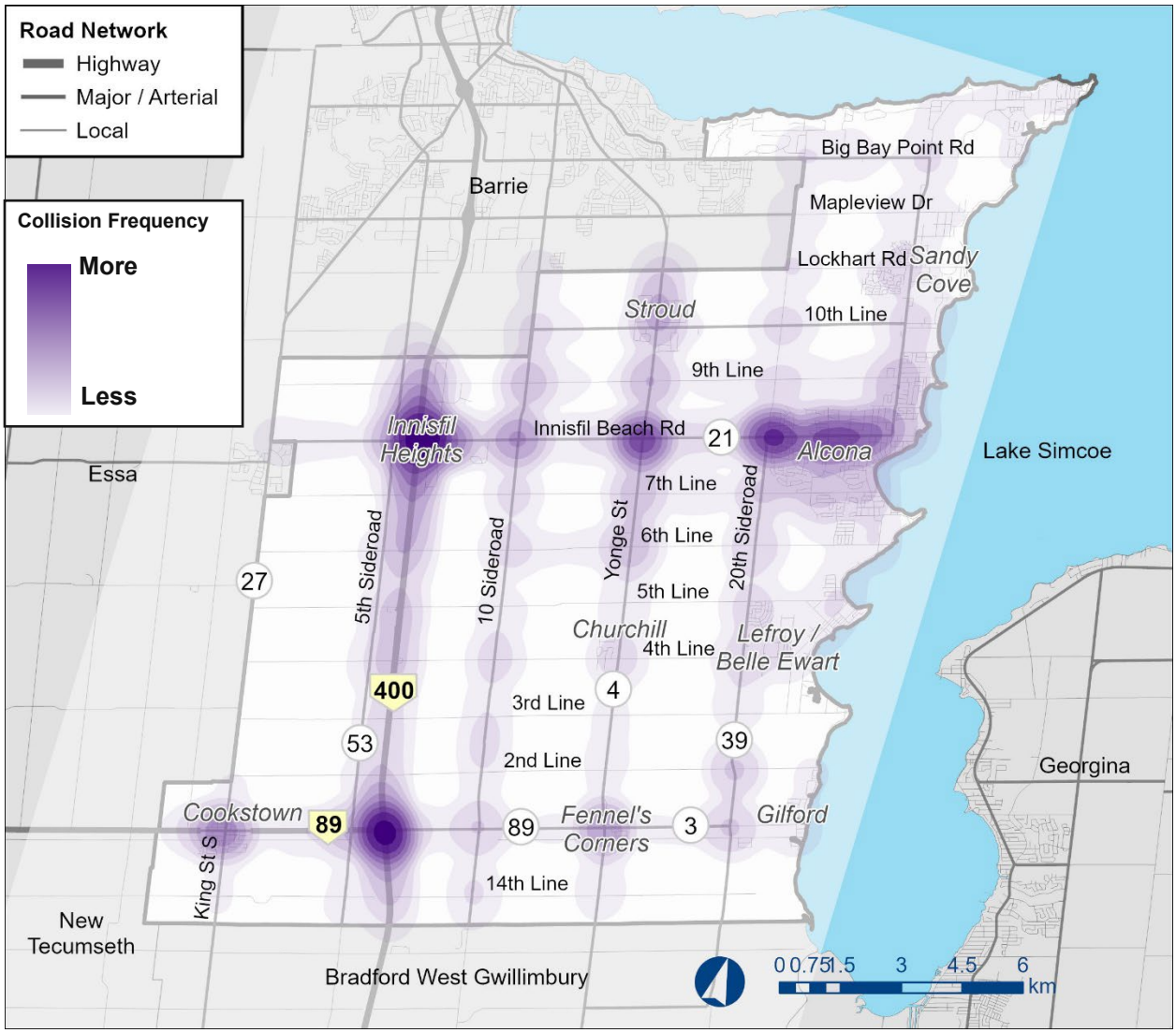
occurred in mid-block are mainly SMV (56%), rear end (25%) and sideswipe (13%). Collision that occurred near or at intersections are generally associated with rear-end (33%), turning movement (25%) and angled (22%) impact types.

Figure H-10: Collision Summary by Location



Results of the collision hotspot analysis are provided in Figure H-11. As shown, a high number of collisions occurred along the Highway 400 mainlines and interchanges. Predominant collision impact types at these locations are rear-ends and SMVs. Three fatal accidents occurred along the Highway 400 segment between Highway 89 and Innisfil Beach Road. Two of the three collisions occurred at the Innisfil Beach Road interchange and one along the mainline north of 5th Line. Collision hotspots can also be observed along Innisfil Beach Road. One of the hotspots is in the heart of Innisfil municipal civic campus and the other stretches between 20th Sideroad and 25th Sideroad in Alcona.

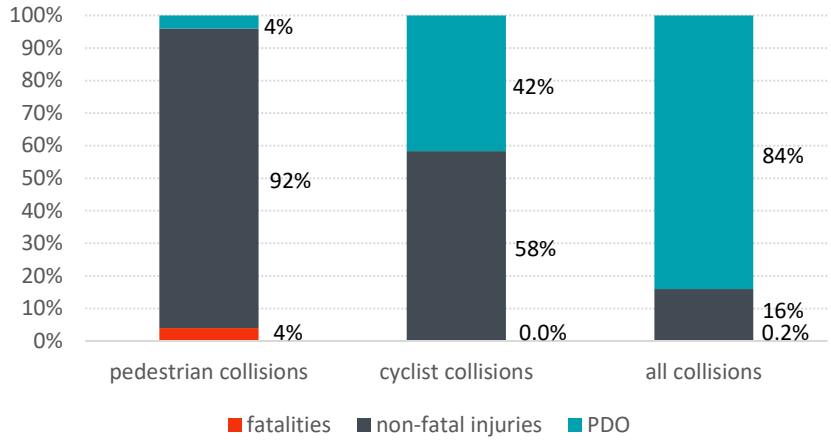
Figure H-11: Collision Hotspot Map



2.5 Collisions Involving Vulnerable Road Users (VRU)

Additional analysis was undertaken on VRU-related collisions between 2015 and 2019 as these are the road user types that are more susceptible to injuries or fatalities. A comparison between fatality, non-fatal injury and PDO only rates between pedestrian, cyclist and all collisions in Innisfil is provided in Figure H-12.

Figure H-12: Injury Type Comparison - VRU Collisions vs. All Collisions



2.5.1 Cyclist-related Collisions

Between 2015 and 2019, there were 12 cyclist collisions, seven involved injuries and five resulted in PDO. Despite dedicated bike lanes being provided, most of the cyclist collisions happened in Alcona along Innisfil Beach Road near Crossroads Plaza. Other hotspots along Innisfil Beach Road can be observed nearby local restaurants. Some of the bicycle collisions occurred when the cyclists tried to merge into the road network from private driveways or while turning at the intersections.

2.5.2 Pedestrian-related Collisions

In total, 25 pedestrian-related collisions were reported in Innisfil between 2015 and 2019 and one of these collisions was fatal. Like cyclist collisions, most of the pedestrian collisions are concentrated in Alcona. Two pedestrian collisions occurred at or near Jans Boulevard and Anna Maria Avenue intersection, near Nanytr Shores Secondary School. There were also two pedestrian-related collisions near the Innisfil municipal civic campus which resulted in injuries. Key generators of pedestrian traffic such as schools and civic facilities should be identified as the priority areas for improving pedestrian safety.

Overall, sidewalk gaps and lack of pedestrian facilities along rural roads in Innisfil result in some pedestrians using road shoulders to complete their trips. Road shoulders (paved or unpaved) generally decreases user's level of comfort and safety due to lack of mode separation. During winter months the pedestrian level of service could be further impacted by snow accumulation. An analysis of sidewalk connectivity, gaps and conditions are documented under the active transportation assessment section.

2.6 Collision Rates

Collision rates were calculated for intersection and roadway segments using the following formulas:

$$\text{Segment Collision Rate} = \frac{\text{Number of collisions x 1,000,000}}{\text{Average Annual Daily Traffic x 365 x Length of Segment x Years}}$$

$$\text{Intersection Collision Rate} = \frac{\text{Number of collisions x 1,000,000}}{\text{Average Annual Daily Traffic x 365 x Years}}$$

Annual Average Daily Traffic (AADT) was estimated based on available traffic count data. A hotspot, a location where safety countermeasures should be considered, is identified if the collision rate exceeds approximately 1 or 1.5 crashes per million kilometres traveled. The highest collision rates are shown in **Table H-1** and **Table H-2**.

Table H-1: Intersections with Highest Incidence of Collisions

Road Name	Number of Collisions (5 Yrs)	AADT	Collision Average per Year	Collision Rate
Yonge Street at Innisfil Beach Road	38	21,550	7.6	0.97
Innisfil Beach Road at 20th Side Rd	33	20,360	6.6	0.89
Yonge Street at Shore Acres Drive	28	18,590	5.6	0.83
Hwy 89 & CR 27	20	19,150	4.0	0.57
Innisfil Beach Rd & St Johns Blvd-Willard Ave	18	4,330	3.6	2.28
Yonge Street at 9th line	15	14,290	3.0	0.58

Table H-2: Segments with Highest Incidence of Collisions

Road Name	Segment Length (km)	Number of Collisions (5 Yrs)	AADT	Collision Average per Year	Collision Rate
Innisfil Beach Road East of 20th Side Rd	3.43	100	15,241	5.84	1.05
Yonge St Churchill to County Road 21	5.91	47	11,699	1.59	0.37
7th Line East of Yonge St	4.09	20	4,292	0.98	0.62
10th Side Rd North of 2nd Line	1.72	19	3,450	2.21	1.76
9th Line East of 20th Side Rd	4.00	18	2,957	0.90	0.83

Note: The traffic counts provided by the Town were dated between 2011 and 2021. Where counts for a single location were available for multiple years, a more recent count year prior to 2020 (pre-covid) was selected for the analysis.

Appendix I

Appendix I

Active Transportation Review

BURNSIDE

Innisfil

Appendix I | Active Transportation Review

Date:	June 8, 2022	**Project No.:**	300053011.0000
Project Name:	Innisfil Transportation Master Plan Update		
To:	Town of Innisfil		
From:	R.J Burnside & Associates Limited / TraffMobility		

1.0 Role of Active Transportation Systems

Any form of self-propelled mode of transportation that uses human energy such as walking, cycling, skating, jogging, rolling and skiing, referred to as Active transportation, provides a benefit to the residents of Innisfil and the broader population. Active transportation helps to promote a healthy lifestyle, contribute to sustainable transportation and reduce the impact on the environment. Active transportation is explicitly supported in the Provincial Policy Statement and is supported as an important component of multimodal transportation systems.

The benefits of walking, cycling and other non-motorized modes of transportation contribute to improved health and well-being. According to the World Health Organization (WHO), physical inactivity is the second highest health risk in developed countries and it is associated with many tens of billions of dollars in healthcare costs. Active transportation has been documented as helping to minimize the risk of coronary heart disease, strokes, diabetes and cancer. The National Cooperative Highway Research Program Report 552 has quantified the contributions that active transportation can make to lower health care costs.

For short distance and recreational travel needs, bicycle ownership has cost and health benefits relative to a motor vehicle or a secondary household motor vehicle. The annual cost of operating a motor vehicle, including fuel, insurance, maintenance and parking is estimated by CAA as $9,500 annually. Safe cycling and walking routes can help address financial barriers for travel to work for some residents.

Pedestrian and cyclist-friendly neighbourhoods can improve the livability of streets, increasing public presence and contributing to the sense of community. Town roads and trails are an element of many communities. Active transportation solutions can also be a key element to climate change mitigation strategies.

2.0 Recent and Ongoing Town Studies and Initiatives

Since the completion of the 2018 TMP, new growth objectives have been identified including the Orbit development plan and land use forecasts to 2051. In response to this growth, the Town conducted several initiatives that aim to enhance or provide opportunities to enhance the Town's active transportation network.

2.1 Orbit Development and Innisfil GO Rail Station

The Orbit GO station design and immediately surrounding area has been conceptually designed with the input of residents, stakeholders, professionals, Council and Town staff. The vision of the Orbit is to be a sustainable and mixed-use Transit Oriented Community.

Transit-oriented communities are communities that contain a mix of housing, jobs, retail, public amenities, and entertainment within walking distance of transit stations. Higher residential densities allow many residents access to the Innisfil GO station using active transportation modes.

Supplementing the transit-oriented community concept, the Orbit Potential and Innovation Plan aims to create 15-minute neighbourhoods designed with a people-first approach and integrated green spaces. These 15-minute neighbourhoods are planned to have development connected by green spaces that provide four-season benefits including shade and weather protection. Urban forests, parks, and green spaces will provide opportunities for meaningful interaction with fellow residents and visitors, active recreation opportunities, human and environmental connections, and contribute to the concept of a ’15-minute City’ whereby residents can access all basic services within a 15-minute walk.

Another objective of the development of the Orbit is to have higher quality density that promotes social cohesion using well-planned neighbourhoods. This human-centered design aims to combat the social issue of loneliness that was exacerbated during the COVID-19 pandemic and resulting travel restrictions. Active transportation networks can provide opportunities for people to interact in the proposed green and open spaces within The Orbit.

The Metrolinx GO Rail Station Access Plan provides direction for access to GO rail stations (including the planned Innisfil GO Rail Station), that focuses on creating “safe and direct pedestrian and cycling routes to transit stations that are complemented with clear wayfinding and potential bike share programs within the station area.” The GO Rail Station Access Plan aims to address the need to change travel behaviours to GO stations as a result of increased frequency and service as a result of Regional Express Rail. The Plan identified that if existing travel behaviours (pre-2016) were not changed, there would need vehicle use and substantial additional parking spaces for access to GO Rail to accommodate the transit demand by 2031.

The guiding principles of this Metrolinx plan is to invest and support ridership growth by creating a balance of pedestrians, cyclists, local transit, and other vehicles to ensure safe and efficient movement to and through the station for All GO Transit customers. The modal hierarchy will prioritize more sustainable travel behaviour. Targeted parking expansion will be undertaken to support ridership growth while minimizing conflicts with relevant policy objectives. The hierarchy of station access investments from high to low include walking, transit, cycling, pickup/drop-off, carpool passenger, drive and park. This hierarchy is shown in the image below.

Metrolinx identified that in 2015, 9.5% of trips accessing GO stations were made by walking or cycling and 62% of trips accessing GO stations were made by drive and park. The 2031 access target for walking is 12% to 14% and 2% to 4% for cycling.

Station design guidelines to promote walking include providing on-site pedestrian connections at the station to support direct, safe and convenient access into the station while minimizing conflict with vehicles and other users. The guidelines around the station include establishing a safe, comfortable and well-maintained pedestrian routes that connect directly to the station that are activated with a mix of higher density transit-supportive uses.

Station design guidelines to promote cycling include creating safe, comfortable and direct bicycle routes to the station and support cyclists by providing secure storage areas and supporting amenities at the station. The guidelines around the station are to create safe and direct pedestrian and cycling routes to transit stations that are complemented with clear wayfinding and potential bike share programs within the station area.

A challenge in providing active transportation connectivity within the Orbit will be the rail crossing in Alcona. Metrolinx operations will ultimately require 3 tracks and electrifications. As part of the Phase 1 Orbit development, the 6th Line Bridge replacement is planned to be constructed to integrate developments on the north and south side.

2.2 Land and Lakes Master Plan (2022)

The Land and Lakes Master Plan is an update to the Parks & Recreation Plan (Land Plan) and the Lake Simcoe Enjoyment Strategy (Lake Plan). It is a strategy to improve Innisfil's parks, waterfront, and recreation programs.

2.3 Highway 400 and 6th Line Interchange

In 2017, The Town of Innisfil completed a Schedule 'C' Class environmental Assessment (Class EA) for the proposed interchange at 6th Line and Highway 400. The Ministry of Transportation Ontario (MTO) currently has plans to replace the existing bridge structure on Highway 400 at 6th Line as part of the widening of Highway 400 to 10 lanes. Due to anticipated vehicular speeds of the ramps and design of the interchange, there is an anticipated challenge to accommodate active transportation. Multi-use trails along 6th Line are currently planned to ensure that cyclists and pedestrians will be provided continual safe accommodation of active transportation infrastructure.

2.4 Bike Lane Pilot Project (2020)

As a result of the 2018 Transportation Master Plan, bike lanes were installed on four streets in Alcona: Anna Maria Avenue, Jans Boulevard, Leslie Drive, and Webster Boulevard to encourage people to cycle. An example of these bike lanes is shown in Figure I-1.

Figure I-1: Cycle lanes along Jans Boulevard
(Source: Google Streetview, Image Captured in 2021)

2.5 Sidewalk Improvement Program

As part of the planned construction improvements, the Town of Innisfil will be repairing various sidewalks within the Town beginning at the end of June 2021. The selected sections of sidewalk were chosen based on the results of the Sidewalk Needs Study, which is completed every 5years. This study evaluates the sidewalk condition and rates each sidewalk section. Those that receive higher ratings are in worse condition than a section of sidewalk that has a lower rating.

By programming the repair of sidewalks, the Town can keep maintenance costs down as opposed to leaving the sidewalks to deteriorate. When sidewalks deteriorate, they require replacement instead of resurfacing which raises costs.

In 2021, the following sidewalk sections were constructed:

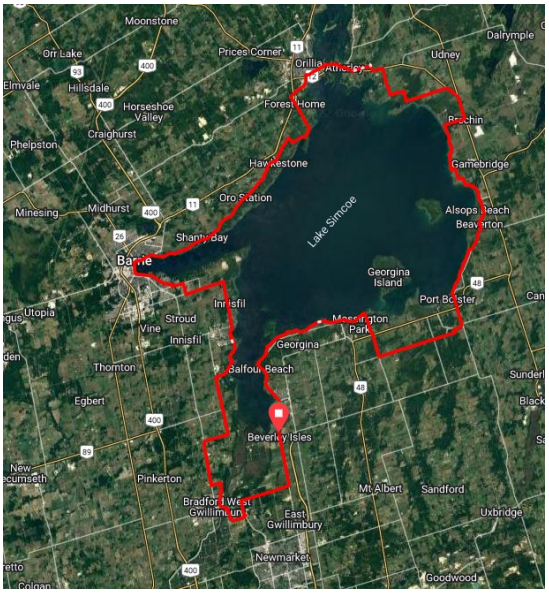
- King Street South from Queen Street to Victoria Street West (West side of the road).
- King Street South from Church Street to Hamilton Street (East side of the road).
- Church Street from King Street to William Drive (South side of the road).
- Church Street from Elizabeth St to 114m to the East (North side of the road).
- Cook Avenue from Victoria Street East to Heritage Road (West side of the road).

3.0 Active Transportation Needs and Opportunities

3.1 Lake-Adjacent Trail

A lake-adjacent trail would provide an opportunity to connect communities in York Region and Simcoe County. It would provide both commuters and recreational pedestrians, cyclists, and other AT users a chance to explore the Region and the County to travel on dedicated and comfortable infrastructure. A conceptual route is shown in Figure I-9.

Figure I-2: Conceptual Lake-Adjacent Trail



Other possible benefits would be to improve tourism within the County, the Town of Innisfil, and adjacent municipalities. Cycle and cycle tourists would be able to travel adjacent to Lake Simcoe and lake destinations and strengthen the County's position as a cycle destination.

Facilities could range from signed routes to more protected facilities such as multi-use trails and cycle tracks depending on active transportation needs for each municipality.

Coordination between Simcoe County, York Region, and local municipalities would be required to facilitate a lake-adjacent trail. Implementation would require common elements across municipalities including signage development and installation and marketing. Marketing includes the following:

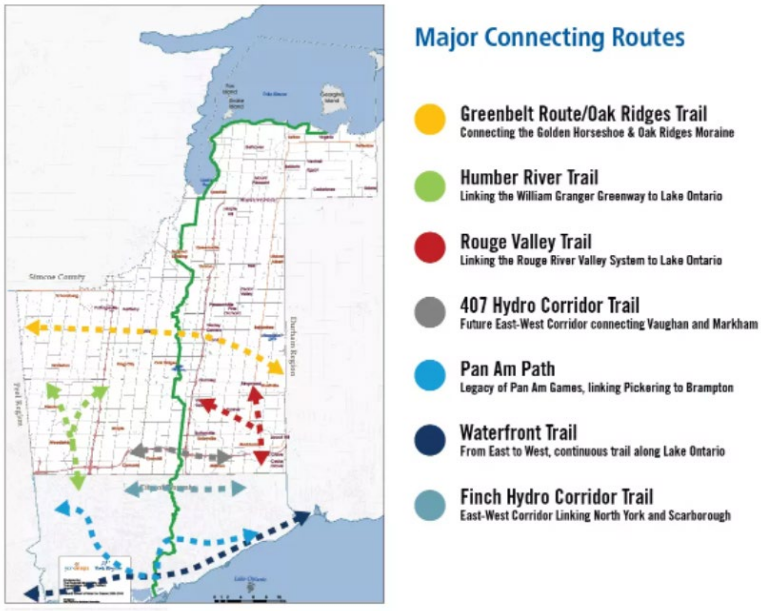
- Establishing a brand identity.
- Mapping the route.
- Creating a website.
- Printing of marketing material.
- Advertising and promotion.

Examples of current lakeside or waterfront are documented below.

3.1.1 York Region Lake-to-Lake Connections

The Lake-to-Lake Route is a 121-kilometre recreational and commuter trail that will connect Lake Simcoe to Lake Ontario. This initiative aims to form a key spine of York Region and City of Toronto's active transportation network, connecting to trails like the Greenbelt Route, PanAm Path and Waterfront Trail, destinations like transit hubs, and other attractions. This is illustrated in Figure I-3.

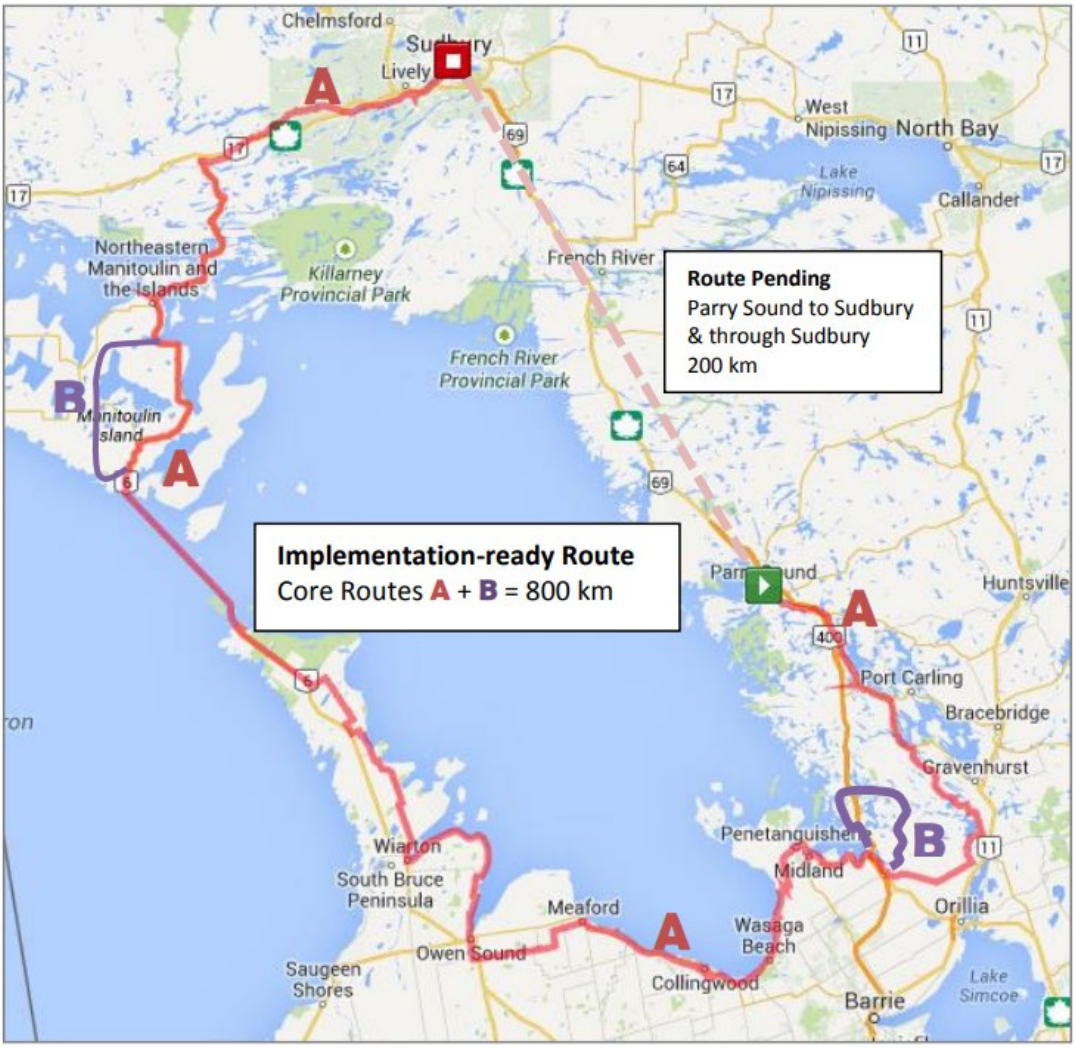
Figure I-3: York Region Lake-to-Lake Connections



3.1.2 Georgian Bay Cycling Route

The Georgian Bay Cycling Route will be a 1,000 kilometre long, signed Signature Cycling Route around Georgian Bay that connects communities around the Bay to develop the region's cycling tourism potential. This route requires involvement from multiple counties or districts such as Parry Sound District, Muskoka District, Simcoe County, Grey County, Bruce County, Manitoulin Island, and District of Sudbury. This is illustrated in Figure I-4

Figure I-4: Georgian Bay Cycling Route



3.2 Highway 400 Bridge Replacement

The Ministry of Transportation Ontario (MTO) currently has plans to replace the bridge structure as shown in Figure I-12 in Innisfil Heights as part of their plans to widen Highway 400 to 10 lanes.

As part of this 2022 TMP, the Town of Innisfil, Simcoe County, the City of Barrie, and MTO has undertaken discussions to explore the feasibility of accommodating an active transportation connection under Highway 400 adjacent to the rail spur. This connection would be able to provide active transportation users the ability to cross Highway 400 using an off-road facility which provides added safety and comfort. Establishing a connection from the Town of Innisfil east of Highway 400 to the Trans-Canada Trail would provide users access to an inter-municipal trail enhancing the livability and pedestrian-oriented environment within the Town of Innisfil. This connection is also currently part of the Town's Land and Lakes proposed Alcona Trail.

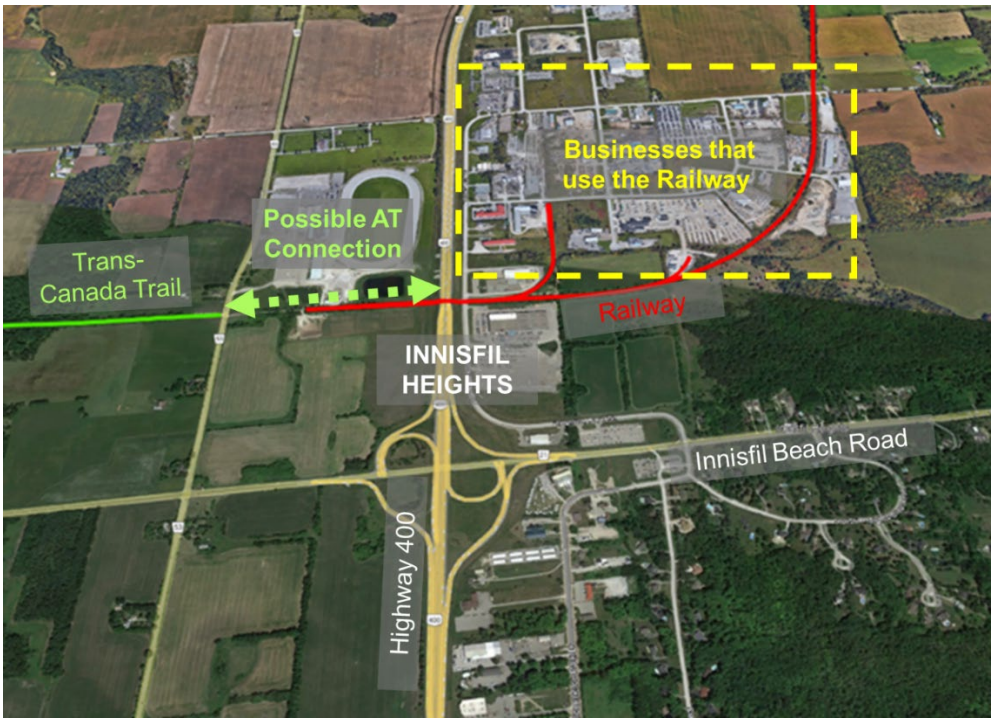
Figure I-5: Highway 400 in Innisfil Heights
(Source: Google Streetview, Image taken April 2021)

There are two major constraints that were identified with this connection.

- In April 2022, MTO provided detailed design drawings (Attachment 2) of the bridge structure replacement. The design of the rail underpass of Highway 400 bridge replacement offers no physical space for a trail connection. The underpass is 14.625 metres with the south side occupied by the main track and the north side occupied by the siding track.
- There are existing businesses that use the railway, currently owned by CN Rail. The rail spur on the west end is critical for rail operations within Innisfil Heights. Any changes to the rail infrastructure or operations would impact the existing businesses.

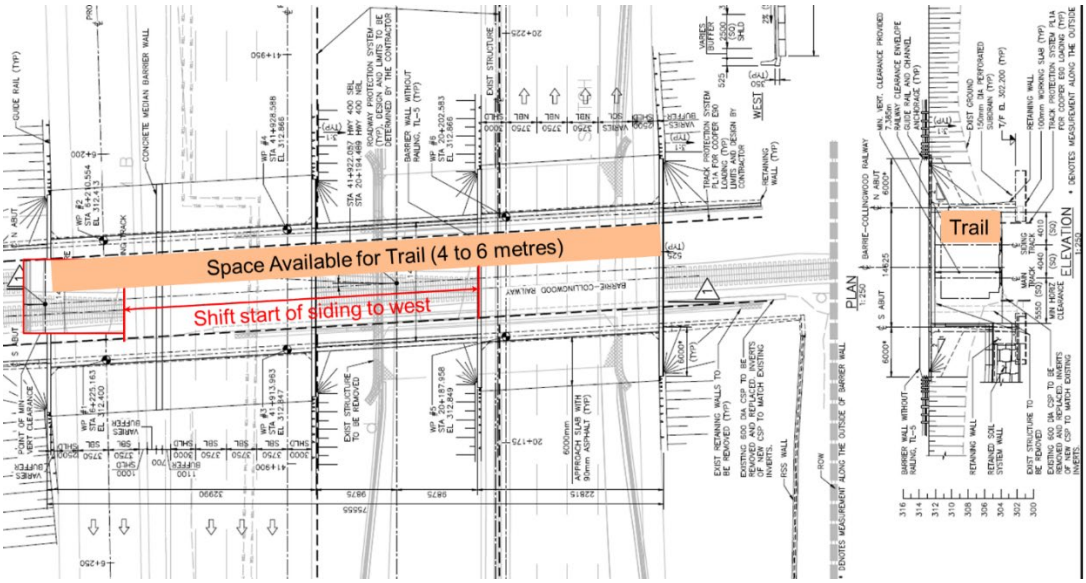
These constraints are highlighted in Figure I-6.

Figure I-6: Potential AT Connection at the Highway 400 Bridge Underpass
(Source: Adapted from Google Earth, Satellite Imagery from 2015)



A possible solution, Solution 'A', is to introduce the siding track further west so that there is a continuous width available for a trail through the underpass on the north side as shown in Figure I-7. A 50-metre shift would require the introduction of a new rail frog and track alignment. It may also require an extension of the spur line at the west end.

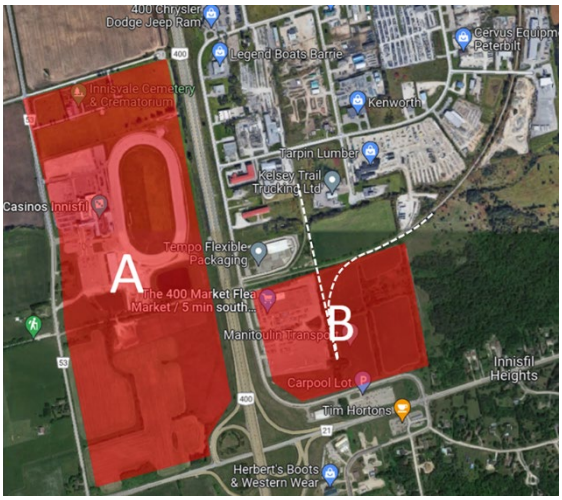
Figure I-7: Solution 'A' for Rail Connection at Highway 400 Underpass



Another possible option, Solution 'B', is to relocate and re-align the railway to the south, then connect the rail spur to the north to the existing businesses as shown in Figure I-15.

However, future developments in areas labeled Area A and Area B may be impacted. Town planning staff would be able to provide development applications and planning guidance to the areas surrounding Innisfil Heights.

Figure I-8: Solution 'B' for AT Connection at Highway 400 Underpass
(Source: Adapted from Google Maps)



4.0 Facility Selection

In selecting the appropriate cycling facility, the following guiding principles should be applied to consider the level of protection and road user needs.

4.1 Level of Protection

According to the updated Book 18 of the *Ontario Traffic Manual* (OTM), a preliminary assessment of bicycle facility requirements should be conducted using nomographs for urban/suburban and rural conditions, as shown in Figure I-9 and Figure I-10, respectively. These nomographs inform the level of protection required for a bicycle facility, which is contingent on the Average Annual Daily Traffic (AADT) and posted speed limit along the road. Estimated AADT ranges consolidated over various years of data between 2012 to 2017 is illustrated in Figure I-11.

The physically separated bikeway and paved shoulder with buffer facilities under urban/suburban and rural conditions, respectively, are most critical as they require the greatest level of protection based on posted speeds and volumes. Within the urban context, the requirement for safer, physically separated bicycle lanes are a function of both high posted speed limits and/or high daily traffic volumes. Within the rural context, the need for more protected bicycle facilities via paved shoulders with buffers are less reliant on posted speed limits as the actual operating speeds along the corridor tend to vary more along rural roadways; as such, surveyed 85th percentile operating speeds better inform the design condition and are typically used instead of posted speeds to assess cycling facilities in rural areas.

While most roads within the Town are currently operating with AADT volumes less than 6,000 vehicles, the future allocated population and employment growth is expected to add significant traffic along these roads and continued monitoring of the AADT is required to determine the desirable cycling facility on a corridor basis.

Figure I-9: OTM Nomograph for Cycling Facilities in Urban/Suburban Context

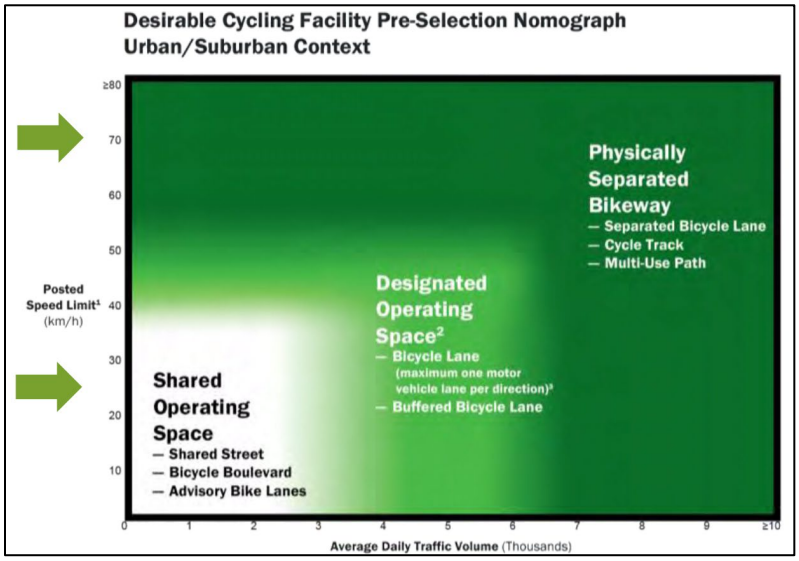


Figure I-10: OTM Nomograph for Cycling Facilities in Rural Context

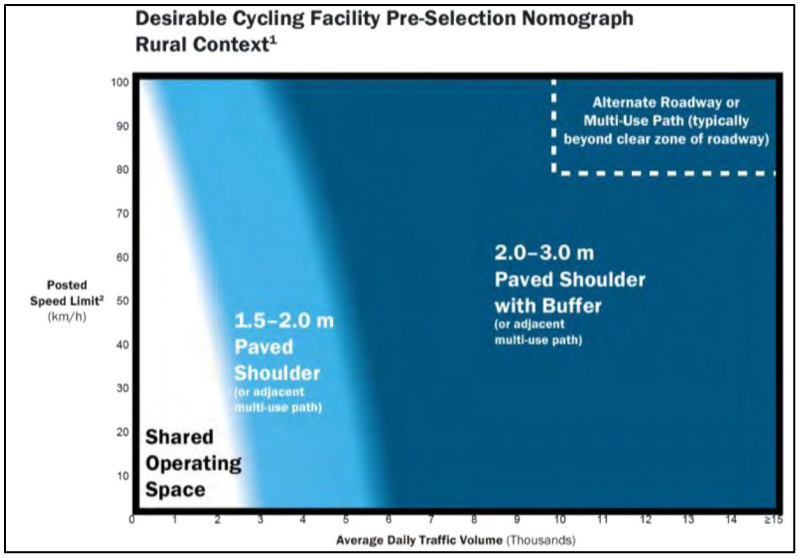
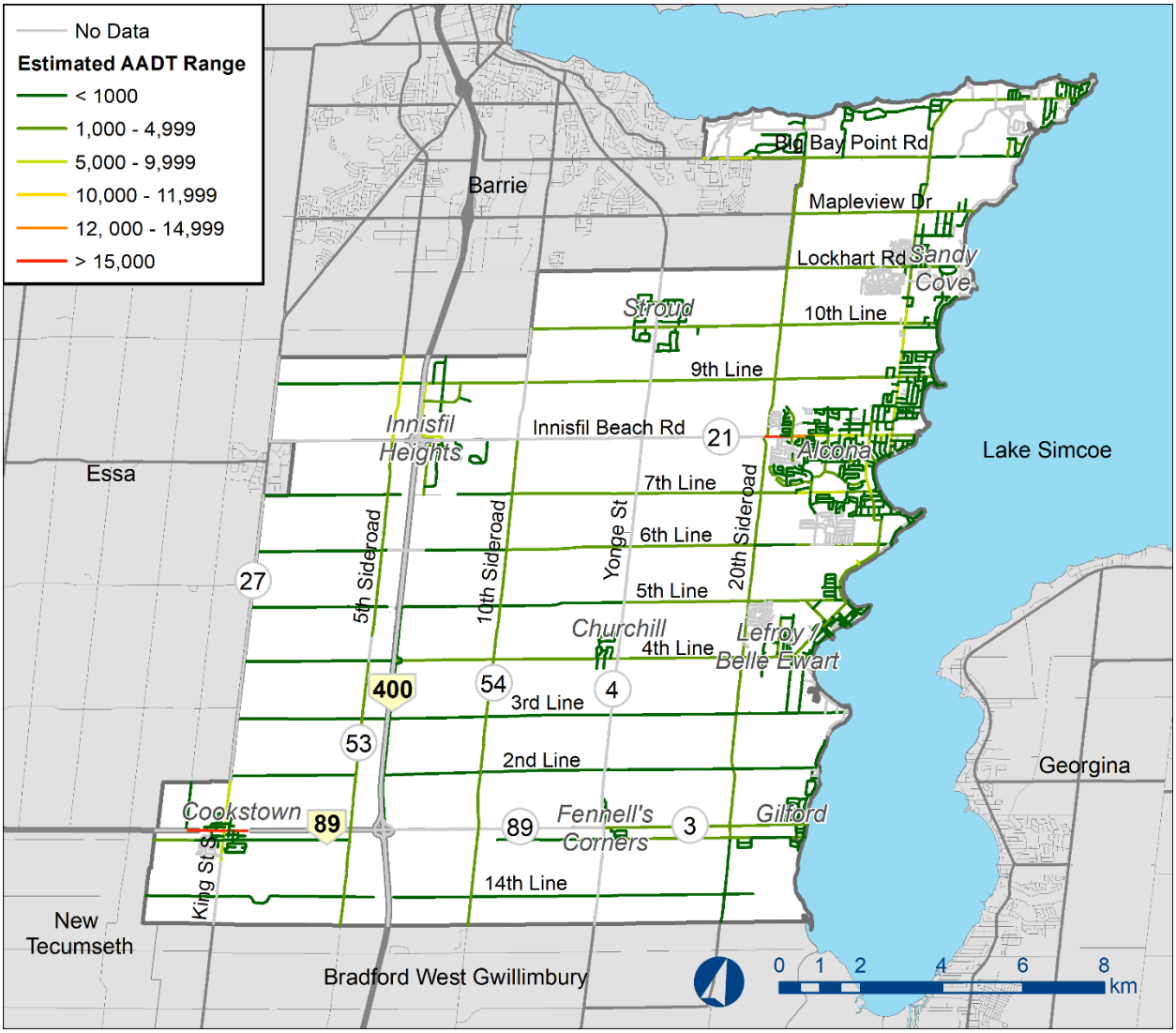


Figure I-11: Existing AADT Ranges



4.2 Road User Needs

Proposed active transportation routes may be categorized into three functional categories, as described in Table I-1, based on the main type of cyclist it is expected to serve. Distinguishing the preferences of these distinct user groups allows for better prioritization of the active transportation facility type along the road.

Table I-1: Road User Categories

Type	Route Characteristics	Preferred Bicycle Facilities
Recreational		
Recreational riders typically bike for the purpose of enjoyment or exercise. They are usually less experienced and therefore have a lower comfort level when it comes to biking along high-speed or high-volume roads.	Quiet neighbourhoods (i.e., local roads) Low-volume and low-speed roads Trail connections	Dedicated bicycle lane Multi-use trail Paved shoulders (along rural roads)
Touring		
Experienced, or 'touring', riders typically take longer routes with scenic views. These trips usually take place between urban areas and/or key destinations, which may also require route planning beforehand. This user group generally consists of more experienced cyclists who do not mind travelling along high-speed roads.	Longer (i.e., less direct) routes Scenic viewpoints / key destinations Connections between Caledon cycling club meet-up points	Dedicated bicycle lane or paved shoulder on high-speed and/or high-volume roads Signed route on low-speed or low-volume roads Multi-use trail
Commuter		
Commuter, or 'utilitarian' riders make destination-oriented trips, typically for work, school or errands. They usually prefer direct routes to minimize travel time.	Major roadways (preferably with minimal signalized/stop-controlled intersections) Direct routes	Dedicated bicycle lane or paved shoulder on high-speed and/or high-volume roads Signed route on low-speed or low-volume roads

It is important to note that these serve as guidelines only and a more detailed analysis is required on a corridor-level to identify the appropriate level of separation and facility type that matches the context of the road and/or recommend unique mitigation actions, if required. For instance, other factors that determine the appropriate bicycle facility include the volume of buses and/or larger trucks expected to use adjacent travel lanes, on-street parking, pedestrian activity, intersection frequency, traffic operations, right-of-way (ROW) widths, and more.

Appendix J

Appendix J

Complete Streets Policy

BURNSIDE

Innisfil

Appendix J | Complete Street Policy Update

Date: July 12, 2022 **Project No.:** 300053011.0000

Project Name: Innisfil Transportation Master Plan Update

To: Town of Innisfil

From: R.J. Burnside & Associates Limited

1.0 Introduction

1.1 What is Complete Streets?

The guiding principles of complete streets aims to effectively integrate the various functions of streets through a design process. Complete streets guidelines serve as a holistic decision-making tool in ensuring that the transportation network can be equitably and safely shared between all road users (e.g., auto drivers, transit riders, cyclists, pedestrians, persons with disabilities, etc.). This approach is becoming increasingly important given the need to accommodate a wider range of modes in support of a more sustainable and multimodal transportation network.

> *"Complete Streets are streets that are safe for all users, regardless of age, ability, income, race, ethnicity, or mode of travel. By using a Complete Streets approach to designing road networks, we can create spaces that allow all users to thrive — not only motorists."*
>
> *The Centre for Active Transportation (TCAT)*

1.2 Purpose

For the 2022 Transportation Master Plan, the Town's Complete Streets Guidelines were reviewed. The following updates to the Complete Streets typologies are proposed:

- **Neighbourhood Connector – Retrofit:** Based on discussions with the Town, these roads generally have lower volumes and do not warrant the cost of a painted buffer. Town residents are also not used to the parking lane between the bike lane and the travel lane. These changes are reflected in Section 3.0: Complete Street Typologies and Recommended Application.
- **Neighbourhood Connector – Conceptual Application C (New Road):** Based on the 2021 update of OTM Book 18, a continuous detectable tactile buffer is recommended when sidewalk and cycle tracks are adjacent and at the same elevation. This tactile buffer should be cane-detectable and visually contrasting. A recommended width of the buffer is 0.6 m,

however a narrower buffer may be used in constraint areas. These changes are reflected in Section 3.0: Complete Street Typologies and Recommended Application.

