Town of Lincoln

Active Transportation Strategy (ATS)

FINAL REPORT | SEPTEMBER 2019

wsp

Town of Lincoln

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1.0 CONTEXT

The Town of Lincoln is a municipality within the Region of Niagara. Both the municipality and the Region have a long history of promoting active transportation, and are considered strong leaders in sustainable and healthy community development.

The Town of Lincoln continues to attract and retain people of all ages and abilities, which means that there are increasing needs and demands for infrastructure, programs, and initiatives which support alternative forms of transportation for day to day travel as well as recreational and tourism opportunities.

As part of the development of the Town's Transportation Master Plan (TMP), a comprehensive Active Transportation Strategy (ATS) was prepared. The intent of the ATS is to provide staff and decision makers with the processes and tools to address these changes, as well as the needs of residents, visitors and employees within the Town.

Chapter 1.0 of the ATS report provides an overview of the current geographic, policies and plans, program, socio-demographic and route and facility context within the Town of Lincoln and the impact that it has on the design, development and implementation of a continuous and connected active transportation network.

1.1 WHAT IS ACTIVE TRANSPORTATION?

To identify a system of routes and facilities that accommodate walking and cycling in a safe and comfortable manner, it is important to understand what active transportation is, who uses it, and why they use it.

Active transportation (AT) is defined by Transport Canada as...

"Any form of human-powered transportation for different trip types and purposes."

One of the key goals of the Lincoln ATS is to adequately and methodically address a wide range of AT audiences for a variety of trip types and purposes. Considering the different users and their preferences will help to inform the identification, selection and design of active transportation routes, facilities, amenities, and connections to create a system that can be safe and comfortable for users.

While there are many different human-powered forms of transportation, for developing Lincoln's ATS, pedestrians and cyclists were considered the "primary" user groups.

Due to socio-demographic trends of the Town and recreational preferences, some consideration was given to "8 to 80 users", such as skateboarders and people with mobility or accessibility supports.

AT Users...

Pedestrians

Those who travel by foot including walking, jogging, running and hiking.

Typically travel distances of about 2km or less making it easier to access destinations in urban and hamlet areas of a community.

Cyclists

Those who use a bicycle to get to and from their destination.

Cyclists choose to ride for a variety of different purposes. A typical travel distance is 5km or more depending on the purpose of the trip.

8 to 80

Any other "modes" that are typically used by a specific demographic group such as mobility assisted devices, skateboards, rollerblades, e-bikes, etc.

These users will typically have a wide range of trip purposes and distances but require more unique design considerations based on operating space requirements.

Not all users are created the same. Everyone will have their own interests and preferences which will influence when, how and where they use active transportation. There are six (6) key factors among AT users which can have a unique influence on the various users.

An overview of the factors and potential user influences is outlined in **Table 1**. Defining these factors helps to create a greater understanding of the potential users and uses of the future AT network and shape the planning and design of future routes.

AT User Influences...

AGE

As people get older, their experience increases, resulting in more confidence. Similarly, younger individuals may be more confident and interested in exploring different routes.

TRIP PURPOSE

There are three (3) typical trip types including recreational, commuter, and touring. The type of trip will influence the route and facilities that are selected.

EDUCATION

People may be more likely to use AT if they have a greater understanding of the positive impacts on the environment. Confidence may increase as people are more educated about road safety laws.

VALUES

Values such as health, fitness, the environment, and exposure to nature may increase interest in AT. Convenience, directness, and preferences for access may have an impact on use.

GENDER

Males and females have different interests and experiences when it comes to different types of routes and facilities. Their level of comfort and sense of safety will also vary significantly.

LOCATION

There is a difference in where routes are planned and how facilities are designed based on where they are located (urban versus suburban, rural, or natural areas).

Table 1 | Influencing Factors for Active Transportation Users

1.2 ABOUT LINCOLN

The Lincoln ATS has been developed with the intent of building on the active transportation-related work completed by the Town and its partners.

Understanding and documenting these considerations is a critical part of the ATS development process.

The following sections provide an overview, summary and key consideration highlights from AT-supportive policies, the Town's socio-demographic profile, initiatives that have been implemented to encourage and promote active transportation, and facilities that either exist or have been previously proposed, designed, or constructed within the Town of Lincoln.

1.2.1 POLICIES

As part of the development of the ATS, the project team reviewed policies and plans at the national, provincial, regional, and local levels. Policies are the tools that help guide future decision-making regarding the planning, design, construction, operation, and maintenance of active transportation and recreation infrastructure and services.

A summary of the policies reviewed is found in ***Appendix A***. An understanding of applicable policies helped to shape the AT vision, objectives, and recommendations for the Town of Lincoln.

Through this review, several key themes emerged. A high-level summary of these themes is presented to the right.

Policy themes...

National

Policies outline the National Vision for healthier downtowns, improved social mobility, and improved air quality, with the reduction of vehicles on the roads.

Provincial

Policies include the conservation of natural features and development, which seek to support walking and cycling as alternative or primary forms of transportation.

Regional

Policies provide the umbrella to guide the ATS and the opportunity for the ATS to provide a local context for specific network and facility improvements.

Local

Policies highlight the need to connect the Town of Lincoln with more direct, convenient, and safe active transportation facilities and routes.

1.2.2 PROFILE

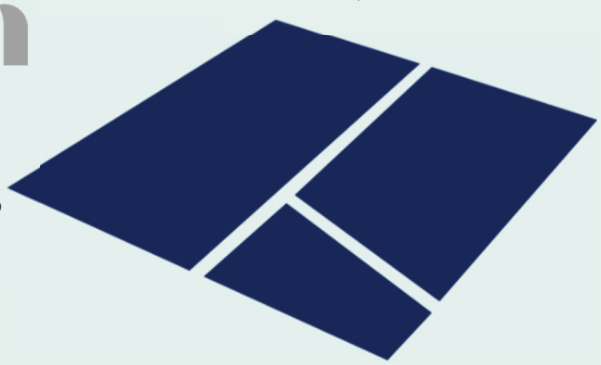
Establishing an understanding of Lincoln's socio-demographic profile helps to define and determine the community's needs and interests related to active transportation.

A socio-demographic profile was developed for the Town of Lincoln based on 2016 Census Data, and data gathered from the Regional Municipality of Niagara and the Town. This allowed to team to establish a more context-specific active transportation vision, as well as supportive goals and objectives found within the ATS.

The content included in this section could be used by the Town to develop promotional materials following the adoption of the TMP and the ATS.

The Geography...

162.81
SQ KM AREA



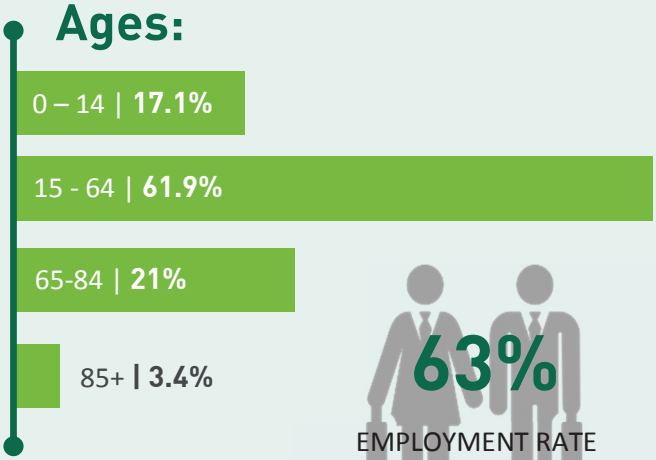
23,787
RESIDENTS
IN 2016

The Town of Lincoln has a growing population that will require increased servicing. Population growth also has a significant impact on the transportation system, including an increased demand for transportation options for different purposes, such as commuting and recreation.

The People...

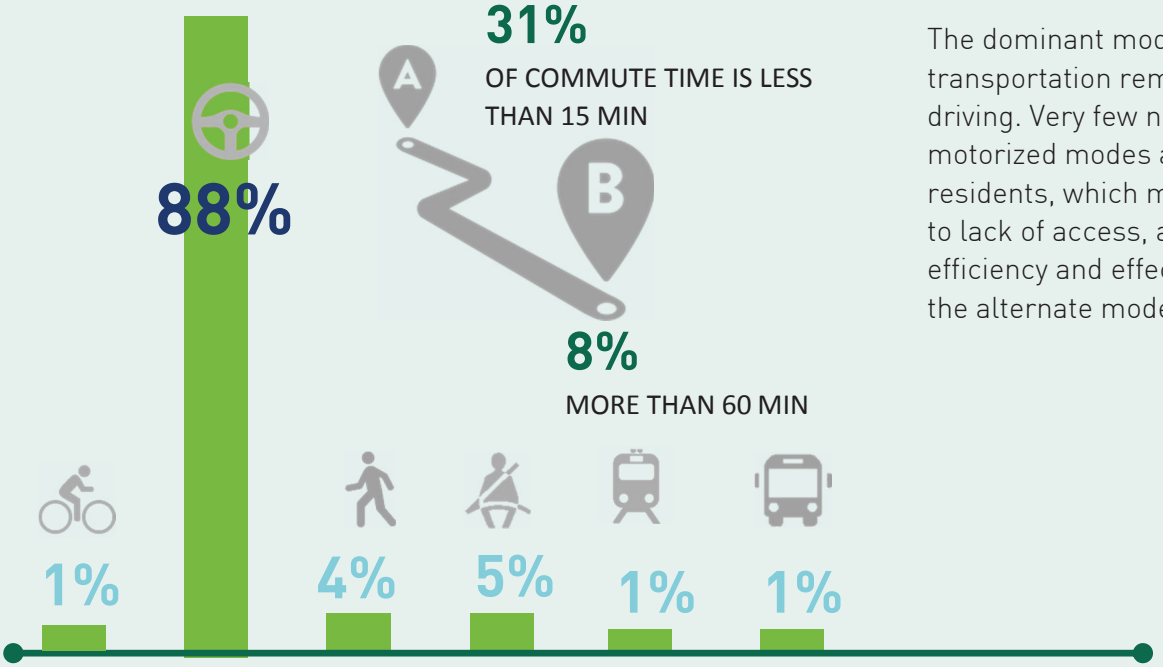
While the Town of Lincoln is also experiencing and aging population there are also a significant number of residents who fall within the young working professional demographic category. Over half of the population of the town is employed which leads to a greater need and dependence on transportation modes for commuting and day-to-day activity purposes.

Ages:



63%
EMPLOYMENT RATE

The Transportation...