2.0 Town of Innisfil Context

2.1 Road Classification and Right-of-Way

Schedule C of the Town's Official Plan contains road classifications for Town roads. Road classifications are related to land use planning and should be considered in tandem with transit, active transportation and roadway safety for each road classification category. The Town also aims to achieve right-of-way widths and provide the appropriate number of lanes to support the road classifications as set out in the Official Plan. Necessary right-of-way widths will be acquired by Town development processes.

General descriptions of the Town's road classifications are provided below.

Provincial Highways

- Are roadways under Provincial jurisdiction.
- Are roadways intended to serve large volumes of inter-regional and long-distance traffic at high speeds.
- Are roadways of high-speed design with uninterrupted flow, with access only achieved through grade separated interchanges, designated by the Ministry of Transportation as Controlled Access Highways.
- Direct access to a controlled access highway will not be permitted and all developments located adjacent to a Provincial Highway will require approval from the Ministry of Transportation.

County Arterials

- Are roadways under Simcoe County jurisdiction typically with 36 – 40 m right-of-way.
- Serve moderate to high volumes of medium to long distance inter and intra-regional traffic at moderate speeds and will provide access to major attraction centres and facilitate access to or from highways.
- Primary truck and goods movement routes.

Town of Innisfil Arterials

- Are roadways under Town jurisdiction.
- Serve moderate to high volumes of medium to long distance inter and intra-regional traffic at moderate speeds and will support the County road system.
- Will generally be designed to accommodate a high degree of separation for cycling facilities, where appropriate.

Major Collectors

- Are roadways under the Town's jurisdiction.

- Serve moderate volumes of short distance traffic between local and arterial roads at moderate speeds.
- Will serve as truck and goods movement routes along industrial roads. Otherwise, through traffic will generally be discouraged from using these roadways.
- Will generally have a minimum 26 m road allowance with a 2 to 4 lane capacity.
- Will generally be designed to accommodate a high degree of separation for cycling facilities, where appropriate.

Minor Collectors

- Are roadways under the Town's jurisdiction.
- Serve low to moderate volumes of short distance traffic between local and arterial roads at moderate speeds.
- Through traffic will be discouraged from using these roadways.
- Will generally have a minimum of 23 road allowance with a 2 lane capacity.
- Will generally be designed to accommodate some degree of separation for cycling facilities, where appropriate.

Local Roads

- Are roadways under the Town's jurisdiction.
- Serve local traffic only and provide connections to collector roadways at low speeds.
- Through traffic will be discouraged from using these roadways.
- Will generally have a 20 m road allowance with a 2-lane capacity.

2.2 Complete Street Typologies

The current Town of Innisfil Complete Streets Policy and Guidelines contains eight street typologies associated with right-of-way widths. Each typology contain examples of a conceptual application for a new road or a retrofit to an existing road. The Complete Street typologies include:

- Neighborhood residential streets.
- Neighborhood residential (rural).
- Neighborhood connector streets.
- Neighborhood collector streets (rural).
- Downtown commercial streets.
- Urban thoroughfare.
- Industrial / employment streets.
- Rural Street.

These typologies and their typical properties are summarized in Table J-1.

Table J-1: Summary of Complete Street Typologies and Typical Properties

	Neighborhood residential streets	Neighborhood residential streets (rural)	Neighborhood connector streets	Neighborhood collector streets (rural)	Downtown commercial streets	Urban thoroughfare	Industrial / employment streets	Rural Street
Suitable OP Schedule C road classifications	Local Road	Local Road	Minor Collector Major Collector	Minor Collector Major Collector	Major Collector Town Arterial	Major Collector Town Arterial	Major Collector	Local Road
Typical AADT	<1000 vehicles per day	<1000 vehicles per day	1000 – 5000 vehicles per day	1000 – 5000 vehicles per day	> 5000 vehicles per day	> 5000 vehicles per day	> 1000 vehicles per day	<5000 vehicles per day
Potential TOI Design Standards Cross Sections	Urban Local Road (TOI 201) Window Street (TOI 202)	Rural Local Road (TOI 207)	Urban Minor Collector Road (TOI 203) Urban Major Collector Road (TOI 204)	Rural Local Road (TOI 207)	Urban Major Collector Road (TOI 204) Urban Arterial Road (TOI 205)	Urban Major Collector Road (TOI 204) Urban Arterial Road (TOI 205)	Urban Local Road (TOI 201) Urban Industrial Road (TOI 206) Rural Industrial Road (TOI 208)	Rural Local Road (TOI 207)
Typical right-of-way	20 m	20 m	20 m retrofit / 26 m new road	20 m retrofit / 26 m new road	20 m retrofit / 30 m new road	26 m retrofit / 30 m new road	26 m	20 m
Recommended Posted Speeds	40 km/hour or less	40 km/hour or less	40 km/hr – 50 km/hr	40 km/hr – 50 km/hr	40 km/hr – 50 km/hr	50 km/hr – 60 km/hr	50 km/hr – 60 km/hr	50 km/hr – 80 km/hr
Typical predominant adjacent land uses	Low Density Residential	Low Density Residential, Agricultural	Low to Medium Density Residential, Institutional	Low to Medium Density Residential, Institutional, Agricultural	Mixed-use, Commercial, Institutional, Medium to High Density Residential	Low to Medium Density Residential, Institutional, Agricultural	Industrial, Mixed-use, Provincially Significant Employment Zones	Agricultural
Traffic Calming	Suitable	Suitable	Suitable	Suitable	Suitable	Not suitable	Not suitable	Not suitable
Accommodation of cyclists	Shared or minimal separation	Shared or minimal separation	Shared or minimal separation	Shared or minimal separation	Moderate separation	High degree of separation	High degree of separation	Minimal to high degree of separation depending on land use context, traffic volumes, etc.
Accommodation of goods movement	Local deliveries only	Local deliveries only	Local deliveries only	Local deliveries only	Accommodate truck traffic if necessary	Accommodate truck traffic if necessary	Accommodate truck traffic	Accommodate truck traffic if necessary

3.0 Complete Street Typologies and Recommended Application

In addition to the summary table, two flowcharts are presented below to assist in deciding which Complete Street typology to apply to a new or existing roads. The flowchart for urban areas is shown in Figure J-1. The flowchart for rural areas is shown in Figure J-2.

Figure J-1: Complete Street Typology Application - Urban Flowchart

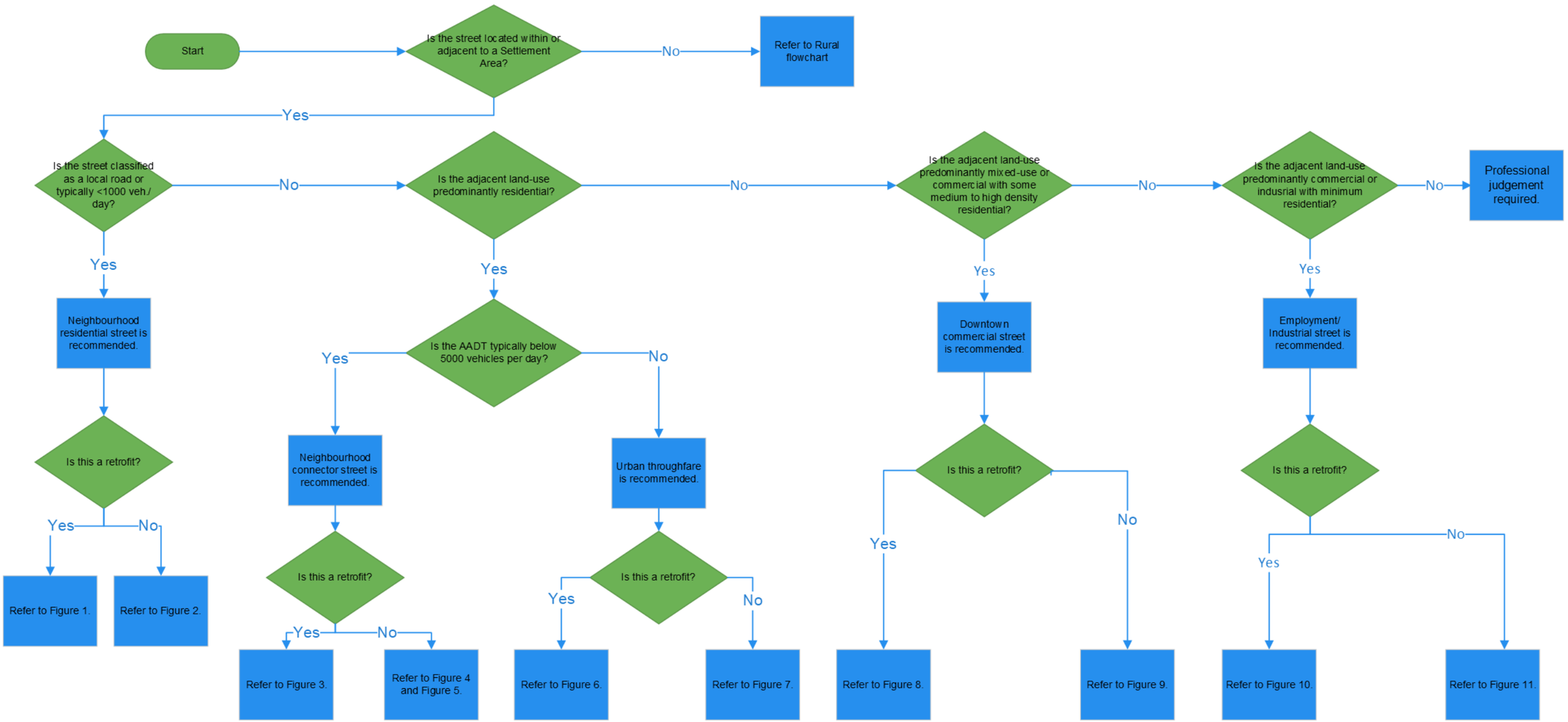


Figure J-2: Complete Street Typology Application - Rural Flowchart

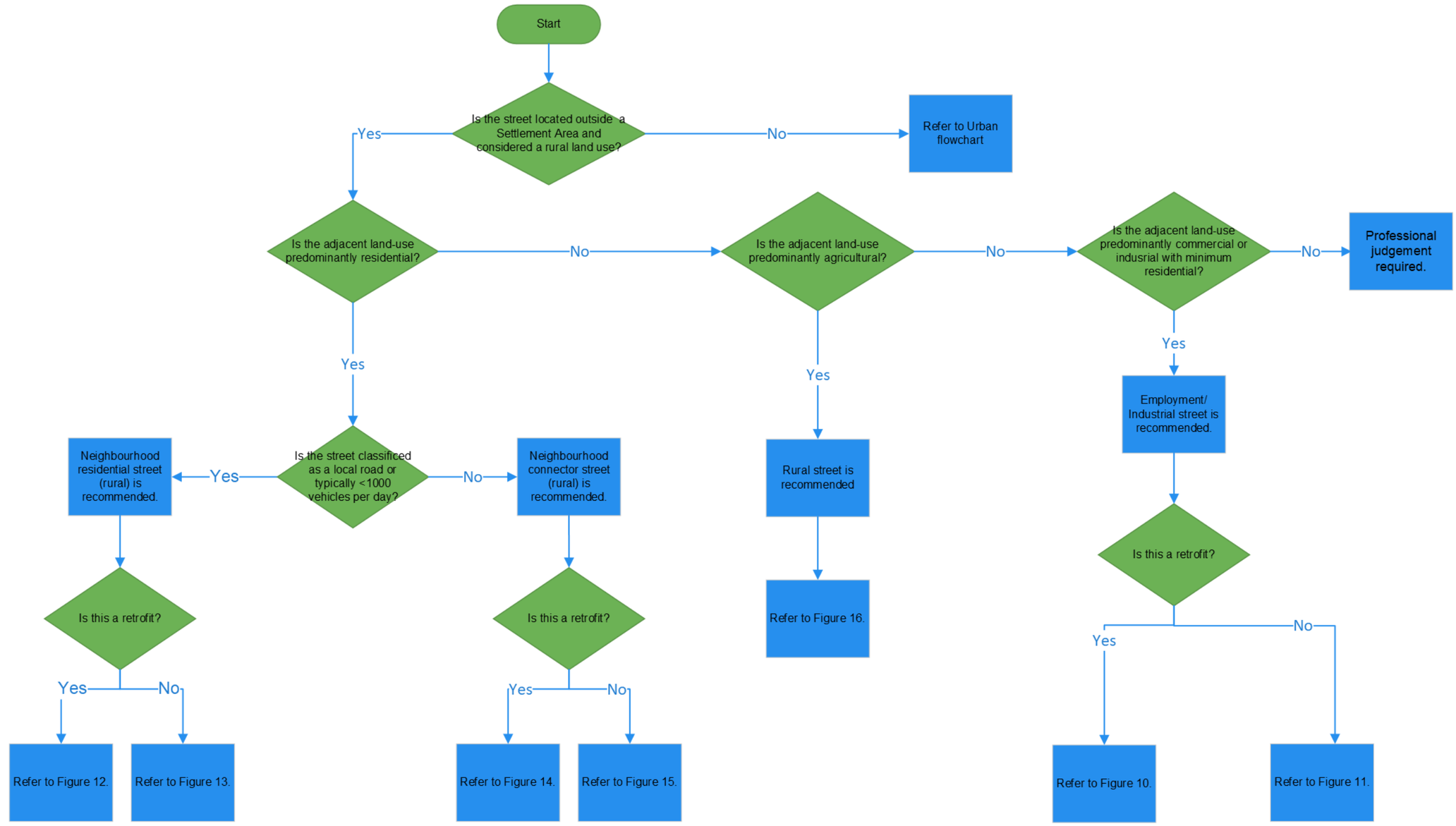
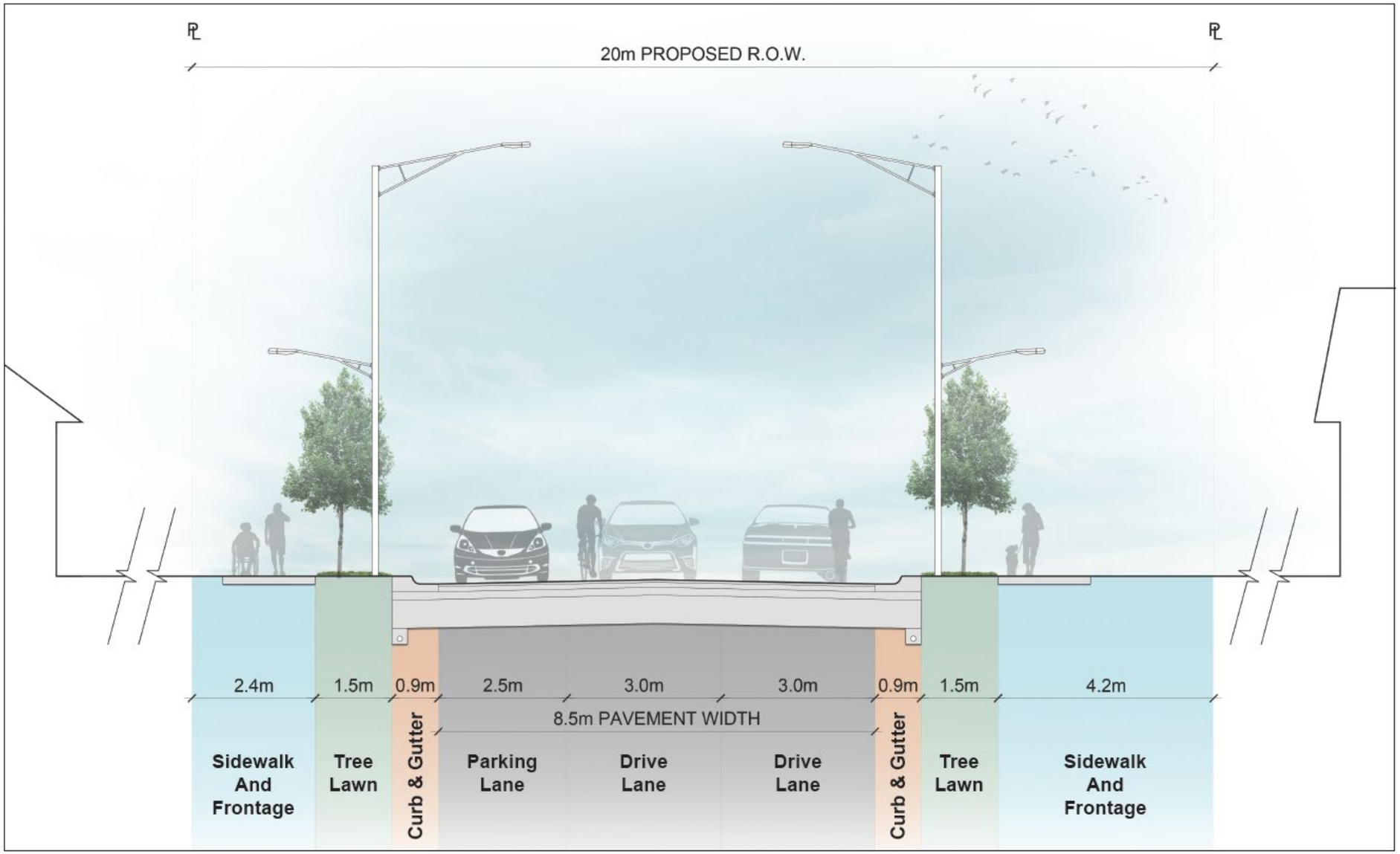


Figure 1: Neighbourhood Residential Street – Conceptual Application A (Retrofit)

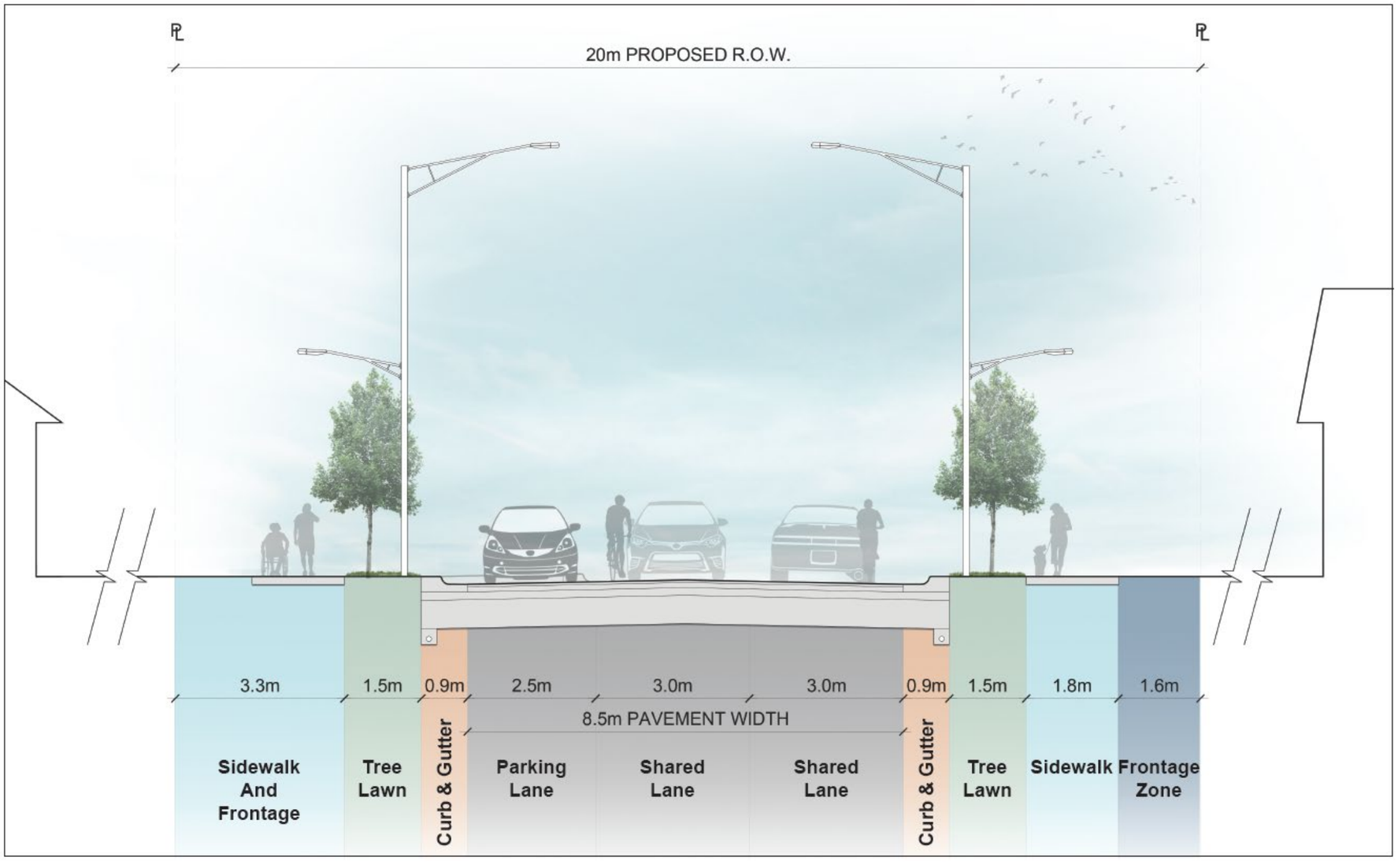


INNISFIL TRANSPORTATION MASTER PLAN

NEIGHBOURHOOD STREET - CONCEPTUAL APPLICATION A (RETROFIT)

BURNSIDE

Figure 2: Neighbourhood Residential Street – Conceptual Application B (New Road)

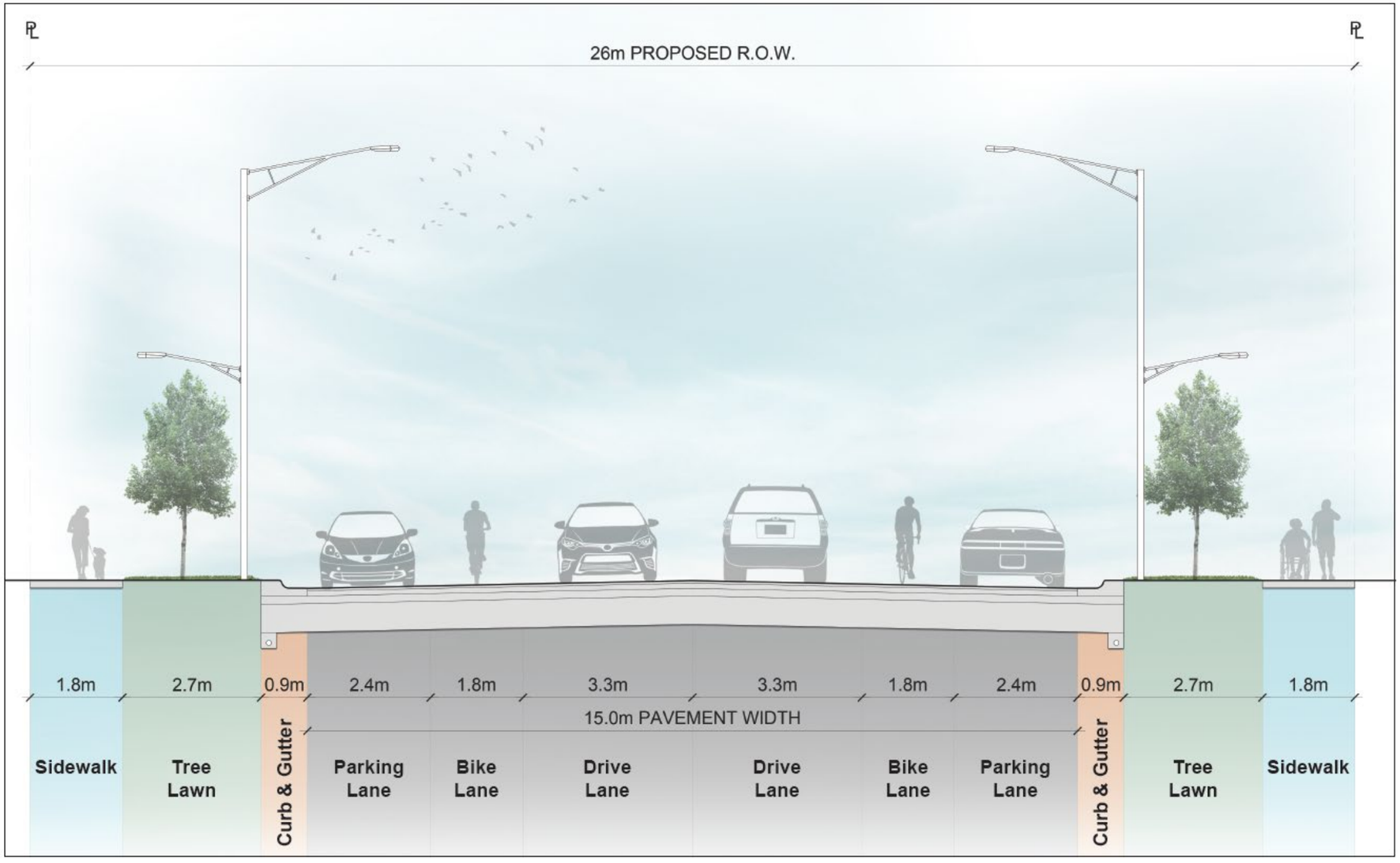


INNISFIL TRANSPORTATION MASTER PLAN

NEIGHBOURHOOD STREET - CONCEPTUAL APPLICATION B (NEW ROAD)

BURNSIDE

Figure 3: Neighbourhood Connector Street – Conceptual Application A (Retrofit)

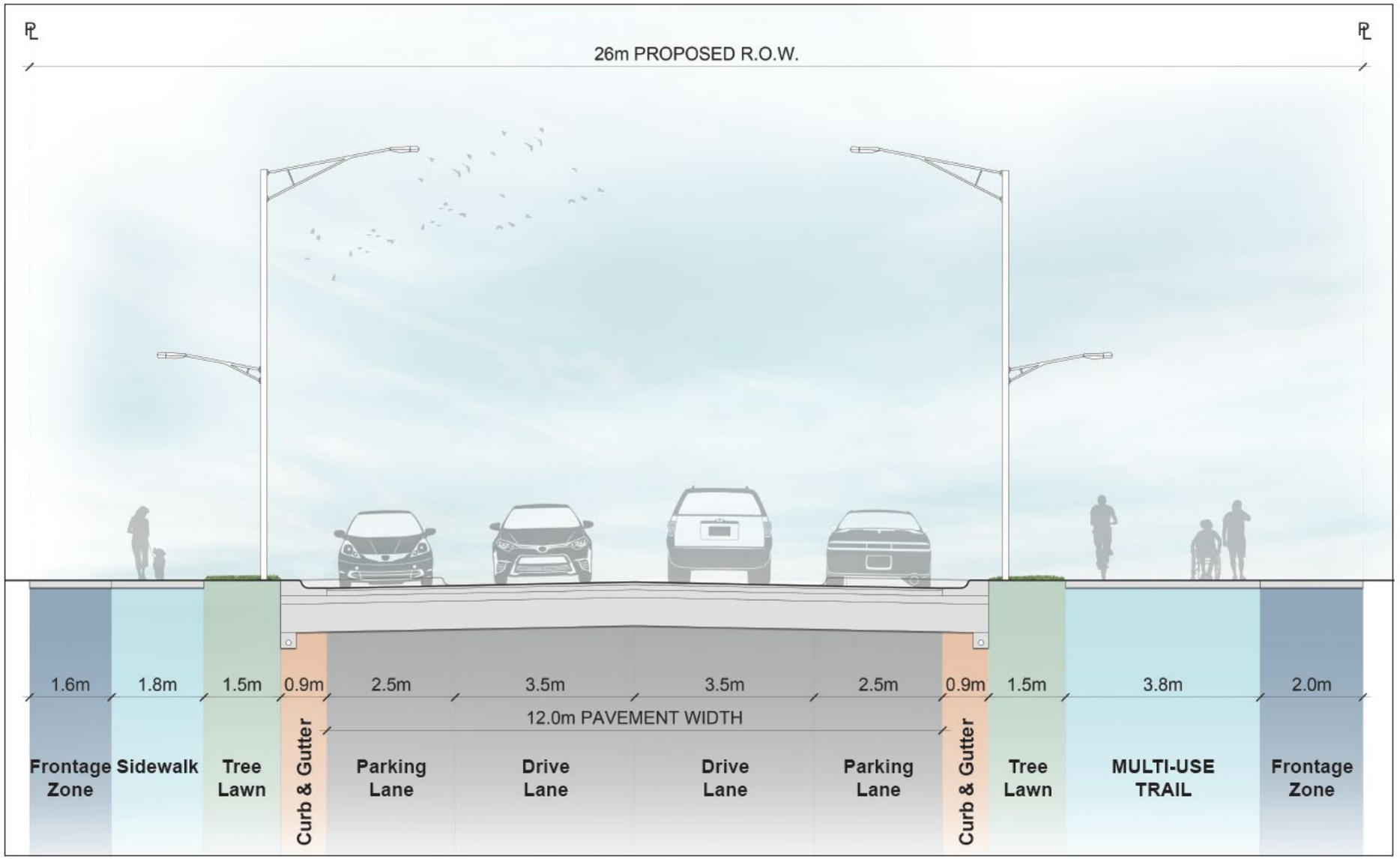


INNISFIL TRANSPORTATION MASTER PLAN

NEIGHBOURHOOD CONNECTOR - CONCEPTUAL APPLICATION A (RETROFIT)

BURNSIDE

Figure 4: Neighbourhood Connector Street – Conceptual Application B (New Road)

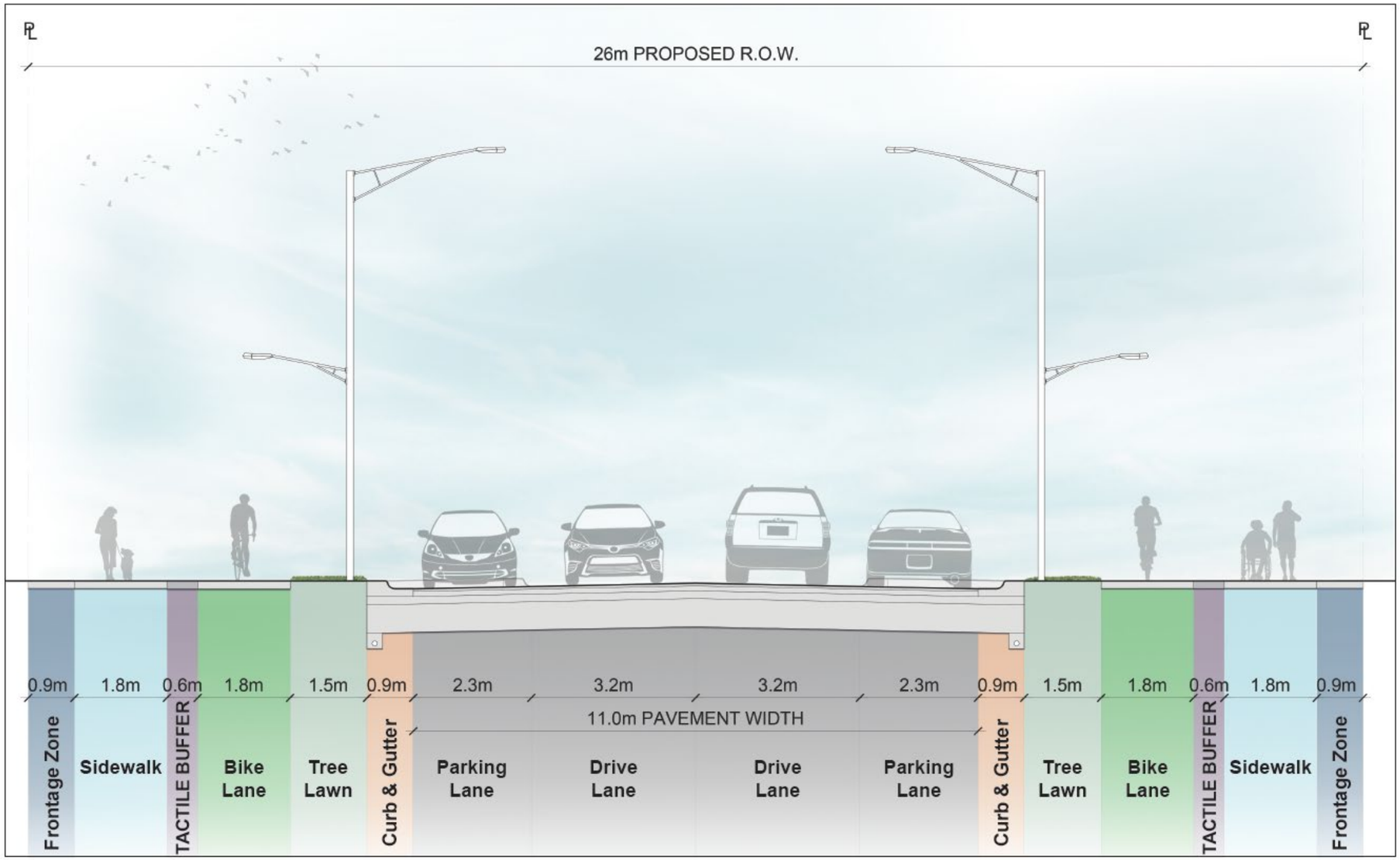


INNISFIL TRANSPORTATION MASTER PLAN

NEIGHBOURHOOD CONNECTOR - CONCEPTUAL APPLICATION B (NEW ROAD)

BURNSIDE

Figure 5: Neighbourhood Connector Street – Conceptual Application C (New Road)

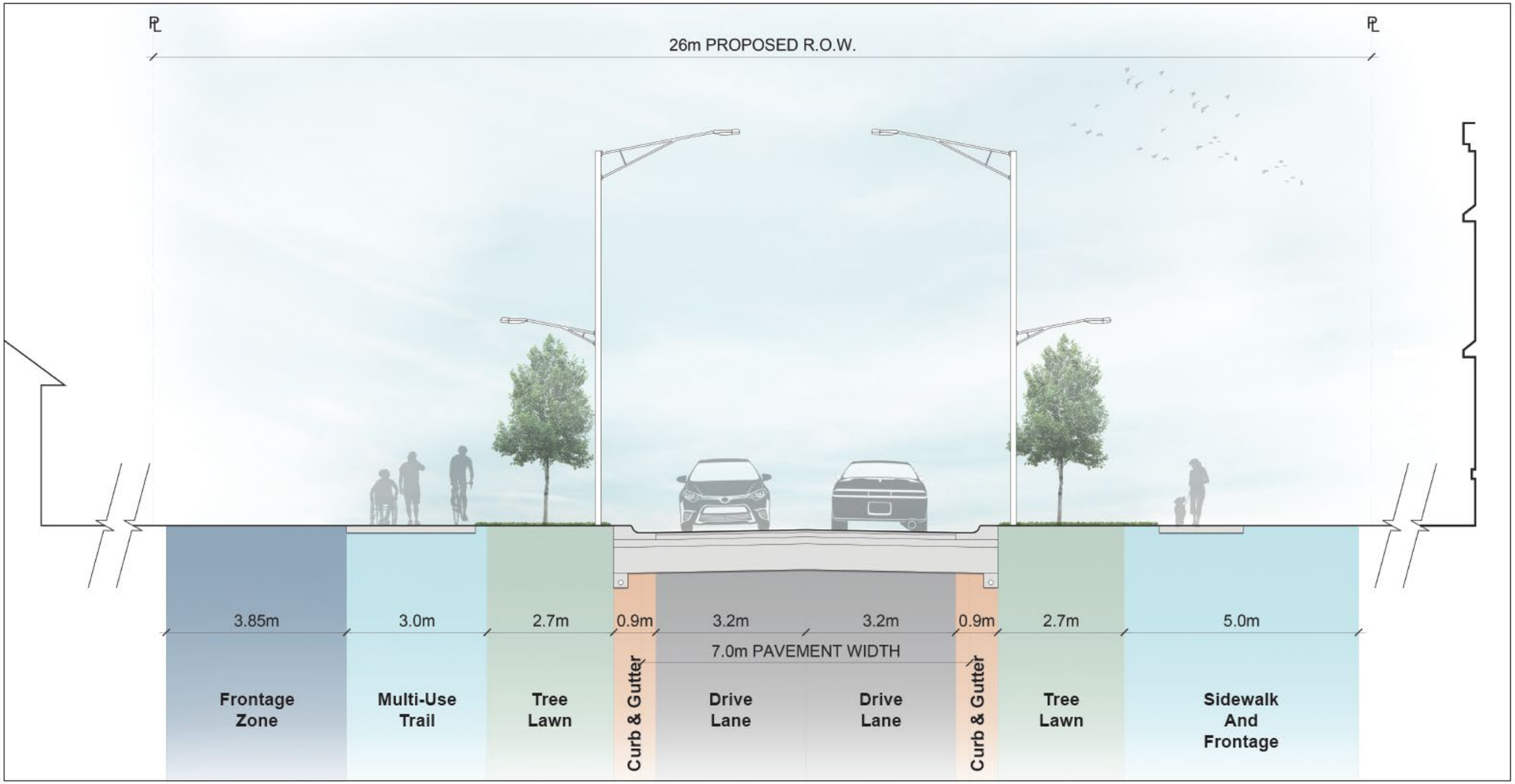


INNISFIL TRANSPORTATION MASTER PLAN

NEIGHBOURHOOD CONNECTOR
CONCEPTUAL APPLICATION C (NEW ROAD, REDUCED PAVEMENT WIDTH)

BURNSIDE

Figure 6: Urban Throughfare – Conceptual Application A (Retrofit)

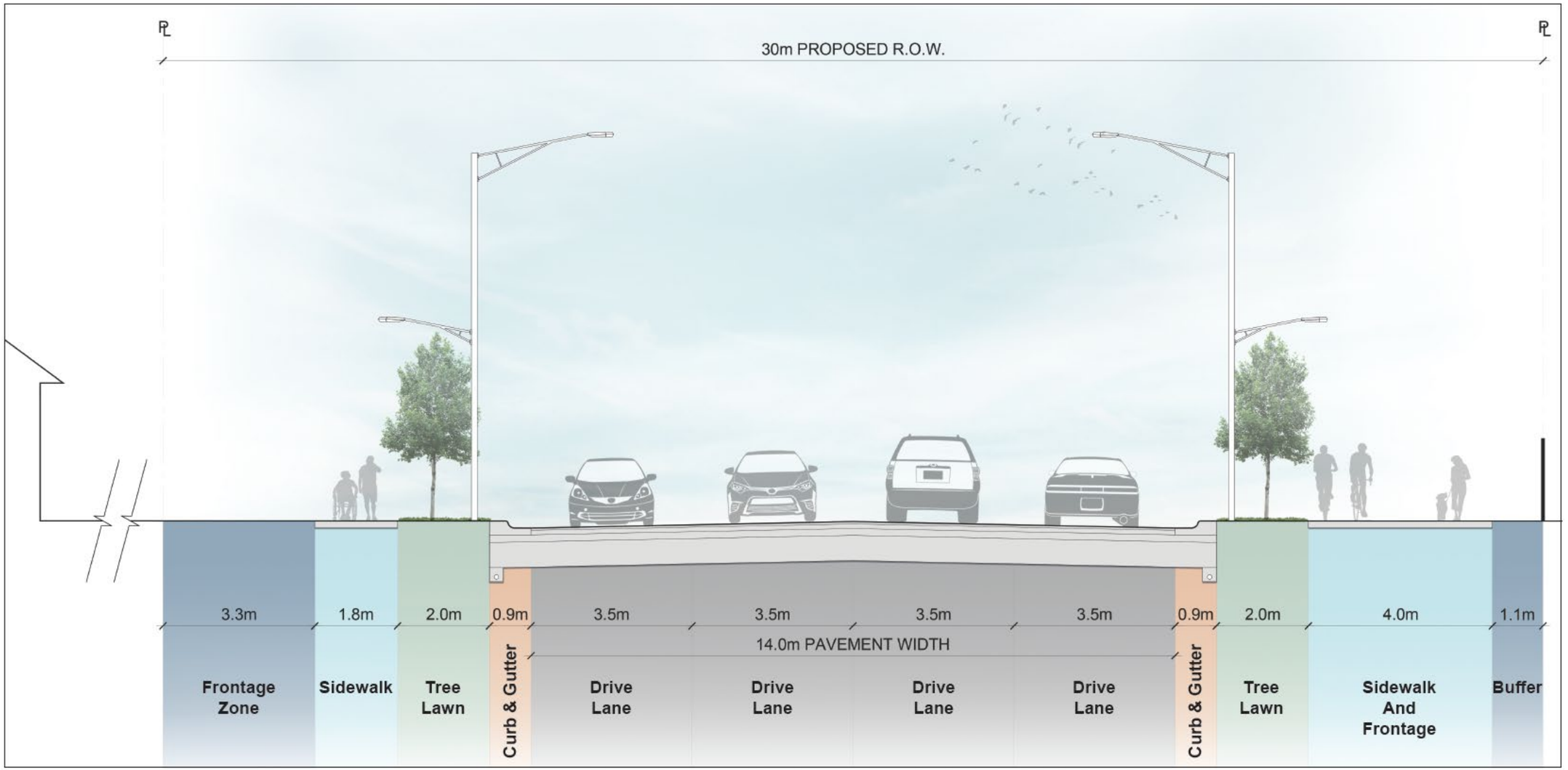


INNISFIL TRANSPORTATION MASTER PLAN

URBAN THOROUGHFARE - CONCEPTUAL APPLICATION A (RETROFIT)

BURNSIDE

Figure 7: Urban Throughfare – Conceptual Application B (New Road)

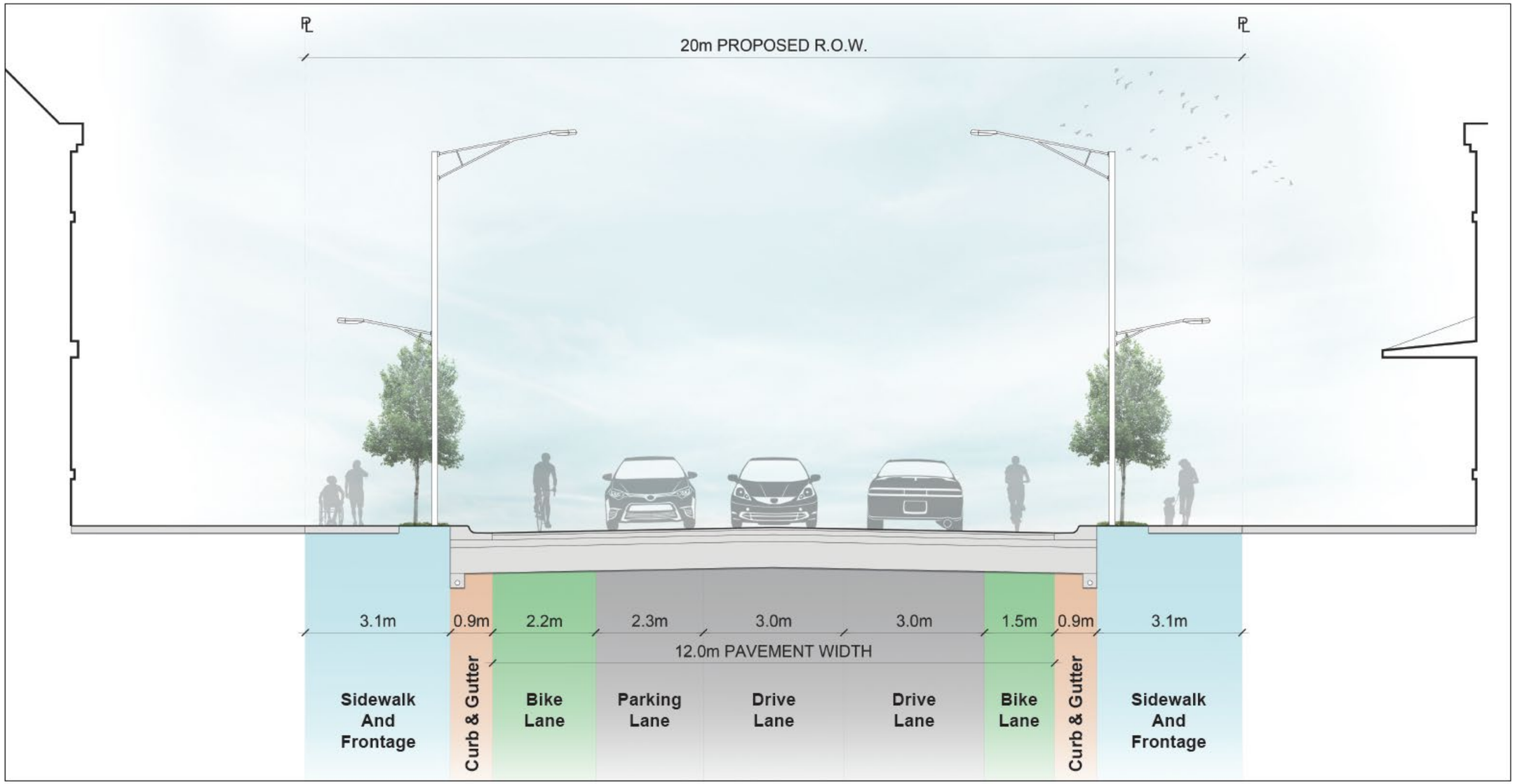


INNISFIL TRANSPORTATION MASTER PLAN

URBAN THOROUGHFARE - CONCEPTUAL APPLICATION B (NEW ROAD)

BURNSIDE

Figure 8: Downtown Commercial Street – Conceptual Application A (Retrofit)

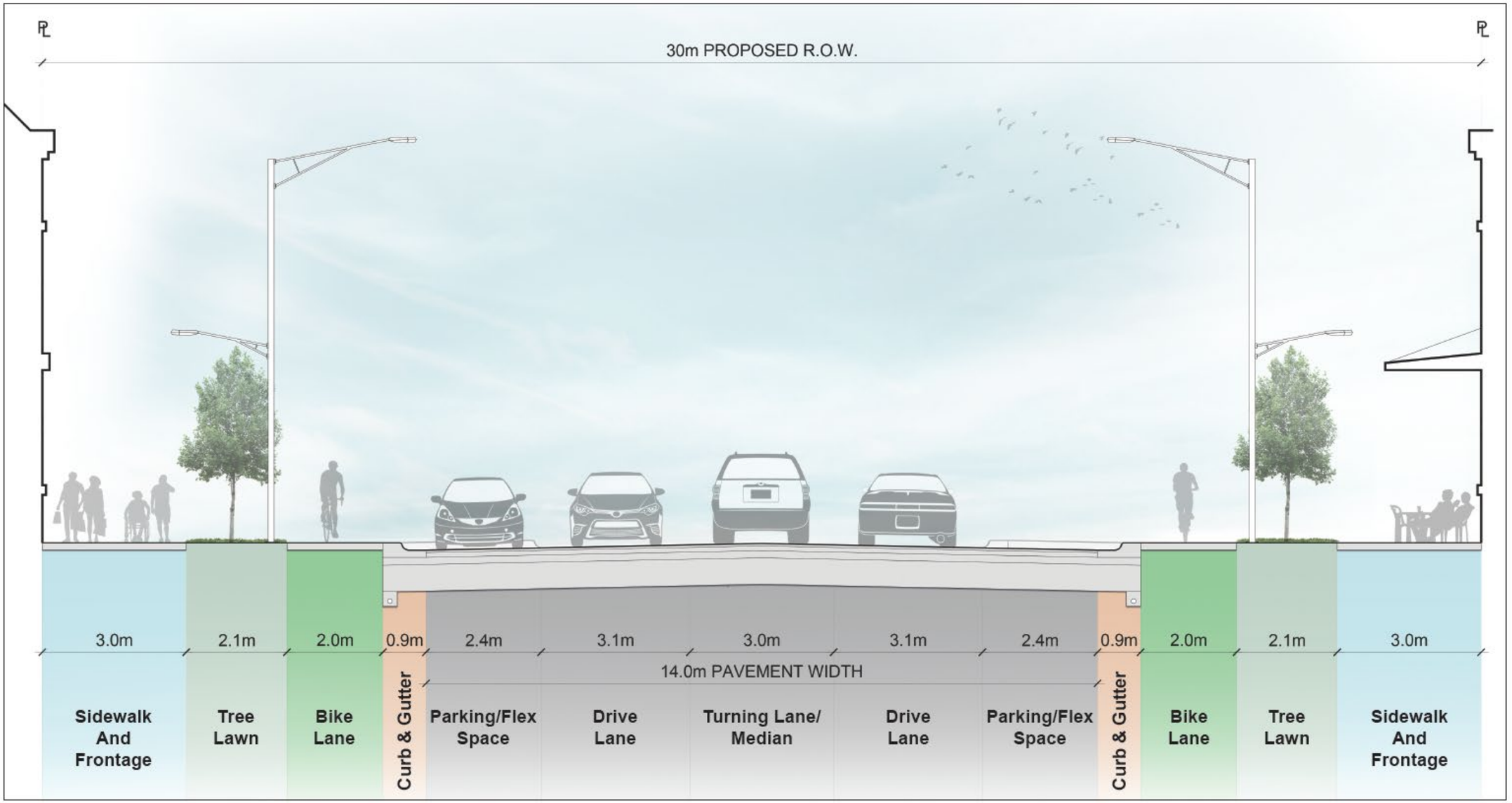


INNISFIL TRANSPORTATION MASTER PLAN

DOWNTOWN COMMERCIAL STREETS - CONCEPTUAL APPLICATION A (RETROFIT)

BURNSIDE

Figure 9: Downtown Commercial Street – Conceptual Application B (New Road)

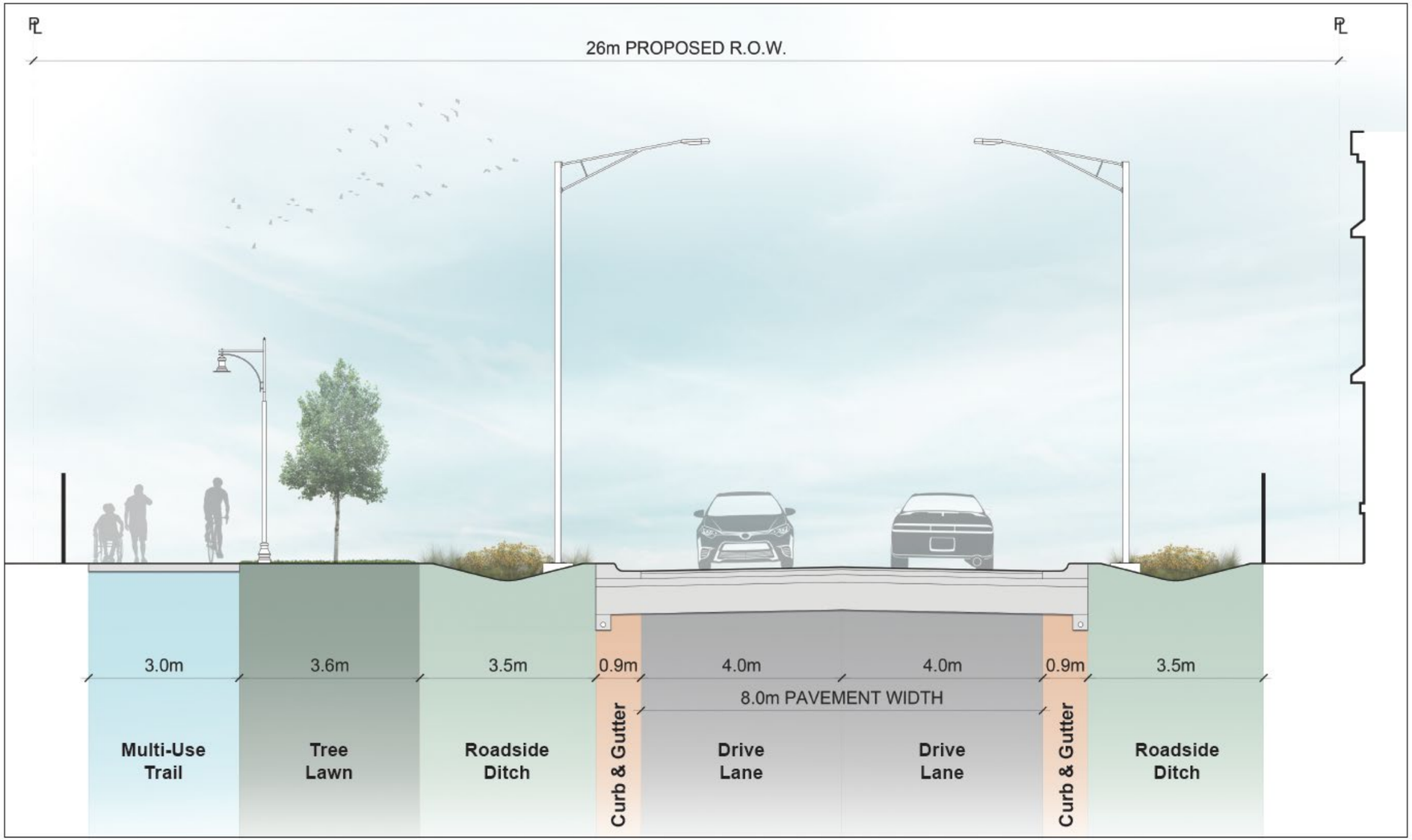


INNISFIL TRANSPORTATION MASTER PLAN

DOWNTOWN COMMERCIAL STREETS - CONCEPTUAL APPLICATION B (RETROFIT)

BURNSIDE

Figure 10: Employment/Industrial Street – Conceptual Application A (Retrofit)

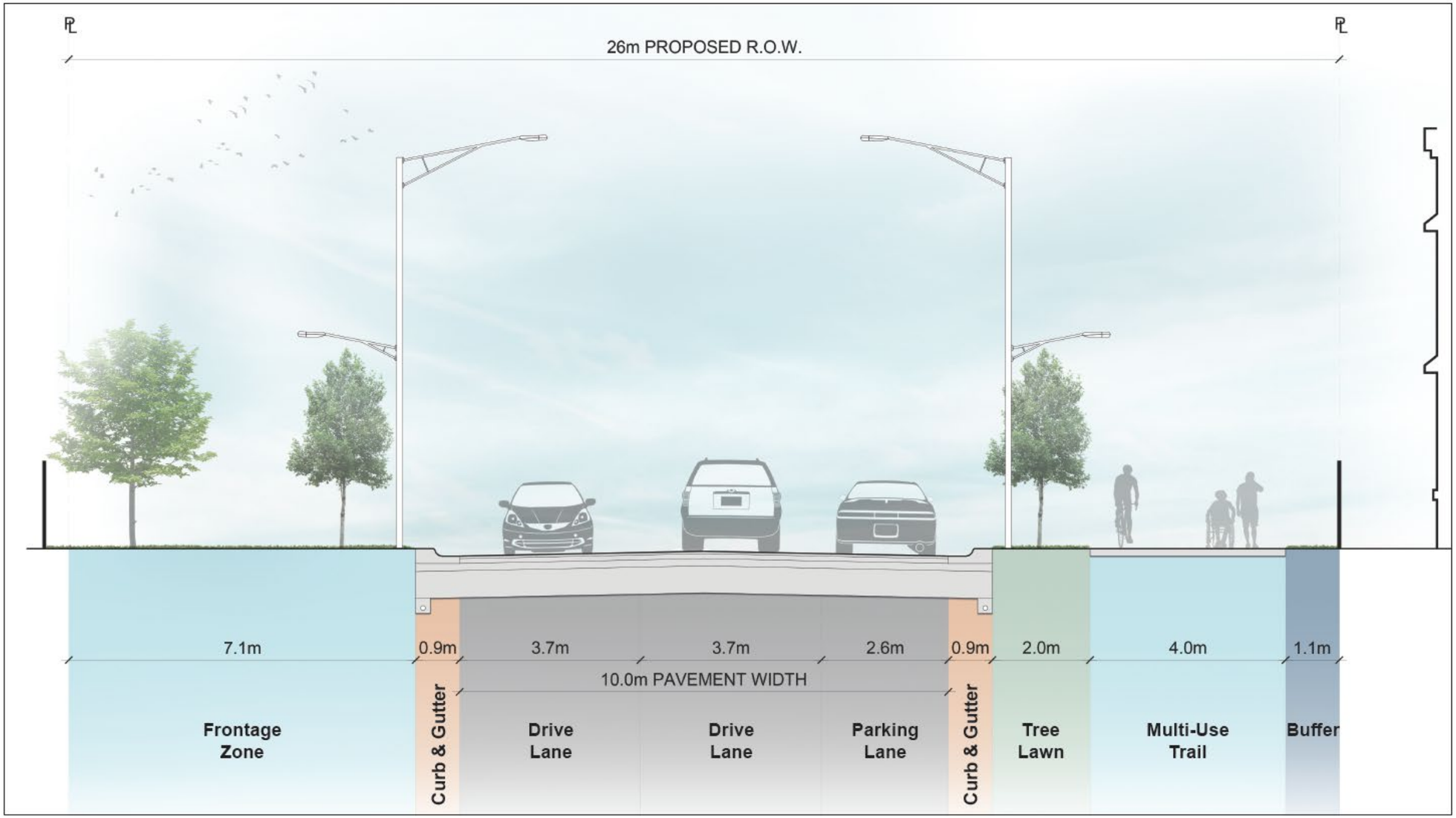


INNISFIL TRANSPORTATION MASTER PLAN

INDUSTRIAL - CONCEPTUAL APPLICATION A (RETROFIT)

BURNSIDE

Figure 11: Employment/Industrial Street – Conceptual Application B (New Road)

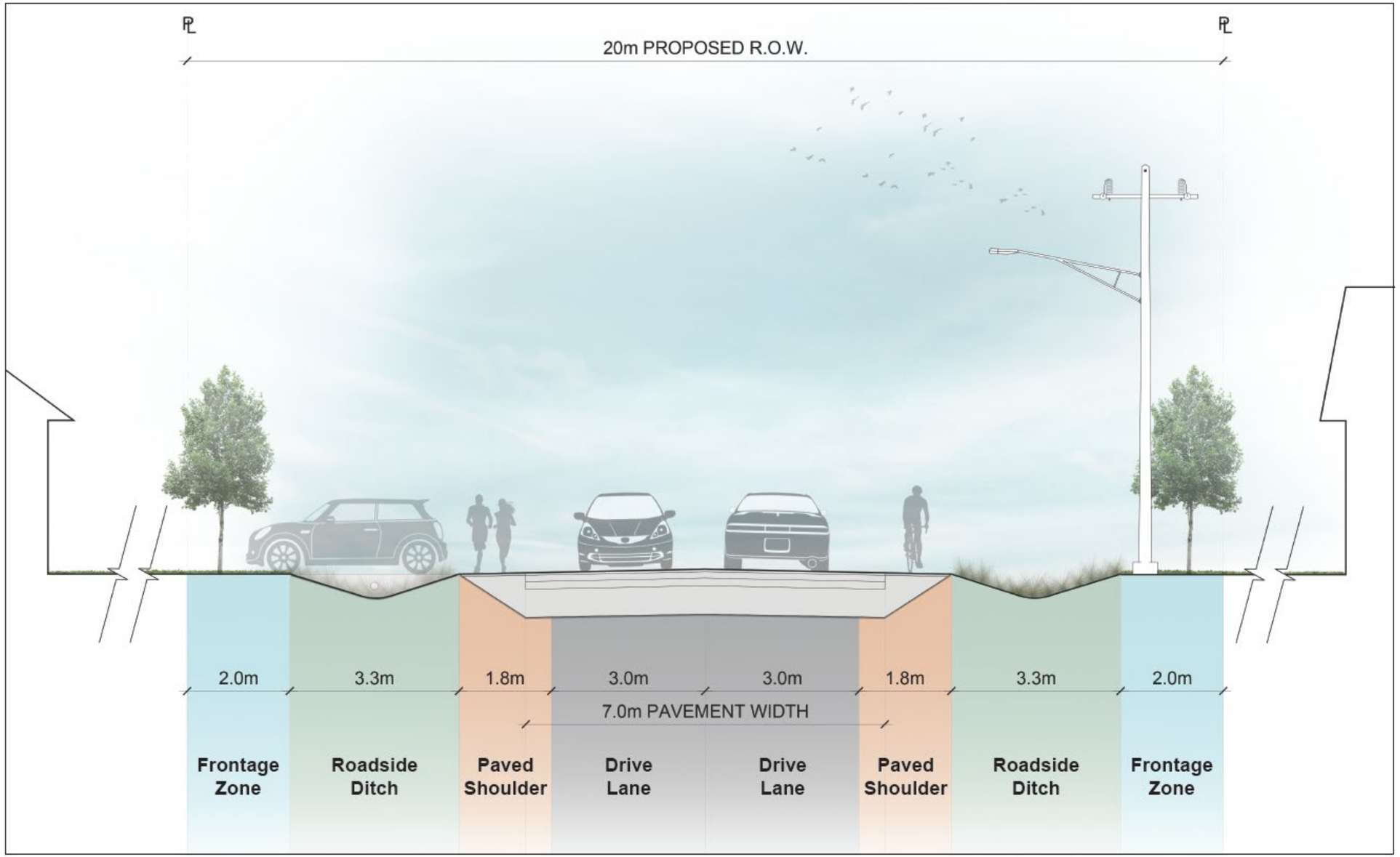


INNISFIL TRANSPORTATION MASTER PLAN

INDUSTRIAL - CONCEPTUAL APPLICATION B (New Road)

BURNSIDE

Figure 12: Neighbourhood Residential Street (Rural) – Conceptual Application A (Retrofit)

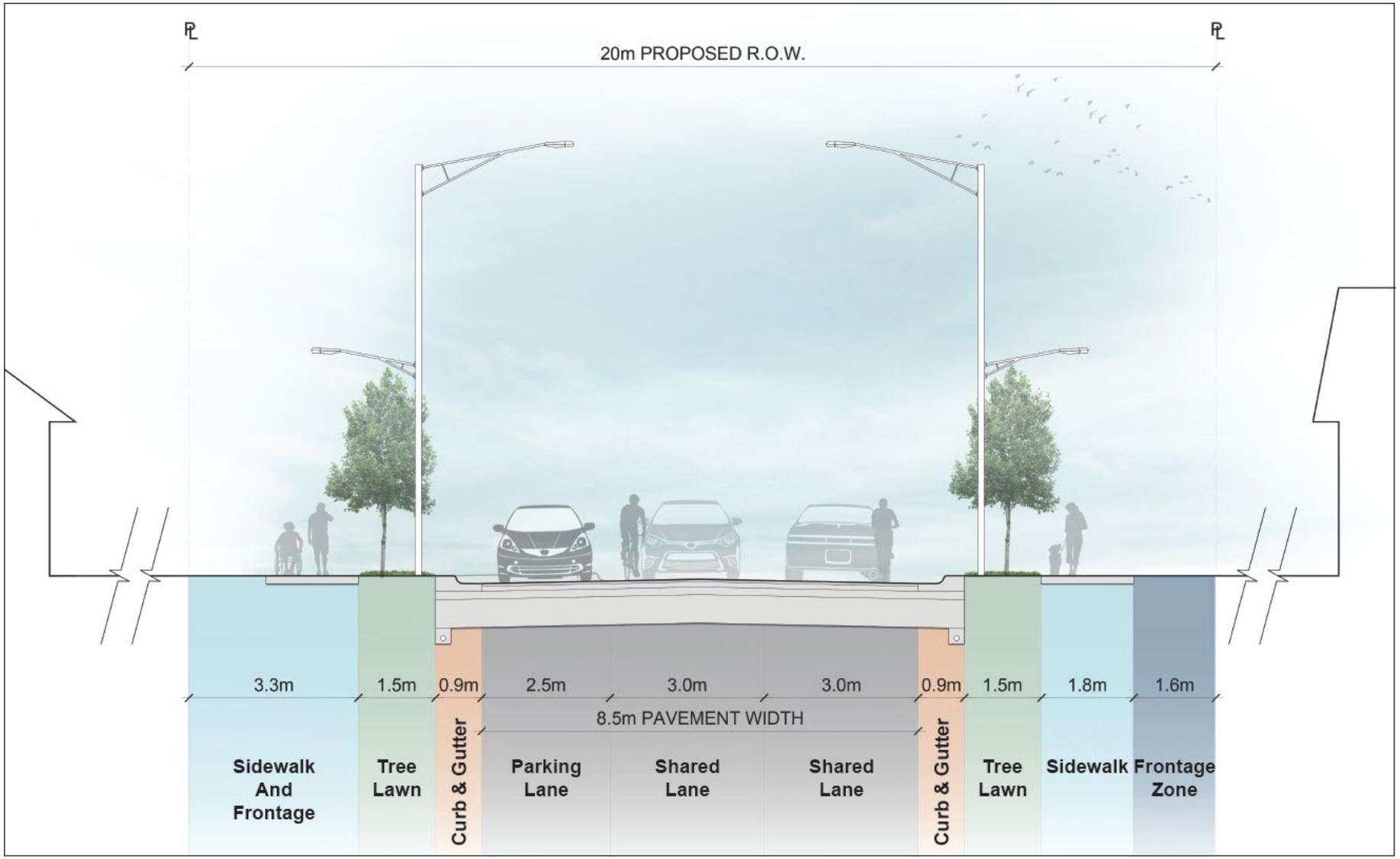


INNISFIL TRANSPORTATION MASTER PLAN

NEIGHBOURHOOD STREET RURAL - CONCEPTUAL APPLICATION A (RETROFIT)

BURNSIDE

Figure 13: Neighbourhood Residential Street (Rural) – Conceptual Application B (New Road)

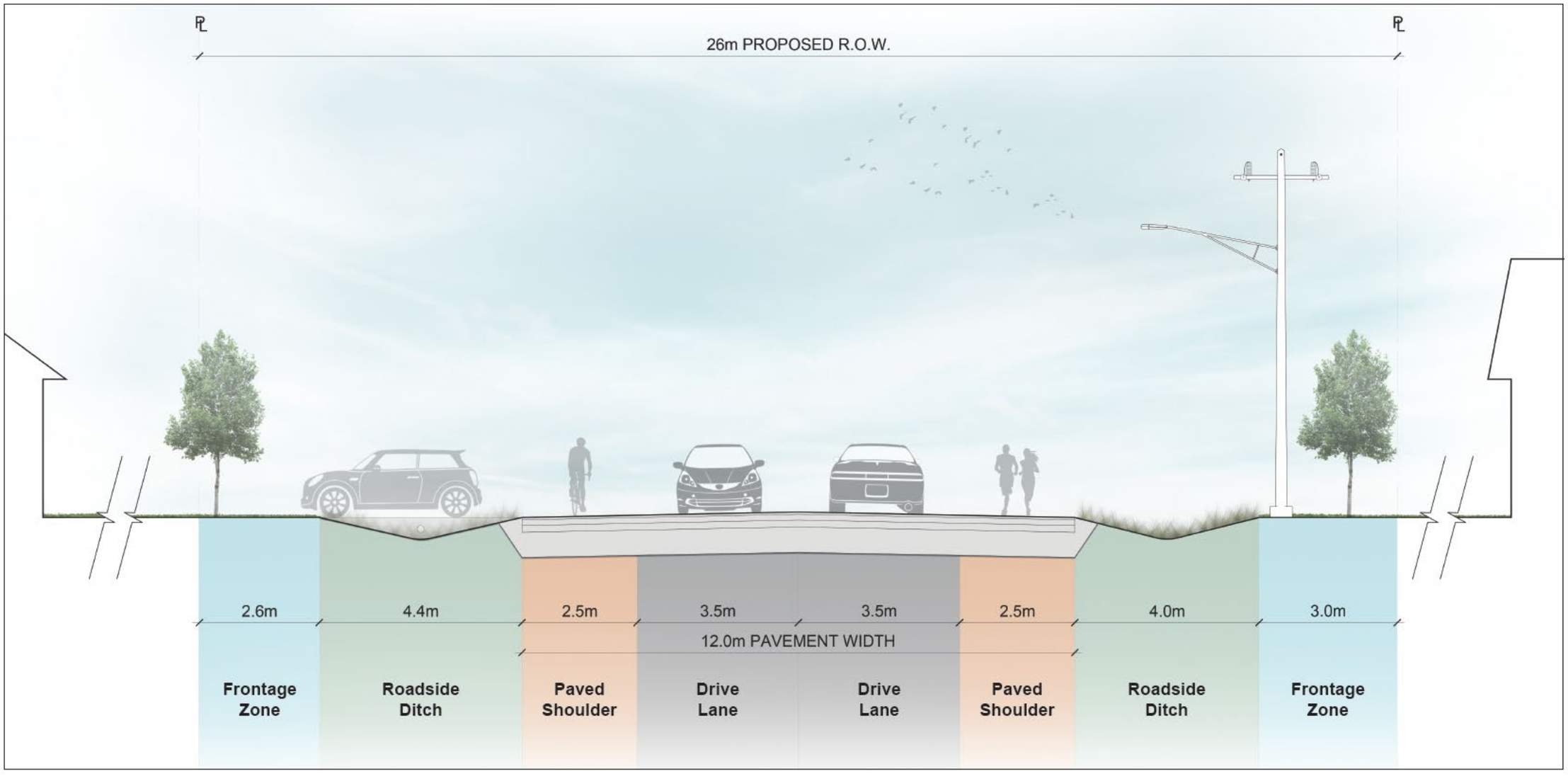


INNISFIL TRANSPORTATION MASTER PLAN

NEIGHBOURHOOD STREET RURAL - CONCEPTUAL APPLICATION B (NEW ROAD)

BURNSIDE

Figure 14: Neighbourhood Connector Street (Rural) – Conceptual Application A (Retrofit)

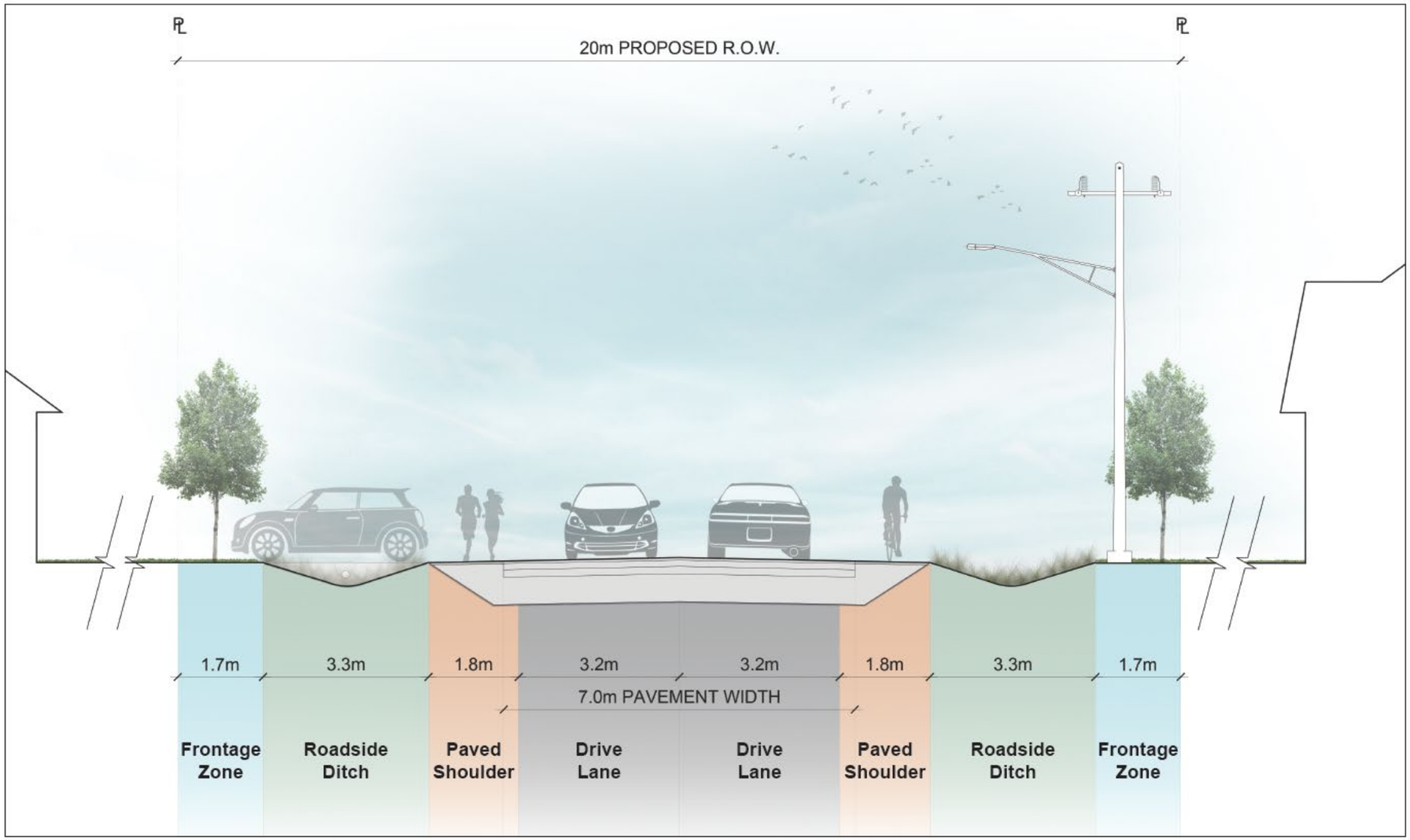


INNISFIL TRANSPORTATION MASTER PLAN

NEIGHBOURHOOD CONNECTOR RURAL - CONCEPTUAL APPLICATION A (RETROFIT)

BURNSIDE

Figure 15: Neighbourhood Connector Street (Rural) – Conceptual Application B (New Road)

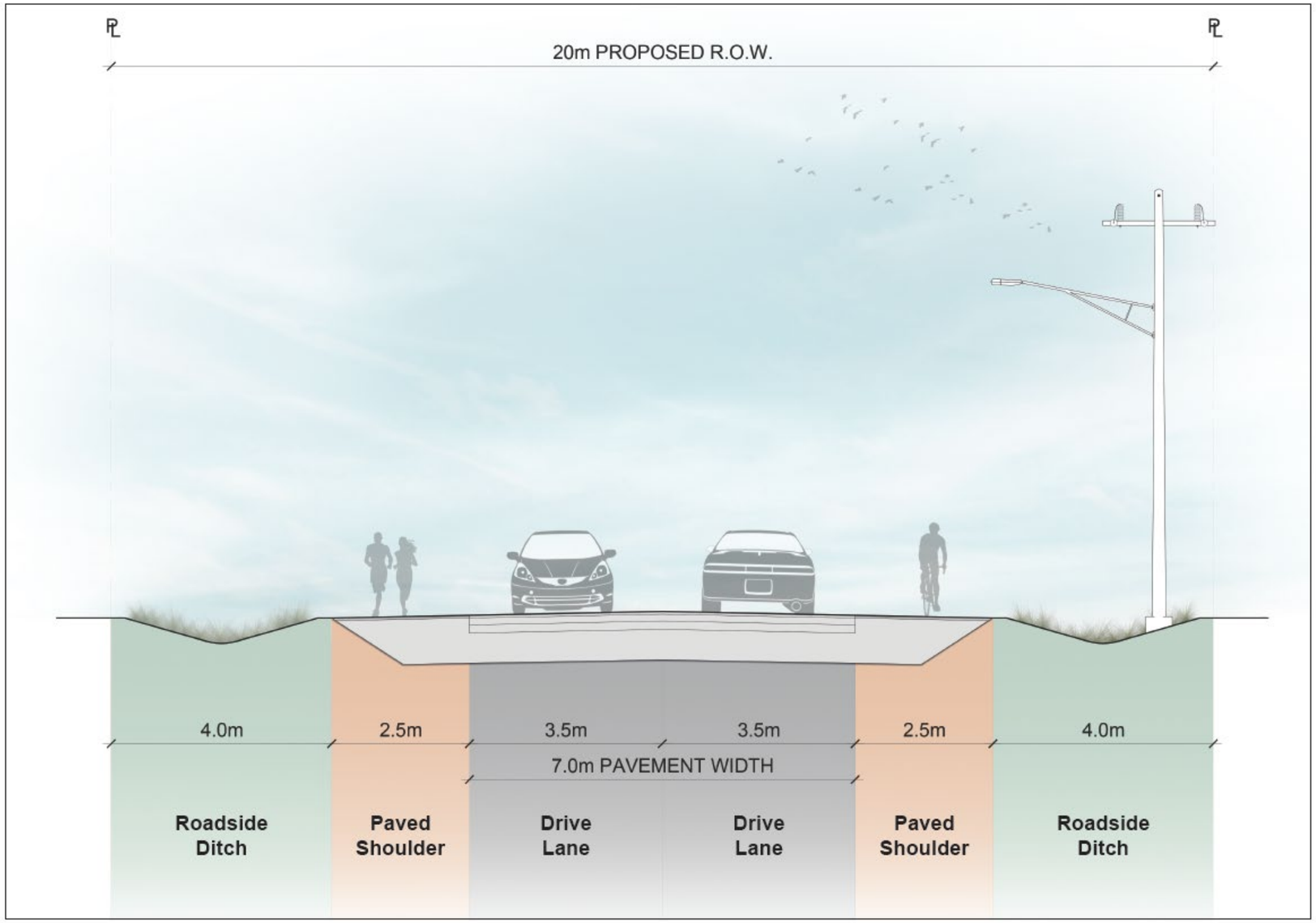


INNISFIL TRANSPORTATION MASTER PLAN

NEIGHBOURHOOD CONNECTOR RURAL - CONCEPTUAL APPLICATION B (RETROFIT)

BURNSIDE

Figure 16: Rural Street (Retrofit or New Road)



INNISFIL TRANSPORTATION MASTER PLAN

RURAL - CONCEPTUAL APPLICATION (RETROFIT or New Road)

BURNSIDE

Appendix K

Appendix K

Transit Needs

BURNSIDE

Innisfil

Appendix K – Transit Needs and Opportunities

Date: June 8, 2022 **Project No.:** 300053011.0000

Project Name: Innisfil Transportation Master Plan Update

To: Town of Innisfil

From: R.J. Burnside & Associates Limited

1.0 Benefit of Effective Transit Systems

1.1 Support of Complete Communities

Innisfil "Our Place" Official Plan supports complete communities that are "age-friendly". Completed communities are context-sensitive but can be defined as providing safe and healthily neighborhoods, accessible employment, with a sense of community and neighborhood-based cultural and recreational opportunities. Transit can be integral to creating communities that are more complete and sustainable.

1.2 Support Mobility Needs

Transit can provide reliable access from residential areas to employment opportunities and can be critical for those who face age or other barriers to mobility and can be age-friendly. Future transportation strategies should strive to improve accessibility for all people in the Town of Innisfil. Transit demand reflects the mobility needs for those who have limitations that restrict travel by private vehicle or other modes.

1.3 Supporting Sustainability Objectives

A sustainable community is one that can reconcile economic growth, environmental balance and social progress without compromising the planet. Convenient transit services can contribute to more sustainable transportation and reduce the impact on the environment. Active transportation and transit are explicitly supported in the Provincial Policy Statement (2022) and is supported as an important component of multimodal transportation systems. Transit solutions can also be a key element to climate change mitigation strategies.

1.4 Implementing Transit-Supportive Guidelines

The Ontario Ministry of Transportation developed Transit-Supportive Guidelines. The objective is to assist in creating an environment that is supportive of transit and developing services and programs to increase transit ridership. Key recommended metrics include the following:

- Basic transit service is defined as one bus every 20-30 minutes and frequent transit service is defined as one bus every 10-15 minutes.

- The spacing of arterials and collectors should support a maximum 400 m (5-minute) walk from the interior of a block to a local bus stop. For example, assuming that bus stops are spaced 200m apart along a set of parallel collectors, the collectors should be no more than 600m apart to satisfy this maximum walking distance.
- Space collectors at intervals of 400 m or less in designated nodes and corridors in order to facilitate higher levels of walking and cycling

2.0 Transit Models

There are several types of transit systems and this study focuses on two main types.

Conventional Fixed Route

Conventional fixed routes have vehicles that operate on a predetermined route and schedule. Depending on the community, conventional fixed-route services may not always meet the needs of residents. Access to the bus stop may be difficult for residents who live far away from fixed bus stops.

On-Demand Transit

On-demand transit have vehicles that operate on a flexible route and schedule. Individuals may use a subscription service, advance reservation, or real-time scheduling. Riders share a vehicle with others travelling in a similar direction. Riders can request the service through a mobile application or by phone. Depending on the vehicle, there are two types of on-demand transit:

- Non-dedicated: where vehicles that provide the service do not exclusively serve a particular transportation program. The provider has an option of serving unrelated contracts on the same vehicle at the same time.
- Dedicated: vehicles are dedicated exclusively to a transportation program during a specific period of time.On-demand transit can also be structured based on service delivery. There are three typical service delivery models:
- Origin to Hub (first-mile / last-mile): this service model connects customers to / from the closest fixed-route transit stop or transit hub. This model is typically implemented in lower density areas where there is no fixed-route transit.
- Origin to Destination: Riders can be picked up or dropped off at any location within a service area. This model is used in large low-density geographic areas where there is no fixed-route service.
- Flex-Route: this service allows for a fixed route and schedule to be extended beyond their predetermined route and schedule. This model allows for a larger coverage that may have limited demand.

3.0 Existing Transit Services

Currently, GO Transit bus service provides inter-regional connection with several stops within the Town. The Town's local transit is an on-demand service operated by Innisfil Transit, a partnership between the Town and Uber. Details for each are provided below.

3.1 Metrolinx GO Transit

The Barrie GO line currently passes through the Town with no stops. During the weekday morning peak period, there are 5 southbound trains to Union Station with a 45-60 minute headway. During the afternoon peak period, there are 5 northbound trains from Union Station and has a 30-45 minute headway.

Barrie South GO Station is a scheduled fixed route commuter rail and bus station located north of Mapleview Drive and west of County Road 4. It is the closest station for most Innisfil commuters, approximately 1.5 km away from the north borders of the Town.

Barrie Transit also runs bus routes from Barrie South GO (routes 3A, 3B, 4A, 4B and 8B) connecting for much of the City of Barrie. Future opportunities will include service from the new GO rail station at 6th Line within the Orbit community in addition to links to Barrie Transit at the Barrie GO Station.

3.2 Ontario Northland Transportation Commission

Ontario Northland Transportation Commission (Ontario Northland) is a Crown agency of the province providing transportation services for both passenger and goods in northern Ontario. Innisfil commuters can access the Route 1 (Toronto-Barrie-North Bay) and Route 2 (Toronto-Parry Sound-Sudbury) transit services through connections via Barrie Transit Terminal located 24 Maple Avenue. There is no direct access to/from Innisfil.

3.3 Simcoe County LINX Transit

In addition to the GO Transit and Ontario Northland service, the existing conventional scheduled fixed route transit system includes the Simcoe County a LINX transit system. It is noted however, that the LINX does not currently provide convenient connections to Innisfil origins or destinations. The following are current LINX transit routes are as follows:

- Route 1: Penetanguishene/Midland to Barrie
- Route 2: Wasaga Beach to Barrie
- Route 3: Orillia to Barrie
- Route 4: Collingwood to Wasaga Beach
- Route 5: New Tecumseth to Bradford West Gwillimbury
- Route 6: Midland to Orillia

The existing LINX routes provide connections from major residential communities to both the City of Barrie and the GO rail and Ontario Northland Rail stations serving destinations to the south including the City of Toronto Union Station within the City's financial district.

Figure K- 1 is an excerpt from the County's Transportation Master Plan Update Phase 1: Needs and Opportunities (County TMP Phase 1), prepared by IBI Group, dated October 2021 and the LINX transit system are illustrated in dark blue. There is no direct LINX access to/from Innisfil.

3.4 Innisfil Transit

On May 1, 2017, the Town and Uber collaborated on an on-demand transit service called Innisfil Transit and that has been the option for those who have physical, financial or other barriers to use of a personal automobile for their mobility needs. This arrangement with Uber to provide on-demand services is Canada's first ridesharing and transit partnership. It provides on-demand ride hailing 24 hours a day / 7 days a week with selected fixed-fare destination within the Town and reduced fare trips that start and end trips in Town. The following discounted rates for any trip to / from these locations:

- Innisfil Recreational Complex and Town Hall area: $4
- Innisfil ideaLAB and Library (Lakeshore branch): $4
- South Innisfil Community Centre: $4
- Innisfil Community Church or Innisfil Food Bank: $4
- The closest GO transit bus stop along Yonge Street: $5
- Barrie South GO train station: $6
- Innisfil Heights Employment Area and Highway 400 carpool lot: $6

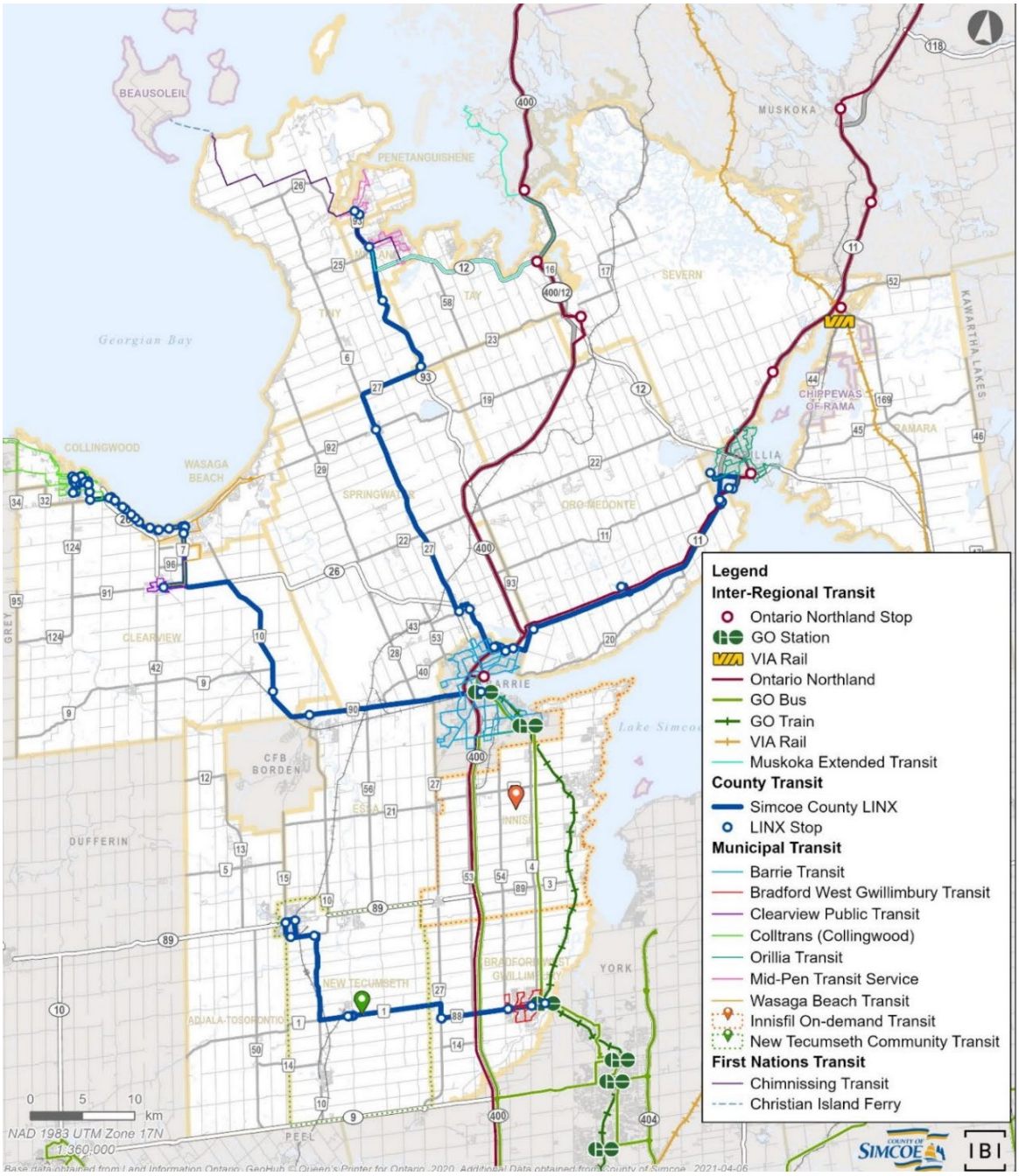
As an incentive, the Town provides the following:

- A Fair Transit Program:
  - Established on October 22, 2019;
  - Provides 50% discount on all rides to eligible participants and
- An Essential Trips Assistance Program:
  - Established on March 20, 2020, to support residents during the COVID-19 pandemic;
  - Provides riders with a $20 monthly voucher to redeem towards any Innisfil Transit Trips, and
  - This program also offers 2 free monthly trips to /from essential locations identified on their website.