The dominant mode of transportation remains driving. Very few non-motorized modes are used by residents, which may be due to lack of access, as well as efficiency and effectiveness of the alternate modes.

1.2.3 FACILITIES

The intent of the Lincoln Active Transportation Strategy is to build upon the significant successes that have been realized over the past couple years. The Town has committed to implementing pieces of active transportation infrastructure which establish key linkages within the town and to surrounding municipalities. What is provided is a strong foundation of existing and previously proposed facilities which can make-up part of a continuous and connected network of walking and cycling facilities.

The first step of developing an AT network is identifying what currently exists and what has been proposed. A summary of the existing facilities found in Lincoln is presented on the right-hand side of the page and are illustrated on **Maps 1a** and **1b**. Considering the existing and proposed connections, there are some AT challenges throughout the Town which were addressed as part of the network development process. AT challenges include:

1. Connections to major community destinations such as schools or community centres;
2. Access between major communities;
3. Connections to major tourism destinations;
4. Access to the Waterfront Trail and major natural and cultural features;
5. Designated or separated cycling infrastructure on high volume and high-speed routes;
6. Missing links and gaps between the on and off-road system;
7. Wayfinding and signage articulating route location and alignment; and
8. Logical connections through the major communities to day-to-day activities.

129.2km

93.3km

ON-ROAD FACILITIES

BIKE LANE

4.6km

SIGNED ROUTE

49.7km

PAVED SHOULDER

39km

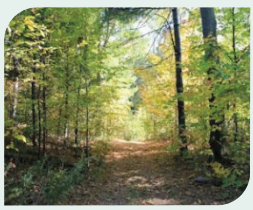
35.9km

OFF-ROAD FACILITIES

OFF-ROAD TRAIL

4.4km

WALKING TRAIL



31.5km

1.2.4 PROMOTION

Another aspect of a successful active transportation strategy is the development and coordination of education and encouragement initiatives and activities. Education and encouragement activities and / or initiatives could include the distribution of educational information, the development of an route and facility map and / or the providing of bicycle parking or valet parking at local events.

The Town and its partners including Niagara Region, Tourism Niagara and Niagara Public Health have pursued additional community promotion and outreach to encourage AT use and to educate residents and visitors of the various active recreation and transportation opportunities and more importantly safe use.

There are four noteworthy initiatives that demonstrate the existing collaboration between the Town and its partners.

AT Education & Encouragement...

CYCLE TOURISM CENTRE

A region-wide initiative with the goal of establishing Niagara Region as a cycling destination.

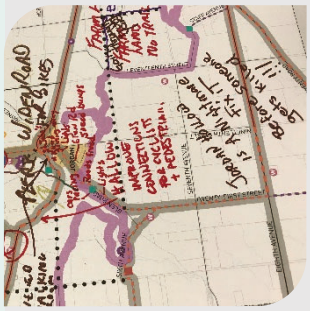
CYCLING CELEBRATION

An event which included a bicycle rodeo education session, a bicycle clinic, a pump track, and more. It aimed to encourage and educate residents on cycling safety, with a focus on young riders.

CYCLING SAFETY

Niagara Regional Police (NRP) partnered with Tim Hortons to encourage young cyclists to follow cycling safety. The NRP handed out Tim Hortons gift cards as an incentive for helmet use.

AT COMMITTEE



Lincoln has identified a set of individuals to serve as members of a committee to Council responsible for advising Council on matters related to safe roads, AT and trails and to monitor the TMP.

1.3 DEVELOPING THE ATS

The ATS has been developed to provide Town staff and decision makers with a blueprint to help guide the integration of AT into the planning, development, and growth of the Town of Lincoln.

The ATS was developed as a component of the Town's Transportation Master Plan and has been integrated into the overall transportation recommendations and implementation timeline.

The ATS was developed collaboratively with Town staff, stakeholders, residents, and the WSP consultation team. The following sections provide an overview of the rationale for developing the ATS, the development process, and how input was gathered and used at key stages to help shape the recommended network and other supportive initiatives outlined within this document.

1.3.1 WHY DEVELOP AN AT STRATEGY?

There are many reasons why municipalities select to develop an active transportation strategy. The shift towards more sustainable and healthy community development is a critical outcome; however, there also individual and community benefits which can be realized including health, social, tourism, environmental, economic and safety.

To shape the business case for AT in Lincoln, the potential community and individual benefits were explored within the six categories noted above. Research was consolidated and considered and some high-level outcomes were identified. These benefits could be used to communicate the rationale and potential value to stakeholders and the public.

A high-level summary of the potential benefits which could be realized by the Town of Lincoln has been prepared and is presented to the right.

HEALTH

- ↑ Physical & active lifestyle
- ↑ Cardiovascular health, mental health & reduced stress
- ↓ Health care costs

SOCIAL

- ↑ Travel options & access to jobs and amenities
- ↑ Mobility & equity for vulnerable populations
- ↑ Independence, mobility & health for aging populations

TOURISM

- ↑ Tourism and popularity for AT and recreation
- ↑ Support for local & regional tourism initiatives

ENVIRONMENT

- ↓ Carbon dioxide emissions & overall air pollution
- ↓ Water pollution from pollutants related to driving
- ↑ Protection of green space & natural environments

ECONOMIC

- ↓ Money being spent on car-related payments
- ↓ Infrastructure costs for municipal governments
- ↑ Local investment in business & community development

SAFETY

- ↑ Sense of safety & livability among residents
- ↑ Motorist awareness of different users
- ↑ Number of users influenced by increased AT activity

1.3.2 PROCESS

The overall transportation master plan (TMP) was developed between October 2017 and September 2019. As part of the TMP process, the Active Transportation Strategy was developed as a separate but integrated component. The ATS was developed in four key parts, which are outlined in **Figure 1**.

The ATS development process is an iterative one which focuses on providing the Town with the necessary steps and stages to fulfill Phases 1 and 2 of the Municipal Class Environmental Assessment process. While the recommended routes would likely not require an EA due to their anticipated cost, it is helpful to have the context and information to inform next steps prior to construction.

Figure 1 | Overview of ATS Development Process

1.3.3 PROJECT OBJECTIVES

The development of the ATS was guided by a set of objectives. The objectives were identified based on the information provided by staff, decision makers, stakeholders and the public. The objectives have been developed to reflect high-level transportation priorities as well as context specific issues and opportunities.

There are a total of eight project objectives which helped to shape the principles and recommendations found within the ATS. The objectives can be used as a means of tracking the success of the ATS implementation and should be referred to as the Town proceeds with future AT improvements.

1. Develop an AT network to support & enhance cycling tourism in Lincoln
2. Plan, design & implement AT facilities that are fiscally responsible in the short & long term
3. Design a connected network that includes routes & facilities to accommodate a range of users & abilities
4. Develop a connected system of on- & off-road routes that provide recreational, commuter & touring opportunities within the Town
5. Minimize environmental impacts from transportation by encouraging AT travel
6. Provide equitable transportation options for residents in the urban, rural & hamlet areas of Lincoln
7. Support the increased use of AT through promotional & outreach initiatives
8. Provide continuous AT routes to facilitate regional travel

1.3.4 INPUT

The development of the ATS was heavily informed by the input gathered from members of Council, Town staff, stakeholders, and residents. A consultation strategy was developed at the time of project initiation, which set out key engagement milestones to shape and guide the TMP and ATS development processes. Over the course of the project, the intent was to provide a variety of engagement opportunities tailored for various audiences to inform the development of key recommendations.

During each engagement milestone active transportation specific questions and materials were presented and reviewed by those participating / in attendance. The audiences, the engagement tools used, and a high-level overview of the key themes that emerged are presented in **Table 2** and **Figure 2**. A detailed summary of the consultation and engagement process and the input received are found in **Appendix A** to the TMP.

Table 2 | Overview of Engagement Opportunities for the ATS

OBJECTIVES	COUNCIL & STAFF	STAKEHOLDERS	RESIDENTS
ROUND 1 Identify AT opportunities, challenges and needs and document existing conditions and previously proposed AT routes			
ROUND 2 Review and revise proposed AT network and priority routes, identify potential recommendations to support AT and identify any challenges and solutions for day to day implementation			

Presentations to inform audiences of the project process, work completed and outcomes

Meetings with specific groups to review key technical steps and stages and gather input

Workshops with stakeholders and agencies to work through key project elements to shape recommendations

Online surveys to provide alternate means of providing input beyond in-person engagement

Open houses and pop ups to provide informal engagement opportunities with interactive activities

The Themes...

The input gathered throughout the engagement and consultation was documented and reviewed in detail by the consultation team. Throughout the consultation process, five major active transportation themes emerged. These themes are presented in **Figure 2** and were used not only to identify the routes and facilities that make-up the recommended AT network but were also used to help shape the recommended initiatives and strategies identified throughout the ATS document.

Figure 2 | Summary of Engagement Themes related to AT

1.4 COMMUNITY NEEDS

Community needs were highlighted by residents, stakeholders and staff through the development process and were considered by the consultant team when developing the proposed network and ATS recommendations. Community needs include strong core values and interests that have been shaped by public experience and perception.

The consultant team utilized the consultation and engagement activities undertaken over the course of the project to gather input and generate a set of high-level community needs and interests. **Table 3** summarizes the AT need "themes" that were identified. The way in which these needs can be realized through the development and adoption of the ATS have also been identified.

Needs...	Opportunities...
ACCESSIBILITY	– Consider the Accessibility for Ontarians with Disabilities Act – Connect and design for seniors and vulnerable persons to get to necessary services – Provide facilities for all ages and abilities
CONNECTIVITY	– Improve connections to surrounding municipalities – Provide sidewalks along local and main roads, especially roads that connect to schools – Provide easier and more direct connections, into and throughout the Town – Increase the number of on- and off-road facilities
SAFETY	– Recommend education, encouragement, and enforcement – Separate heavy truck traffic from pedestrians and cyclists – Ensure appropriate facilities to make residents feel safe during peak traffic periods – Increase separation, and buffer on existing cycling routes
COMMUNITY	– Complete, attractive, and connected communities – Increase the number of off-road trails for tour cycle trips – Provide equitable choices for non-motorized forms of transportation
MAINTENANCE	– Modify and/or develop an appropriate level of service – Identify potential priority routes for seasonal maintenance – Understand the costs associated with seasonal maintenance
IMPLEMENTATION	– Define roles and responsibilities to achieve next steps – Establish a process and tools to support implementation – Identify a phased approach which is costed and communicated
EDUCATION	– Define best practices from comparable municipalities – Recommend programs and initiatives to improve education tailored to Lincoln – Identify partnerships to support implementation of initiatives

Table 3 | Overview of Community Needs & Opportunities related to AT

2.0 DEVELOPMENT

The Active Transportation Strategy for the Town of Lincoln was developed using an interactive process with a focus and emphasis on identifying a network of continuous and connected walking and cycling routes and facilities while also providing recommendations to support engineering, education, encouragement, evaluation and enforcement (the five E's).