Overall, the partnership showcases an innovative way of catering to specific transportation needs within the Town and the flexibility of ride-share services. A surveyed conducted in 2019 by the Town had indicated that over 70% of the users were "happy" or "very happy" with the Innisfil Transit Service. This result is consistent with the surveys in the previous years – 2017 and 2018.

Figure K- 1: LINX Transit Routes

Source: Exhibit 8.11 from the County of Simcoe Transportation Master Plan Update Phase 1: Needs and Opportunities, prepared by IBI Group, dated October 2021.



4.0 Current Transit Ridership and Performance Measures

Transit use within the Town represents a small percentage of trips. The 2016 Transportation Tomorrow Survey indicates that transit trips (including GO transit) represent 1% of AM and PM peak period trips.

4.1 Rail Transit – Barrie GO Station

A review of the 2019 Innisfil Transit Community Engagement Results had indicated that 276 residents take Innisfil Transit to and from the Barrie South GO Station.

4.2 On-Demand Transit – Innisfil (Uber) Transit

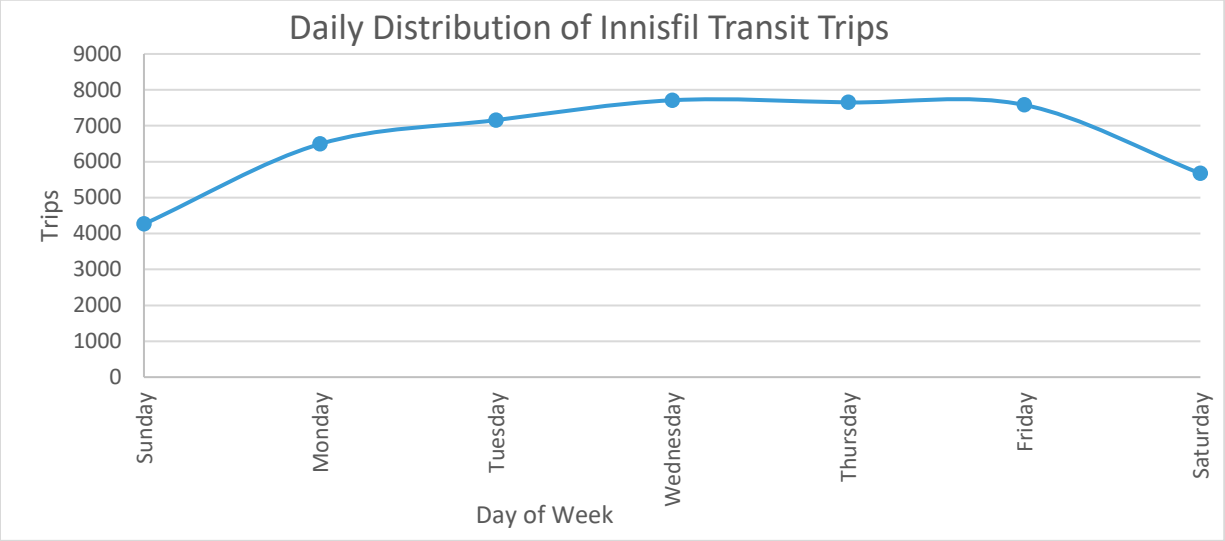
There are some initial findings published in the Innisfil Transit System Performance Final Report (Innisfil Transit Performance Report), prepared by Ryerson University and Transform, dated January 12, 2021. This study reviewed Uber data between May 2017 and February 2020 (i.e., prior to the COVID-19. Some key findings from the Innisfil Transit Performance report included:

- Approximately 220,000 trips made equivalent to an annual ridership of 80,000 users.
- Average trips were 9 km in length and11 minutes in duration and with 6 minutes of wait time.
- Urban neighborhoods have highest demand, highest services levels and lowest trip cost.
- 60% of the trips took place during time period outside of typical weekday commuting times of 6:00AM to 9:00AM and 2:00PM to 6:00 PM.
- 36% of the trips were destined to destinations that do not have flat rates.
- It appears the highest ridership levels are associated with the highest population densities.

The Town had provided Burnside more recent Uber data, dated September 2020 to June 2021. The data captured trips made during the COVID-19 pandemic, which likely understates travel demand and may not fully reflect typical origins and destinations. This data, however, provides a general understanding of travel patterns.

There was a total of 46,530 trips between September 2020 to June 2021, of which approximately 80% occurred during a weekday and 20% during a weekend. The daily trips are illustrated in Figure K- 2. The Wednesdays, Thursdays and Fridays generated approximately the same number of trips.

Figure K- 2: Daily Distribution



The hourly distribution of a weekday and weekend are summarized in Figure K- 3 and Figure K-4 respectively. During a weekday, the peak travel occurs between 1:00 PM and 5:00 PM and during a weekend, the peak occurs from 3:00 PM to 6:00 PM.

Figure K- 3: Hourly Distribution for Weekday

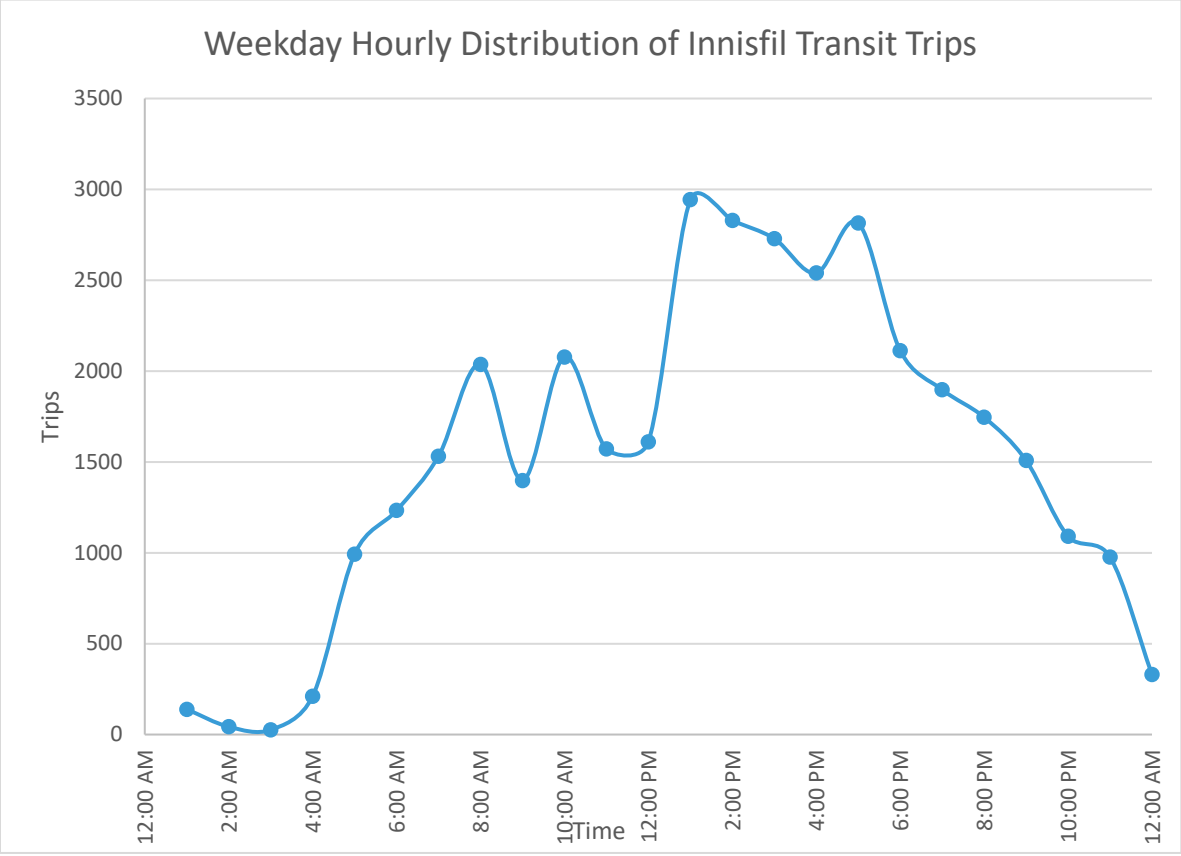


Figure K- 4: Hourly Distribution for Weekend

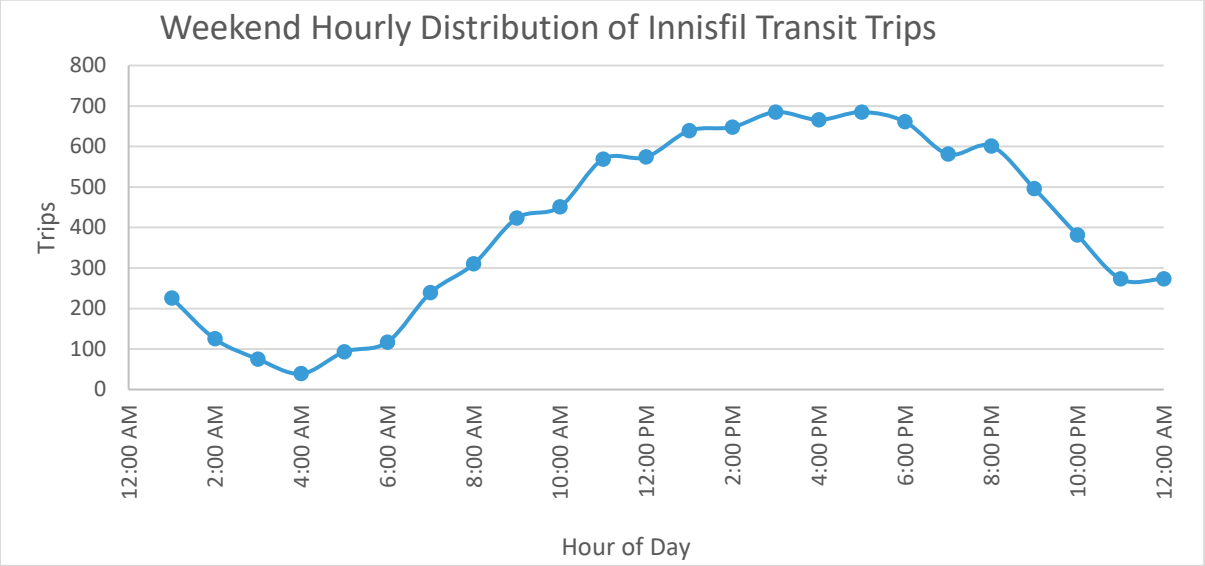


Table K- 1 summarizes the total number of trips made.

Table K- 1: Travel Demand (Total Trips)

Location	Trips (%)	
	Origin	Destination
Stroud	559 (1%)	710 (2%)
Sandy Cove	818 (2%)	857 (2%)
Cookstown	1,734 (4%)	1,797 (4%)
Lefroy / Belle Ewart	2,456 (5%)	2,148 (5%)
Innisfil Heights	2,587 (6%)	2,884 (6%)
Barrie South GO Station	5,732 (12%)	5,572 (12%)
Alcona	23,482 (50%)	22,609 (49%)
Other	9,163 (20%)	9,954 (20%)

Figure K- 5 and Figure K- 6 indicate that service is provided throughout Innisfil including nonurbanized areas and the density of trips roughly reflect the level of development throughout the Town. Most trips originated and were destined in Alcona.

Figure K- 5: Uber Pick-up Locations

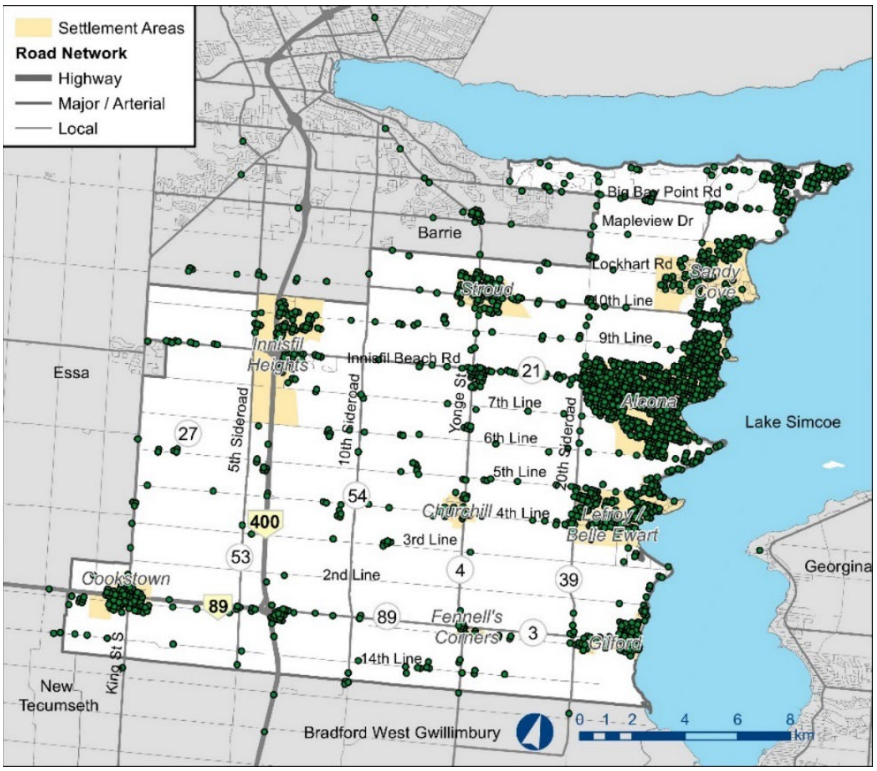
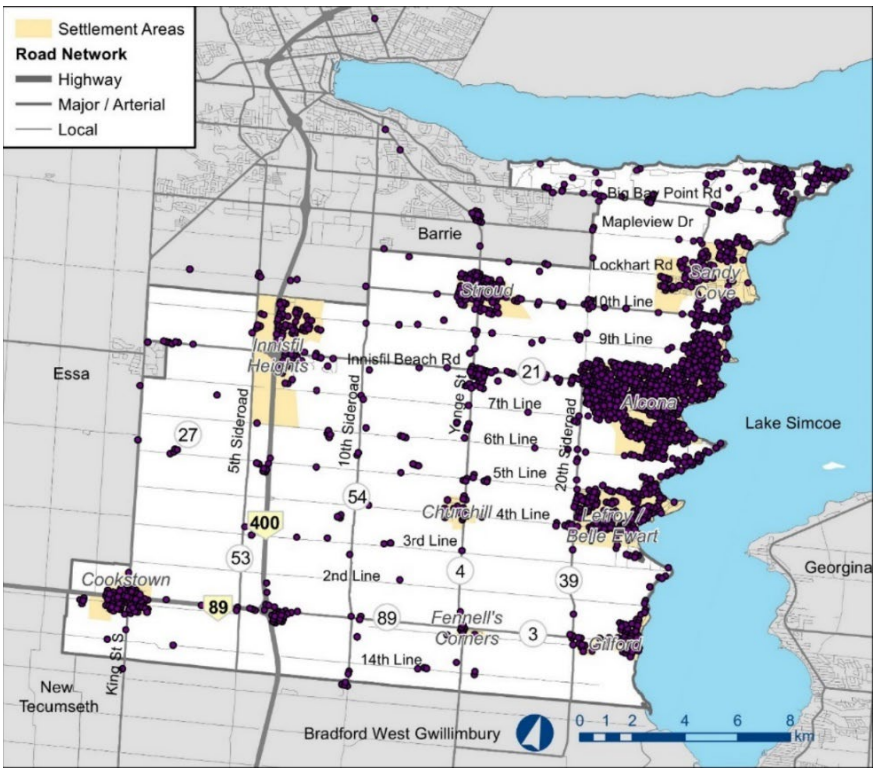


Figure K- 6: Uber Drop-off Locations



A review was conducted for the weekday AM and PM travel patterns including a review of origin and destination. A large percentage of trips (62%) had either an origin or destination at either the Alcona community or the Barrie South GO station. Weekday morning AM peak period (6:00 AM to 10:00 AM) and afternoon PM peak period (1:00 PM to 5:00 PM) trip distribution patterns were summarized for major trip generators as presented in Table K- 2 and Table K- 3.

Table K- 2: Weekday PM Peak Origin-Destination

Origin	Destination							
	Innisfil Heights	Barrie South GO	Alcona	Lefroy / Belle Ewart	Cookstown	Sandy Cove	Stroud	Other
Alcona	22%	18%	42%	2%	1%	0%	3%	11%
Barrie South GO	8%		58%	5%	5%	0%	1%	24%

Table K- 3: Weekday PM Peak Origin-Destination

Origin	Destination							
	Innisfil Heights	Barrie South GO	Alcona	Lefroy / Belle Ewart	Cookstown	Sandy Cove	Stroud	Other
Alcona	4%	9%	51%	4%	3%	4%	2%	23%
Barrie South GO	1%		63%	3%	10%	1%	0%	23%
Innisfil Heights		4%	67%	19%	0%	0%	0%	10%

The trip tables indicate defined patterns between Alcona and Barrie South GO, Alcona and Innisfil Heights and between Lefroy / Belle Ewart and Innisfil Heights.

We acknowledge that there are some challenges with the Uber data as the data reflected pandemic conditions:

- **Slightly lower number of ridership**: A comparison was made to the Innisfil Transit Performance Report which indicated approximately 220 daily trips. The pandemic data had approximately 155 daily trips. The Town had provided many incentives during the course of the pandemic such as additional vouchers and discounts to help residents get to and from essential locations. As a result, the reduction may not have been as significant as what it could have been.
- **Availability of drivers**: this resulted in some challenges to match riders with drivers, though average wait times for completed trips generally stayed below 10 minutes.
- **Capacity restrictions on local businesses / restaurants**: there were numerous of provincial restrictions such as capacity limits, take-out only at restaurant which potentially would have impacted the businesses and operations at local businesses / restaurants.
- **Change in travel patterns:** with individuals working from home, the travel pattern will be different. Based on the data above, it appears majority of individual are using Uber to stay within the Alcona area.

4.3 Current Service Performance Measures

4.3.1 Factors Affecting Transit Use

Transit level of service can be assessed by the degree to which transit is a viable alternative mode of travel to the automobile, where travel time and convenience are significant criteria (along with comfort and cost). Transit services are typically provided by a municipality for areas within its jurisdiction to reflect the needs and expectations of the community. These services are assessed based on the following analysis measures:

- **Proximity** to a higher order transit station or a conventional transit stop (and average distance to a transit stop), based on the number and percent of population and jobs in its vicinity.
- **Connectivity** of the transit system between key trip origins and destinations.
- **Serviceability** (scheduled service hours of operation and reliability).
- **Frequency** (headway and wait time) of service along transit routes.
- **Travel time** (operating speed, number of stops, dwell time) along transit routes.

4.3.2 Comparison Benchmarking

To better gauge the magnitude of future transportation improvements including cost and operations, a comparison of transit statistics was conducted based on available data from the Canadian Urban Transit Association's (CUTA's) Canadian Conventional Transit Statistics – 2018 Operating Data. This data is summarized in Table K- 4 and lists jurisdictions of similar population and in close proximity.

The Town of Innisfil transit ridership is lower per capita compared to most benchmarked fixed route transit systems. Innisfil Transit on-demand wait times are approximately one third to one quarter of the average headway of fixed route scheduled service; this is comparable to the walk time for a bus stop 400 metres away.

One notable difference between the Town of Innisfil and most benchmark municipalities is the much larger geographic area of the Town of Innisfil. The urbanized area of the community of Alcona, however, is approximately 10 km^2, which is comparable to the smallest benchmark municipalities.

Table K- 4: Transit Statistics for Other Jurisdictions[1]

Municipality	Service Area Population	Service Area Size (km²)	Ridership	Weekday Headway		No. of Bus		2018 or 2019 Data			
				Weekday Headway	Routes	Total	During Peak	Revenue Vehicle KM	Total Operating Cost	Cost per km	Revenue / Cost Ratio
Innisfil Transit (Uber On-Demand)[2]	36,566	262.7	52,065	On-Demand (6-minute average wait)	N/A	N/A	N/A	998,072	$1,448,023	$1.45	39%
Barrie	137,819	113	3,250,007	< 16 min 16-30 min > 30 min	- 8 3	48	37	3,439,859	$18,946,156	$5.28	34%
Bradford West Gwillimbury	32,207	17.3	40,982	< 16 min 16-30 min > 30 min	- - 2	4	2	101,038	$654,871	$6.48	9%
Cobourg	10,741	13	101,172	< 16 min 16-30 min > 30 min	- - 2	5	2	190,260	$834,987	$4.39	17%
Cornwall	46,000	61.5	843,018	< 16 min 16-30 min > 30 min	- 10 -	15	10	761,951	$4,429,299	$5.81	26%
Stratford	32,500	27.6	595,212	< 16 min 16-30 min > 30 min	- - -	12	10	625,335	$2,998,266	$4.79	28%
Wasaga Beach	11,560	18.4	83,060	< 16 min 16-30 min > 30 min	- - -	4	2	241,800	$600,822	$2.48	23%
Welland	48,000	86	935,373	< 16 min 16-30 min > 30 min	- 8 -	28	20	693,459	$4,951,701	$7.14	30%

Source: 1. Canadian Conventional Transit Statistics – 2018 Operating Data, provided by the Canadian Urban Transit Association (CUTA)
2. Canadian Conventional Transit Statistics – 2020 Operating Data, provided by the Canadian Urban Transit Association (CUTA)

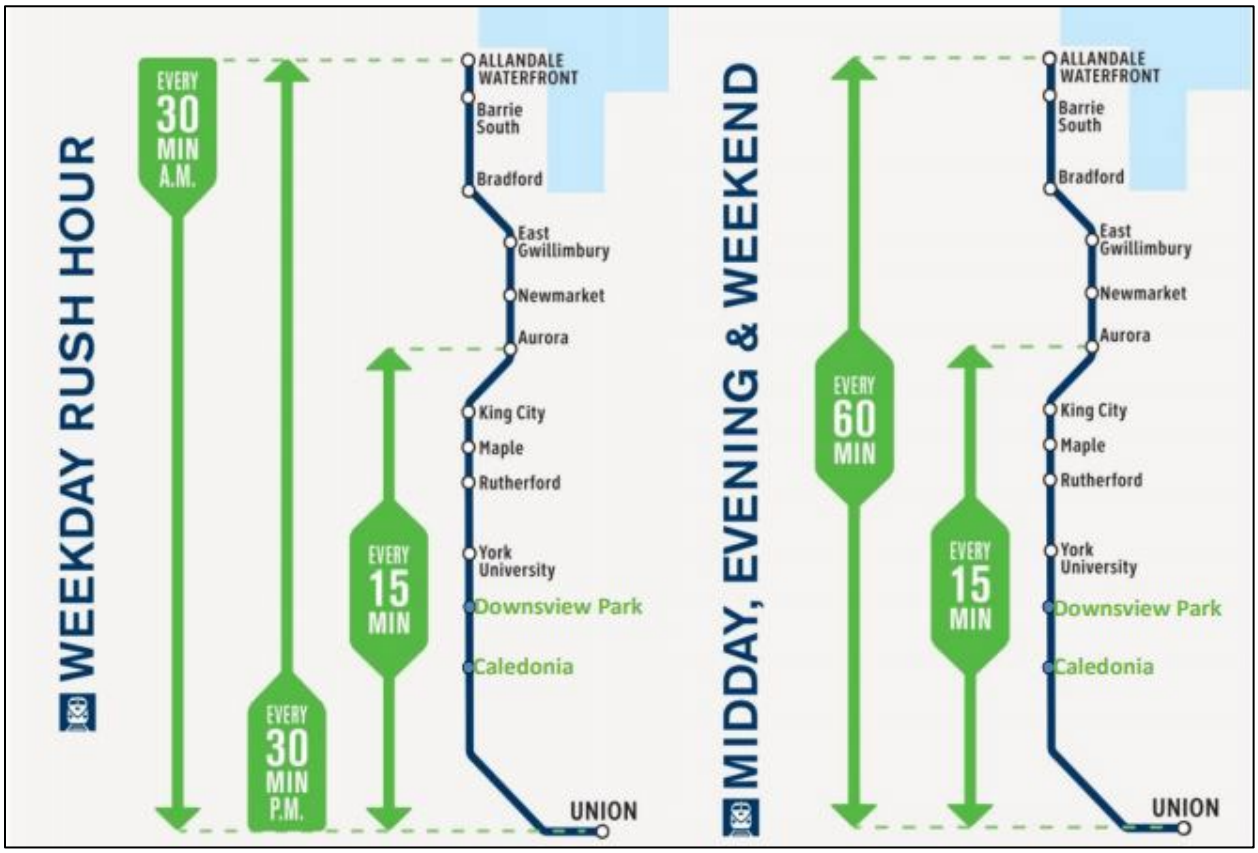
5.0 Transit Opportunities

5.1 Metrolinx / GO Transit Planned Improvements

It has been noted that the current transit trips (including GO transit) represent 1% of AM and PM peak period trips. The feasibility of achieving a higher non-auto mode split is dependent in part on implementing new transit infrastructure and services, such as early implementation of the future Innisfil GO Station.

Currently, the planned Innisfil GO Station and Barrie line improvements represent significant changes to the provincial transit system affecting transit opportunities in Innisfil. As part of the GO Transit's Regional Express Rail (RER) expansion program, the rail services along the Barrie line will be upgraded to a two-way and all-day rail services. This service will operate along the entire Barrie line from Union Station in the City of Toronto to Allandale Waterfront GO Station, in the City of Barrie. Figure K- 7 summarizes the anticipated services.

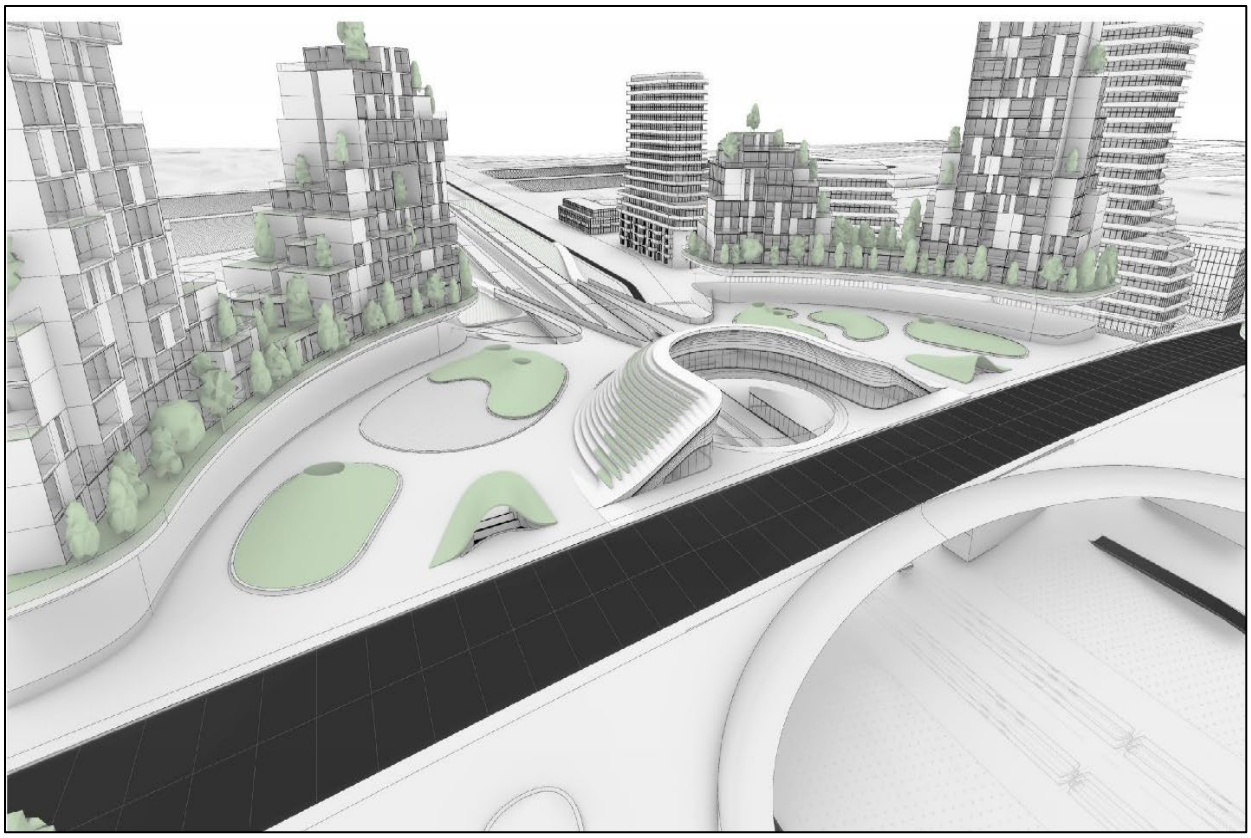
Figure K- 7: Barrie GO Line Services
Source: *Barrie Rail Corridor Expansion Project Transit Project Assessment Process* Public Meeting #2, dated November 2016.



In addition, as part of the RER expansion program, there are plans for an Innisfil GO Station to be located on 6th Line, east of 20th Sideroad. The Town envisions an urban community situated around a new GO Station called The Orbit. Enhanced pedestrian and cycling infrastructure is proposed to connect to the GO Station becoming a one-stop point for multimodal system. It is to become a sustainable, complete and mixed-use transit-oriented community.

Council endorsed the preliminary design of the station and the possible phasing on July 15, 2020. A conceptual design is illustrated in Figure K- 8.

Figure K-8: Draft Design of Innisfil GO Station



The station design concept included input from residents, businesses, community stakeholders, professionals, Town and Council. Due to the scale of the project, it will be phased in order to ensure adequate financial flows, meet market demands and the set visions are achieved. There will be check points to evaluate the design and modifications could be made depending on operational, financial and constructional needs. The Town will continue to work with Province, County, Metrolinx and the developer of The Orbit, the Cortel Group Inc., to facilitate the design and construction of the station by 2023. The potential phases are summarized in Figure K- 5.

Table K- 5: Phasing of the Station

Phase	Description
1	Development of the Orbit Potential and Innovation Plan (OPIP) Assemble an expert team that include professionals in traffic, rail/transit, parks, placemaking, economics, employment, architecture, housing, servicing, environment, safety, technology and many other disciplines to research for OPIP Secondary Plan.
2	Design and Construction of the Station Currently underway.
3	Supporting Residential and Mixed-Use Development Will occur concurrently with the Design and Construction of the Station. Support Phase 4 and 5 of the Sleeping Lion Development and the minority landowners within the Orbit.
4	Additional Growth to Fund Station Assistance from private investment to help fund the GO station and the Orbit. Discussion with the Province and County on ways to facilitate the project.
5	Build-out of the IMO Vision Development of policies to address the future needs of the Orbit. While the Orbit maybe the focal point of growth and intensification, a balance will be needed with other intensification along the main streets of the other settlement areas.

The Barrie GO rail line and planned Innisfil GO rail station will serve as a transit spine for inter-municipal transit and provide an improved transit connection to the Toronto area. The new station will change travel patterns shifting current trips from the Barrie South GO rail station to the new Innisfil GO rail station. There are opportunities for the Town to enhance transit through connections to the new station.

5.2 On-Demand Transit Opportunities

Currently (2022) Ryerson University is continuing to assist the Town to understand the different transit options such as fixed route, on-demand transit and / or hybrid options for future implementation. Based on Ryerson's and Laboratory of Innovations in Transportation's (LiTrans) recent study, Exploring On-demand Transit Options for the Town of Innisfil (On-Demand Transit Study), dated March 28, 2022, four alternatives were explored:

- Option 1: Current Innisfil Transit Uber (non-dedicated fleet on-demand transit).
- Option 2: Dedicated fleet on-demand transit (ODT) services.
- Option 3: Hybrid – Fixed Route and Uber services.
- Option 4: Hybrid – On-demand transit and Uber services.

6.0 Fixed Route Scheduled Bus Transit Opportunities

As the Town's population is forecast to nearly double by 2051, incorporating a conventional fixed-route service would help provide additional opportunities to connect settlement areas, support businesses and major employment nodes, and to provide residents a wide array of mobility options helping to achieve the Town's transit mode share target of 20% of all trips.

6.1 Simcoe County LINX Transit Opportunities

The County's Transit Feasibility and Implementation Study (County Transit Feasibility 2015 Study), prepared by Steer Davies Gleave, dated September 2015 helped launch the current LINX transit routes. These routes included key destinations within the Town such as Alcona, future Innisfil GO station, Innisfil Heights, Cookstown and Sandy Cove.

6.2 Innisfil Fixed Route Transit Opportunities

As demands grow, there may be opportunities to convert high demand Uber routes to scheduled transit routes. The Town transit system can long-term (2041 and 2051) transit system will have needs similar to other urbanized municipalities providing regular reliable fixed routes. A conventional fixed-route service will be important for serving key trip origins and destinations in urban areas. Fixed routes can provide connections for regular commuter travel including home-to-work travel in a predictable and reliable manner, supporting businesses, addressing resident barriers to travel and to achieve long-term transit mode share objectives.

6.3 Localized Transit Needs and Opportunities

6.3.1 Micromobility and Needs and Opportunities

Micromobility is the ability of movement through minimalistic means on short distances (usually within 10 kilometers) using lighter vehicle mode such as bicycle and scooters. Micromobility services often complement first-mile/last-mile needs associated with fixed route scheduled transit.

It is noted that the COVID-19 pandemic accelerated the shift in preference for this method of transportation; with fewer points of contact and ease of maintaining physical distancing, it is considered the less risky mode of travel. Two options considered for this study include bike-share and scooter-share.

6.3.2 Autonomous and Connected Vehicle Needs and Opportunities

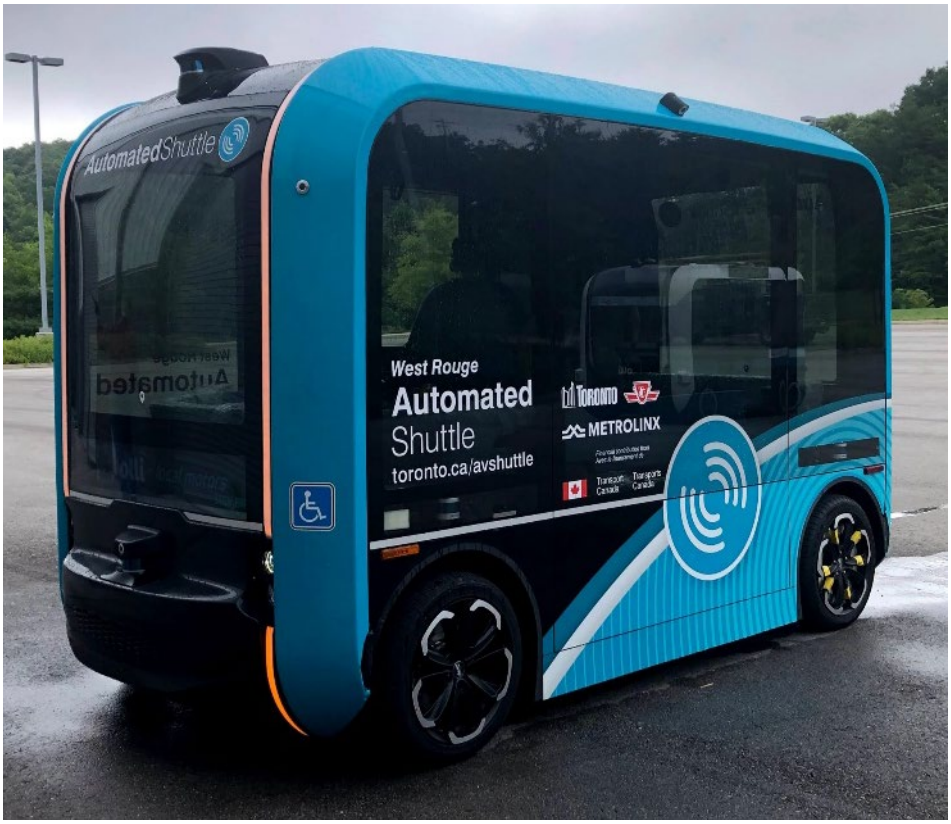
Vehicle automation will drastically reshape and redefine the transportation systems and travel behaviour. The Canadian Government has established several projects funded by the Program to Advance Connectivity and Automation in the Transportation System.

One of the notable projects in the GGHA is the West Rouge Automated Shuttle Trial in the City of Toronto. It is a partnership between the City, the TTC and Metrolinx. The program is free

shuttle services taking riders to and from the Rouge Hill GO station, West Rouge Neighborhood, Rouge Community Centre and Rouge National urban Park. The shuttle is self-driving with fixed stops; however, a human attendant will be on-board in case of emergency. The shuttle vehicle would drive with local traffic. During the weekday, the shuttle will operate with 30 minutes frequency from 6:00AM to 9:00AM and 3:30Pm to 6:30PM. During the weekend, the shuttle will also operate with 30 minutes frequency from 9:00AM to 11:00AM and 1:00PM to 3:00PM. The first shuttle was launched October 2021 and was tested for two months. Figure K- 9 illustrates the type of shuttle bus used.

Figure K- 9: West Rouge's Route and Automated Shuttle

Source: https://www.toronto.ca/services-payments/streets-parking-transportation/transportation-projects/automated-vehicles/automated-vehicles-pilot-projects/automated-shuttle-trial/



There is an opportunity for the Town and/or private sector partners to consider a similar shuttle service and fleet. Automated vehicle can assist in addressing mobility needs providing service to elderly / disable residents and young residents. Potential routes were considered that can meet technological limitations (grade, distance, traffic volume and conflicts, vulnerable road users); options include:

- Circulation Shuttles to/from Friday Harbour.
- Circulation Shuttle around the Orbit community.

6.4 Electric Bus Fleet Opportunities

Clean fuel transit strategies represent a municipally controlled initiative toward sustainability objectives. Starting in 2021, the federal government had established the Zero Emission Transit Fund, which is a $2.75 billion dollar program to offer support to public transit and school bus operators across Canada to electrify their fleets over the next five years. Also, the funding will help with purchasing 5,000 zero emissions buses. This goal is a step to reduce greenhouse gas emission and is part of the climate change strategy.

With the incentive and support, Canadian municipalities and transit operators are contributing to the largest battery-powered electric bus fleet in North America based on a study conducted by California's Clean Transportation Technology Industry (Calstart). There are several cities currently exploring the use of electric buses and this includes:

- Toronto Transit Commission (TTC): There are plans to purchase over 900 electric buses and no more diesel or hybrid buses will be purchased after 2024. TTC is working with Toronto Hydro on power storage to reduce the cost of charging.
- Guelph Transit: Guelph Transit purchased four electric buses which will be running by summer 2022. The plan is to have 65 electric buses added to the fleet by 2028 and reach 100% renewable energy use by 2050.
- Brampton Transit: As part of the Pan-Canadian Battery Electric Bus Demonstration and Integration Trail, the City had eight electric buses deployed in May of 2021.
- Société de Transport de Montreal: A pilot program for electric fleet conversion was started and involved 40 electric buses. There are also plans of stopping the purchase of diesel buses by 2025.
- TransLink, Metro Vancouver: TransLink is operating 262 electric trolley buses and has signed the C40 Fossil Fuel Free Street Declaration and will not be buying any diesel buses after 2025.

The deployment of electric bus requires careful consideration of the associated type of charging method. Based on the above, there are currently two known types used in Canada plug-in charging and overhead conductive charging illustrated in Figure K- 10 and Figure K- 11, respectively.

Figure K- 10: TTC Depot Charging
Source: https://www.cbc.ca/news/science/electric-buses-transit-1.5823166

Figure K- 11: Brampton Overhead Charge
Source: https://www.nrcan.gc.ca/science-and-data/funding-partnerships/funding-opportunities/current-investments/brampton-transit-electric-bus-demonstration-integration-trial/22242

The plug-in charging is typically installed at the transit depot or garage and allow for charging overnight. The charge type is AC or DC with 40 to 120kW power. Depending on the charge power and battery pack, it can take up to 8 hours. The TTC example above has a charging time of approximately 3 to 4 hours and covers 200 to 250 km.

Overhead charge consists of an automated connection using an overhead conductive coupler. This is typically installed on route or where layovers occur. It can also be installed at the transit depot or garage. This is mainly use for bus with smaller battery packs and less range. The charge type is DC with 175 to 450 kW. The recharge time is 5 to 20 minutes. The Brampton example above has a charging time of approximately 3 to 7 minutes.

The Transit cooperative Research Program (TCRP) Synthesis 130 – Battery Electric Buses – State Practice (TCRP 130) describes the advantages and disadvantages to the two methods. This is summarized in Table K- 6.

Table K- 6: Charging Methods Advantages and Disadvantages

Charging Method	Advantages	Disadvantages
Plug-in	Minimal infrastructure and installation requirement Lower cost per charger Charging overnight allows for the use of off-peak electricity rate More flexibility if route changes	Bus must be taken out of service Larger and heavier battery pack required (may reduce efficiency and passenger capacity) Manual process Slower Charging may require a lot of power
Overhead Charging	Buses are smaller and lighter Fast charge Can support 24-hour bus operation	Higher cost of infrastructure, equipment and civil work Potentially high operation cost as charging may occur during the peak Fixed infrastructure and may limit route changes or costly to relocate As it is an overhead system, it may require specific road clearance

In general, there are several advantages to electric buses including reduction of fuel, maintenance cost, emissions and noise. However, there are some challenges with the deployment. Electric bus generally cost more than an average diesel bus. However, this cost can be offset by lower fuel cost and maintenance cost as discussed above. With technology improvements, the cost could potentially be reduced. Another challenge is the implementation of charging infrastructures. This will require strategic planning and evaluation of which charging method is most appropriate. How, when and where these buses get charge needs to be carefully considered.

There are upfront capital costs with electrifying a transit system; however, long-term wise this could be beneficial. With support and availability of from Federal, Provincial and local funding it can help offset the capital cost. Table K- 7 summarizes the upfront cost of electric bus procurement based on the findings in the TCRP 130.

Table K- 7: Capital Cost of Electric Bus

	Minimum	Average	Maximum
Per Bus	$730,000	$1,100,000	$1,500,000
Per Depot Charger (equipment + installation)	$5,000	$85,000	$200,000
Per On-Route Charger (equipment + installation)	$479,000	$880,000	$1,300,000

The operational cost and maintenance cost based on TCRP 130 are summarized in Table K- 8 per kilometer. The cost of electricity may vary.

Table K- 8: Operation Cost of Electric Bus

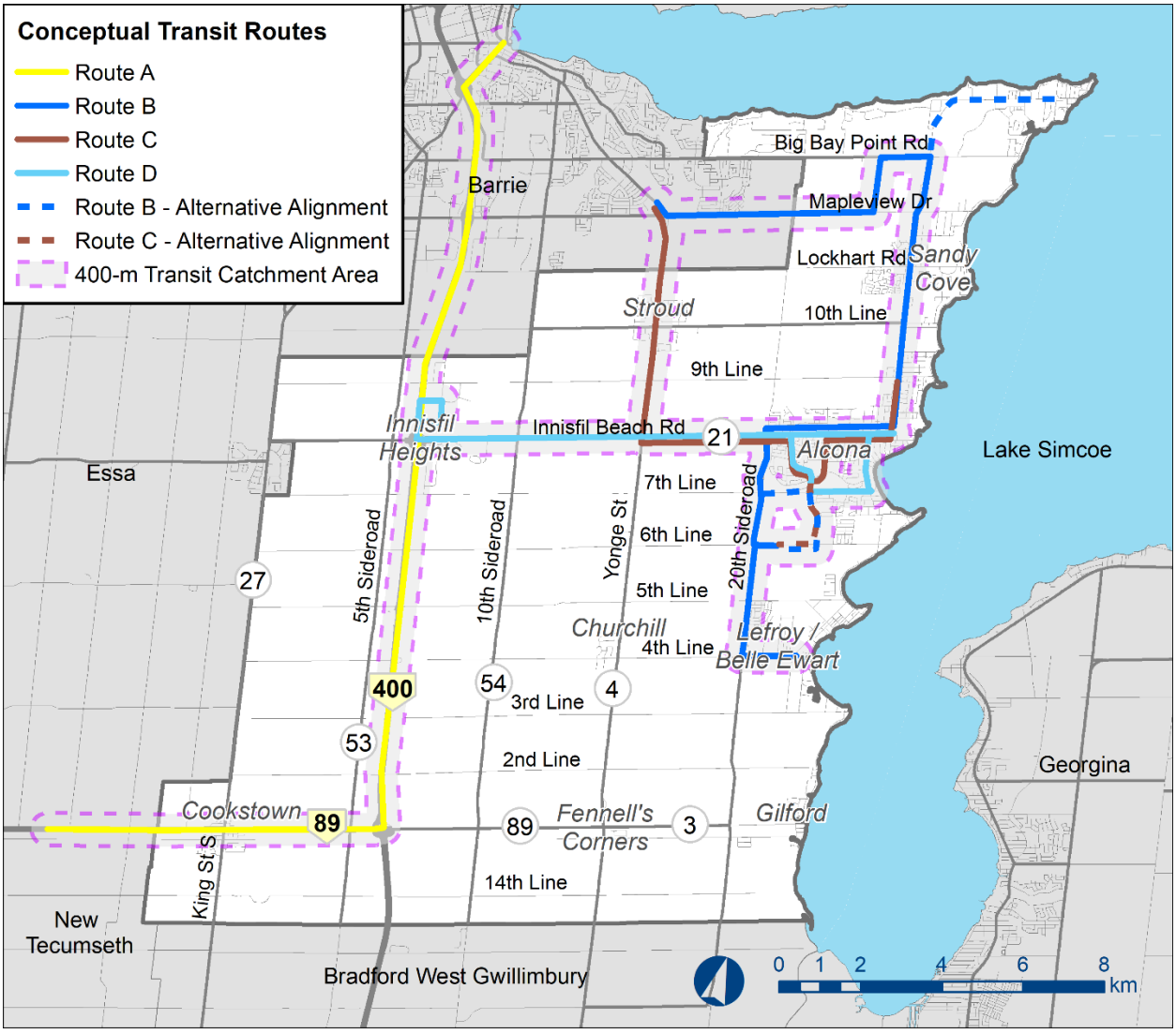
Per km	Minimum	Average	Maximum
Schedule Maintenance	$0.07	$0.28	$0.72
Unscheduled Maintenance	$0.07	$0.22	$0.43
Electricity	$0.12	$0.28	$0.70

A further review will be needed to determine how to achieve and maximize the benefits of each method including cost.

7.0 Assessment of Alternative Transit Strategies

However, if demands grow, there will be opportunities to convert high demand ridesharing routes to scheduled transit routes or ODT. Given that fixed routes will not be able to accommodate all areas of the Town and ride-sharing routes or other local transit solutions discussed above can then be used as a first-mile / last-mile connection and can be used to address service gaps during the day. It will be a complimentary service to a fixed transit system providing a connection from suburban areas to bus stops and / or key destinations. Four potential routes are summarized in Figure K- 12.

Figure K- 12: Summary of the Four Fixed Routes and Alternative Alignments



A set of evaluation criteria, consistent with the Transportation Master Plan Vision, were developed to compare alternative transit strategies. The evaluation criteria used to assess how well each alternative would address the identified issues is as follows.

Criteria #1: General Operations

- Potential ridership.
- Fare structure.
- Service hours.
- Number of buses.

Criteria #2: Level of Service

- Accessibility: measured by service area population within 400 m of the transit route.
- Reliability: measured by average wait time.
- Equity: measured by assessing service to the different transit-equity seeking groups.

Criteria #3: Financial Cost

Preliminary high level capital costs and annual operating costs were estimated in order to develop draft cost estimates for the transit service alternatives. The assumptions made to estimate net costs are described below.

- Preliminary capital costs:
  - For on-demand transit, the cost was based on the Ryerson study.
  - For routes A to D, the capital cost in the table consists of the following:
    - New conventional bus cost which was based on data from City of Barrie Transit Asset Management Plan (Barrie Transit Asset Management Plan), prepared by Dillon Consulting Limited, dated April 2019;
    - Bus shelter cost which includes the shelter, a concrete pad, a bench and a bus sign mount. Unit cost for these were based on Barrie Transit Asset Management Plan and the size of concrete pad is from the typical bus pad from the Ontario Provincial Standard Drawing (OPSD); and
    - Maintenance facility cost was not included as part of capital cost. It was assumed that the Town can use the County / City of Barrie's facilities. Depending on the number of added buses, expansion to the facility may be required.
  - For the bikes and scooters, the capital cost includes:
    - It was assumed that the 12 bicycles from the ShareCycle program will not be reused, but the same quantity will be repurchased. The cost of the bicycles was based on the Hamilton SoBi System taken from the Windsor Bike Share Feasibility Study, prepared by Urban Systems, dated March 12, 2019.
    - It was assumed that the same amount of scooters will be needed as bicycles for the share program. The cost of scooters including application, vehicle and communication fees was based on City of Ottawa Transportation Committee *2020 Electric Kick Scooter Strategy and Pilot Report*.
  - For the autonomous vehicles, the capital cost will consist of:
    - Cost of the fleet was based on information from the City of Toronto's West Rouge project.
- Preliminary annual operating cost:

  - Fixed routes operation cost includes fuel, cost associated with transportation operations and general administration based on information from Barrie Transit Asset Management Plan.
  - Bike operation costs were based on City of Hamilton's Functional Analysis for Hamilton Bike Share Transit System Report, dated August 2012 and Windsor Bike Share Feasibility Study, prepared by Urban System, dated March 12, 2019.
- Revenue, grants and fundings:
  - There are several Federal, Provincial and local support includes and not limited to Investing in Canada Infrastructure Program, MTO Gas Tax Funds, Reserve Funds from DC and Tax Capital.
- The revenue for the ODT is based on different projected ridership levels in 2031, 2041 and 2051.
- The revenue for the fixed route is based on different headways including 20 minutes, 30 minutes and 60 minutes and the projected ridership levels in 2031, 2041 and 2051.
- Estimated net costs (difference between expenditures and revenues).

Table K- 9 provides a comparison of the on-demand transit alternatives, Table K- 10 provides a comparison of fixed bus routes, and Table K- 11 provides a comparison of micromobility routes. Table K- 12 provides a summary of the evaluation of all transit options.

Table K- 9: Evaluation of On-Demand Alternative Solutions

Alternative Transit System	General Operations				Level of Service			Financial Costs ($000's) [1]			
	Potential Ridership	Fare Structure	Fleet Size	Service Hours	Accessibility (% of Innisfil)	Reliability (average wait time)	Equity	Capital Cost 3	Annual Operation Cost	Revenue + Grants / Funding	Estimated Net Cost
Option 1: Current Service Model – Non-Dedicated ODT	80,000 (Estimate)	Fixed Fare and rebate	5 veh/ hour	24 hours, 7 days a week	All	6 mins	Inclusive of all ages and abilities.	$0	$695	Varies	$695
Option 2: Dedicated Fleet ODT	2031: 113,500 2041: 159,600 2051: 220,200	Fixed Fare $4.00	3 veh / hr	24 Hours, 7 days a week	All	13.2 mins	Inclusive of all ages and abilities.	$246	$2,533	2031: $454 2041: $638 2051: $880	2031: $45 2041: $139 2051: $381
Option 3: Hybrid – Dedicated Fleet + Non -Dedicated ODT	2031: 166,800 2041: 234,500 2051: 323,500	Fixed Fare $4.00	Dedicated 3 veh/hr Non-dedicated 5 veh/hr	Dedicated 14 hours, 7 days a week Non-dedicated 24 hours	All	8.17 mins to 8.72 mins	Inclusive of all ages and abilities.	$246	$3,228	2031:$667 2041: $938 2051: %1,294	2031: $168 2041: $439 2051: $795
Option 4: Hybrid – Fixed Route + Non-Dedicated ODT	2031: 144,300 2041: 200,900 2051: 280,000	Fixed Fare $4.00	Fixed Route: 3 Non-dedicated 5 veh/hr	Fixed Route: 7:00 AM to 9:00 PM Non-dedicated 24 hours	All	5.1 mins to 6.88 mins	Provides inter-municipal connections and connects to the Barrie GO Stations, which is a gateway into the Regional transit network.	$82	$1,066	2031: $577 2041: $803 2051: $1,120	2031: $78 2041: $304 2051: $621

Source: 1. Based on the On-Demand Transit Study.

Table K- 10: Evaluation of Fixed Route Alternative Solutions

Alternative Transit System		General Operations				Level of Service			Financial Costs ($000's) 1			
		Potential Ridership	**Fare Structure**	**No. of Buses**	**Service Hours**	**Accessibility (% of Innisfil)**	**Reliability (average wait time)**	**Equity**	**Capital Cost 3**	**Annual Operation Cost**	**Revenue + Grants / Funding**	**Estimated Net Cost**
Non-Dedicated ODT	Current Service Model	80,000 (Estimate)	Fixed Fare and rebate	-	24 hours, 7 days a week	All	6 mins	Inclusive of all ages and abilities.	$0	$695	Can vary	Can vary
Fixed Route Scheduled Transit (Diesel fleets)	Route A	2031: 147,092 2041: 243,736 2051:365,185	$4.00	**2031** 20 min headway: 11 buses **2041** 30 min headway: 4 buses **2051** 60 min headway: 7 buses	Mon to Fri 6:00AM to 7:42PM	4%	20 mins to 60 mins	Conventional buses can be equipped with features to make them fully accessible. However, additional specialize transit service may be needed. Provides inter-municipal connections and connects to Tanger Outlet Mall, which is a major employment node, and Innisfil Heights, a provincially designated employment area.	From $3,077 to $7,627 Avg $5,027	From $1,469 to $4,040 Avg $2,571	**2031** From $2,547 to $4,367 Avg $3,327 **2041** From $2,993 to $4,753 Avg $3,713 **2051** From $3,419 to $5,239 Avg $4,199	**2031** From $1,999 to $7,301 Avg $4,271 **2041** From $1,613 to $6,914 Avg $3,885 **2051** From $1,127 to $6,428 Avg $3,399
	Route B	2031: 72,700 2041: 106,715 2051: 150,877	$2.00	**2031** 20 min headway: 7 buses **2041** 30 min headway: 5 buses **2051** 60 min headway: 2 buses	Mon to Fri 6:00AM to 7:42PM	28%	20 mins to 60 mins	Provides inter-municipal connections and connects to Friday Harbour, which is a major employment node, and the future Innisfil GO station and the Barrie GO Station, which are gateways into the Regional transit network.	From $1,928 to $5,178 Avg $3,878	From $734 to $2,571 Avg $1,836	**2031** From $1,644 to $2,944 Avg $2,492 **2041** From $1,712 to $3,012 Avg $2,492 **2051** From $1,800 to $3,100 Avg $2,580	**2031** From $1,018 to $4,805 Avg $3,290 **2041** From $950 to $4,737 Avg $3,222 **2051** From $862 to $4,648 Avg $3,134
	Route C	2031: 174,168 2041: 307,082 2051:476,913	$2.50	**2031** 20 min headway: 5 buses **2041** 30 min headway: 3 buses **2051** 60 min headway: 2 buses	Mon to Fri 6:00AM to 7:42PM	24%	20 mins to 60 mins	Provides inter-municipal connections and connects to the Barrie GO Stations, which is a gateways into the Regional transit network.	From $1,777 to $3,727 Avg $2,427	From $734 to $1,836 Avg $1,102	**2031** From $1,874 to $2,654 Avg $2,134 **2041** From $2,206 to $2,986 Avg $2,466 **2051** From $2,631 to $3,411 Avg $2,891	**2031** From $637 to $2,909 Avg $1,395 **2041** From $305 to $2,577 Avg $1,062 **2051** From $118 to $2,153 Avg $638

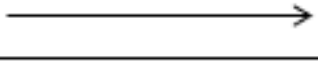
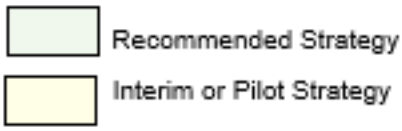
Alternative Transit System		General Operations				Level of Service			Financial Costs ($000's) 1			
		Potential Ridership	Fare Structure	No. of Buses	Service Hours	Accessibility (% of Innisfil)	Reliability (average wait time)	Equity	Capital Cost 3	Annual Operation Cost	Revenue + Grants / Funding	Estimated Net Cost
	Route D	2031: 64,161 2041: 96,876 2051:134,439	$2.50	**2031** 20 min headway: 7 buses **2041** 30 min headway: 5 buses **2051** 60 min headway: 2 buses	Mon to Fri 6:00AM to 7:42PM	26%	20 mins to 60 mins	Connects to Innisfil Heights, which is a provincially designated employment area.	From $2,053 to $5,303 Avg $4,003	From $734 to $2,571 Avg $1,836	**2031** From $1,709 to $3,009 Avg $2,489 **2041** From $1,791 to $3,091 Avg $2,571 **2051** From $1,885 to $3,185 Avg $2,665	**2031** From $1,078 to $4,865 Avg $3,350 **2041** From $997 to $4,783 Avg $3,269 **2051** From $903 to $4,689 Avg $3,175

Source: 1. For Route A and B, the cost and revenue will be shared with the County. Details split between the Town and County can be determined in a future study.
2. Annual operation cost is based on the 2018 CUTA data for Barrie Transit
3. Excludes subsidies

Table K- 11: Evaluation of Micromobility Alternative Solutions

Alternative Transit System		General Operations				Level of Service			Financial Costs ($000's) 1			
		Potential Ridership	Fare Structure	# of Fleets	Service Hours	Accessibility (% of Innisfil)	Reliability (average wait time)	Equity	Capital Cost 3	Annual Operation Cost	Revenue + Grants / Funding	Estimated Net Cost
Non-Dedicated ODT	Current Service Model	80,000 (Estimate)	Fixed Fare and rebate		24 hours, 7 days a week	All	6 mins	Inclusive of all ages and abilities.	$0	$695	Can vary	$695
Micromobility Local Transit	Bikes	-	$3.50 per trip	12	24 hours, 7 days a week	Within Alcona area	varies	Provides active transportation options for those who do not own bicycles or scooters.	$24	$13.8	-	-
	Scooters	-	$20 / hr	12	24 hours, 7 days a week	Within Alcona area	varies	Provides active transportation options for those who do not own bicycles or scooters.	$36	$36	-	-
	Autonomous Pilot	-	$2.50		Weekday morning and afternoon peak periods Weekend midday	Within Orbit + Friday Harbour	60 mins	Inclusive of all ages and abilities. The intent would be to provide a reliable and affordable service for employees and younger students to reach major employment nodes without a personal vehicle.	$ 125 per bus	$540 per bus	-	-

Table K- 12: Summary of Evaluation

Alternatives	Level of Service			Financial Cost		Recommendation
	Access	Reliability	Equity	Cost	Revenue	
Non-Dedicated ODT						
ODT services						
Fixed Route A						
Fixed Route B						
Fixed Route C						
Fixed Route D						
Bikes & Scooters						
Autonomous Pilot						
Understanding the Rating System						
Least Preferred to Most Preferred			Recommended Alternative to move forward			
			 Recommended Strategy Interim or Pilot Strategy			
						

Based on the evaluation above the ultimate preferred transit strategy is a combination of regularly scheduled Fixed Routes, similar to routes A, B, C and D along with on-demand transit services. A subsequent transit route planning study may be required to confirm implementation.

In addition, there may be opportunities for Bike & Scooter or Autonomous Pilot programs as solutions to the first-mile / last-mile needs of key employment or intensification areas such as

the Orbit community, Friday Harbour or Innisfil Heights. Coordination with potential partners would be required.

8.0 Funding the Town's Transit System

Transit planning, maintenance, and operations are complex and expensive. All the transit systems presented in Figure K- 12 have a revenue-to-cost ratio of less than 100%. The remainder of the costs are usually covered by either municipal reserve funds or higher levels of government funding. Funding from other governments is necessary because addressing mobility needs and transit equity, as described in Section 1.2, and supporting sustainability objectives, as described in Section 1.3, are important public interest objectives, and the financial burden should not solely be placed upon the Town. Several programs are listed below, which, at the time of writing this memorandum, are available. Understandably, these initiatives may not be available at the time of further transit planning and implementation but are documented to provide an understanding of the level and magnitude of government funding for transit at this time.

Investing in Canada Infrastructure Program, Federal, Over $33-billion

The Investing in Canada Infrastructure Program (ICIP) provided long-term, stable funding delivered by Infrastructure Canada to: Help communities reduce air and water pollution, Build strong, dynamic, and inclusive communities, and Ensure Canadian families have access to modern, reliable services that improve their quality of life.

The Public Transit stream of the ICIP aimed to invest in the construction, expansion, and improvement of public transit infrastructure for projects that:

- Improve the capacity of public transit infrastructure.
- Improve the quality or safety of existing or future transit systems.
- Improve access to a public transit system.

Rural Transit Solutions Fund, Federal, $250 million

This Fund supported locally-driven transit solutions for rural and remote communities with flexibility for different local transit system innovations from fixed route to on-demand services to ride-shares. Eligible participants could have applied for grants up to $50,000 in support of planning and design projects; up to $3 million to help cover capital costs (e.g., purchase of a vehicle or digital platforms); and up to $5 million to support zero-emission transit solutions.

Zero Emissions Transit Fund, Federal, $2.75 billion

This Fund offered support to public transit and school bus operators who are electrifying their fleets. There were two types of projects which could be funded. Planning projects include studies, modelling, and feasibility analysis that will support the development of future larger scale capital projects. Capital projects include buses, charging and refueling infrastructure, and other ancillary infrastructure needs.

Provincial Gas Tax, Provincial, $376 million

The Ontario government provided $376 million to help municipalities across the province operate and improve local transit. The funding can be used to extend service hours, buy transit vehicles, add routes, improve accessibility or upgrade infrastructure.

9.0 Conclusion and Recommendations

Since May 2017, the Innisfil transit system, in collaboration with Uber, has been able to provide residents with a mobility option that did not include a personal vehicle. This innovative solution was Canada's first ridesharing and transit partnership. This transit system has been able to enhance the Town's identity as a livable community by providing more options to connect to and from residential areas, employment opportunities and with adjacent municipalities like the City of Barrie. This system also helped increase accessibility to community centres, government services at Town Hall, and connect to other fixed route transit by providing subsidies to the closest GO transit bus stop or the GO train station.

As the future population grows to approximately 100,000 people and 28,000 jobs, there is a need to ensure the Town's transit system can keep up with the expected growth in transit demand. The planned transit improvements by Metrolinx within the Town of Innisfil is the construction of the Innisfil GO and the expansion of the Regional Express Rail program which will provide two-way all-day rail services. Simcoe County LINX Transit does not operate in the Town of Innisfil and there are currently no plans to expand to the Town. However, through the draft 2022 Simcoe County Transportation Master Plan, which at the time of writing this report is on-going, the County has recommended a consolidation of all local lower-tier transit systems to LINX so that a single County transit system is developed. Through collaborations with the County in this consolidation process, the Town should continue to advocate to expand LINX into the Town of Innisfil.

The existing Uber partnership has negligible capital costs, is flexible to meet demands for origins and destinations that are not in urban areas and provides for trip making during off-peak times. Monitoring of wait times and driver availability is recommended to assess the effectiveness of recent driver incentives. This service is currently effective and is expected to continue to be part of the transit solution.

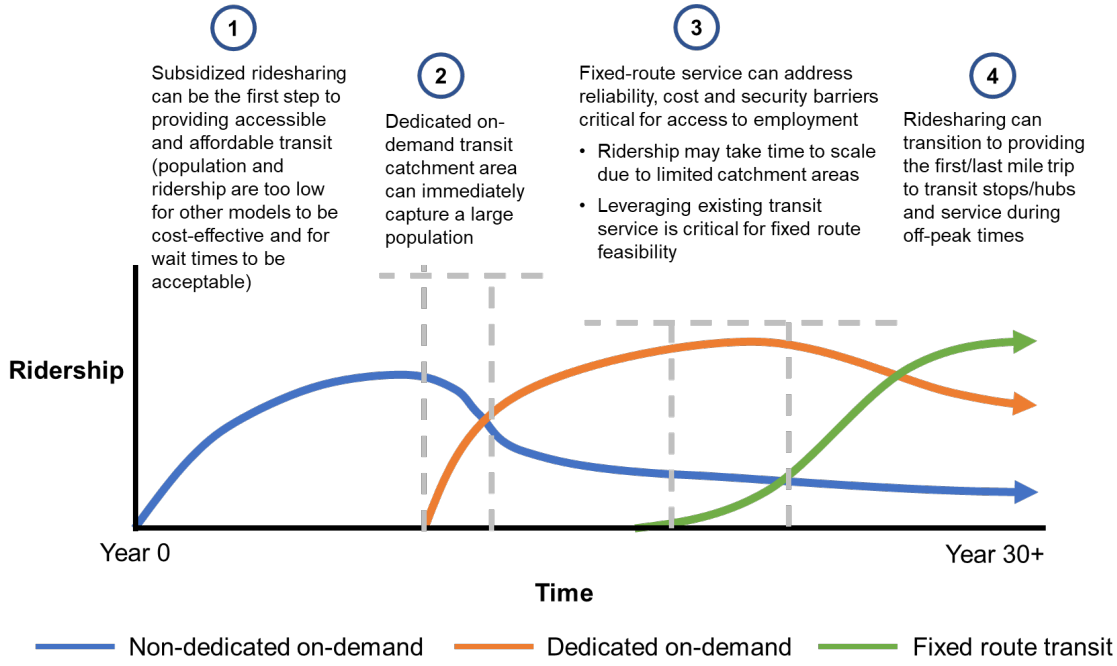
A Dedicated ODT is seen as a potential immediate option to supplement the existing Uber transit partnership. A benefit-cost assessment would be required to confirm the size of fleet, hours of operation, geographic scope of service, ownership model (Town owned or third-party provider) that was acceptable to Town council.

Fixed Routes, providing service similar to routes A, B, C and D will provide a reliable service to in support of existing employers, future development and the planned GO rail station. It can provide a cost-effective service for priority routes as a logical expansion of the County LINX transit service. A subsequent transit route planning study may be required to confirm

appropriate routes, frequency of service, service provider or partnership (i.e., County, Town, private operator and/or developer based service) and timing of implementation.

The ultimate preferred transit strategy may require a combination of alternatives with a flexible implementation strategy that may resemble Figure K- 13. It is recommended that a comprehensive transit implementation study be undertaken to assess the appropriate timing, budget, administrative support and fleet associated with the different elements of the transit system. Regular transit updates (e.g., 5-year transit plans) would be required to assess the effectiveness of the system and additional components of the system moving forward.

Figure K- 13: Evolution of Transit System Elements



Other recommendations include:

- This TMP recommends that these alternatives be further investigated in a transit-specific study such as a Transit Master Plan. That transit study should also evaluate recommendations based on level of service, access, reliability, equity, and financial costs. If the County finalizes their recommendations to consolidate transit service for Simcoe County, the Town should collaborate with the County to provide service along these identified routes and continue to advocate for on-demand services.
- This TMP recommends further exploring emerging trends in electric or zero-emission fleets to understand if these technologies can be implemented. As outlined in Section 1.3.1, there are upfront capital costs with electrifying a transit system. However, this would support the Town's initiative to reduce greenhouse gas emissions and support town, provincial, and federal climate change commitments. The fuel sources, costs, and potential higher-level government funding can be further investigated in the transit study.

- This TMP recommends that the transit-specific study investigate potential capital and operating funding programs from higher levels of government.
- The TMP recommends continual partnerships with Universities and on-demand transit providers to further develop the Town's transit system.

Appendix L

Appendix L

Sidewalk Priorities

BURNSIDE

Innisfil

Appendix L | Sidewalk Priorities

Date: November 11, 2022 **Project No.:** 300053011.0000

Project Name: Innisfil Transportation Master Plan Update

To: Town of Innisfil

From: R.J Burnside & Associates Limited

1.0 Sidewalk Prioritization Policy

1.1 Background and Context

Sidewalks are essential transportation infrastructure within a community. It can provide connectivity to amenities and key destinations within the Town, which encourages residents to lead an active lifestyle. The Town of Innisfil recognizes the importance of sidewalks and the improvements needed to increase walkability.

A Sidewalk Prioritization Policy was established as part of the previous TMP. The purpose of the policy was to help prioritize upgrades and existing and future improvements. As there are limited funds available each year, identifying sidewalks that require immediate upgrades will allow for the appropriate allocation of funds.

The policy also acts as a decision-making rationale to achieve sidewalk improvement prioritization. In particular in areas where existing sidewalks do no meet accessibility standards and mobility needs of residents. There are several municipalities that have adopted similar objectives for sidewalk implementation. Policies have been established to assist in prioritizing sidewalk improvements and upgrades. The following jurisdictions were reviewed:

- **Town of Cobourg**: Sidewalk Priority Plan, dated September 2019. The methodology reviewed existence of sidewalk, adjacent road classification and proximity to entities such as school, community centres, major retail areas and other major pedestrian generators/destinations. These criteria were assigned a corresponding weight in which higher the points, higher the priority.
- **City of Peterborough**: Sidewalk Strategic Plan 2018 Update. The criteria used to review included the type of road, slopes, pedestrian collisions, proximity to major pedestrian generators, school zones including school walking zones, transit routes, commercial areas, and trails. It also considered whether there are existing sidewalks today, crossing guard and whether it is adjacent to a major roadway. The criteria were also assigned a point system and priority is given to segments with higher points.
- **Town of Chatham-Kent**: Sidewalk Policy November 2009. The methodology reviewed pedestrian volume, vehicular volume, proximity to school, transit route, network continuity,

pedestrian generator, alternative routes available and roadway illumination. Each criterion is designated points. Similarly, the higher the points, the higher the priority given.

2.0 Methodology of Prioritization

The methodology for the sidewalk prioritization as based on the previous TMP, the objectives identified in the OP, the Complete Street Policies, which is being developed simultaneously with this policy and sidewalk policy of other municipalities.

There are seven categories considered to be reviewed:

- Existing Sidewalk Conditions.
- Accessibility for Ontarians with Disabilities Act (AODA) Requirements.
- Identify as a candidate for improvements in other Town studies.
- Surrounding Land Use.
- Road Characteristics.
- Public Support.
- Cost of Construction.

Some of the above categories consist of sub-criteria. It is recommended that a point system out of 100 be employed to evaluate the priority of the sidewalk project. The higher the points would indicate the need for improvement; hence, a higher priority. The proposed point system is summarized in Table L-1.

Table L-1: Recommended Sidewalk Priority Methodology

Criteria	Description	Other Requirements	Points
Existing Sidewalk Conditions			
Surface, Curb and Boulevard Conditions	Higher points for sidewalks in worse conditions. Three ratings Good: newly / recently constructed. No significant decay, trip ledges, spalling, heaving and stepping, ponding, missing / broken bays, damages by tree roots and wide boulevard width Fair: some cracks and weathering, uneven in some places. Some decay, trip ledges, spalling, heaving and stepping, ponding, missing / broken bays, damages by tree roots and sufficient boulevard Poor: cracked, uneven, broken bays, trip ledges, spalling, heaving and stepping, ponding, damaged by tree roots, lack of or insufficient boulevard width	Site visit + survey	Good: 0 Fair: 15 Poor: 30
AODA Requirement			
Sidewalk Width	Smaller width will score higher points.	GIS mapping Aerial Photos Site Visits	Width >=1.8: 0 1.5m<Width<1.8m: 5 Width <1.5m: 30
Slope	Slope should not exceed adjacent roadway and cross-slope should not exceed 1:20	Topographical Survey Site Visits Review AODA Design of Public Space Standards	Does not meet AODA standard: 5
Curb Ramps / Depressions	Higher points for sidewalks without curb ramps / depression and if tactile walking surface indicators are not presented.	Aerial Photos Site Visits Review AODA Design of Public Space Standards	Curb ramps / depression do not meet standard: 3 No Tactile Surface Indicator: 2
Identified as a Candidate for Improvement in Other Town Studies / Municipal Road / Service Improvements			
Identified in Other Town's Studies	Points awarded for if the sidewalk / sidewalk segment was identified as a candidate for improvement / upgrade in other Town Studies.	Review Other Town's Master Plans	Was identified: 10

Criteria	Description	Other Requirements	Points
Other municipal road / service improvements	Point awarded if sidewalk improvements can be incorporated into another planned road / service project.	Review Municipal / Regional Capital Plans	Was identified: 2
Surrounding Land Use			
Proximity specific land use / amenities	Proximity to institutional, medical, retirement/care, recreational, community, tourist facilities, major employers, commercial area. More points for higher walk score.	Review www.walkscore.com	Walk Score n/a: 0 Walk Score 0 and 50: 3 Walk Score > 50: 5
Located within a future residential / commercial area	Points award for if the sidewalk is within a potential future residential and commercial area designated within the OP.	Review Town's land use designation within OP	Yes: 5
Located close to vulnerable users	Vulnerable users include school zones and retirement/care homes. Sidewalk / sidewalk segment within designated walking zone of an elementary / secondary school identified by Simcoe Student Transportation Consortium. Within 400 m of senior care centres.	Review Simcoe Student Transportation Consortium and location of retirement homes.	Yes: 5
Proximity to transit station / stop / on-demand transit access	Points awarded if existing / future transit station / stop / on-demand transit pick up is within 800 m of sidewalk.	Review transit routes	Within 800 m: 5
Connects to a trail	Points awarded if the sidewalk connects to a trail access / entrance.	Review existing and future trail connections and accesses.	Yes: 3
Adjacent Road Characteristics			
No sidewalks on either side	Points awarded if there is only sidewalk on one side or no sidewalks on either side.	GIS Mapping	Yes: 3
Number of lanes of adjacent roadway	Higher points for wider roadway.	GIS Mapping	Cul-de-sac: 0 2-lanes: 1 4 lanes +: 2

Criteria	Description	Other Requirements	Points
Posted Speed Limit	Higher points for higher the posted speed.	GIS Mapping	Less than 50km/h: 0 50 km/h: 1 60 km/h: 2 70 km/h +: 3
Average Annual Daily Traffic (AADT)	Higher points for higher the AADTs.	Review TMP traffic model	< 2,000 veh per day: 0 2,000 to 4,000 veh per day: 1 >4,000 veh per day: 2
Public Support			
Number of requests	Points awarded based on the number of requests received from the public in the proceeding year.	Review Town's public comment and request log database	1-5 requests: 3 5-10 requests: 5 10+: 10
Constructability			
Available right-of-way (ROW)	Points awarded if there is sufficient ROW to widen to accommodate for sidewalk without acquiring additional property or significant change to the road cross section.	GIS Mapping	Within ROW: 3
Utility Impact	Higher points if no utility impact for improvements to occur	GIS Mapping Aerial Photos Site Visits	No Impact: 2
Sensitive Environmental Features	Point awarded if sidewalk improvements do not impact sensitive environmental features.	GIS Mapping Aerial Photos Site Visits	No Impact: 3
Cost	Compare cost of improvements. Cost estimates based on length, width and other features needed.	-	No point system, compare cost across projects.

3.0 Existing Sidewalk Conditions

Based on the methodology above, a sidewalk conditions inventory was collected in August 2021 and includes good, fair and poor condition categories. Recently constructed sidewalks with wide boulevards and no significant decay are considered to be in a good condition. Sidewalks with sufficient boulevard width and some decay such as cracks, weathering, broken bays, trip ledges, spalling, heaving and stepping, ponding and damage by tree roots are categorized to be in fair condition. Poor condition is assigned to sidewalks that are heavily cracked and uneven with considerable presence of decay and insufficient boulevard width.

Site visits were conducted during August 2021 to assess the conditions of existing sidewalk assets. A GIS-based data collection application was used to document the observed conditions of existing sidewalks. Photographs were also taken for the segments that were flagged with a “poor” condition. **Error! Reference source not found.** illustrates the existing sidewalk conditions and

Table L-2 summarizes the total distance of sidewalk facilities by conditions.

Figure L-1: Existing Sidewalk Conditions

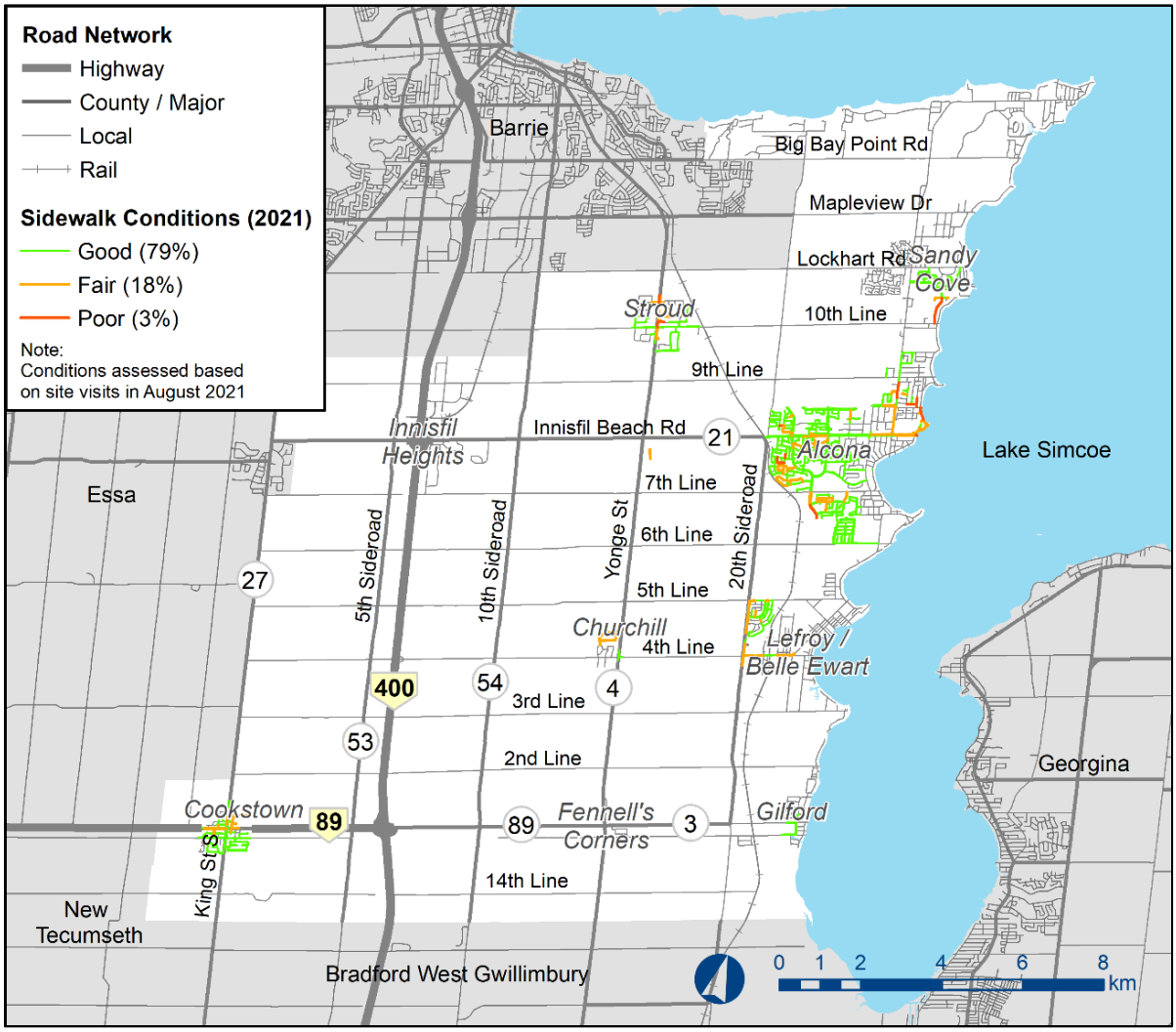


Table L-2: Existing Sidewalk Conditions

Conditions	Distance (km)	Percent Distance
Good	119	79%
Fair	27	18%
Poor	4	3%

As illustrated in **Error! Reference source not found.** and

Table L-2, sidewalks in Innisfil are generally in good condition. The segments in fair condition make up 18% of the sidewalk infrastructure and can be seen in all communities except for Gilford. It should be noted that many of the sidewalk segments in fair condition are located along major community roads with higher operating speeds and motorized vehicle volume. Sidewalks in poor condition have been identified in Stroud, Alcona and Sandy Cove. In Stroud and Alcona sidewalks in poor condition are located along Yonge Street and 25th Side Road, respectively.

4.0 Recommendations

Corridors requiring pedestrian improvements were considered using the following criteria:

- Existing sidewalk conditions
- AODA requirements
- Trails Master Plan
- Land use
- Pedestrian points of interest
- Road characteristics
- Public support
- Constructability and cost

Sidewalks recommended for upgrades are presented in Table L-3. It is recommended that these sidewalk improvements be considered as part of the Town's Sidewalk Needs Study, which is updated every 5 years, and incorporated in the Sidewalk Improvement Program.

Table L-3: Proposed Pedestrian Sidewalk Improvements Locations

Location	Side	From	To	Length (km)
Sunnybrae Ave	North	50 meters east of Yonge St	Sunnybrae Public School Access	0.18
Benson St	South	Speare Crt	60 meters west of Nevils St	0.06
Blackmore St	South/West	Field St	Lawson St	0.43
Innisfil Beach Rd	N/A	Innisfil Beach Park Loop	Lake shore	0.05
Innisfil Beach Park MUT	N/A	Roberts Rd	Park Rd	0.46
Yonge St	West	Lynn St	250 meters north of Lynn St	0.25
Yonge St	East	Sunnybrae Ave	125 meters north of Victoria St	0.16
Sideroad 25	East	Willow Ave	William St	0.53
Ireton St	West	10th Line	Glen Cedar Cr	0.95
Happy Vale Dr / Taylorwoods Blvd	South/East	Sandy Trail	260 meters south of Hartley Rd	0.53
Pedestrian Walkway	N/A	Roberts Rd	Taylorwoods Blvd	0.13
Webster Blvd	West	Dead end	Booth Ave	0.50
Total				**4.23**

Appendix M

Appendix M

Pedestrian Crossing Policy

BURNSIDE

Innisfil

Appendix M | Pedestrian Crossing Policy

Date: August 4, 2022 **Project No.:** 300053011.0000

Project Name: Innisfil Transportation Master Plan Update

To: Town of Innisfil

From: R.J. Burnside & Associates Limited

1.0 Pedestrian Crossing Policy Background and Objectives

1.1 Pedestrian Crossing Policy Objectives

Walking as a form of commute during the morning and afternoon peak periods make up approximately 6% and 2% of the mode share, respectively. On a daily basis, there are approximately 1,400 pedestrian walking trips, which makes up 3% of the daily mode share. These estimates are expected to be higher given they were derived based on expanded household survey data from the Transportation Tomorrow Survey (TTS) which typically underrepresents shorter trips, particularly made by walking. About 8% of all automobile trips, including both auto driver and auto passenger, are less than 2 km (25-min walk) in distance. These trips represent opportunities for travellers to shift to more sustainable modes such as walking, provided that accessible infrastructure is available.

As prescribed in the 2016 Innisfil Trails Master Plan, providing amenities to support walking contributes to better physical health and utilitarian transportation by supporting commuters without access to a vehicle. Emphasis on a pedestrian-accommodating network supports the 2020 Provincial Policy Statement (PPS) in promoting strong, livable and healthy communities, along with the Town's 2020-2030 Community Strategic Plan, which highlights sustainability as a strategic goal by means of protecting and enhancing environments and amenities that residents rely on.

The objectives of Innisfil's pedestrian crossing policies are to address the installation of new pedestrian crossings within the Town, with the purpose of encouraging pedestrian activity, addressing existing and future pedestrian demands, improve safety, and manage costs. The policies also serve to provide direction in addition to or complimentary to that of the Ontario Traffic Manual (OTM).

The pedestrian crossing policies have been developed in light of the benefits of improving driver and pedestrian awareness and understanding of rules of right of way. Research into the development of the policies has included a review of practices in other jurisdictions, generally accepted and published practices in Ontario, original research into traffic safety, and legislative references such as the Ontario Highway Traffic Act (HTA). However, this is a Town of Innisfil

policy, developed in recognition of the roadway environment within the Town, existing pedestrian crossing features, and existing driver expectancy within Innisfil.

The pedestrian crossing policy has been developed in recognition that each site in the road network is unique, and that the application of the policies may not be equally applicable in all instances. In many situations, opportunities to change the fundamental nature of the pedestrian environment may not be feasible. Ultimately, the policy has a consistent goal to maximize driver and pedestrian awareness and understanding of the potential for conflicts.

1.2 Pedestrian Crossing Context – OTM Book 15

The original Ontario Traffic Manual (OTM) Book 15 was the first comprehensive pedestrian crossing design guide in Ontario. OTM Book 15 and the 2016 update provides information and guidance for the planning, design, and operation of pedestrian roadway crossing treatments.

The Innisfil Pedestrian Crossing Policy is intended to serve as a supplement to Book 15 of the OTM, with a focus on preferred treatments to be used in the Town of Innisfil, given Town objectives and the travel characteristics of the Town. OTM Book 15 recognizes the need for local policies and practices and engineering judgment, as prescribed in the introduction:

> *"…municipalities may need to adopt policies that reflect local conditions"*
>
> *"The traffic practitioner's fundamental responsibility is to exercise engineering judgment on technical matters in the best interests of the public and workers. Guidelines are provided in the OTM to supplement professional experience and assist in making those judgments."*

There are, however, elements of OTM Book 15 that will provide context to the Town's policy, along with relevant references pertaining to overarching legal and guiding principles summarized below.

1.2.1 Legal Framework

The legal requirements with respect to pedestrian crossings and accessibility considerations forms a key component in the development of guidelines for the OTM.

The Ontario Highway Traffic Act (HTA) details the responsibilities and rights of motorists and pedestrians at pedestrian crossings of various traffic control, along with specific signage and pavement marking requirements for pedestrian crossovers as per Ontario Regulation 402/15.

The Accessibility for Ontarians with Disabilities Act (AODA) outlines legal requirements to improve accessibility standards with consideration for both physical and mental disabilities (i.e., relating to mobility, vision, hearing and cognition). AODA requirements as prescribed in Ontario Regulation 413/12 details standards for pedestrian crossings within the public right-of-way to ensure that facilities are designed to account for a range of capabilities. Within the context of the

OTM, design considerations for accessibility and a barrier-free environment are detailed for treatments including curb ramps, depressed curb, and accessible pedestrian signals at pedestrian crossings.

1.2.2 Understanding of Safety

Traffic control and crossing treatment components such as signals, signs and pavement markings serve to improve safety by conveying messages that warn road users of hazards, with the intent to provide enough information and time for decision making, and subsequently ensure orderly flow of traffic. These improvements may also serve to minimize the potential for road user conflicts and collisions. Given the unpredictability of collision events, safety of a particular facility may be assessed by reviewing historical collisions and/or conflicts (i.e., near-miss collisions). In any case, consideration of new or modified infrastructure to improve safety requires engineering judgement, including an assessment of potential effects, decision-making time and a comprehensive understanding of the environment and context.

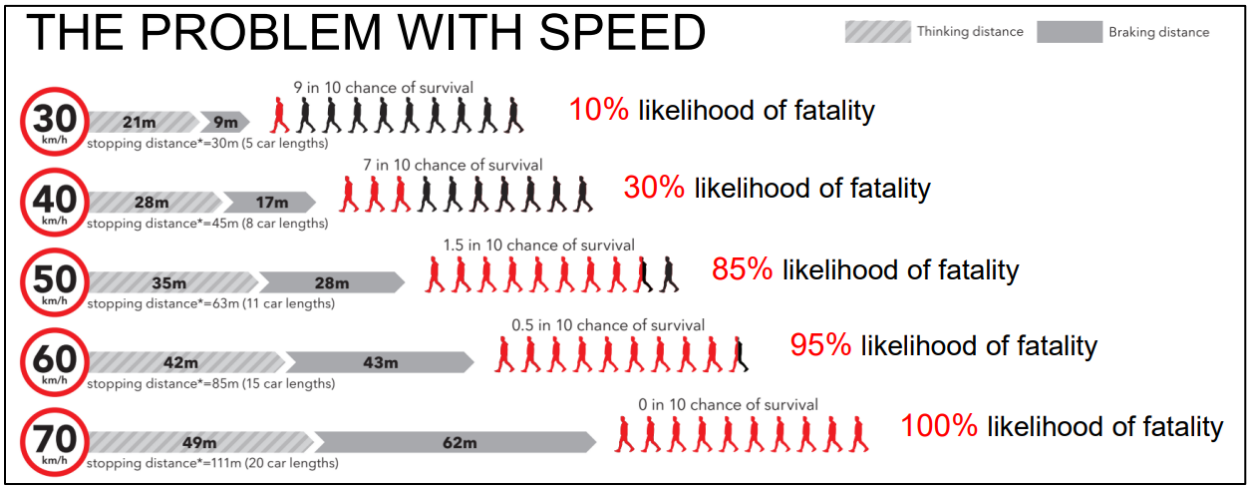
Beyond physical safety measures, consideration for human factors is key in assuring effective implementation and understanding safety. Human factors pertain to the physical, perceptual and mental considerations that guide human interaction with and perception of their surroundings. Road user security is guided by how users feel about the level of safety, their perceived level of risk, both of which impact their reactions and behaviour in the operating environment. Design of pedestrian infrastructure should effectively manage the awareness, expectations and acceptance of risk for road users by ensuring consistency in design and increasing user comfort (e.g., via the level of protection).

1.3 Vision Zero

An important initiative in prioritizing the need to consider human factors is Vision Zero. The goal of Vision Zero is to achieve zero fatalities and serious injuries on roadways. The initiative advocates for a different approach to road safety whereby all collision outcomes are perceived as preventable and a shared responsibility between road users and transportation infrastructure. Vision Zero was initially launched in Sweden in 1997 but has recently been adopted as plans by local municipalities in Ontario, including Toronto, London and Kingston, along with regions including Peel and Durham.