It is important to focus on a balanced approach when it comes to shifting behaviours from more traditional motorized vehicles use to self-propelled forms of transportation. The steps that were used to develop the proposed Active Transportation network as well as supportive recommendations provides the details needed to understand how, why and what the Town is recommending to achieve long-term community objectives.

Chapter 2.0 presents an overview of the network development process used for the Lincoln ATS and outcomes of that process. It presents the draft active transportation network and the design considerations and guidelines which should be used / referenced as the Town proceeds with implementation.

2.1 ATS DEVELOPMENT PRINCIPLES

Developing a coordinated and connected active transportation network and a long-term planning strategy requires a cohesive vision supported by a set of detailed goals. The following is the Town of Lincoln Active Transportation vision statement which is intended to reflect the community's aspirations for walking, cycling and being active in Lincoln.

Lincoln AT vision...

The Town of Lincoln supports a diverse, inter-connected transportation system for residents, businesses, and visitors that is accessible, enhances the overall quality of life, and enables efficient movement of people and goods within the Town and adjacent communities. Active transportation is considered a key mode of transportation and a vital component to enhance the overall quality of life, community growth, and tourism in the Town.

A vision statement is most effective when it is articulated by a set of goals. The goals are used to articulate more specific outcomes that are intended to be achieved through the implementation of the ATS.

As opposed to developing a unique set of goals for the ATS, the team referred to the transportation goals found within the Town's Official Plan.

The intent is for the vision and objectives of the ATS to provide further support for the Town's transportation goals. **Table 4** provides an overview of how the ATS objectives help to achieve the transportation goals.

Lincoln Transportation Goals...

Objectives	Provide Accessible Transportation Options	Integrate AT and Land use Planning	Promote Public Health and Safety	Support Local Economic Development	Enhance Town-wide Sustainability through AT options
Develop an AT network to enhance cycling tourism	✓			✓	✓
Fiscally responsible facilities in short and long-term	✓	✓		✓	✓
Design a connected network for all users and uses	✓		✓		✓
Design a connected network of on and off-road routes	✓	✓	✓		✓
Minimize environmental impacts by encouraging AT		✓	✓		✓
Provide equitable transportation options in all areas of the Town	✓	✓	✓	✓	✓
Support increased AT through promotion and outreach	✓		✓		✓
Provide continuous AT routes that integrate regional routes	✓		✓	✓	✓

Table 4 | Summary of Lincoln ATS Objectives and Transportation Goals

2.2 AT NETWORK DEVELOPMENT

One of the core elements of the ATS is the proposed active transportation network. The intent is to provide a continuous and connected system of on and off-road active transportation routes and facilities that provide access to major destinations within the Town and to surrounding areas.

The intent of the network is not to reinvent the wheel but to build upon the infrastructure that has already been developed by the Town and its partners. The following sections provide an overview of the process that was used to identify Lincoln's proposed AT network.

2.2.1 PROCESS

The active transportation network was identified using an iterative process made up to seven steps:

1. Mapping of existing conditions and previously proposed routes;
2. Identification of route selection criteria;
3. Identification of candidate active transportation routes;
4. Investigation of candidate routes and documentation of context-specific conditions;
5. Identification of preferred active transportation routes and facilities;
6. Identification of route network priorities and loops; and
7. Costing of proposed routes.

The intent of this iterative process is to ensure that the network is reflective of the interests and priorities of the community as well as the context-specific conditions which may have planning or engineering impacts.

The proposed active transportation network is not meant to be prescriptive but should be used as a guide for future AT improvements. It reflects the current state of the Town and is integrated with the other transportation recommendations outlined within the Transportation Master Plan.

Should additional routes be identified or considered for inclusion as part of the active transportation network – once the ATS has been adopted – staff should refer to this process to determine the route's applicability followed by the identification of an appropriate facility type and its inclusion as part of priority loop routes.

An overview of the approach and outcomes used for the seven steps of the network development process is documented on the following pages.

STEP 1: MAPPING EXISTING CONDITIONS

Information was gathered from the Town of Lincoln and the Region of Niagara and used to develop a GIS database of existing and previously planned AT routes and facilities. An overview of the total kilometres of existing active transportation routes and facilities is provided in section 1.2.4. The database was updated to ensure that the information reflected of the current state. While every effort was made to document accurate information, it is important to note that due to the nature of transportation, conditions can change.

The network database – prepared in GIS - reflects a snapshot in time and should continue to be updated as the Town proceeds with implementation of the proposed active transportation network. An additional document has been prepared in Excel to mimic the GIS database for those who are unable to use GIS. Additional details are provided in section 3.2.2.

Maps 1a and **1b** illustrate the existing and previously proposed AT routes found within the Town of Lincoln. The routes illustrated on these maps are not the sole responsibility of the Town. There are linkages illustrated which were identified by the Region as well as other partners such as the Bruce Trail Conservancy and the Waterfront Regeneration Trust. While the Waterfront Trail primarily accommodates cyclists the Bruce Trail restricts the use of the primary trail system by cyclists only allowing hiking and other pedestrian activities. The following is an overview of the kilometres of AT facilities / routes by jurisdiction – where "other" indicates the Bruce Trail.