As a part of Vision Zero, there is an emphasis in prioritizing the safety of vulnerable road users such as pedestrians. Pedestrians, especially the elderly, become increasingly susceptible to the likelihood of a fatality in a vehicle-related collision travelling along a roadway with higher operating speeds, as depicted in the figure below. In fact, there is an exponential relationship between vehicle impact speed and the severity of pedestrian injury (i.e., the injury severity increases even faster with respect to increases to speed). This is due to the greater distance and time required for the vehicle to stop or avoid a collision. This is shown in Figure M-1.

Figure M-1: Greater the speed correlates to greater likelihood of fatality
Source: City of Toronto Road Safety Plan (September 2019)



Since pedestrians involved in a collision are much more likely to be injured, their safety should be prioritized in planning for active transportation facilities. The City of Toronto Vision Zero Road Safety Plan (2019) details pedestrian safety improvements that would make crossings more accessible and reduce vehicle-pedestrian conflicts, including:

- Speed reductions.
- Shortened crossing distances.
- No right-turns on red.
- Advance greens for pedestrians (i.e., Leading Pedestrian Intervals).
- Protected left-turns.

1.4 Walkability Guidelines

Walkability refers to the extent to which a neighbourhood supports walking as a mode of travel. The importance of walkability lies in the benefits on physical health and lifestyle along with environmental sustainability (via a shift in the use of more active modes such as walking and cycling). The following primary factors are considered in promoting walkability.

- Land Use Planning – High-density mixed-used communities that encompass facilities for live, work and play. The majority of people are willing to walk an average of 400 m (or 5 to 10 minutes) to reach a destination. The proximity in everyday amenities reduces trip distance and supports walking as a convenient mode of travel.
- Safety – Design elements of walkways and crossings affect the perceived and actual safety of pedestrians. This can include sidewalk widths, crossing distances, signal indications, illumination, and roadway geometrics that contribute to faster vehicular speeds. Effective traffic calming measures are also considered to assure safe walking environments.
- Comfort and Convenience – The desire to walk is influenced by the convenience of the route (i.e., directness of travel). Well-connected sidewalks and trails as well as safe and

frequent crossings are important in establishing a reliable pedestrian system. The visual appeal of the walking environment (defined by buildings, walls, greenspace, landscaping etc.) can also serve to attract more pedestrian activity.

2.0 Pedestrian Ability and Needs

Crossings should be designed to recognize and design for the diversity in pedestrian needs and abilities. The key vulnerable user groups identified for this study are summarized below. The specific components or features of a pedestrian crossing that address the needs of vulnerable pedestrians are identified in Table M-2.

2.1 Cognitive Ability and Age

Young pedestrians or children (particularly under the age of 10) are more likely to misjudge vehicle speeds and available crossing gaps as a result of their limited scanning ability and attention capacity. Children are considered at-risk road users as they tend to have an underdeveloped sense of safety and understanding of traffic control devices. Seniors are also more likely to underestimate the relative depth separating visual targets, misperceive the distance between themselves and vehicles, and process information more slowly. The elderly are vulnerable road users as the likelihood of fatality also increases with age.

To address the limitations and challenges of young pedestrians and the elderly, it is important to recognize the need to manage pedestrian expectations and misguided decisions due to road geometry, land uses or other operating environment characteristics. In addition, there is an emphasis on providing warning devices and/or signs to heed caution and draw drivers' attention in areas with a greater child and/or senior demographic (e.g., near schools, retirement/nursing homes).

2.2 Mobility-Impaired Pedestrians

Mobility-impaired pedestrians refer to those affected by a motor movement disability, including pedestrians who use wheelchairs or walkers/canes. Crossings should be designed to eliminate physical barriers, where feasible, and provide for adequate walking times at signalized crossings. In allocating pedestrian walk times, a design speed of 1.0 m/s is typically used. However, in the case that 20% or more pedestrians using a crossing is expected to be older (65 years or older), a lower walking speed of 0.9 m/s is assumed. At locations where 20% or more pedestrians are mobility-impaired (i.e., using assistive devices such a wheelchairs and canes), it is best practice to use a walking design speed of 0.8 m/s.

These guidelines apply particularly near hospitals and retirement/nursing homes, where there is a need to accommodate a greater number of mobility-impaired pedestrians and the elderly.

2.3 Visually Impaired Pedestrians

Visually-impaired pedestrians depend on auditory and tactual information for travel, to varying degrees. There is a wide range in the extent to which people are visually-impaired, as some may have very limited vision and others may be more sensitive to brightness contrast.

Crossings should be designed to allow visually-impaired pedestrians to easily identify safe pedestrian paths, detect streets and recognize the proper time to cross.

3.0 Crossing Alternatives

The HTA and OTM indicates that when a pedestrian is about to step from the boulevard onto the roadway, there are fundamentally two different forms of pedestrian crossing. The crossing may be either:

- A controlled crossing where vehicles must yield to pedestrians (e.g., traffic control signals, mid-block pedestrian signals, stop signs, designated school crossing, etc.), or
- An uncontrolled crossing where pedestrians must yield to vehicles (e.g., mid-block crossings in the absence of traffic controls, marked crossing in absence of stop or yield signs, designated school crossing in the absence of a crossing guard and/or other controls, roundabouts, etc.).

Either form of crossing may be appropriate given the range of pedestrian demand. There is generally a higher degree of concern for pedestrian safety at uncontrolled crossing points. However, both forms of crossing must be designed to maximize safety.

3.1 Controlled Crossing Treatment

There are several controlled crossing treatments and associated supportive components applied to denote and accommodate pedestrian crossings. Controlled crossings refer to locations with traffic control that requires a vehicle to yield or stop, such as a signalized intersection/midblock, an intersection pedestrian signal, a midblock pedestrian signal, a pedestrian crossover (PXO) with flashing lights, a stop or yield sign, or a crossing guard.

These controlled crossing treatments, listed in descending order of overall complexity in implementation, are described in Table M-1. It is recognized that both intersection/midblock pedestrian signals and PXOs require motorists to stop for pedestrians, but a PXO leaves some responsibility to the pedestrian to make sure motorists stop before crossing whereas pedestrian signals provide traditional visual cues (via traffic signal heads) to warn the motorist to stop for pedestrians. The decision framework used to determine the appropriate type of controlled crossing treatment is provided in the following section.

Table M-1: Controlled Crossing Treatments

	Controlled Crossing Treatment	Description
Traffic Signal	Full Traffic Signal	Traditional traffic control signals that allow for a protected pedestrian phase, including a "WALK" and flashing "DON'T WALK" phase, which can be implemented at an intersection or at a midblock location.
	Intersection Pedestrian Signal (IPS)	Traffic control signal installed on one leg of an intersection to stop main street traffic when the pedestrian signal is activated. Traffic on the side-street is stop-controlled.
	Mid-block Pedestrian Signal (MPS)	Traffic control signal installed at a midblock location to stop traffic when the pedestrian signal is activated.
Pedestrian Crossovers (PXOs)	Level 1 Type A PXO	PXO defined by the use of: Side-mounted "PEDESTRIAN X" (crossover) signs Double-sided, internally illuminated "OVERHEAD X" signs Ladder crosswalk pavement markings Pedestrian-activated rectangular rapid flashing beacons (RRFB) Side mounted and overhead regulatory signs ("Stop for Pedestrians")
	Level 2 Type B PXO	PXO defined by the use of: Ladder crosswalk pavement markings Pedestrian-activated rectangular rapid flashing beacons (RRFB) Side mounted and overhead regulatory signs ("Stop for Pedestrians")
	Level 2 Type C PXO	PXO defined by the use of: Ladder crosswalk pavement markings Pedestrian-activated rectangular rapid flashing beacons (RRFB) Side-mounted regulatory signs ("Stop for Pedestrians")
	Level 2 Type D PXO	PXO defined by the use of: Ladder crosswalk pavement markings Side-mounted regulatory signs ("Stop for Pedestrians")
Stop-Controlled / Yield-Controlled Intersection		Intersections with approaches that are stop-controlled or yield-controlled, cautioning vehicles to stop or yield the right-of-way to pedestrians crossing the intersection.
Supervised School Crossing		Designated school crossings that are supervised by crossing guards or school patrollers during specified peak crossing periods. Note that without the presence of crossing guards or school patrollers, the crossing is considered uncontrolled.

3.2 Crossing Treatment Components

The controlled crossings identified in the previous section are considered pedestrian crossing treatment systems, as each type represents a combination of components/features that form a single strategy to facilitate the crossing of pedestrians.

An uncontrolled crossing has no traffic control measures to give priority to the pedestrian movement but are locations where there is measurable pedestrian crossing activity. However, uncontrolled crossings may still have warning signage and in the case of some jurisdictions, crosswalk pavement markings.

Components or features of crossing treatments can be implemented as additional measures to controlled crossings or supplement uncontrolled crossings. These crossing components can serve to increase driver or pedestrian awareness or simplify the crossing process. The use of some of these features may also increase pedestrians' sense of security. However, these benefits should be weighed against the potential for more aggressive pedestrian behaviour, likelihood of increases in pedestrian crossing activity and the resulting increase in exposure to vehicle-pedestrian conflicts.

Table M-1 provides a summary of the various crossing treatment components or features under consideration. The applicability of each feature at controlled and uncontrolled crossings is identified, along with the vulnerable pedestrian user group(s) (see Section 1.2) it would serve.

Table M-2: Crossing Treatment Components

Treatment Component	Description / Purpose	Crossing Type		Pedestrian Group Prioritized		
		Controlled	Uncontrolled	Children / Seniors	Mobility Impaired	Visually Impaired
Raised medians / pedestrian refuge islands	Reduces the crossing distance and gap acceptance required and allows pedestrians to focus on crossing one direction of traffic at a time	✓	✓	✓		
Bulb-outs / curb extensions	Extension of the sidewalk / curb line or smaller curb radii to reduce the crossing distance and gap acceptance required, slow turning vehicles, and improve sight lines for pedestrians and motorists	✓	✓	✓	✓	
Textured pavement or high-visibility markings	Bolder, more defined painted crosswalks (e.g., zebra markings, raised pavement markers, Duratherm) to provide better visibility and increase drivers' awareness of possible crossings	✓	-[1]	✓	✓	✓
Standard warning signage	Standard pedestrian crossing signs as detailed in OTM Book 5 (Regulatory Signs), Book 6 (Warning Signs) and Book 11 (Pavement, Hazard and Delineation Markings)	✓	✓	✓	✓	✓
Special message signs	Special message signs that explicitly identify the right of way such as "Wait for Gap" (which is included as part of the PXO standards) or "Courtesy Crossing" signs	✓	✓			
Advanced pedestrian signal [2]	Display pedestrian "WALK" phase a few seconds ahead of the vehicle green signal to protect pedestrians and provide left-turning vehicles advanced notice of pedestrian crossings.	✓		✓	✓	✓
Increased pedestrian crossing times at signalized intersections	Use of lower design walking speeds to calculate pedestrian clearance times at signalized intersections, allowing more time for older and mobility-impaired pedestrians to cross the road	✓		✓	✓	

Treatment Component	Description / Purpose	Crossing Type		Pedestrian Group Prioritized		
		Controlled	Uncontrolled	Children / Seniors	Mobility Impaired	Visually Impaired
Accessible Pedestrian Signals (APS)	Devices that use audible tones, verbal messages, and vibration to indicate when pedestrians have the right of way to cross safely (see OTM Book 12 for standards and details)	✓				✓
Flashing beacons	Pedestrian-activated flashing beacons that can be used with “Pedestrian Crosswalk Ahead” warning signs to warn drivers to proceed slowly and with caution.	✓		✓	✓	✓
Curb ramps	Sidewalks that slope into the roadway to allow for safer travel and wheelchair access	✓	✓		✓	
Barriers	Barriers or rails placed along the top curb to guide pedestrians (particularly the visually impaired) to desirable crossing points, prevent crossings where there are sight distance constraints or conflicting flows, and deters motorists from mounting the curb	✓	✓			✓
Delineators	Delineator posts or reflective tape to alert drivers of a crossing and improve night visibility.	✓	✓	✓	✓	✓
Tactile surfaces	Tactile walking surface indicators to alert pedestrians (particularly the visually impaired) when they reach edges of the sidewalk and provide direction on where to safety cross (see Ontario Provincial Standard Drawing (OPSD) 310.039 for details)	✓	✓			✓
Advanced stop/yield line	Encourages drivers to stop further back from the crosswalk, promoting better visibility between pedestrians and motorists.	✓	✓	✓	✓	✓
Raised crosswalk [3]	Crosswalk constructed at a higher elevation than the adjacent roadway to improve drivers’ awareness of pedestrian activity and reduces vehicle speeds	✓	-[1]	✓	✓	✓

Treatment Component	Description / Purpose	Crossing Type		Pedestrian Group Prioritized		
		Controlled	Uncontrolled	Children / Seniors	Mobility Impaired	Visually Impaired
Speed Display	"Watch Your Speed" radar signs that display motorists' vehicle speeds to remind them to check and abide by speed limits	✓	✓	✓	✓	✓

Notes: 1. Crosswalk markings and raised crosswalks are not recommended at an uncontrolled crossing as it may give pedestrians the false impression that they have the right of way.
2. Advanced pedestrian signals have been implemented in jurisdictions such as the City of Toronto, where it is known as a Leading Pedestrian Interval (LPI).
3. Raised crosswalks are considered a traffic calming measure and should therefore be considered in tandem with the Town's traffic calming policies and practices.

4.0 Crossing Needs Assessment

4.1 Best Practices

The OTM Books incorporate current best practices in the Province of Ontario and have recommended thresholds and warrant criteria for the implementation of controlled crossings. Most jurisdictions use OTM Book 12, Book 15 and Book 5 warrants and threshold values for implementing traffic signals, pedestrian crossovers and stop-controlled/yield-controlled crossings. The standard guideline used to assess the need for school crossing guards is the 2017 School Crossing Guard Guide, published by the Ontario Traffic Council (OTC).

4.2 Crossing Treatment Selection

In selecting the appropriate type of controlled crossing treatment for a particular location, warrant thresholds as detailed in the OTM Books and the School Crossing Guard Guide may be used as best practice, as they are generally accepted as the standard within Ontario. The warrant process is summarized below for each type of controlled crossing and should be assessed in the order listed.

4.2.1 Traffic Signal Warrant

As a first step, the crossing location of concern should be assessed for traffic signals. If warranted, full traffic signals, intersection pedestrian signals (IPS) or midblock pedestrian signals (MPS) can be considered. Signals may be implemented at intersections, accesses, or midblocks where pedestrian desire lines and demand is high. Applicability depends on the needs of specific location. There are six justifications that are assessed, as summarized below. Signal warrants are met if any one of the justifications are met. The installation of a pedestrian signal under traffic signal control is met if the site meets Justification 6 (Pedestrian Volume and Delay).

Justification 1 (Minimum Vehicle Volumes)

The peak 8-hour vehicle volume must exceed the following thresholds:

- Restricted Flow (Urban) Conditions:
  - Total Intersection Volume: 720 vph (1-lane approach) or 900 vph (2-lane approach); and
  - Minor Street Approach Volumes: 170 vph (full intersection) or 255 vph (T-intersection)
- Free Flow (Rural) Conditions:
  - Total Intersection Volume: 480 vph (1-lane approach) or 600 vph (2-lane approach); and
  - Minor Street Approach Volumes: 120 vph (full intersection) or 180 vph (T-intersection

Justification 2 (Delay to Cross Traffic)

The peak 8-hour vehicle volume must exceed the following thresholds:

- Restricted Flow (Urban) Conditions:

  - Total Intersection Volume: 720 vph (1-lane approach) or 900 vph (2-lane approach); and
  - Crossing Traffic Volume*: 75 vph
- Free Flow (Rural) Conditions:
  - Total Intersection Volume: 480 vph (1-lane approach) or 600 vph (2-lane approach); and
  - Crossing Traffic Volume*: 50 vph

*Crossing Traffic Volume is the sum of the number of pedestrians crossing the main road, total left turns from both minor street approaches, highest through volume from one of the minor street approaches and 50% of the heavier left turn traffic from the main road when the left-turn volume is greater than 120 vph and the heavier left-turn volume plus its opposing volume is greater than 720 vph.

Justification 3 (Volume/Delay Combination)

If neither Justification 1 nor Justification 2 is 100% satisfied, but both justifications are at least 80% satisfied.

Justification 4 (Minimum Four-Hour Vehicle Volume)

Plot-based warrant (see Figure 20 and Figure 21 of OTM Book 12 for unrestricted and restricted flow conditions, respectively) that assesses the need for signals based on 4-hour vehicular volumes as. This 4-hour warrant is typically accepted for commercial and commuter-dominated areas whereby the 8-hour volumes may not be enough to meet warrants, but there may be high 4-hour peak periods of traffic experienced during the peak morning and afternoon periods.

Justification 5 (Collision Experience)

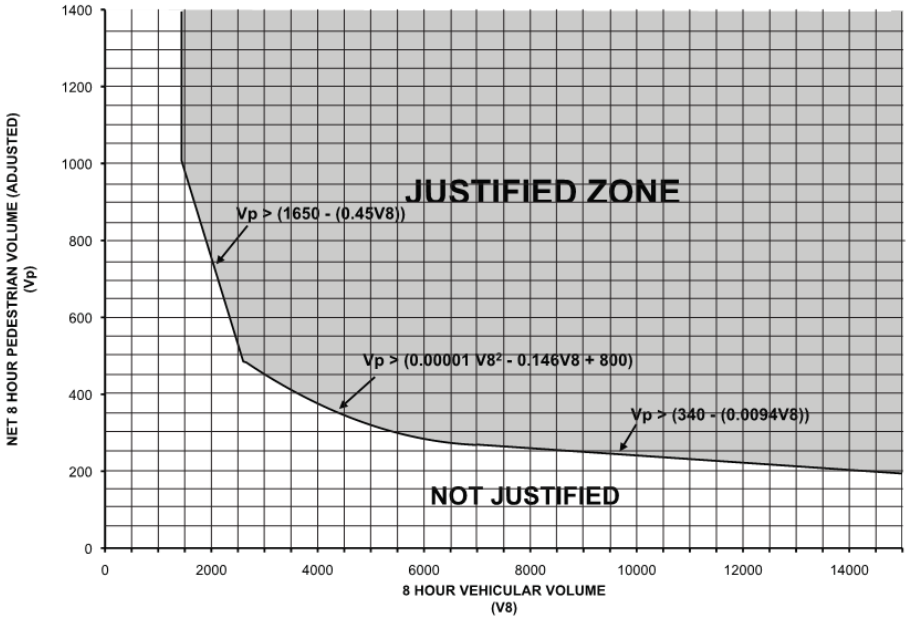
15 “reducible” collisions (i.e., vehicle and/or pedestrian collisions where under signalized control, would be more protected by separate phases) experienced over a 3-year period. Signals are rarely met under this justification alone. It is assumed that the jurisdiction considered and implemented less restrictive mitigation measures that have failed to reduce the collision frequency.

Justification 6 (Pedestrian Volume and Delay)

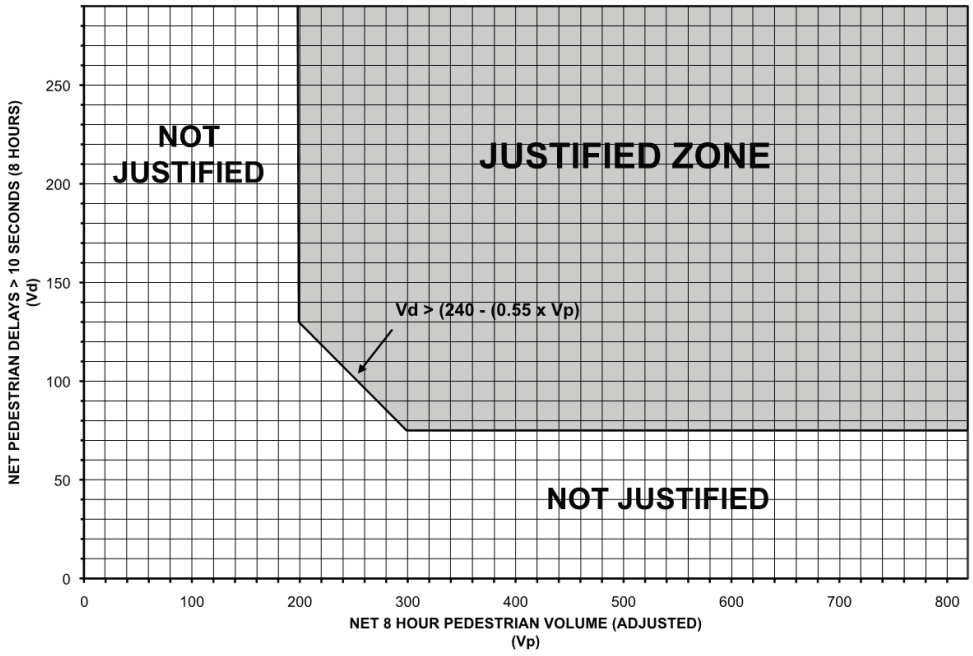
Plot-based warrant based on minimum pedestrian volume and minimum pedestrian delay criteria for the peak 8-hour pedestrian volume period crossing the main road, as shown in the graphs below.

The pedestrian volume is adjusted by a factor of 2 for “assisted” pedestrians (i.e., children under 12 years old, senior citizens and disabled pedestrians) to reflect “equivalent adults”.

Justification 6 – Pedestrian Volume



Justification 6 – Pedestrian Delay



4.2.2 Pedestrian Crossover (PXO)

Warrants for pedestrian crossover (PXO) treatments are assessed based on traffic volumes, pedestrian volumes, pedestrian desire lines, speed limits, and road cross-sections. If a traffic signal is not warranted, the 8-hour and 4-hour pedestrian volumes crossing the main road and vehicular volumes are reviewed against the following thresholds:

- 8-hour pedestrian volume crossing the main road ≥ 100 and 8-hour vehicle volume ≥ 750; or
- 4-hour pedestrian volume crossing the main road ≥ 65 and 8-hour vehicle volume ≥ 395

If the above thresholds are met and the proposed crossing location is at least 200 m away from the nearest traffic control device, the site is a candidate for a pedestrian crossover.

If the above thresholds are not met, there is still a possibility that the site could be a candidate for a PXO, if the site is at least 200 m away from the nearest traffic control device and the proposed crossing location is a requirement for pedestrian system connectivity or would fulfill pedestrian desire lines.

If determined that a PXO is warranted, OTM recommends the minimum PXO treatment types based on the vehicular traffic, speed limit, and road cross-section, as illustrated in the selection matrix below.

Pedestrian Crossover (PXO) Selection Matrix

Two-way Vehicular Volume			Posted Speed Limit (km/h	Total Number of Lanes for the Roadway Cross Section[1]			
Time Period	Lower Bound	Upper Bound		1 or 2 Lanes	3 lanes	4 lanes w/raised refuge	4 lanes w/o raised refuge
8 Hour	750	2,250	≤50	Level 2 Type D	Level 2 Type C[3]	Level 2 Type D[2]	Level 2 Type B
4 Hour	395	1,185					
8 Hour	750	2,250	60	Level 2 Type C	Level 2 Type B	Level 2 Type C[2]	Level 2 Type B
4 Hour	395	1,185					
8 Hour	2,250	4,500	≤50	Level 2 Type D	Level 2 Type B	Level 2 Type D[2]	Level 2 Type B
4 Hour	1,185	2,370					
8 Hour	2,250	4,500	60	Level 2 Type C	Level 2 Type B	Level 2 Type C[2]	Level 2 Type B
4 Hour	1,185	2,370					
8 Hour	4,500	6,000	≤50	Level 2 Type C	Level 2 Type B	Level 2 Type C[2]	Level 2 Type B
4 Hour	2,370	3,155					
8 Hour	4,500	6,000	60	Level 2 Type B	Level 2 Type B	Level 2 Type C[2]	Level 2 Type B
4 Hour	2,370	3,155					
8 Hour	6,000	7,500	≤50	Level 2 Type B	Level 2 Type B	Level 2 Type C[2]	Level 1 Type A
4 Hour	3,155	3,950					
8 Hour	6,000	7,500	60	Level 2 Type B	Level 2 Type B		
4 Hour	3,155	3,950					
8 Hour	7,500	17,500	≤50	Level 2 Type B	Level 2 Type B		
4 Hour	3,950	9,215					
8 Hour	7,500	17,500	60	Level 2 Type B			
4 Hour	3,950	9,215					

Type A Type B Type C Type D

Approaches to roundabouts should be considered a separate roadways.

[1]The total number of lanes is representative of crossing distance. The width of these lanes is assumed to be between 3.0 m and 3.75 m according to MTO Geometric Design Standards for Ontario Highways (Chapter D.2). A cross sectional feature (e.g. bike lane or on-street parking) may extend the average crossing distance beyond this range of lane widths.

[2]Use of two sets of side mounted signs for each direction (one on the right side and one on the median)

[3] Use Level 2 Type B PXO up to 3 lanes total, cross section one-way.

The hatched cells in this table show that a PXO is not recommended for sites with these traffic and geometric conditions. Generally a traffic signal is warranted for such conditions.

4.2.3 Stop-Controlled / Yield-Controlled Intersections

A two-way or all-way stop-controlled intersection allows for protected pedestrian crossings. Yield-controlled intersections are also an alternative treatment that serves to provide some level of protection for pedestrian crossings. However, warrants for traffic signals and PXOs should be reviewed first. Details on warrant thresholds for types of stop-controlled and yield-controlled intersections are provided in OTM Book 5 (Regulatory Signs).

4.2.4 Supervised School Crossing

A school crossing guard are considered when the protection of school children is the primary concern. Crossing guards can be located at midblock locations with the required marked crosswalks and school crossing signs, stop-controlled intersections, pedestrian signals, pedestrian crossovers, roundabouts, and signalized intersections, provided that the road speed limit does not exceed 60 km/h. OTM Book 5 provides guidelines on the use of a crossing guard as a control treatment at a designated crossing. The 2017 School Crossing Guard Guide is the most common guideline used to assess the need for crossing guards within Ontario. However, the OTM notes that the minimum threshold of crossing school children required to warrant a supervised school crossing can be defined by the Local Road Authorities.

Based on a review of current industry practices and research on crossing operations, the following additional factors and respective guiding principles should be considered in selecting the appropriate type of crossing treatment:

- **PXOs** – In implementing PXOs to supplement traffic control signals, they should be installed in sufficient quantity to allow pedestrians and drivers to develop familiarity with their operations. For example, they may be set up as a pilot project at several (3) potential locations that are in close proximity within a unique localized area.
- **Pavement Markings at Uncontrolled Crossings** – Marked crosswalks at uncontrolled crossings are not recommended as they may give pedestrians the false impression that they have the right of way. This may result in increased conflict potential between unaware pedestrians and drivers. As an alternative, signage can better contribute to driver awareness and pedestrian caution without making the rules of right of way ambiguous.
- **Urban vs. Rural Operating Environments** – The warrant thresholds established in OTM Book 12 depend on whether the operating speeds are representative of “restricted flow conditions” or “free flow conditions”. Restricted flow conditions are typically representative of urban flow conditions with operating speeds of less than 70 km/h and where side friction on the roadway (due to parking, numerous entrances, etc.) reduces the operating speed. While free flow conditions are typically representative of rural, higher speed conditions, and restricted flow conditions typically reflect urban, lower speed conditions, this may not always be the case. For example, driving characteristics in small urban areas (e.g., with less than 10,000 in population) may not be subject to the level of restricted flow experienced within larger urban areas, in which case the application of free flow criteria may be better suited for such areas. Regardless, the appropriate flow condition should be assessed based on roadway operations, speeds and the surrounding environment.

- **Visibility Near Crossings** – Typically, a minimum of 30 m should be kept clear in advance of crossings to minimize sight obstructions and improve vehicle and pedestrian visibility. Parking restrictions should be considered within the context and needs of the nearby land uses. For example, parking restrictions may be ignored near schools and major commercial areas. Similarly, trees and street furniture near pedestrian crossings should be located such that they do not impede visibility.
- **Vehicle Speeds** – The posted and operating speeds along roadways should be considered in determining the appropriate type of crossing treatment and/or component. Vehicle speed is a major risk factor for safety, as it increases the likelihood of a pedestrian fatality upon impact. As such, uncontrolled crossings are not recommended along high-speed roadways (i.e., posted speeds greater than 60 km/h). Roadways with higher posted speeds are also characteristic of more rural operating environments, where there are generally less pedestrians. In the case that a controlled crossing is considered in these higher speed areas, a greater emphasis should be placed on visual cues to warn drivers of pedestrians and allocate sufficient sight distance for drivers to stop in time. There may also be consideration to implement measures such as raised platforms, narrowing lanes and other optical treatments to reduce vehicle speeds to prioritize the safety of the pedestrian, provided that it does not significantly impact traffic operations.

4.3 Pedestrian Crossing Location Assessment

It is recognized that the pedestrian crossing warrants approach as detailed in the previous section is predominantly a volume-based approach and is therefore better suited for high volume roads and rarely triggered on local roads. In addition, the need to provide a crossing based on pedestrian desire lines are not clearly outlined.

To conduct a high-level assessment of potential controlled crossing locations within Innisfil, with a focus on addressing system connectivity, pedestrian desire line needs and safety, the crossing criteria shown in Table M-3 were developed. These criteria were established recognizing that the surrounding land uses and corridor conditions play a role in gauging pedestrian crossing needs. The locations identified from this assessment should be further re-evaluated against the crossing treatment selection methodology as described in the previous section.

Table M-3: Pedestrian Crossing Location Assessment Criteria

Criteria	Details	Threshold
Convenience and directness of pedestrian routes and pedestrian system connectivity	Proximity to retirement/nursing homes and hospitals	< 400 m (5 min walking distance)
	Proximity to a school	
	Proximity to a bus stop	
	Proximity to a major trip destination (e.g., employment centre, community centre, etc.)	
	Connection to a major trail	
Historical collisions	Number of pedestrian collisions over the last 5 years	> 1 collision
Proximity to other crossing opportunities within urbanized areas	Distance to the nearest PXO, pedestrian signal or traffic signal	> 200 m
Driver-pedestrian sight distance	Available sight distance at an intersection, driveway access or curve	Varies depending on the operating speed of the roadway [1]

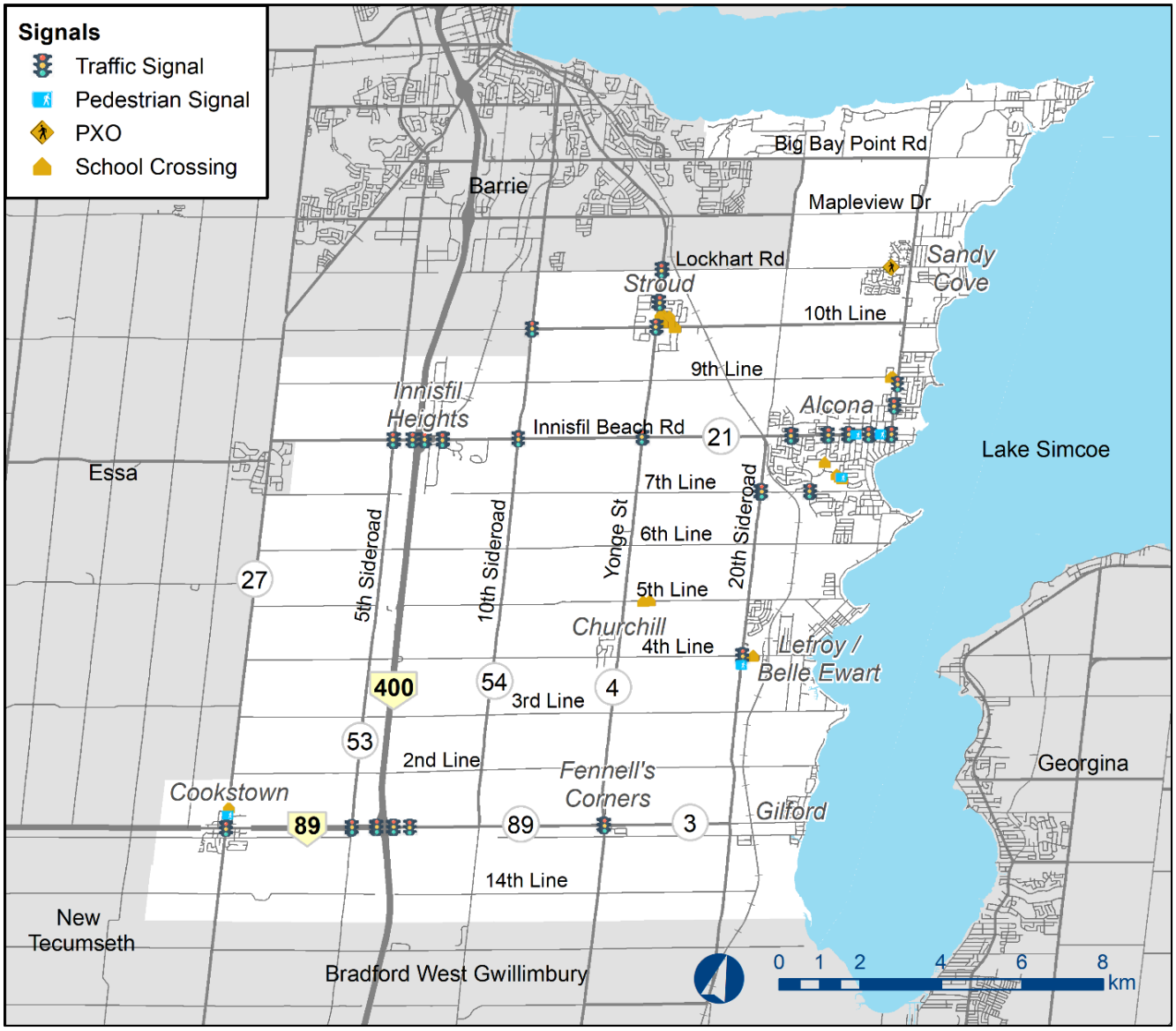
Note: 1. Refer to Transportation Association of Canada (TAC) Geometric Design Guide (June 2017)

5.0 Evaluation of Alternative Treatments

5.1 Innisfil Pedestrian Crossing Alternatives

Existing crossing locations within the Town, including traffic signals, pedestrian signals, PXOs and school crossings, are shown in Figure M-2. Pedestrian crossings within the Town are primarily serviced by full traffic signals. Pedestrian signals have also been installed within a few Town settlement areas, including Alcona, Lefroy / Belle Ewart, and Cookstown. There is one pedestrian crossover (PXO) within Innisfil, located near Sandy Cove.

Figure M-2: Existing Crossing Locations



Note: 1. To minimize crowding, stop-controlled/yield-controlled intersections are not shown.
2. School Crossing points shown indicate locations where school crossing signage is installed; these crossing locations may not necessarily be supervised by crossing guards or school patrollers.

A review was conducted of the Town's existing crossing facilities, with observations summarized below.

5.1.1 Traffic Signals

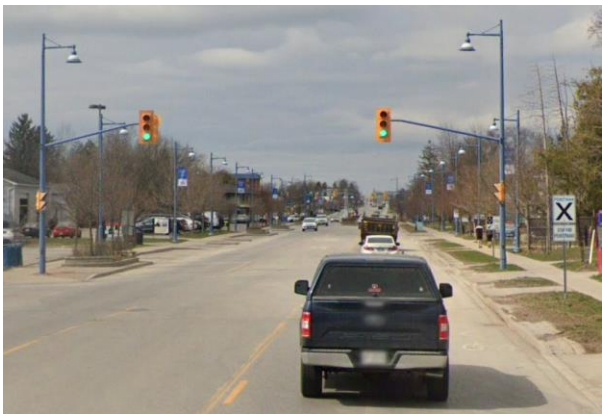
Traffic signals within the Town are generally located within urbanized areas, characteristic of more trafficked locations, and along an arterial. This remains consistent with traffic signal warrants, in that warrants are typically met at high volume intersections or where main street traffic would cause delays to side street traffic under unsignalized conditions.

10th Line (Victoria Street) / Yonge Street (County Road 4)
Source: Google Street View

5.1.2 Pedestrian Signals

Traffic signals within the Town are generally located within or near settlement areas, where surrounding land uses (e.g., institutional, commercial, retail, mixed-use, etc.) generate substantial pedestrian demand to warrant a pedestrian-activated crossing. Locations with existing pedestrian signals are supported by regulatory signage, such as “Stop Here on Red Signal” (as prescribed by OTM Book 15) and “Stop for Pedestrians”. Pedestrian signals near schools (i.e., crossing located at Killarney Beach Public School) also incorporate colourful crosswalk pavement markings for better visibility.

Innisfil Beach Road (County Road 21) / Inglewood Drive
Source: Google Street View



5.1.3 Pedestrian Crossovers (PXOs)

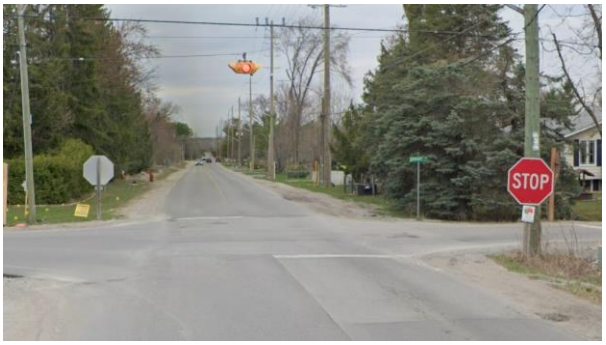
There is one midblock PXO (Level 1, Type A) in Innisfil, along Lockhart Road, as shown in the image on the right. As prescribed by OTM Book 15, an internally illuminated “OVERHEAD X” sign, pedestrian-activated rectangular rapid flashing beacons (RRFB) and “Stop for Pedestrians” signage have also been installed at this location. It is noted that not all PXO locations have painted crosswalks, which improves pedestrian visibility.

Lockhart Road, west of Main Street
Source: Google Street View

5.1.4 Stop-Controlled Intersections

Most non-signalized intersections are two-way or all-way stop-controlled. Some stop-controlled intersections are also complimented by flashing red beacons (as shown in the image to the right), solar stop beacons (i.e., at 10th Sideroad / 20th Sideroad), or advanced warning signs such as “Stop Ahead” (i.e., at 5th Line / 10th Sideroad). It is noted that not all stop-controlled intersections have crosswalk pavement markings.

Lockhart Road / 25th Sideroad
Source: Google Street View

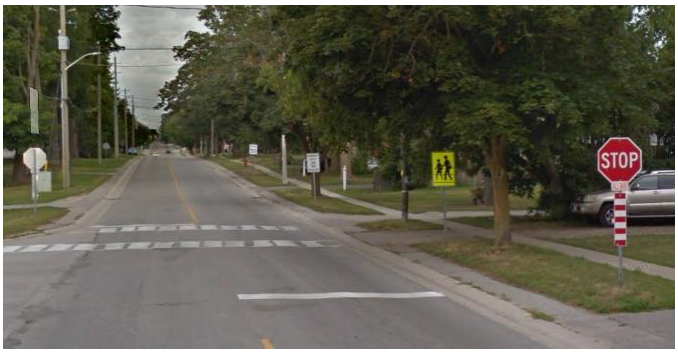


5.1.5 School Crossings

School zone and school crossing signage are installed near schools. School crossings within Innisfil are all either:

- Controlled (i.e., stop-controlled, as depicted in the image to the right, or supervised during specified crossing periods).
- Uncontrolled (i.e., school crossing signage installed only, without the presence of a crossing guard or school patroller).

Victoria Street / North Gate (near Sunnybrae Public School)
Source: Google Street View



5.1.6 Uncontrolled Crossings

An example of an uncontrolled crossing provided within the Town is shown in the image to the right, which is located along Frederick Street. A “Pedestrians Ahead” sign is installed to warn drivers of potential crossing activity near the neighbourhood ahead. The warning sign at this sample location appears to be implemented as a result of the more densely wooded environment surrounding Frederick Street, which may impede drivers from seeing pedestrians crossing ahead.

Frederick Street, south of Claver Avenue
Source: Google Street View

5.2 Pedestrian Crossing Selection Approach

All existing and future controlled crossings in the Town should incorporate the appropriate design features (e.g., signage, pavement markings, etc.) for each respective crossing type, as detailed in the OTM books. This ensures Town-wide consistency in pedestrian facilities, which serves to improve pedestrian comfort as well as better manage driver and pedestrian expectations.

Locations of future crossings for consideration are illustrated in Figure M-3. These locations were identified based on the pedestrian crossing criteria summarized in Table M-3, which better recognizes the need to provide crossings based on pedestrian system connectivity and desire lines. Although this serves as a high-level assessment of crossing needs and therefore, it is recommended that further studies be conducted for these locations to determine the need for and the selection of the appropriate controlled crossing type based on site-specific context and warrant criteria as detailed in Section 1.4.2. Additional locations may also be identified where crossings would be desirable to address site-specific needs (such as inadequate driver-pedestrian sight-distances).

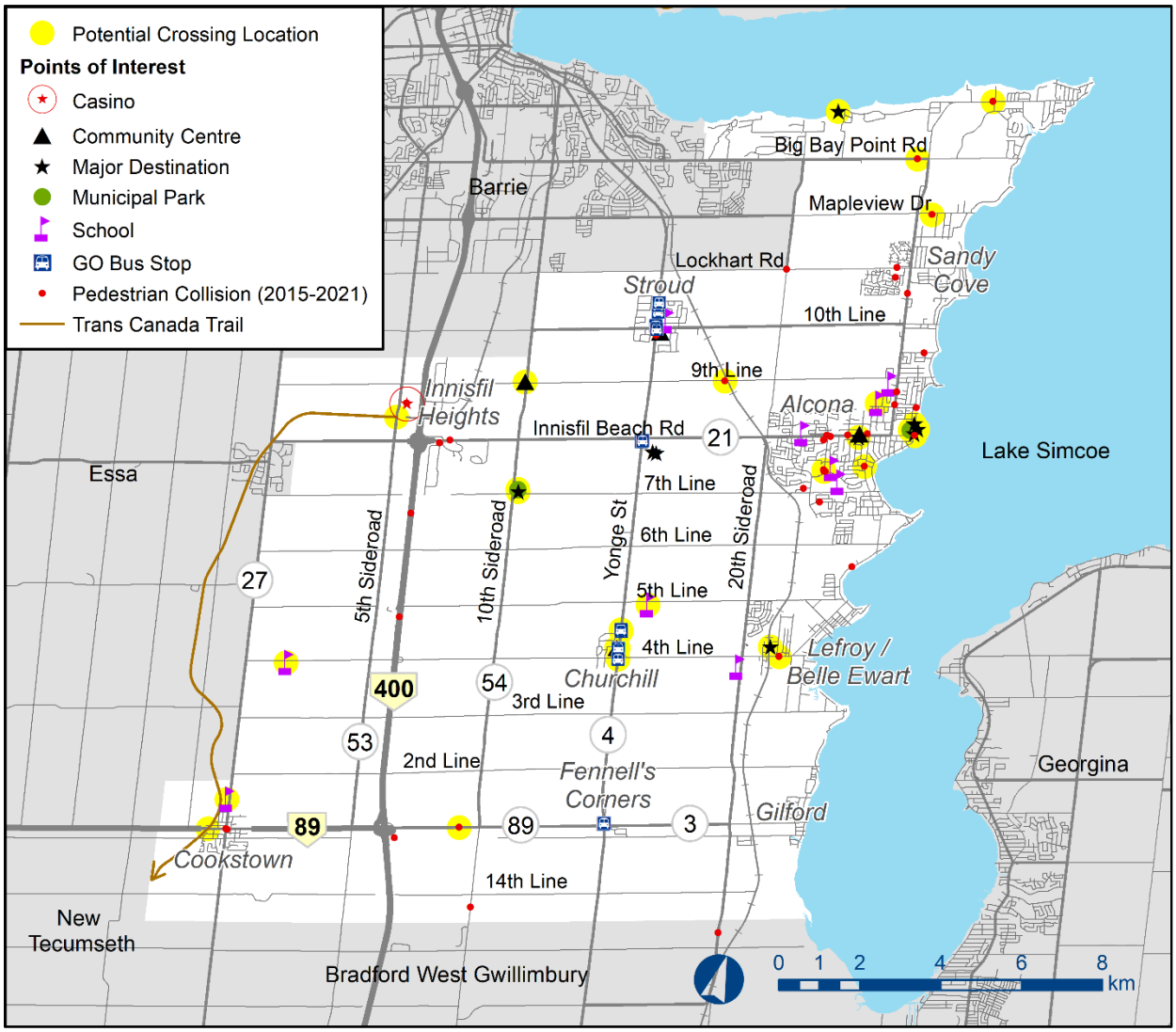
Local residents in Alcona have expressed concerns regarding the 7th Line and St. John's Road intersection, which currently operates as a two-way stop-control and was observed to have substantial pedestrian activity. The skewed north leg at this intersection may warrant the need to provide a more protected crossing (i.e., all-way stop control, PXO or pedestrian signal) to address insufficient approach sight distances.

A list of crossing locations to be assessed through additional studies are provided below. These were established based on the high-level locations assessment shown in Figure M-3, and filtered recognizing that some locations do not have sufficient supporting pedestrian facilities (e.g., sidewalks) or operate within an urban, low-speed context for a desirable crossing environment.

- Leslie Drive / Midland Avenue
- West of Innisfil Beach Road / Spring Street (near the future Town Square)
- Jans Boulevard / Anna Maria Boulevard
- St. John's Street / Helen Street
- Killarney Beach Road / Corner Avenue
- Yonge Street / Meadowland Street
- Yonge Street / 4th Line (already proposed for signalization)
- 5th Sideroad / Trans Canada Trail
- Queen Street / Fisher Lane
- 7th Line / St. John's Road

It is recommended that the above crossing locations be assessed through a Town-wide safety and operations study.

Figure M-3: Potential Crossing Locations



5.3 Preferred Pedestrian Crossing Treatments

Controlled crossing treatments are preferred over uncontrolled treatments, as it prioritizes the right of way of pedestrians. However, uncontrolled treatments can be applied in the case that:

- The pedestrian demand or desire lines do not warrant the need for a controlled crossing.
- Implementation of controlled crossings are constrained by the surrounding environment (e.g., land use, properties, natural features, etc.).
- A controlled crossing would create significant negative implications on traffic flow; and/or
- The cost of the controlled crossing does not justify the need, as determined by the Town (see Table M-4 for estimated costs).

Table M-4: Crossing Treatment Costs

Crossing Treatment	Estimated $2022 Cost
Full Traffic Signal	$300,000
Intersection Pedestrian Signal (IPS)	$150,000 - $200,000
Mid-block Pedestrian Signal (MPS)	$150,000 - $200,000
Pedestrian Crossover (PXO)	$100,000
Stop-Controlled / Yield-Controlled Intersection	$1,500 - $5,000
Supervised School Crossing	$650
Uncontrolled Crossing (i.e., pedestrian crosswalk markings and signs)	$5,000

Note: Costs shown are typical; actual costs vary based on site conditions.

5.3.1 Safety Research

In roadway management, risk and liability exist in perceived negligence, including nonfeasance and malfeasance. To minimize these risks, the Town of Innisfil can proactively monitor the safety of operations at pedestrian crossings to identify hazards, plan for mitigation, and apply improvements to align with policies / best practices. Practices should avoid ambiguity that may lead to confusion and misinterpretation of traffic control devices.

The following resources were identified to help enhance the safety of and/or evaluate the effectiveness of pedestrian crossing treatments or components.

5.3.2 Crash Modification Factors (CMFs)

The Federal Highway Administration Washington (FHWA) provides a database that summarizes the effectiveness of countermeasures to prevent collisions (http://www.cmfclearinghouse.org/). Each countermeasure has a Crash Modification Factor (CMF), which is indicative of the effectiveness of a particular treatment or design element. The CMF is used to provide a rough quantitative estimate of the number of collisions that can be reduced as a result of implementing a particular countermeasure. Note that these CMFs should be used to assess a single countermeasure in isolation, rather than multiple treatments and be applied in situations that match the conditions from which the CMF was developed.

A CMF that is less than 1 indicates that the countermeasure may potentially reduce collisions whereas a CMF above 1 indicates that the countermeasure may potentially increase collisions.

5.3.3 Highway Safety Manual (HSM)

The American Association of State Highway and Transportation Officials (AASHTO) developed the Highway Safety Manual (HSM), which serves as a guiding document to outline methodologies for estimating safety performance on highways. It provides guidance on human factors, traffic safety fundamentals, network screening to identify collision-prone sites, countermeasure selection frameworks, safety effectiveness evaluation and more.

5.3.4 Safe Route to School Strategies

The purpose of Safe Routes to School (SRTS) strategies is to promote the use of active transportation (i.e., walking and cycling) to travel to school. This is achieved through infrastructure improvements to support walking and bicycling, traffic enforcement, public awareness campaigns, safety education, incentives and more. The local government, jurisdictional planning organization, transportation department, school district or a school may be responsible for implementing SRTS programs. Additional resources include the National Center for Safe Routes to School (NCSRTS), which offers resources to support SRTS programs, and the Safe Routes to School National Partnership, which provides information on leveraging infrastructure and best practices to help advance SRTS programs.

6.0 Recommended Pedestrian Crossing Policy

It is recommended that the Town of Innisfil implement the following controlled crossing treatments as warranted based on OTM Book methodologies and thresholds, as well as consideration for pedestrian desire lines, system connectivity and safety (e.g., visibility or measured sight distance constraints, collision trends, or frequent vehicle-pedestrian conflicts):

- Traffic control signals at intersections.
- Midblock pedestrian signals.
- Intersection pedestrian signals
- Stop-controlled / yield-controlled intersections.

It is recommended that the exposure-based approach from the 2017 OTC School Crossing Guard Guideline be adopted as part of the warrant analysis as an initial screening tool for school crossing guard requests. If warrants are not met and there is uncertainty about the impacts of the traffic volumes characteristics on crossing opportunities for a particular site, then a gap survey is recommended and results compared to OTC School Crossing Guard Guideline.

In implementing PXOs to supplement traffic control signals, they should be installed in sufficient quantity to allow pedestrians and drivers to develop familiarity with their operations. For example, they may be set up as a pilot project at several (3) potential locations that are in close proximity within a unique localized area.

Implementation of controlled crossings should consider other design heuristics pertaining to the context of the area surrounding the crossing location such as the operating environment (rural or urban), visibility and vehicle speeds.

All existing and future controlled crossings should incorporate the design features as recommended by and follow the standards of the OTM.

In the case that an uncontrolled crossing is preferred over a controlled crossing, appropriate signage should be installed to emphasis and convey to pedestrians that they do not have the right of way and should wait for a safe gap to cross.

Additional crossing components may be considered at either controlled crossings as additional features or as part of uncontrolled crossings to address site-specific needs and/or vulnerable user groups.

Except for school crosswalks patrolled by a trained crossing guard, marked crosswalks at uncontrolled crossings are discouraged. Consideration may be given to the delineation of high contrast markings to distinguish pedestrian desire lines in highly urban areas where drivers are aware of very high pedestrian activity. In these locations, signage that indicates to pedestrians that they do not have the right of way over vehicles (e.g., Wc-28 sign as per OTM Book 6) should also be implemented.

In addition, warning signage can be implemented as appropriate (e.g., Wc-3, Wc-7 signs as per OTM Book 6 or specialized signs) that will increase drivers' awareness of pedestrian activity. Pedestrian refuge islands or raised medians should also be considered as a passive feature at uncontrolled crossing points where sufficient right-of-way is available and lane alignment is not compromised (e.g., integrated with centre turn lanes). Other measures such as reflective delineator poles may be considered at the boulevard of uncontrolled crossing locations in order to draw the driver's attention to potential crossing activity.

It is recommended that the Town of Innisfil proactively address pedestrian safety needs and establish a program of reviews of pedestrian crossings either through on-going traffic operations studies or annual corridor reviews. Compliance with pedestrian crossing practices should be reviewed, and necessary roadway and traffic control modifications programmed and implemented.

The Town may consider developing a Vision Zero safety plan to assure continued efforts in achieving no pedestrian fatalities through the implementation of effective infrastructure such as crossings. Consideration for land use policies that support walkable neighbourhoods and communities are also recommended to better accommodate and prioritize pedestrians.

Appendix N

Appendix N

Roundabout Implementation Guidelines

BURNSIDE

Innisfil

Appendix N | Roundabout Implementation Guidelines

Date: November 14, 2022 **Project No.:** 300053011.0000

Project Name: Innisfil Transportation Master Plan Update

To: Town of Innisfil

From: R.J. Burnside & Associates Limited

1.0 Background and Objective

Roundabouts are circular intersection where two or more roads meet. Vehicles will circulate through in a counter-clockwise direction (in North America and other right-hand traffic countries) around a central island. Traffic entering the roundabout will need to yield to circulating traffic. Over the recent years, this form of traffic control has become a popular alternative in Canada. When used in an appropriate location and setting, roundabouts can provide better operational (better traffic flow, more efficient) and safety (fewer / less severe collisions) characteristics in comparison to stop-controlled, signalized and other circular intersections such as rotaries, signalized traffic circles and neighborhood traffic circles.

Currently, a roundabout at Webster Road and 20th Sideroad intersection is under construction. The Town does not have any other roundabouts. However, in the 2018 Transportation Master Plan (the TMP), roundabouts at the following intersections were proposed::

- 20th Sideroad and Lockhart Road.
- 20th Sideroad and 9th Line.
- 20th Sideroad and 6th Line.
- 20th Sideroad and 5th Line,
- 25th Sideroad and Big Bay Point Road/ 13th Line.
- 25th Sideroad and 9th Line.
- St. John's Road and 7th Line.

In addition, the previous TMP consisted of a draft roundabout policy recognizing the benefits and advantages of this type of traffic control. This memorandum will provide an update to the previous draft policy and update the initial screening process to better assess suitable intersections to convert to roundabouts and / or implementation of new roundabouts.

2.0 Roundabout Principle and Guidelines

The initial draft policy had referenced and derived their guidelines based two documentations, which are considered the leading sources of information on roundabouts:

- Canadian Roundabout Design Guide (CRDG), dated January 2017, prepared by Transportation Association of Canada (TAC).
- Roundabouts: An Information Guide Second Edition (NCHRP Report 672), dated 2010, prepared by National Cooperative Highway Research Program (NCHRP).

The documentations provide guidance on planning, design and implementation of roundabouts. Key information is presented in the proceeding sections and help inform the recommended guideline the Town should considered for roundabout installation. In addition, the Town should consider the advantages and disadvantages to roundabouts. Table N-1 outlines the advantages and disadvantages across multiple performance measures.

Table N-1: Advantages and Disadvantages

Performance Measure	Advantages	Disadvantages
Safety	Reduce crash frequency and severity in comparison to other traffic controls. Allow safer merges into circulating traffic. Lower speed so more time can be allocated for users to make decisions or detect mistakes. Fewer conflict points. No right-angle and left turn conflicts.	Increase in single-vehicle and fixed-object crashes in comparison to other traffic control. Individual with low vision will have difficulty detecting gaps at a multi-lane roundabout.
Traffic Operation	Potential for lower delays and smaller queues in comparison to other traffic controls. Reduce unnecessary stops Provides safer movements as it eliminates midblock lefts. Reduce lane requirement between intersections. Upstream / downstream signals will operate more efficiently.	All movements are given equal priority; as a result, high volume movement may experience higher than normal delays. May reduce the number of available gaps of mid-block stop-controlled intersection. Downstream queues may extend into the roundabout and disrupt flow and operations. Cannot provide explicit priority for other users (pedestrian, transit, emergency vehicle). Roundabout near railroad crossing may result in delay and would require further investigation.
Traffic Calming	Reduce speed. Provides a transition between rural and urban areas.	More expensive than other forms of traffic calming.
Environmental Factors	Reduce of noise, air, fuel consumption. Elimination of energy consumption in comparison to signals. Overall minimized carbon footprint.	As it requires more space, it may potentially impact natural and cultural resources.
Space	Less queue storage will be needed and can allow for closer intersection and access spacing.	Requires more space at the intersection than other forms of traffic control. Require more property beyond the limits of a typical road allowance.

Performance Measure	Advantages	Disadvantages
Maintenance	No signal hardware and equipment maintenance.	Landscape maintenance.
Pedestrians and Cyclists	Pedestrian will only need to consider one direction of conflicting traffic. Cyclist will have the options of riding within the roundabout or use bike lane / multi-use path.	Individuals with vision impairment may have difficulty finding crosswalks and determining when it is safe to cross. Bicycle ramps may be easily confused as pedestrian ramps.
Aesthetics	More landscape opportunities within central island. Can be used as a gateway feature to enhance and define community. Help separate different land uses.	If hard objects are placed in central island, it may be hazardous.
Economics	Lower maintenance cost in comparison to other types of traffic control. Time and fuel saving for drivers. Reduce life-cycle cost of operation and maintenance.	More expensive to construct and longer construction period.

2.1 Design Elements

It is essential to understand the design elements of the roundabout as the safety and operational performance are depended on these characteristics. Figure N-1 is an excerpt from the CRDG, Figure 1.1 and it illustrates the key characteristics of a roundabout. These design elements are further explained in Table N-2.

Figure N-1: Roundabout Characteristics (excerpt from CRDG Figure 1.1)

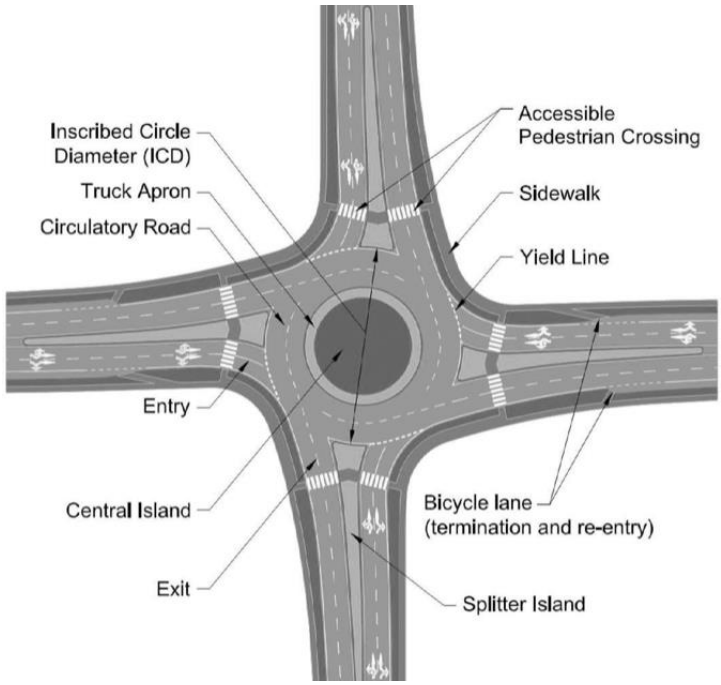


Table N-2: Roundabout Characteristics

Design Element	Description
Central Island	Central island is a raised area in the center of the roundabout, which traffic circulates. It will not always be circular shape and may be mountable.
Splitter Island	Splitter island is a raised or painted area used to separate traffic entering and exiting. It is designed to slow down vehicular entry and provide a two-stage pedestrian crossing.
Circulatory Roadway	Circulatory roadway is the curved path around the center island. It is the vehicle's path of travel.
Truck Apron	Truck apron is a mountable portion of the center island adjacent to the circulatory roadway. It is used to accommodate wheel tracking of larger vehicles. The truck apron can also be provided outside of the circulatory roadway.
Entrance Line	The entrance line functions as a yield line and is the point of entry into the circulatory roadway. Vehicles entering the roundabout will need to yield to circulating traffic from the left before crossing this line onto the circulatory roadway.
Pedestrian Crossing	Pedestrian crossing is the crossing location.
Landscape Buffer	Landscape buffer provides a space between vehicular and pedestrian traffic. It helps guide pedestrian to crossing locations on the roundabout. The landscaping will contribute to the aesthetic of the roundabout.
Inscribed Circle Diameter (ICD)	ICD is the diameter of the largest circle within the intersection outline. Different types of roundabouts will have different ICD. This is a critical design characteristic that influences operation and safety.

2.2 Types of Roundabouts

The CRDG and NCHRP Report 672 describe the three most common types of roundabouts in North America. The roundabout types are distinguished based on size, number of lanes. Note that the.

Table N-3 is based on Table 1.2 from the CRDG, which provides a comparison of the characteristics for the three types of roundabouts. Note that pedestrian and cycling facilities are designed in all three categories. However, some jurisdiction may choose not to provide these features depending on location and users need.

Table N-3: Types of Roundabout Comparison

Design Element	Mini-Roundabout	Single-lane Roundabout	Multi-lane Roundabout
Maximum Number of Entry Lanes per Approach	1	1	2 or more
Typical Inscribed circle diameter, ICD (m)	14 to 27	28 to 60	46 to 100
Central Island Treatment	Fully traversable	Raised (may have traversable apron)	Raised (may have traversable apron)
Typical Daily Volumes for Four-Legged Roundabout (vpd)	Up to approx. 15,0000	Up to approx. 25,0000	Two lane roundabout: Up to approx. 45,0000

A detailed description of each type of roundabout is provided below.

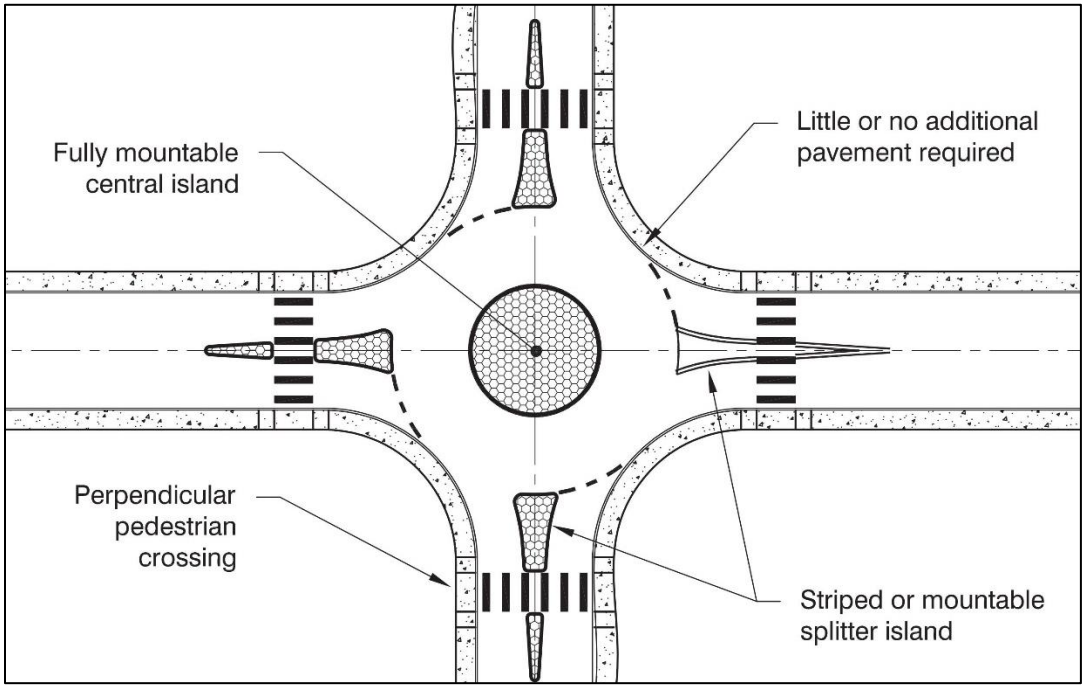
Mini-Roundabout

As described in Table N-3, mini-roundabouts are smaller in size and have fully mountable central island. They are common in low-speed (50 km/h or less) urban environment. Benefits of these type of roundabout includes:

- Less right-of-way constraints.
- Inexpensive as it usually will require minimal pavement and minor road widening.
- Mountable central island to accommodate for larger vehicles.
- Pedestrian-friendly as crossing occurs in shorter distance and at low speed environment.

The mountable nature of the island also reduces the safety of this type of roundabout. Figure N-2 is an excerpt from the NCHRP Report 672, Exhibit 1-10, and it illustrates the key characteristics of a mini-roundabout.

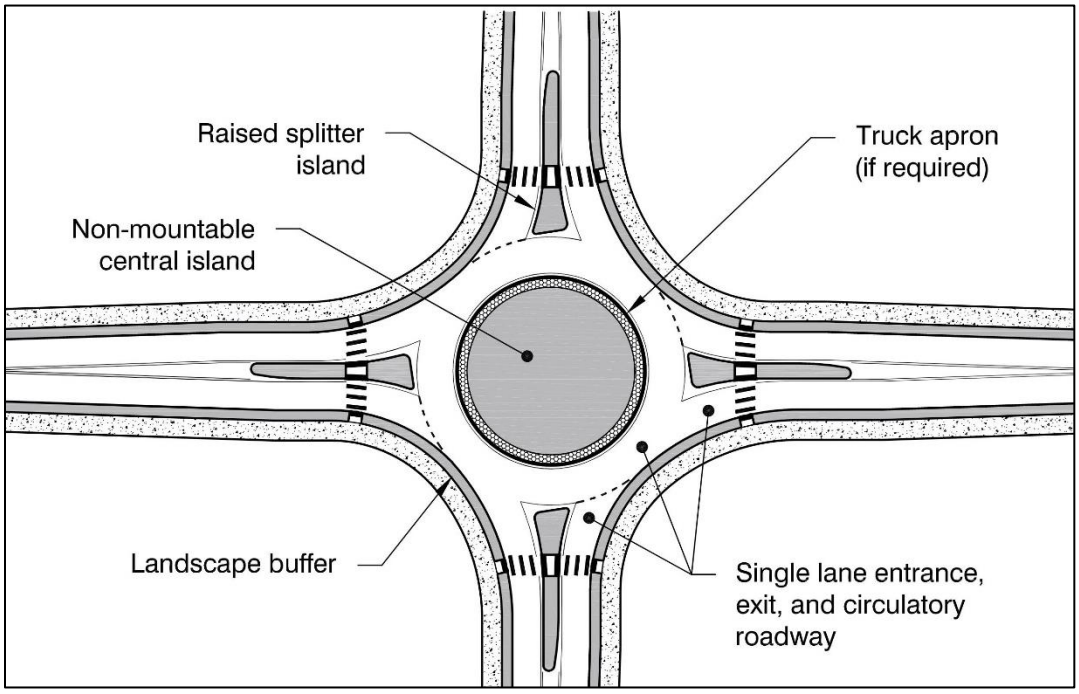
Figure N-2: Typical Mini-Roundabout (Excerpt from NCHRP Report 672 Exhibit 1-10)



Single-Lane Roundabout

Single-lane roundabout is characterized by one land entries on all approaches and one circulatory lane. They have a larger inscribed circle diameter and allows for slightly higher entry speed in comparison to a mini-roundabout. To provide additional safety, the central island is not mountable. However, a mountable apron can be considered to help accommodate larger vehicles. Figure N-3 is an excerpt from the NCHRP Report 672, Exhibit 1-12, and it illustrates the features of a single-lane roundabout.

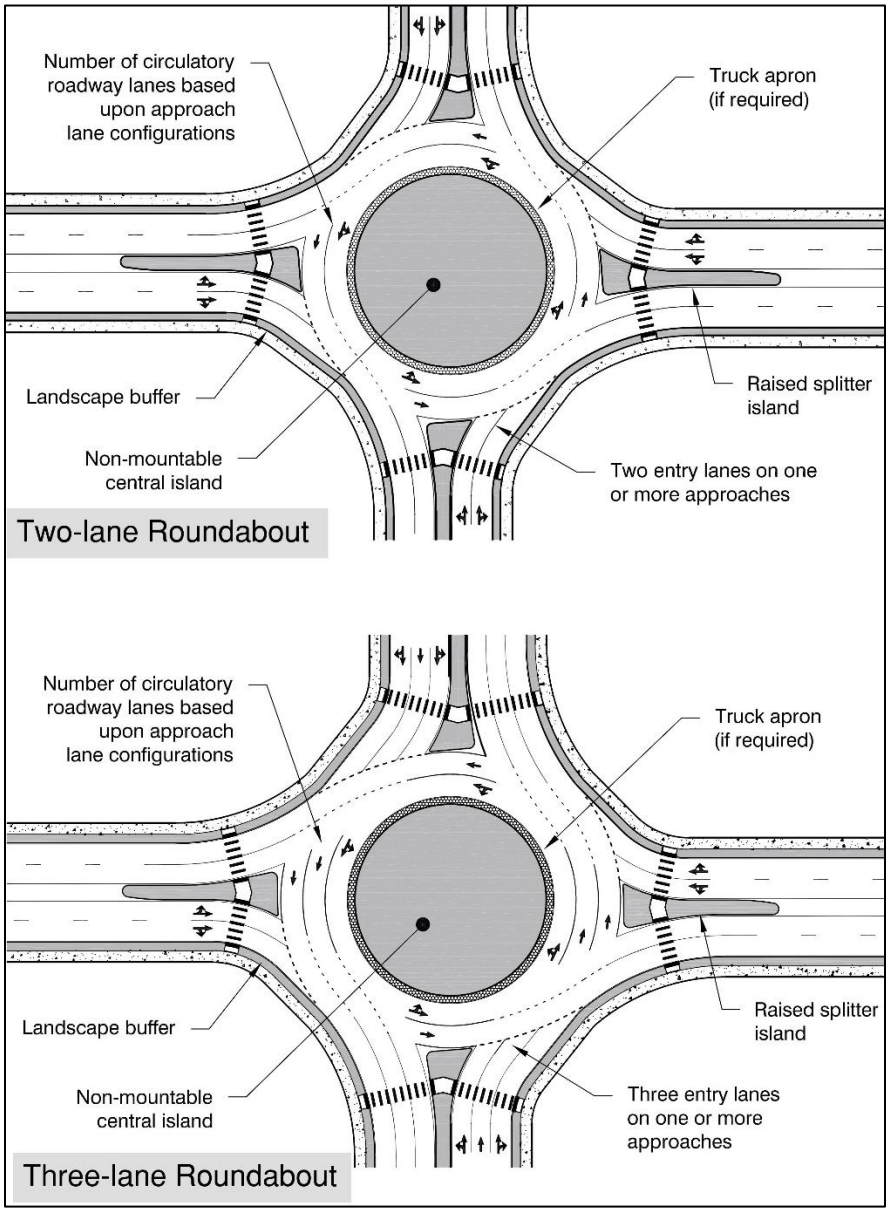
Figure N-3: Typical Single-Lane Roundabout (Excerpt from NCHRP Report 672 Exhibit 1-12)



Multi-Lane Roundabout

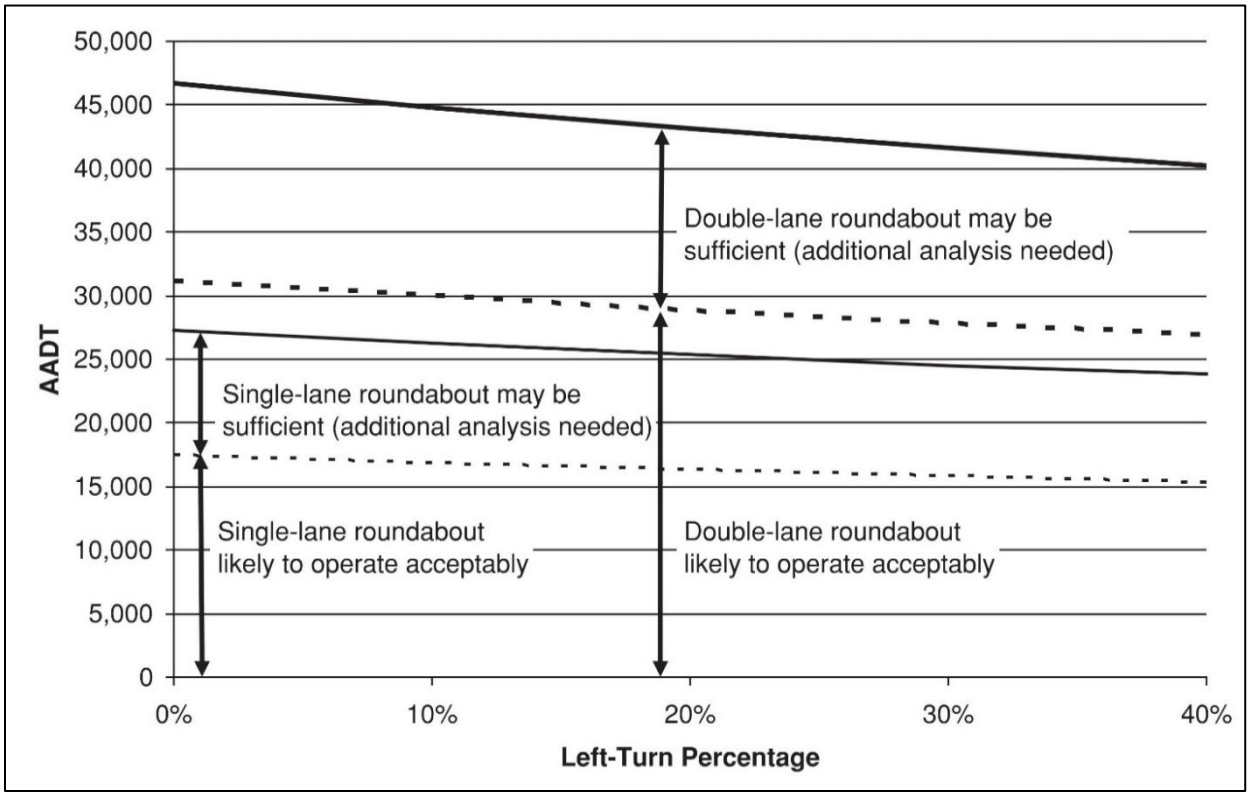
Multi-lane roundabout will have two or more entry lanes for at least one approach. They will require a wider circulatory lane to help accommodate more vehicles travelling side by side. There are some challenges for pedestrians and cyclists as it will take longer to cross. Multi-lane roundabouts are also more difficult and costly to implement. Figure N-4 is an excerpt from the NCHRP Report 672, Exhibit 1-14, and it illustrates the key characteristics of a multi-roundabout.

Figure N-4: Typical Two and Three-Lane Roundabout (Excerpt from NCHRP Report 672 Exhibit 1-14 and 1-15)



NCHRP Report 672 provides a high-level review that determines the appropriate roundabout type based on average annual daily traffic and the percentage of left-turns. This is illustrated in Figure N-5 which is an excerpt from the NCHRP Report 672, Exhibit 3-12.

Figure N-5: Consideration for the Types of Roundabout (Excerpt from NCHRP Report 672 Exhibit 3-12)



2.3 Comparison with Other Intersection Control

There are two important factors when determining a suitable traffic control for an intersection – capacity and safety. A roundabout will have capacity and safety benefits over other traffic control depending on the total traffic volumes and percentage of main street traffic volumes. The benefits of roundabout over other traffic control are summarized below.

Two-way stop control (TWSC)

Delays on minor street caused by inadequate capacities and difficult for left-turns to merge to through traffic. Roundabouts provide solution for these concerns. All movements are treated equally and can accommodate a high number of lefts. Also, capacity is greater than TWSC except when major street exceeds 90% of total traffic. In addition, there is a reduction of crashes at intersections that were TWSC. Based on NCHRP Report 672, an average of approximately 44% crashes are reduced when converted from TWSC to roundabout.

All-way stop control (AWSC)

In comparison to AWSC, roundabouts can improve capacity, reduce delays and minimize crash severity (i.e., reduce angle collision). During off-peak, all vehicles are expected to stop at an AWSC intersection even when there are no other vehicles presented. Roundabout can eliminate

this. According to NCHRP Report 672, as traffic volume increases and left-turn increases; the use of roundabout can reduce delay exponentially.

Traffic Signal

Similar to AWSC, during off-peak period and when there are heavy left turns, the delay reduction will be prominent if the intersection was a roundabout. However, if a multi-lane is required, a more detail review and analysis should be conducted in order to determine if roundabout will be appropriate. It is more beneficial installing a roundabout when volumes between major and minor street approaches are balanced.

As roundabouts encourage lower speed, eliminate red-light turns and reduce conflict points in comparison to traffic signal. Based on NCHRP Report 672, average crash reduction is approximately 47.8% when signalized intersections are converted to roundabouts.

2.4 Roundabout Policies from Other Jurisdictions

As mentioned, roundabouts are becoming increasingly popular tool to manage traffic. Several municipalities have implemented roundabouts and development policies to help guide consideration of the roundabout and it is summarized in Table N-4. Most of the jurisdiction recommends considering roundabouts at any new location with potential new traffic signal and for existing intersection with current / projected operation problems. In addition to Table N-4, other jurisdiction that have general policies that discuss the use of roundabout includes:

- **Regional Municipality of York and Peel and City of Markham:** screening tools to determine if a roundabout is suitable and can address intersection improvements.
- **Town of Whitchurch Stouffville:** their TMP recommends considering roundabout at new intersection and / or for intersection improvements.
- **City of St. Thomas**: their TMP there is a list of potential criteria to evaluate whether implementing a roundabout would be appropriate including traffic capacity, traffic flow, accommodation of pedestrians and cyclists, constructability, cost, property/land acquisition, environmental impact, safety and percent grade.

Table N-4: Roundabout Use / Policy Comparison with Other Jurisdictions

Jurisdiction	Policy Document	Guidelines within Policy		
		Initial Screening	Operational Analysis	Detail Design
Ontario Ministry of Transportation (MTO)	Traffic Impact Study Guideline, dated September 2014	✗	✓ Evaluate capacity, delay and queue Include capacity. reduction to account for driver familiarity with roundabout. Guidance on analysis technique / modelling software (ARCADY, AIMSUM, PARAMICS, VISSIM)	✓ Illustrate all geometric parameters. Evaluate fastest path. Speed and radius relationship.
County of Simcoe	Roundabout feasibility guideline in their Transportation Master Plan, dated Oct 2014.	✓ Review advantage and disadvantage of roundabout vs other traffic control. Safety consideration. High level operation review. Benefit – cost assessment.	✓ Capacity analysis including delay and queue to help identify geometric design. Performance analysis done on SIDRA, ARCADY or RODEL.	✓ Illustrate all geometric parameters. Identify design vehicle, path of vehicle and speed. Provide elements for pedestrian and cyclists. Pavement marking and signage. Landscape plans.
Regional Municipality of Waterloo	Region of Waterloo Transportation Impact Study Guideline, dated Sept. 2013.	✓ Complete a traffic flow sheet to determine feasibility of a roundabout and preliminary lane configuration. Develop 10-year AADT forecast for the use of collision cost estimates Preliminary cost of construction and installation. Comparison of cost with other traffic control. Develop 20-year collision cost analysis.	✓ Detailed intersection control study. Specific modelling parameters in Region of Waterloo Requirements for Capacity Analysis, Roundabouts, Signal Warrant documentation, including: Use of RODEL or ARCADY, Geometric parameters to consider, Other calibration needed in the models	✓ Adequate size to accommodate 10-year traffic volume. Sized to accommodate the appropriate design vehicle. Consider geometric parameter to help achieve required speed reduction. Consider property, access and utility impact, Include cyclists and pedestrians' infrastructure

Jurisdiction	Policy Document	Guidelines within Policy		
		Initial Screening	Operational Analysis	Detail Design
Niagara Region	Niagara Region Transportation Master Plan – Operating Policies Review Technical Paper (Niagara Region TMP Policy Paper), June 2017 Require justification report to be submitted to Commissioner of Public Works and includes: Safety and community benefits, Capacity and operational analysis, Pedestrian and cyclist considerations, Design elements Property acquisition if any, Life cycle cost benefit comparison to other traffic controls, and Public education	✓ Screening information is provided in the Niagara Region's Guidelines Transportation Impact Studies. It includes: Illustrate that alternatives have been considered, Preliminary lane configuration, Preliminary cost estimates, and Developing 20-year injury collision cost.	✓ 10-year sensitivity analysis. Use of RODEL or approved equivalent for capacity analysis. Adjust RODEL confidence level.	✓ As per the Niagara Region's TMP Policy Paper. Consider design vehicle of at least a WB-20. Follow CRDG.
City of Hamilton	Use of Roundabouts in the City of Hamilton (PW 08078) policy, dated June 6, 2008 Stakeholders will be contacted, and public advised of any roundabout projects. Public information centres (PIC) should be held.	✓ Checklist as per PW08078 which includes review of right-of-way, intersection geometry, safety, delays, traffic flow, land use context etc.	✓ Performance measure includes: Collision frequency reduction study. Capacity analysis (delay and queue). Preliminary cost assessment (construction, maintenance, staging and property acquisition). Qualitative criteria review: ensure equity, natural and social impacts.	✓ Once it passes the initial screening engineering drawing will be required based on good design principles.
City of Brantford	Roundabout Installation Policy and Associated Traffic and Parking By-law Amendments, dated Sept. 2020.	✓ Suitability check. Feasibility check. Determine lane requirements.	✗ No detail on the criteria for operation analysis.	✓ As per CRDG and NCHRP Report 672 City's Design and Construction Manual: Linear Municipal Infrastructure Standards.

3.0 Recommendations

Based on the information from the previous section, the proceeding sections provide an update to the recommendation on implementation of roundabouts from the initial draft policy.

3.1 Initial Screening Process

The initial screening process provides a preliminary assessment of whether roundabout is suitable and feasible alternative to consider. The following should be considered:

Review of Safety and Operation Benefits

As mentioned previously, roundabouts are generally safer than other traffic controls as vehicles will be travelling slower and there are less conflict points (safer movements). Operationally, roundabouts experience lower delays and smaller queues as unnecessary stops are reduced. However, the safety and operation benefits should still be reviewed and quantified including:

- Determine crash frequency reduction and reduction of collision severity of implementing a roundabout.
- Estimate the delay time, queue, fuel consumption and emission reduction from installing a roundabout in comparison to other traffic control.
- Review the safety and operational concerns experienced at the location.

Traffic Volume Consideration

As stated in the previous draft policy, both multi-lane and mini-roundabout roundabout are not recommended at this time. However, it may be considered in the long term once the public become more comfortable maneuvering in a roundabout. For a single lane roundabout, the following traffic volume threshold is recommended:

- Based on AADT summarized in Figure N-5: between 16,000 and 25,000 vehicles per day, a single lane roundabout may be feasible.
- Single lane roundabout can serve a maximum entry and circulating flow of 1,400 vehicles per hour and exit flow of 1,200 vehicles per hour.
- Beyond the above, a signal warrant may be investigated.

Preliminary Life Cycle Cost Estimate

Based on the information from the Region of Waterloo's Initial Screening Tool, a 20-year life-cycle cost comparison can be considered. This method reviews the implementation and injury collision cost of other traffic control versus roundabouts. Figure N-6 is an excerpt from that documentation and it illustrates the cost considered.

Figure N-6: 20-Year Life-Cycle Cost (Excerpt from Waterloo's Initial Screening Tool)

15) 20-Year Life Cycle Cost Estimate

Injury Collision Cost (ICC): _____

Discount Rate: (i): _____

20 YEAR LIFE-CYCLE COST COMPARISON		
Cost Item	**Other Traffic Control**	**Roundabout**
Implementation Cost	$	$
Injury Collision Cost (Present Value)	$	$
Total Life Cycle Cost	**X**	**Y**

Notes:

- Implementation Cost
  = sum of costs for construction, property utility relocations, illumination, engineering (20%), contingency (20%) and maintenance (5%);
- Present Value of 20 Year Injury Collision Cost
  = expected annual collision frequency x ICC $((1 + i)^{20}-1) / i(1+i)^{20}$
- Monte Carlo Analysis may be required. If so, a range for the implementation cost (i.e. 10%, 50%, 90% probability) is required

Other Considerations

A more detailed assessment maybe required for the following scenarios:

- If the desired roundabout is located less than 215 m away from a signalized intersection, coordinated signal system or railway crossing, a detailed assessment will be required to demonstrate that downstream queues from the signalized intersection and rail crossing will not impact the roundabout operations.
- If the proposed roundabout is within a significant environmental area outlined in the Town's Official Plan.
- If the roundabout will be in close proximity to potential vulnerable users such as within 200 m walking distance of long-term care facilities, facilities that may house mobility or visually impaired individuals, within a designated Retirement Residential Area and near school zones.

3.2 Operational Analysis

Once a roundabout is deemed suitable and appropriate, a detailed operational analysis will be required. Following the MTO, Region of Waterloo and County of Simcoe guidelines, the following is recommended to be assessed:

- Conduct capacity analysis by converting turning movement counts into entry and circulating flows for each approach.
- Identify geometric design parameters based on the guidelines in CRDG and NCHRP Report 672.
- The use of ARCADY or equivalent accepted roundabout software for design and operational analysis.
- The operation analysis should include a capacity reduction to account for driver familiarity of roundabouts. This includes the following:
  - A 15% capacity reduction (85% y-intercept) for within 10 years horizon analysis period,
  - A 10% capacity reduction (90% y-intercept) for 10 to 20 years horizon and
  - A 5% capacity reduction (95% y-intercept) for beyond 20 years horizon.
- Consider pedestrian volume within the analysis.
- The following performance measure needs to be reviewed:
  - Entering, circulating and departing traffic volume,
  - Average delay per vehicle and total delay,
  - 95th Percentile queue,
  - Volume to capacity ratio, and
  - Level of service.

3.3 Engineering Design

Based on guidelines from other jurisdictions, careful consideration will be needed at this stage including:

- Identifying all geometric parameters and design elements of a roundabout.
- Evaluate the fastest path, speed and radius relationships.
- Assess the maneuver of the largest expected design vehicle and ensure the roundabout can accommodate.
- Conduct a sightline analysis.
- Design for pedestrian and cyclists including bike lanes, sidewalks and multi-use paths.
- Incorporate appropriate signages, pavement markings, illumination, and landscape.
- Determine the land required to fit the designed roundabout.

The design should follow CRDG and NCHRP Report 672 guidelines and be designed and reviewed by a licensed Professional Engineer.

3.4 Education and Public Consultation

In the Town's case, as currently there are no roundabouts, public awareness and education will be essential when implementing a roundabout. It is recommended that public information sessions, media announcements, promotional materials, educational videos consisting of information on what a roundabout is and how to properly maneuver through a roundabout be distributed to everyone in Town. Prior to implementing a roundabout, similar approach should be taken as with Municipal Class Environmental Assessment where stakeholder consultation is required. The same level of public outreach will be required with every new roundabout that is proposed.