Total Existing AT Facilities	**148.1**
Town of Lincoln	45.2
Niagara Region	56.8
Other	46.1
Total Previously Proposed AT Facilities	**97.5**
Town of Lincoln	71.1
Niagara Region	26.4

Table 5 | Summary of Existing & Previously Proposed AT Facilities

STEP 2: IDENTIFY ROUTE SELECTION CRITERIA

Route selection criteria are a set of principles used to review, select, and confirm potential active transportation routes. The criteria were identified with input from Town staff to reflect the Town's overall AT vision and are consistent with the planning and design principles identified in Ontario's Traffic Manual (OTM) Book 18: Cycling Facilities, and best practices.

The route selection criteria should be used to review and / or confirm any additional routes which may be considered as part of the AT network following the completion and adoption of the ATS and the TMP. The criteria should be communicate as needed.

Accessible: The design should take into consideration people of all ages and abilities

Attractive: Routes should consider links to scenic areas and vistas along with cultural and natural destinations

Sustainable: Where possible the route should have the least amount of environmental impacts

Easy to Access: Routes should provide access to major destinations and areas of interest within the community

Context Sensitive: Appropriate context to implement a facility that complies with standards and policies

Cost Effective: Facilities are affordable and an appropriate scale for the Town to implement

Visible: The route increases the visibility of AT as part of the overall transportation network

Tourism Oriented: Routes provide access to or link directly with tourism destinations

Diverse: There is a range of facilities which provide opportunities for various user types and uses

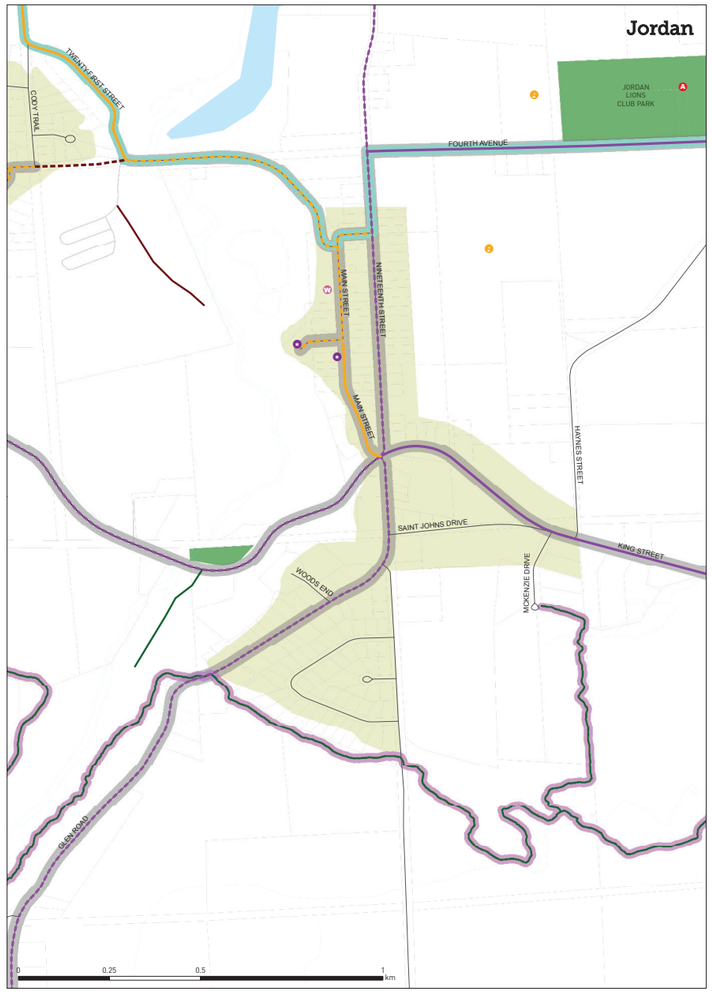
Comfortable: The route or facility reduces the risk to users and creates a sense of comfort

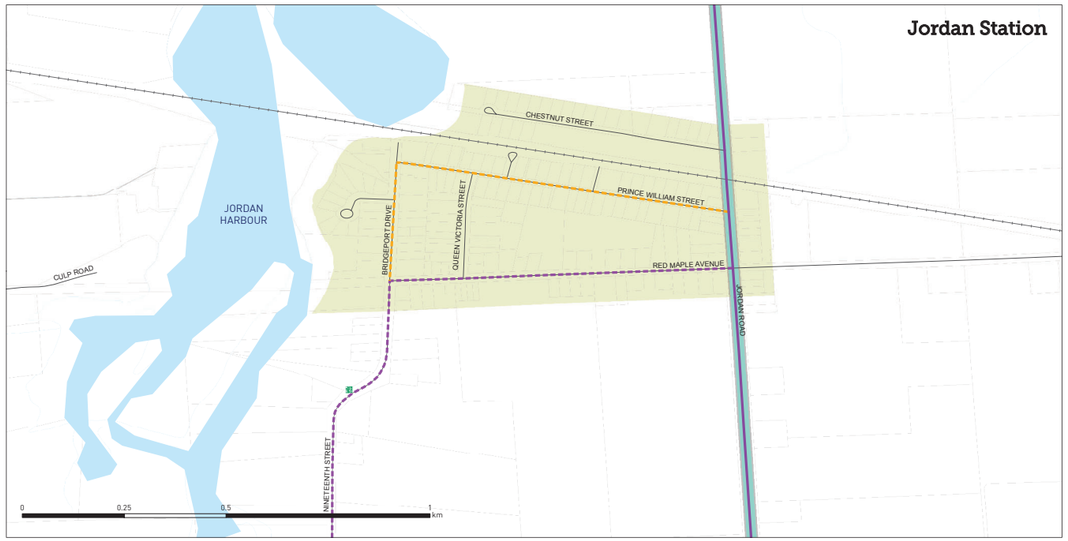
Connected: Major destinations such as communities in the urban and rural areas are connected by AT routes