Appendix O

Appendix O

Organization Capacity Review

BURNSIDE

Innisfil

Appendix P

Appendix P

Detailed Project Costs

BURNSIDE

Innisfil

Date of last update: October 23, 2023

Source	ID	Category	Road / Intersection	From	To	EA Schedule	Length (km)	Phasing	Improvement Type	No. Intersection Improvements	Existing Road Class	Ultimate Road Class	Cross-Section Type	Existing Num Lanes	Ultimate Num Lanes	Code	$ per Unit	Roadwork Cost ($)	Utilities (10%)	Culverts (#)	Culvert Cost ($)	Traffic Control (2%)	Structure ($)	Property Acquisition	EA Study ($100,000+4%)	Other Study	Subtotal	Engineering (15%)	Contingency (10%)	Total Capital Cost (2022 $)	BTE/BTG Type	BTE %	BTE $	BTG %	BTG $
2022 TMP		Roads	13th Line	25th Sideroad	Friday Drive	A+	0.7	2041	Urbanization		Local	Local	Rural	2	2	UR-UMinC	$ 3,692,539	$ 2,584,778	$ 258,478		$ -	$ 51,696			$ -		$ 2,894,951	$ 434,243	$ 289,495	$ 3,618,689	RU	10%	$ 361,869	90%	$ 3,256,820
2022 TMP		Roads	20th Sideroad	Lockhart Road	Big Bay Point Road	C	2.8	2041	Widening	2	Arterial	Local	Rural	2	4	W2-4-CR	$ 3,318,758	$ 10,035,913	$ 1,003,591	2	$ 291,526	$ 200,718		$ 2,687,295	$ 902,873		$15,121,918	$ 2,268,288	$ 1,512,192	$ 18,902,397	RW	20%	$ 3,780,479	80%	$15,121,918
2022 TMP		Roads	14th Line	Town Limits	County Road 27 (King Street South)	A+	1.9	2041	Reconstruction		Local	Local	Rural	2	2	R-RCol2	$ 1,191,591	$ 2,264,023	$ 226,402		$ -	$ 45,280			$ -		$ 2,535,706	$ 380,356	$ 253,571	$ 3,169,632	RR-Out of Settlement area	75%	$ 2,377,224	25%	$ 792,408
2022 TMP		Roads	County Road 27 (King Street South)	Victoria Street	Highway 89 (Queen Street – Church Street)	-	0.3	2041	Parking Study		Local	Major	Urban	2	2	-	-	-	-		$ -	$ -	$ -		$ -	$ 100,000 Included in Above Cost	$ 100,000	$ 15,000	$ 10,000	$ 125,000	Studies	0%	$ -	100%	$ 125,000
2022 TMP		Roads	County Road 27 (King Street South)	East John Street	Garibaldi Street	-	0.1	2041	Parking Study		Local	Major	Urban	2	2	-	-	-	-		$ -	$ -	$ -		$ -		$ -	$ -	$ -	$ -	Studies	0%	$ -	100%	$ -
2022 TMP		Roads	6th Line	Highway 400 Interchange	Eastern limit of The Orbit	C	12.6	2041	EA Addendum		Arterial	County	Mixed-Use Rural	2	2	-	-	-	-		$ -	$ -	$ -		$ 647,168		$ 647,168	$ 97,075	$ 64,717	$ 808,959	Studies	0%	$ -	100%	$ 808,959
2022 TMP		Roads	Innisfil Beach Road / Webster Boulevard	-	-	A	-	2041	Signalization/Intersection Improvements	1				-	-	-	$ 371,696	-			$ -	$ -	$ -		$ -		$ 371,696	$ 55,754	$ 37,170	$ 464,620	S-Fut	10%	$ 46,462	90%	$ 418,158
2022 TMP		Roads	7th Line	County Road 4 (Yonge Street)	20th Sideroad	C	3.1	2051	EA Study		Minor Collector	Local	Rural	2	2	-	-	-	-		$ -	$ -	$ -		$ 647,168		$ 647,168	$ 97,075	$ 64,717	$ 808,959	Studies	0%	$ -	100%	$ 808,959
2022 TMP		AT	10th Line	East of Stroud	20th Sideroad	A	2.1	Short (by 2031)	Paved Shoulder		Minor Collector	Local	Rural			RRSHD-Rod	$ 242,179	$ 508,576	$ -		$ -	$ -			$ -		$ 508,576	$ 76,286	$ 50,858	$ 635,720	AT-Other locations	80%	$ 508,576	20%	$ 127,144
2022 TMP		AT	10th Line	West of Stroud	10th Sideroad	A	2.4	Short (by 2031)	Paved Shoulder		Minor Collector	Local	Rural			RRSHD-Rod	$ 242,179	$ 581,230	$ -		$ -	$ -			$ -		$ 581,230	$ 87,184	$ 58,123	$ 726,537	AT-Other locations	80%	$ 581,230	20%	$ 145,307
2022 TMP		AT	4th Line	West of Churchill	County Road 27 (King Street South)	A	8.7	Short (by 2031)	Paved Shoulder		Local	Local	Rural			RRSHD-Rod	$ 242,179	$ 2,106,958	$ -		$ -	$ -			$ -		$ 2,106,958	$ 316,044	$ 210,696	$ 2,633,698	AT-Other locations	80%	$ 2,106,958	20%	$ 526,740
2022 TMP		AT	Mapleview Drive	25th Sideroad	20th Sideroad	A/A+	3.1	Short (by 2031)	Multi-Use Trail		Minor Collector	Local	Rural			MUT	$ 198,125	$ 614,187	$ -		$ -	$ -		$ 874,920	$ -		$ 1,489,106	$ 223,366	$ 148,911	$ 1,861,383	AT-Other locations	80%	$ 1,489,106	20%	$ 372,277
2022 TMP		AT	Big Bay Point Road	13th Line	Lake Simcoe	A/A+	4.7	Short (by 2031)	Multi-Use Trail		Minor Collector	Local	Rural			MUT	$ 198,125	$ 931,186	$ -		$ -	$ -		$ 2,487,519	$ -		$ 3,418,705	$ 512,806	$ 341,870	$ 4,273,381	AT-Other locations	80%	$ 3,418,705	20%	$ 854,676
2022 TMP		AT	5th Line	Yonge Street	20th Sideroad	A/A+	3.1	2051	Multi-Use Trail		Local	Local	Rural			MUT	$ 198,125	$ 614,187	$ -		$ -	$ -		$ 97,794	$ -		$ 711,980	$ 106,797	$ 71,198	$ 889,975	AT-Other locations	80%	$ 711,980	20%	$ 177,995
2022 TMP		AT	7th Line	Yonge Street	10th Sideroad	A	3.1	2051	Paved Shoulder		Local	Local	Rural			RRSHD-Rod	$ 242,179	$ 750,755	$ -		$ -	$ -			$ -		$ 750,755	$ 112,613	$ 75,076	$ 938,444	AT-Other locations	80%	$ 750,755	20%	$ 187,689
2022 TMP		Roads	Safety and Operations Study (including the assessment of identified potential crossing locations)			A		2031								-	-	-	-		$ -	$ -	$ -		$ -	$ 100,000	$ 100,000	$ 15,000	$ 10,000	$ 125,000	Studies	0%	$ -	100%	$ 125,000
2022 TMP		Roads	Implementation of crossings at recommended locations, subject to further study, as noted above			A		2031		10						-	$ 197,340	$ -	$ -		$ -	$ -			$ -		$ 1,973,400	$ 296,010	$ 197,340	$ 2,466,750	S-Fut	10%	$ 246,675	90%	$ 2,220,075
2018 TMP	1	Roads	Big Bay Point Road	20th Sideroad	25th Sideroad / 13th Line	A+	3.1	Medium	Reconstruction		Arterial Road		Rural	2	2	R-RCol2	$ 1,191,591	$ 3,693,932	$ 369,393		$ -	$ 73,879			$ -		$ 4,137,204	$ 620,581	$ 413,720	$ 5,171,505	RR-Truck Haul Route	20%	$ 1,034,301	80%	$ 4,137,204
2018 TMP	2	Roads	Big Bay Point Road	25th Sideroad / 13th Line	Friday Drive	A+	2.6	Long	Reconstruction		Major Collector		Rural	2	2	R-RCol2	$ 1,191,591	$ 3,098,137	$ 309,814		$ -	$ 61,963			$ -		$ 3,469,913	$ 520,487	$ 346,991	$ 4,337,391	RR-Truck Haul Route	20%	$ 867,478	80%	$ 3,469,913
2018 TMP	3	Roads	Big Bay Point Road	Friday Drive	Lake Simcoe	A+	2.1	Long	Reconstruction		Major Collector		Rural	2	2	R-RCol2	$ 1,191,591	$ 2,502,341	$ 250,234		$ -	$ 50,047			$ -		$ 2,802,622	$ 420,393	$ 280,262	$ 3,503,278	RR-Within Settlement Area	40%	$ 1,401,311	60%	$ 2,101,967
2018 TMP	4	AT	Big Bay Point Road	20th Sideroad	West St	A	6.9	Long	Paved Shoulders		Arterial / Major Collector		Rural			RRSHD-Rod	$ 242,179	$ 1,671,036	$ -		$ -	$ -			$ -		$ 1,671,036	$ 250,655	$ 167,104	$ 2,088,795	AT- Big Bay point	40%	$ 835,518	60%	$ 1,253,277
2018 TMP	5	Roads	13th Line	Big Bay Point Road / 25th Sideroad	Friday Drive	A+	0.8	Short	Reconstruction		Minor Collector		Rural	2	2	R-RCol2	$ 1,191,591	$ 953,273	$ 95,327		$ -	$ 19,065			$ -		$ 1,067,666	$ 160,150	$ 106,767	$ 1,334,582	RR-Truck Haul Route	20%	$ 266,916	80%	$ 1,067,666
2018 TMP	7	AT	13th Line	Friday Drive	Lake Simcoe	A	1.6	Short	Paved Shoulders		Local		Rural		2	RRSHD-Rod	$ 242,179	$ 387,487	$ -		$ -	$ -			$ -		$ 387,487	$ 58,123	$ 38,749	$ 484,358	AT-Other locations	80%	$ 387,487	20%	$ 96,872
2018 TMP	8	Roads	Lockhart Road	20th Sideroad	Lake Simcoe	A+		Short	Reconstruction		Major Collector		Rural	2	2	-	-	-	-		$ -	$ -	$ -		$ -		$ -	$ -	$ -	$ 8,649,450	RR-Within Settlement Area	40%	$ 3,459,780	60%	$ 5,189,670
2018 TMP	9	AT	9th Line	Leonard Street	A	A	0.8	Short	Paved Shoulders		Local		Rural	2	2	RRSHD-Rod	$ 242,179	$ 193,743	$ -		$ -	$ -			$ -		$ 193,743	$ 29,061	$ 19,374	$ 242,179	AT-Alcona North	45%	$ 108,981	55%	$ 133,199
2018 TMP	10	Roads	10th Line	west extent of boundary of Sandy Cove settlement area	25th Sideroad	A+	1.2	Short	Urbanization		Major Collector		Rural	2	2	UR-UMinC	$ 4,107,222	$ 4,928,666	$ 492,867	1	$ 145,763	$ 98,573			$ -		$ 5,665,869	$ 849,880	$ 566,587	$ 7,082,337	RU	10%	$ 708,234	90%	$ 6,374,103
2018 TMP	11	Roads	10th Line	25th Sideroad	Purvis St	A+	0.8	Short	Urbanization		Local		Rural	2	2	UR-UMaC	$ 4,107,222	$ 3,285,778	$ 328,578	1	$ 145,763	$ 65,716			$ -		$ 3,825,834	$ 573,875	$ 382,583	$ 4,782,293	RU	10%	$ 478,229	90%	$ 4,304,063
2018 TMP	50	Roads	10th Line	20th Sideroad	west extent of boundary of Sandy Cove settlement area	A+	1.8	Short	Reconstruction		Major Collector		Rural	2	2	R-RCol2	$ 1,191,591	$ 2,144,864	$ 214,486	1	$ 145,763	$ 42,897			$ -		$ 2,548,011	$ 382,202	$ 254,801	$ 3,185,013	RR-Truck Haul Route	20%	$ 637,003	80%	$ 2,548,011
2018 TMP	12	Roads	25th Sideroad	Big Bay Point Rd	Mapleview Dr	A+	1.4	Short	Reconstruction		Major Collector		Rural	2	2	R-RCol2	$ 1,191,591	$ 1,668,227	$ 166,823	2	$ 291,526	$ 33,365			$ -		$ 2,159,941	$ 323,991	$ 215,994	$ 2,699,926	RR-Within Settlement Area	40%	$ 1,079,971	60%	$ 1,619,956
2018 TMP	13	Roads	25th Sideroad	Mapleview Dr	Innisfil Beach Road	A+	5.5	Long	Urbanization		Major Collector		Rural	2	2	UR-UMaC	$ 4,107,222	$ 22,589,721	$ 2,258,972	1	$ 145,763	$ 451,794			$ -		$25,446,250	$ 3,816,938	$ 2,544,625	$ 31,807,813	RU	10%	$ 3,180,781	90%	$28,627,032
2018 TMP	21	Structure	6th Line	Bridge Expansion over Railway		C		Short	New Structure		Arterial Road		Rural	2	2						$ -	$ -			$ -		$ -	$ -	$ -	$ 3,767,400	NC	0%	$ -	100%	$ 3,767,400
2018 TMP	16	Roads	Webster Blvd South Extension	Quarry Dr	6th Line	C	0.8	Short	New Construction		Major Collector		Urban	0	2	NC-UMaC	$ 3,900,571	$ 3,120,457	$ 312,046		$ -	$ 62,409		$ 5,164,442	$ 349,637		$ 9,008,990	$ 1,351,348	$ 900,899	$ 11,261,237	NC	0%	$ -	100%	$11,261,237
2018 TMP	18	Roads	Jans Blvd North Extension	North extent of Jans Blvd	9th Line	C	0.8	Short	New Construction		Major Collector		Urban	0	2	NC-UMaC	$ 3,900,571	$ 3,120,457	$ 312,046		$ -	$ 62,409		$ 5,336,510	$ 349,637		$ 9,181,058	$ 1,377,159	$ 918,106	$ 11,476,322	NC	0%	$ -	100%	$11,476,322
2018 TMP	22	Roads	6th Line	20 Sideroad	Angus St	C	2	Short	Widening		Arterial Road		Rural	2	4	SD1	$ 3,953,477	$ 7,906,953	$ 790,695		$ -	$ 158,139		$ 4,078,708	$ 732,556		$13,667,052	$ 2,050,058	$ 1,366,705	$ 17,083,815	RW	20%	$ 3,416,763	80%	$13,667,052
2018 TMP	23	Roads	6th Line	Angus St	St Johns Road	A+	1.1	Short	Urbanization		Arterial Road		Rural	2	2	UR-UMaC SD1	$ 3,908,073	$ 4,298,880	$ 429,888		$ -	$ 85,978			$ -		$ 4,814,746	$ 722,212	$ 481,475	$ 6,018,432	RR-Within Settlement Area	40%	$ 2,407,373	60%	$ 3,611,059
2018 TMP	24	Roads	Killarney Beach Road	Yonge Street	20th Sideroad	A+	3.1	Short	Reconstruction		Major Collector		Rural	2	2	R-RCol2	$ 1,191,591	$ 3,693,932	$ 369,393	1	$ 145,763	$ 73,879			$ -		$ 4,282,967	$ 642,445	$ 428,297	$ 5,353,709	RR-Truck Haul Route	20%	$ 1,070,742	80%	$ 4,282,967
2018 TMP	25	AT	Killarney Beach Road	Yonge Street	20th Sideroad	A	3.1	Short	Paved Shoulders		Minor Collector		Rural	2	2	RRSHD-Rod	$ 242,179	$ 750,755	$ -		$ -	$ -			$ -		$ 750,755	$ 112,613	$ 75,076	$ 938,444	AT-Other locations	80%	$ 750,755	20%	$ 187,689
2018 TMP	26	Roads	Anna Maria Avenue	Jans Boulevard	St Johns Road	A+	1.2	Short	Urbanization		Local	Minor Collector	Urban		2	UR-UMinC	$ 3,692,539	$ 4,431,047	$ 443,105		$ -	$ 88,621			$ 454,484		$ 5,417,257	$ 812,588	$ 541,726	$ 6,771,571	RU	10%	$ 677,157	90%	$ 6,094,414
2018 TMP	26	Roads	Westmount Avenue	Laurand Street	St Johns Road	A+	1.2	Short	Urbanization		Local	Minor Collector	Urban		2	UR-UMinC	$ 3,692,539	$ 4,431,047	$ 443,105		$ -	$ 88,621			$ 454,484		$ 5,417,257	$ 812,588	$ 541,726	$ 6,771,571	RU	10%	$ 677,157	90%	$ 6,094,414
2018 TMP	26	Roads	Willard Avenue	Innisfil Beach Road	Leslie Drive	A+	0.7	Short	Urbanization		Local	Minor Collector	Rural		2	UR-UMinC	$ 3,692,539	$ 2,584,778	$ 258,478		$ -	$ 51,696			$ 306,782		$ 3,201,733	$ 480,260	$ 320,173	$ 4,002,166	RU	10%	$ 400,217	90%	$ 3,601,950
2018 TMP	26	Roads	Adullam Avenue	Innisfil Beach Road	Leslie Drive	A+	0.7	Short	Urbanization		Local	Minor Collector	Urban		2	UR-UMinC	$ 3,692,539	$ 2,584,778	$ 258,478		$ -	$ 51,696			$ 306,782		$ 3,201,733	$ 480,260	$ 320,173	$ 4,002,166	RU	10%	$ 400,217	90%	$ 3,601,950
2018 TMP	26	Roads	3rd Line	County Road 27	5th Sideroad	A+	3.1	Short	Reconstruction		Local	Collector	Rural		2	R-RCol2	$ 1,191,591	$ 3,693,932	$ 369,393	2	$ 291,526	$ 73,879			$ 395,515		$ 4,824,245	$ 723,637	$ 482,424	$ 6,030,306	RR-Out of Settlement area	75%	$ 4,522,730	25%	$ 1,507,577
2018 TMP	26	Roads	3rd Line	Reive Boulevard	20th Sideroad	A+	9	Short	Reconstruction		Local	Collector	Rural		2	R-RCol2	$ 1,191,591	$ 10,724,319	$ 1,072,432	3	$ 437,289	$ 214,486			$ 957,946		$13,406,473	$ 2,010,971	$ 1,340,647	$ 16,758,091	RR-Out of Settlement area	75%	$12,568,568	25%	$ 4,189,523
2018 TMP	26	Roads	2nd Line	County Road 27	5th Sideroad	A+	3.1	Short	Reconstruction		Local	Collector	Rural		2	R-RCol2	$ 1,191,591	$ 3,693,932	$ 369,393	1	$ 145,763	$ 73,879			$ 395,515		$ 4,678,482	$ 701,772	$ 467,848	$ 5,848,102	RR-Out of Settlement area	75%	$ 4,386,077	25%	$ 1,462,026
2018 TMP	26	Roads	2nd Line	Reive Boulevard	20th Sideroad	A+	9	Short	Reconstruction		Local	Collector	Rural		2	R-RCol2	$ 1,191,591	$ 10,724,319	$ 1,072,432	5	$ 728,816	$ 214,486			$ 957,946		$13,697,599	$ 2,054,700	$ 1,369,800	$ 17,122,499	RR-Out of Settlement area	75%	$12,841,874	25%	$ 4,280,625
2018 TMP	26	Roads	Shore Acres Drive	20th Sideroad	Eastern Limit	A+	2	Short	Reconstruction		Local	Collector	Rural		2	R-RCol2	$ 1,191,591	$ 2,383,182	$ 238,318	1	$ 145,763	$ 47,664			$ 290,655		$ 3,105,582	$ 465,837	$ 310,558	$ 3,881,977	RR-Out of Settlement area	75%	$ 2,911,483	25%	$ 970,494
2018 TMP	26	Roads	Gilford Road	Yonge Street	Eastern Limit	A+	5	Short	Reconstruction		Local	Collector	Rural		2	R-RCol2	$ 1,191,591	$ 5,957,955	$ 595,796	2	$ 291,526	$ 119,159			$ 576,636		$ 7,541,072	$ 1,131,161	$ 754,107	$ 9,426,341	RR-Out of Settlement area	75%	$ 7,069,756	25%	$ 2,356,585
2018 TMP	26	Roads	20th Sideroad	Gilford Road	Shore Acres Drive	A+	0.3	Short	Reconstruction		Local	Collector	Rural		2	R-RCol2	$ 1,191,591	$ 357,477	$ 35,748	1	$ 145,763	$ 7,150			$ 128,598		$ 674,736	$ 101,210	$ 67,474	$ 843,420	RR-Out of Settlement area	75%	$ 632,565	25%	$ 210,855
2018 TMP	27	Roads	20th Sideroad	Big Bay Point Road	9th Line	A+	5.5	Medium	Reconstruction		Arterial Road		Rural	2	2	R-RArt2	$ 1,224,114	$ 6,732,629	$ 673,263	4	$ 583,053	$ 134,653			$ -		$ 8,123,597	$ 1,218,540	$ 812,360	$ 10,154,497	RR-Out of Settlement area	75%	$ 7,615,872	25%	$ 2,538,624
2018 TMP	28	AT	20th Sideroad	Big Bay Point Road	6th Line	A	5.5	Medium	Paved Shoulders		Arterial Road		Rural		2	RRSHD-Rod	$ 242,179	$ 1,331,985	$ -		$ -	$ -			$ -		$ 1,331,985	$ 199,798	$ 133,199	$ 1,664,982	AT-Other locations	80%	$ 1,331,985	20%	$ 332,996
2018 TMP	31	AT	20th Sideroad	3rd Line	Innisfil / Bradford Boundary	A	5.2	Long	Paved Shoulders		Local		Rural		2	RRSHD-Rod	$ 242,179	$ 1,259,331	$ -		$ -	$ -			$ -		$ 1,259,331	$ 188,900	$ 125,933	$ 1,574,164	AT-Other locations	80%	$ 1,259,331	20%	$ 314,833
2018 TMP	32	Roads	Killarney Beach Road / 4th Line	John Street	Yonge Street	A+	0.5	Medium	Urbanization		Major Collector		Rural	2	2	UR-UMaC	$ 4,107,222	$ 2,053,611	$ 205,361	1	$ 145,763	$ 41,072			$ -		$ 2,445,807	$ 366,871	$ 244,581	$ 3,057,259	RU	10%	$ 305,726	90%	$ 2,751,533
2018 TMP	33	Roads	Killarney Beach Road	20th Sideroad	Ewart Street	A+	1.2	Long	Urbanization		Major Collector		Rural	2	2	UR-UMaC	$ 4,107,222	$ 4,928,666	$ 492,867		$ -	$ 98,573			$ -		$ 5,520,106	$ 828,016	$ 552,011	$ 6,900,133	RU	10%	$ 690,013	90%	$ 6,210,120
2018 TMP	34	AT	Killarney Beach Road	Ewart St	Lake Simcoe	A	0.5	Medium	Paved Shoulders		Major Collector		Rural		2	RRSHD-Rod	$ 242,179	$ 121,090	$ -		$ -	$ -			$ -		$ 121,090	$ 18,163	$ 12,109	$ 151,362	AT-Other locations	80%	$ 121,090	20%	$ 30,272
2018 TMP	36	Roads	Adullam Ave	Lebanon Drive	Innisfil Beach Road	A+	0.3	Short	Urbanization		Minor Collector		Rural	2	2	UR-UMinC	$ 3,692,539	$ 1,107,762	$ 110,776		$ -	$ 22,155			$ -		$ 1,240,693	$ 186,104	$ 124,069	$ 1,550,867	RU	10%	$ 155,087	90%	$ 1,395,780
2018 TMP	37	Roads	6th Line	County Road 27	County Road 53 / 5th Sideroad	A+	3.1	Long	Reconstruction		Arterial Road		Rural	2	2	R-RArt2	$ 1,224,114	$ 3,794,755	$ 379,475		$ -	$ 75,895			$ -		$ 4,250,126	$ 637,519	$ 425,013	$ 5,312,658	RR-Within Settlement Area	40%	$ 2,125,063	60%	$ 3,187,594
2018 TMP	38	Roads	6th Line	County Road 53 / 5th Sideroad	20 Sideroad	A+	9.1	Long	Reconstruction		Arterial Road		Rural	2	2	R-RArt2	$ 1,224,114	$ 11,139,441	$ 1,113,944		$ -	$ 222,789			$ -		$12,476,174	$ 1,871,426	$ 1,247,617	$ 15,595,217	RR-Within Settlement Area	40%	$ 6,238,087	60%	$ 9,357,130
2018 TMP	39	AT	6th Line	County Road 53 / 5th Sideroad	20th Sideroad	A	9.1	Long	Paved Shoulders		Arterial Road		Rural		2	RRSHD-Rart	$ 242,179	$ 2,203,830	$ -		$ -	$ -			$ -		$ 2,203,830	$ 330,575	$ 220,383	$ 2,754,788	AT-Other locations	80%	$ 2,203,830	20%	$ 550,958
2018 TMP	40	Roads	7th Line	10 Sideroad	Yonge Street	A+	3	Short	Reconstruction		Local		Rural	2	2	R-RCol2	$ 1,191,591	$ 3,574,773	$ 357,477	2	$ 291,526	$ 71,495			$ -		$ 4,295,272	$ 644,291	$ 429,527	$ 5,369,090	RR-Out of Settlement Area	75%	$ 4,026,818	25%	$ 1,342,273
2018 TMP	41	Roads	7th Line	Yonge Street	20 Sideroad	A+	3.06	Medium	Reconstruction		Local		Rural	2	2	R-RArt2	$ 1,224,114	$ 3,745,790	$ 374,579		$ -	$ 74,916			$ -		$ 4,195,285	$ 629,293	$ 419,528	$ 5,244,106	RR-Out of Settlement Area	75%	$ 3,933,080	25%	$ 1,311,027
2018 TMP	42	Roads	7th Line	20th Sideroad	Webster Blvd	A+	1.2	Short	Urbanization		Arterial Road		Rural	2	2	UR-UMaC SD1	$ 3,908,073	$ 4,689,688	$ 468,969	1	$ 145,763	$ 93,794			$ -		$ 5,398,213	$ 809,732	$ 539,821	$ 6,747,767	RU	10%	$ 674,777	90%	$ 6,072,990
2018 TMP	66	Roads	7th Line	Webster Blvd	St Johns Road	A+	1.5	Short	Urbanization		Arterial Road		Rural	2	2	UR-UMaC SD1	$ 3,908,073	$ 5,862,109	$ 586,211	1	$ 145,763	$ 117,242			$ -		$ 6,711,326	$ 1,006,699	$ 671,133	$ 8,389,157	RU	10%	$ 838,916	90%	$ 7,550,241
2018 TMP	43	Roads	Webster Blvd North Extension	Existing north limit of Webster Blvd	20th Sideroad	C	0.4	Medium	New Construction		Major Collector		Urban	0	2	NC-UMaC	$ 3,900,571	$ 1,560,228	$ 156,023	1	$ 145,763	$ 31,205		$ 2,801,954	$ 224,818		$ 4,919,991	$ 737,999	$ 491,999	$ 6,149,989	NC	0%	$ -	100%	$ 6,149,989
2018 TMP	45	Structure	Innisfil Beach Road Grade Separation			C		Medium	New Construction		Arterial Road		Urban	0	2								$25,000,000		$ 647,168		$25,647,168	$ 3,847,075	$ 2,564,717	$ 32,058,959	GS	25%	$ 8,014,740	75%	$24,044,220
2018 TMP	47	Roads	20th Sideroad (bypass) with Grade Separation	Leslie Drive	South of Innisfil Beach Rd	C	2	Medium	New Construction	1	Arterial Road		Rural	0	2										$ 732,021					GS	25%	$15,308,856	75%	$45,926,568
2018 TMP	48	Roads	Webster Blvd South Extension	6th Line	5th Line	C	1.3	Medium	New Construction		Major Collector		Urban	0	2	NC-UMaC	$ 3,900,571	$ 5,070,742	$ 507,074	1	$ 145,763	$ 101,415		$ 10,268,211	$ 505,659		$16,598,865	$ 2,489,830	$ 1,659,886	$ 20,748,581	NC	0%	$ -	100%	$20,748,581
2018 TMP	49	Roads	Highway 89 East-west Link Improvement	West of Cookstown	East to Cookstown	C	4	Medium	New Construction		Arterial Road / County Road		Urban	0	2	NC-UArt2	$ 3,953,756	$ 15,815,025	$ 1,581,503	1	$ 145,763	$ 316,301		$ 29,850,027	$ 1,365,202		$49,073,821	$ 7,361,073	$ 4,907,382	$ 61,342,276	NC	0%	$ -	100%	$61,342,276
2018 TMP	53	Other	Proposed roundabouts (20th Sideroad/5th Line and 20th Sideroad/5th Line)			A		Medium	Roundabout	2							$ 1,650,000	$ -	$ -		$ -	$ -			$ -		$ 3,300,000	$ 495,000	$ 330,000	$ 4,125,000	S-Fut	10%	$ 412,500	90%	$ 3,712,500
2018 TMP	51	Roads	Innisfil Beach Road	20th Sideroad	25th Sideroad	A+		Long	Resurfacing		Arterial Road		Rural	2	2	R-RArt2	$ 1,224,114	$ -	$ -	1	$ 145,763	$ -			$ -		$ 145,763	$ 21,864	$ 14,576	$ 182,204	RR-Truck Haul Route	20%	$ 36,441	80%	$ 145,763
2018 TMP	54	Roads	6th Line	County Road 53 / 5th Sideroad	20 Sideroad	C	9.1	Long	Widening		Arterial Road		Rural	2	4	SD1	$ 3,953,477	$ 35,976,837	$ 3,597,684		$ -	$ 719,533		$ 17,864,137	$ 2,978,131		$61,136,101	$ 9,170,415	$ 6,113,610	$ 76,420,126	RR-Within Settlement Area	40%	$30,568,051	60%	$45,852,076
2018 TMP	44	Roads	Belle Aire Beach Road	20th Sideroad	Railway tracks	A+	0.94	Long	Urbanization		Major Collector		Rural	2	2	UR-UMaC	$ 4,107,222	$ 3,860,780	$ 386,079	1	$ 145,763	$ 77,216			$ -		$ 4,469,846	$ 670,477	$ 446,985	$ 5,587,308	RU	10%	$ 558,731	90%	$ 5,028,577
2018 TMP	56	Roads	Belle Aire Beach Road	Willow Street	Maple Road	A+	0.56	Long	Urbanization		Major Collector		Rural	2	2	UR-UMaC	$ 4,107,222	$ 2,300,044	$ 230,004	1	$ 145,763	$ 46,001			$ -		$ 2,721,813	$ 408,272	$ 272,181	$ 3,402,266	RU	10%	$ 340,227	90%	$ 3,062,039
2018 TMP	57	Roads	Ewart Street	Killarney Beach Road	300 metres north of Killarney Beach Road	A+	0.4	Long	Urbanization		Major Collector		Rural	2	2	UR-UMaC	$ 4,107,222	$ 1,642,889	$ 164,289		$ -	$ 32,858			$ -		$ 1,840,035	$ 276,005	$ 184,004	$ 2,300,044	RU	10%	$ 230,004	90%	$ 2,070,040
2018 TMP	58	AT	Ewart Street	300 metres north of Killarney Beach Road	Lake Simcoe	A	1.5	Long	Paved Shoulders							RRSHD-Rod	$ 242,179	$ 363,269	$ -		$ -	$ -			$ -		$ 363,269	$ 54,490	$ 36,327	$ 454,086	AT-Lefroy-Belle Ewart	40%	$ 181,634	60%	$ 272,452
2018 TMP	59	Roads	9th Line	Yonge Street	20 Sideroad	A+	3.06	Long	Reconstruction		Major Collector		Rural	2	2	R-RCol2	$ 1,191,591	$ 3,646,269	$ 364,627	2	$ 291,526	$ 72,925			$ -		$ 4,375,347	$ 656,302	$ 437,535	$ 5,469,184	RR-Within Settlement Area	40%	$ 2,187,674	60%	$ 3,281,510
2018 TMP	60	Roads	9th Line	20 Sideroad	25th Sideroad	A+	3	Long	Urbanization		Major Collector		Rural	2	2	UR-UMaC	$ 4,107,222	$ 12,321,666	$ 1,232,167	2	$ 291,526	$ 246,433			$ -		$14,091,792	$ 2,113,769	$ 1,409,179	$ 17,614,740	RU	10%	$ 1,761,474	90%	$15,853,266

2018 TMP	61	Roads	Mapleview Drive	25th Sideroad	20th Sideroad	A+	3.3	Long	Reconstruction		Minor Collector		Rural	2	2	R-RColl2	$ 1,191,591	$ 3,932,250	$ 393,225	1	$ 145,763	$ 78,645			$ -		$ -		$ 4,549,884	$ 682,483	$ 454,988	$ 5,687,355	RR-Out of Settlement Area	75%	$ 4,265,516	25%	$ 1,421,839
2018 TMP	62	Roads	St. John's Road	Innisfil Beach Road	Nantyr Drive	A+	2.3	Long	Urbanization		Major Collector		Rural	2	2	UR-UMajC	$ 4,107,222	$ 9,446,610	$ 944,661	3	$ 437,289	$ 188,932			$ -		$ -		$11,017,493	$ 1,652,624	$ 1,101,749	$ 13,771,867	RU	10%	$ 1,377,187	90%	$12,394,680
2018 TMP	88	AT	Highway 89 / Shore Acres	Yonge Street	20 Sideroad	A	3.1	Long	Paved Shoulders		Arterial Road		Rural	2	4	RRSHD-Rart	$ 242,179	$ 750,755	$ -		$ -	$ -			$ -		$ -		$ 750,755	$ 112,613	$ 75,076	$ 938,444	AT-Other locations	80%	$ 750,755	20%	$ 187,689
2018 TMP	6	AT	13th Line	Big Bay Point Road / 25th Sideroad	Friday Drive	A/A+	0.7	Short	Multi-use trail		Minor Collector		Rural	2	2	MUT	$ 198,125	$ 138,687	$ -		$ -	$ -		$ 34,757	$ -		$ -		$ 173,444	$ 26,017	$ 17,344	$ 216,805	AT-Other locations	80%	$ 173,444	20%	$ 43,361
2018 TMP	14	AT	25th Sideroad	Big Bay Point Rd	Innisfil Beach Road	A/A+	6.9	Short	Multi-use trail	2	Major Collector		Rural	2	2	MUT	$ 198,125	$ 2,110,452	$ -		$ -	$ -		$ 3,177,585	$ -		$ -		$ 5,288,038	$ 793,206	$ 528,804	$ 6,610,047	AT-Sandy Cove	40%	$ 2,644,019	60%	$ 3,966,028
2018 TMP	15	AT	7th Line	Yonge Street	St Johns Road	A/A+	6.1	Short	Multi-use trail	1	Arterial Road		Rural	2	2	MUT	$ 198,125	$ 1,580,257	$ -		$ -	$ -		$ 1,204,407	$ -		$ -		$ 2,784,664	$ 417,700	$ 278,466	$ 3,480,830	AT-Alcona South	45%	$ 1,566,374	55%	$ 1,914,457
2018 TMP	17	AT	Webster Blvd	Existing north limit of Webster Blvd	6th Line	A	3.9	Short	Bike lanes		Major Collector		Urban	2	2	BikePaint	$ 191,134	$ 745,424	$ -		$ -	$ -			$ -		$ -		$ 745,424	$ 111,814	$ 74,542	$ 931,780	AT-Alcona South	45%	$ 419,301	55%	$ 512,479
2018 TMP	19	AT	Jans Blvd	North extent of Jans Blvd	Webster Blvd	A	0.8	Short	Bike lanes		Major Collector		Urban	2	2	BikePaint	$ 191,134	$ 152,907	$ -		$ -	$ -			$ -		$ -		$ 152,907	$ 22,936	$ 15,291	$ 191,134	AT-Alcona South	45%	$ 86,010	55%	$ 105,124
2018 TMP	20	AT	6th Line	20th Sideroad	St Johns Road	A/A+	3.1	Short	Multi-use trail		Arterial Road		Rural	2	4	MUT	$ 198,125	$ 614,187	$ -		$ -	$ -		$ 1,891,208	$ -		$ -		$ 2,505,395	$ 375,809	$ 250,539	$ 3,131,743	AT-Alcona South	45%	$ 1,409,285	55%	$ 1,722,459
2018 TMP	29	AT	20th Sideroad	9th Line	5th Line	A/A+	5.5	Medium	Multi-use trail	1	Arterial Road		Rural	2	2	MUT	$ 198,125	$ 1,461,382	$ -		$ -	$ -		$ 128,042	$ -		$ -		$ 1,589,424	$ 238,414	$ 158,942	$ 1,986,780	AT-New Development	0%	$ -	100%	$ 1,986,780
2018 TMP	30	AT	20th Sideroad	5th Line	3rd Line	A/A+	2.8	Medium	Multi-use trail		Arterial Road		Rural	2	2	MUT	$ 198,125	$ 554,749	$ -		$ -	$ -		$ -	$ -		$ -		$ 554,749	$ 83,212	$ 55,475	$ 693,436	AT-Alcona South	45%	$ 312,046	55%	$ 381,390
2018 TMP	55	AT	6th Line	County Road 53 / 5th Sideroad	20th Sideroad	A/A+	9.1	Long	Multi-use trail		Arterial Road		Rural	2	2	MUT	$ 198,125	$ 1,802,935	$ -		$ -	$ -			$ -		$ -		$ 1,802,935	$ 270,440	$ 180,293	$ 2,253,668	AT-Other locations	80%	$ 1,802,935	20%	$ 450,734
2018 TMP	89	Other	Education Programs for walking and cycling			-		2023	Studies								-	-	$ -		$ -	$ -			$ -		$ -		$ -	$ -	$ -	$ 244,007	Studies	0%	$ -	100%	$ 244,007
2018 TMP	52	Other	Transportation Planning Studies (TMP)			-		2022	Studies								-	-	$ -		$ -	$ -			$ -		$ -		$ -	$ -	$ -	$ 488,014	Studies	0%	$ -	100%	$ 488,014
2018 TMP	64	Other	EcoMobility Hub			-		2023	Other Improvements								-	-	$ -		$ -	$ -			$ -		$ -		$ -	$ -	$ -	$ 488,014	RR-Within Settlement Area	40%	$ 195,206	60%	$ 292,808
2018 TMP	65	Other	Bike-share program			-		2024	Other Improvements								-	-	$ -		$ -	$ -			$ -		$ -		$ -	$ -	$ -	$ 128,104	Studies	0%	$ -	100%	$ 128,104
2018 TMP	66	Other	Zoning by-law study to consider reduced minimum parking standards and the addition of Electric Vehicle parking space and carpool parking space requirements			-		2024	Studies								-	-	$ -		$ -	$ -			$ -		$ -		$ -	$ -	$ -	$ 244,007	Studies	0%	$ -	100%	$ 244,007
2018 TMP	67	AT	Other paved shoulders (Roberts Road, Crystal Beach Road / Goodfellow Avenue, location can be found in Trail Master Plan map)			A	1.62	Medium	Paved Shoulders							RRSHD-Rcol	$ 242,179	$ 392,330	$ -		$ -	$ -			$ -		$ -		$ 392,330	$ 58,850	$ 39,233	$ 490,413	AT-Alcona North	45%	$ 220,686	55%	$ 269,727
2018 TMP	68	AT	Other MUT (IRC Loop, Innisfil Beach Park Trail, Sleeping Lion Loop), location can be found in Trail Master Plan map			A/A+	4.2	Short	Multi-use trail							MUT	$ 198,125	$ 832,124	$ -		$ -	$ -			$ -		$ -		$ 832,124	$ 124,819	$ 83,212	$ 1,040,155	AT-Other locations	80%	$ 832,124	20%	$ 208,031
2018 TMP	69	AT	Other MUT (20th Sideroad proposed realignment), location can be found in Trail Master Plan map			A/A+	1.7	Medium	Multi-use trail							MUT	$ 198,125	$ 336,812	$ -		$ -	$ -			$ -		$ -		$ 336,812	$ 50,522	$ 33,681	$ 421,015	AT-Other locations	80%	$ 336,812	20%	$ 84,203
2018 TMP	70	AT	Secondary Trail, location can be found in Trail Master Plan map			A/A+	12.1	Short	Secondary Trail							MUT	$ 198,125	$ 2,397,309	$ -		$ -	$ -			$ -		$ -		$ 2,397,309	$ 359,596	$ 239,731	$ 2,996,636	AT-Other locations	80%	$ 2,397,309	20%	$ 599,327
2018 TMP	71	AT	Secondary Trail, location can be found in Trail Master Plan map (Medium-term)			A/A+	12.6	Medium	Secondary Trail							MUT	$ 198,125	$ 2,496,371	$ -		$ -	$ -			$ -		$ -		$ 2,496,371	$ 374,456	$ 249,637	$ 3,120,464	AT-Other locations	80%	$ 2,496,371	20%	$ 624,093
2018 TMP	72	AT	Secondary Trail, location can be found in Trail Master Plan map (Long term)			A/A+	8.8	Long	Secondary Trail							MUT	$ 198,125	$ 1,743,497	$ -		$ -	$ -			$ -		$ -		$ 1,743,497	$ 261,525	$ 174,350	$ 2,179,371	AT-Other locations	80%	$ 1,743,497	20%	$ 435,874
2018 TMP	73	AT	Sidewalk (within established areas), location can be found in Trail Master Plan map (Short-term)			A	1.9	Short	Sidewalk							MUT	$ 198,125	$ 376,437	$ -		$ -	$ -			$ -		$ -		$ 376,437	$ 56,466	$ 37,644	$ 470,546	AT-Other locations	80%	$ 376,437	20%	$ 94,109
2018 TMP	74	AT	Sidewalk (within established areas), location can be found in Trail Master Plan map (Medium-term)			A	5.7	Medium	Sidewalk							MUT	$ 198,125	$ 1,129,311	$ -		$ -	$ -			$ -		$ -		$ 1,129,311	$ 169,397	$ 112,931	$ 1,411,638	AT-Other locations	80%	$ 1,129,311	20%	$ 282,328
2018 TMP	75	AT	Sharrows, location can be found in Trail Master Plan map (Short-term)			A	24	Short	Sharrows							Sharrows	$ 4,576	$ 109,822	$ -		$ -	$ -			$ -		$ -		$ 109,822	$ 16,473	$ 10,982	$ 137,277	AT-Other locations	80%	$ 109,822	20%	$ 27,455
2018 TMP	76	AT	Sharrows, location can be found in Trail Master Plan map (Long-term)			A	5.3	Long	Sharrows							Sharrows	$ 4,576	$ 24,252	$ -		$ -	$ -			$ -		$ -		$ 24,252	$ 3,638	$ 2,425	$ 30,315	AT-Other locations	80%	$ 24,252	20%	$ 6,063
2018 TMP	77	AT	Cycling Lane, location can be found in Trail Master Plan map (Short-term)			A	2.2	Short	Bike Lanes							Sharrows	$ 4,576	$ 10,067	$ -		$ -	$ -			$ -		$ -		$ 10,067	$ 1,510	$ 1,007	$ 12,584	AT-Other locations	80%	$ 10,067	20%	$ 2,517
2018 TMP	78	AT	Cycling Lane, location can be found in Trail Master Plan map (Medium-term)			A	1.7	Medium	Bike Lanes							Sharrows	$ 4,576	$ 7,779	$ -		$ -	$ -			$ -		$ -		$ 7,779	$ 1,167	$ 778	$ 9,724	AT-Other locations	80%	$ 7,779	20%	$ 1,945
2018 TMP	80	AT	10th Sideroad	Innisfil Beach Road	Centennial Park	A/A+	0.7	Short	Multi-use trail		County Road		Rural	2	2	MUT	$ 198,125	$ 138,687	$ -		$ -	$ -		$ 178,860	$ -		$ -		$ 317,547	$ 47,632	$ 31,755	$ 396,934	AT-Other locations	80%	$ 317,547	20%	$ 79,387
2018 TMP	81	AT	Innisfil Beach Road / County Road 21	5th Sideroad	10th Sideroad	A/A+	2.5	Short	Multi-use trail		County Road		Rural	2/4	4	MUT	$ 198,125	$ 495,312	$ -		$ -	$ -		$ -	$ -		$ -		$ 495,312	$ 74,297	$ 49,531	$ 619,140	AT-Other locations	80%	$ 495,312	20%	$ 123,828
2018 TMP	82	AT	Innisfil Beach Road / County Road 21	10th Sideroad	20th Sideroad	A/A+	6.1	Short	Multi-use trail		County Road		Rural	2/4	4	MUT	$ 198,125	$ 1,208,561	$ -		$ -	$ -		$ 18,285	$ -		$ -		$ 1,226,845	$ 184,027	$ 122,685	$ 1,533,557	AT-Other locations	80%	$ 1,226,845	20%	$ 306,711
2018 TMP	83	AT	Innisfil Beach Road / County Road 21	Essa Road / County Road 27	5th Sideroad	A	3.7	Medium	Paved Shoulders		County Road		Rural	2/4	4	RRSHD-Rart	$ 242,179	$ 896,063	$ -		$ -	$ -			$ -		$ -		$ 896,063	$ 134,409	$ 89,606	$ 1,120,078	AT-Other locations	80%	$ 896,063	20%	$ 224,016
2018 TMP	84	AT	5th Sideroad / County Road 53	Innisfil / Barrie Boundary	Innisfil / Bradford Boundary	A	14.1	Long	Paved Shoulders		County Road		Rural	2/4	4	RRSHD-Rart	$ 242,179	$ 3,414,726	$ -		$ -	$ -			$ -		$ -		$ 3,414,726	$ 512,209	$ 341,473	$ 4,268,407	AT-Other locations	80%	$ 3,414,726	20%	$ 853,681
2018 TMP	85	AT	Yonge Street / County Road 4	Innisfil / Barrie Boundary	Innisfil / Bradford Boundary	A/A+	16.2	Long	Multi-use trail		County Road		Rural	2	4	MUT	$ 198,125	$ 3,209,620	$ -		$ -	$ -		$ 992,208	$ -		$ -		$ 4,201,827	$ 630,274	$ 420,183	$ 5,252,284	AT-Other locations	80%	$ 4,201,827	20%	$ 1,050,457
2018 TMP	86	AT	Highway 89	Cookstown Boundary	Highway 400	A	2.5	Long	Paved Shoulders		Provincial Highway		Rural	2	4	RRSHD-Rart	$ 242,179	$ 605,448	$ -		$ -	$ -			$ -		$ -		$ 605,448	$ 90,817	$ 60,545	$ 756,810	AT-Cookstown	40%	$ 302,724	60%	$ 454,086
2018 TMP	87	AT	Highway 89	Highway 400	Yonge Street	A	6.2	Long	Paved Shoulders		County Road		Rural	2	4	RRSHD-Rart	$ 242,179	$ 1,501,511	$ -		$ -	$ -			$ -		$ -		$ 1,501,511	$ 225,227	$ 150,151	$ 1,876,888	AT-Other locations	80%	$ 1,501,511	20%	$ 375,378

Notes: Property acquisition costs reflect cost of land based on the area of additional right-of-way required
Active Transportation improvements identified in ID 67 to 78 (inclusive) is subject to change as per the ongoing Land and Lakes Master Pla

manually adjustec
Updated from previous 2018 TMP