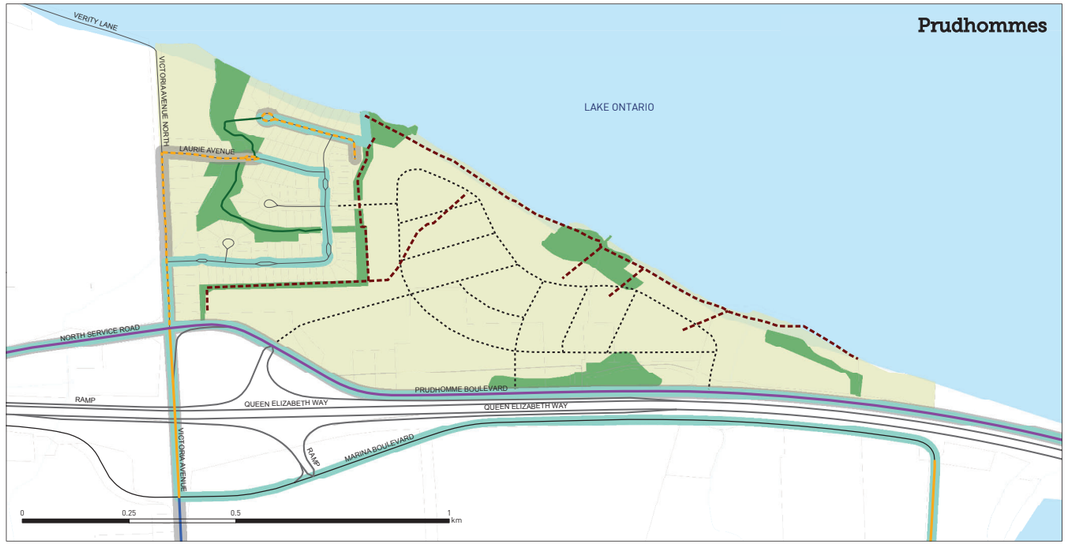
Map 1b

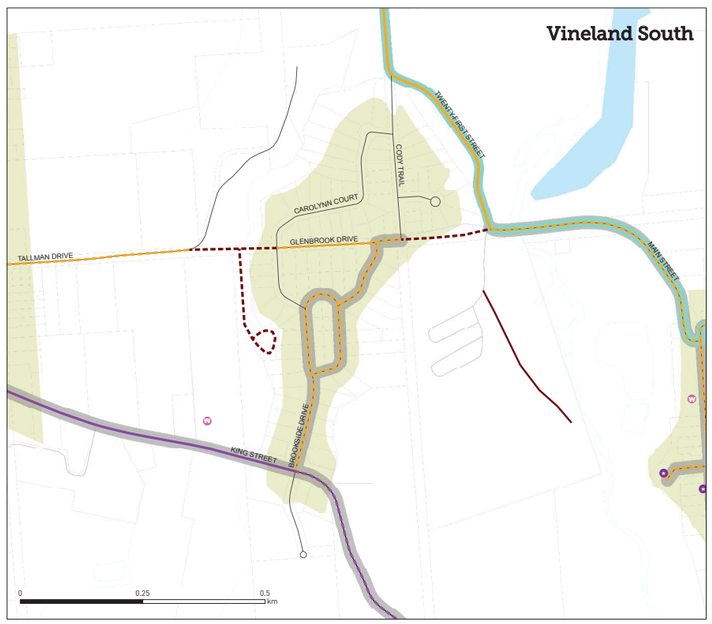
Existing & Previously Proposed Active Transportation Conditions

Town of Lincoln TMP | Draft September 2019









Legend

Existing Active Transportation Facility Types

- Bike Lane
- Paved Shoulder
- Signed Route
- Urban Shoulder
- Multi-use Trail
- Walking Trail

Previously Proposed Active Transportation Facility Types[1]

- In-Boulevard Pathway
- Bike Lane
- Paved Shoulder
- Signed Route
- Future Cycling Facility[2]
- Multi-use Trail
- Walking Trail

Regionally Significant Routes and Trails

- Waterfront Trail / Province-wide Cycling Network
- Bruce Trail
- Region of Niagara Cycling Network

Key Destinations

- Arena
- Grocery Store
- School
- Library
- Winery
- Other Community Destination

Transportation Features

- Provincial Highway
- Regional Road
- Municipal Road
- Private Road
- Proposed Road
- Railway
- Existing GO Transit Bus Stop and Park & Ride Lot
- Potential Transit Station

Land Use Features

- Watercourses
- Urban Area
- Park / Open Space
- Secondary Plan Area
- Parcel Property

Notes:

1. Information based on the Town of Lincoln Official Plan (2010) - Schedule 'D2' Trail and Bikeway Plan, Beamsville GO Transit Secondary Plan (2018), Town of Lincoln Ontario Street Vision Presentation (2018) and the Niagara Region Transportation Master Plan - Strategic Cycling Network Development Technical Paper (2017).

2. Future Cycling Facility identified in the Niagara Region Transportation Master Plan - Strategic Cycling Network Development Technical Paper (2017). Additional details on specific facility type / design not provided.

Town of Lincoln — *Make Moving Make Sense as Lincoln Grows!*

Map 1a

Existing & Previously Proposed Active Transportation Conditions

Town of Lincoln TMP | Draft September 2019

N

BEAMSVILLE
See Inset Map for details

VINELAND
See Inset Map for details

LAKE ONTARIO

JORDAN HARBOUR

SIXTEEN MILE POND

PRUDHOMMES

JORDAN STATION

VINELAND SOUTH

JORDAN

TOWN OF GRIMSBY

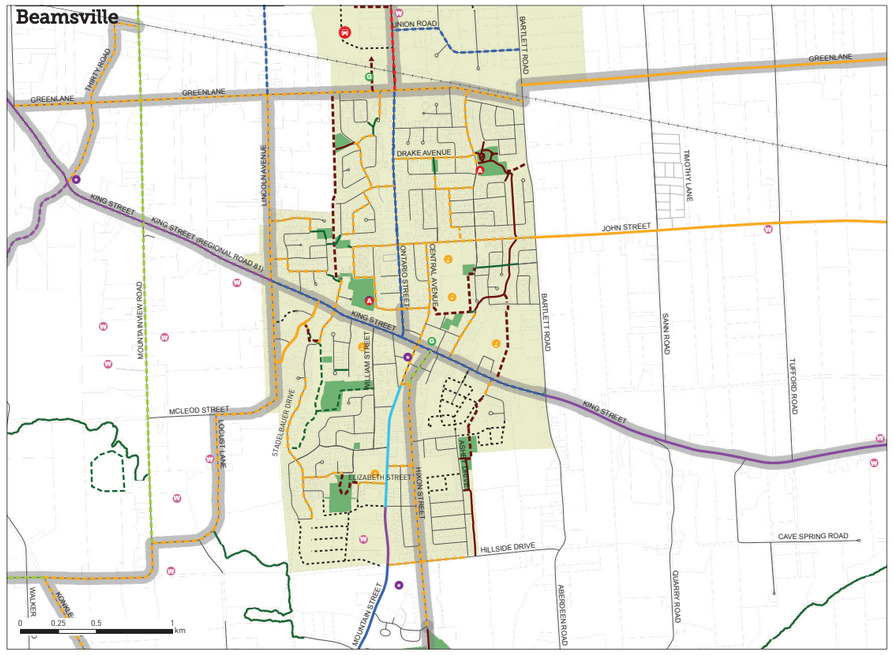
CITY OF ST. CATHARINES

TOWN OF PELHAM

TOWNSHIP OF WEST LINCOLN

0 1 2 4 Kilometres

Beamsville



Vineland

Legend

Existing Active Transportation Facility Types

- Bike Lane
- Paved Shoulder
- Signed Route
- Urban Shoulder
- Multi-use Trail
- Walking Trail

Previously Proposed Active Transportation Facility Types

- In-Boulevard Pathway
- Bike Lane
- Paved Shoulder
- Signed Route
- Future Cycling Facility[2]
- Multi-use Trail
- Walking Trail

Regionally Significant Routes and Trails

- Waterfront Trail / Province-wide Cycling Network
- Bruce Trail
- Region of Niagara Cycling Network

Key Destinations

- Arena
- Grocery Store
- School
- Library
- Winery
- Other Community Destination

Transportation Features

- Provincial Highway
- Regional Road
- Municipal Road
- Private Road
- Proposed Road
- Railway
- Existing GO Transit Bus Stop and Park & Ride Lot
- Potential Transit Station
- Connection to Surrounding Municipality

Land Use Features

- Watercourses
- Urban Area
- Park / Open Space
- Secondary Plan Area
- Parcel Property

Notes:

1. Information based on the Town of Lincoln Official Plan (2010) - Schedule 'D2' Trail and Bikeway Plan, Beamsville GO Transit Secondary Plan (2018), Town of Lincoln Ontario Street Vision Presentation (2018) and the Niagara Region Transportation Master Plan - Strategic Cycling Network Development Technical Paper (2017).

2. Future Cycling Facility identified in the Niagara Region Transportation Master Plan - Strategic Cycling Network Development Technical Paper (2017). Additional details on specific facility type / design not provided.

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STEP 3: IDENTIFY CANDIDATE ROUTES

Candidate routes are potential active transportation linkages which could form part of the proposed active transportation network. Candidate routes were identified based on the following input:

- Input gathered from staff and members of Council;
- Input gathered through online engagement and consultation with the public and stakeholders;
- Proposed routes identified in the Region's adopted TMP; and
- Additional routes and missing links which achieve major objectives including:
  - Direct north-south and east-west connections;
  - Connections to the waterfront;
  - Access to the regional and province-wide cycling network;
  - Routes in planned developed areas;
  - Missing linkages in the existing system; and
  - Connections to surrounding municipalities.

Figure 3 illustrates the candidate routes that were identified throughout the Town of Lincoln.

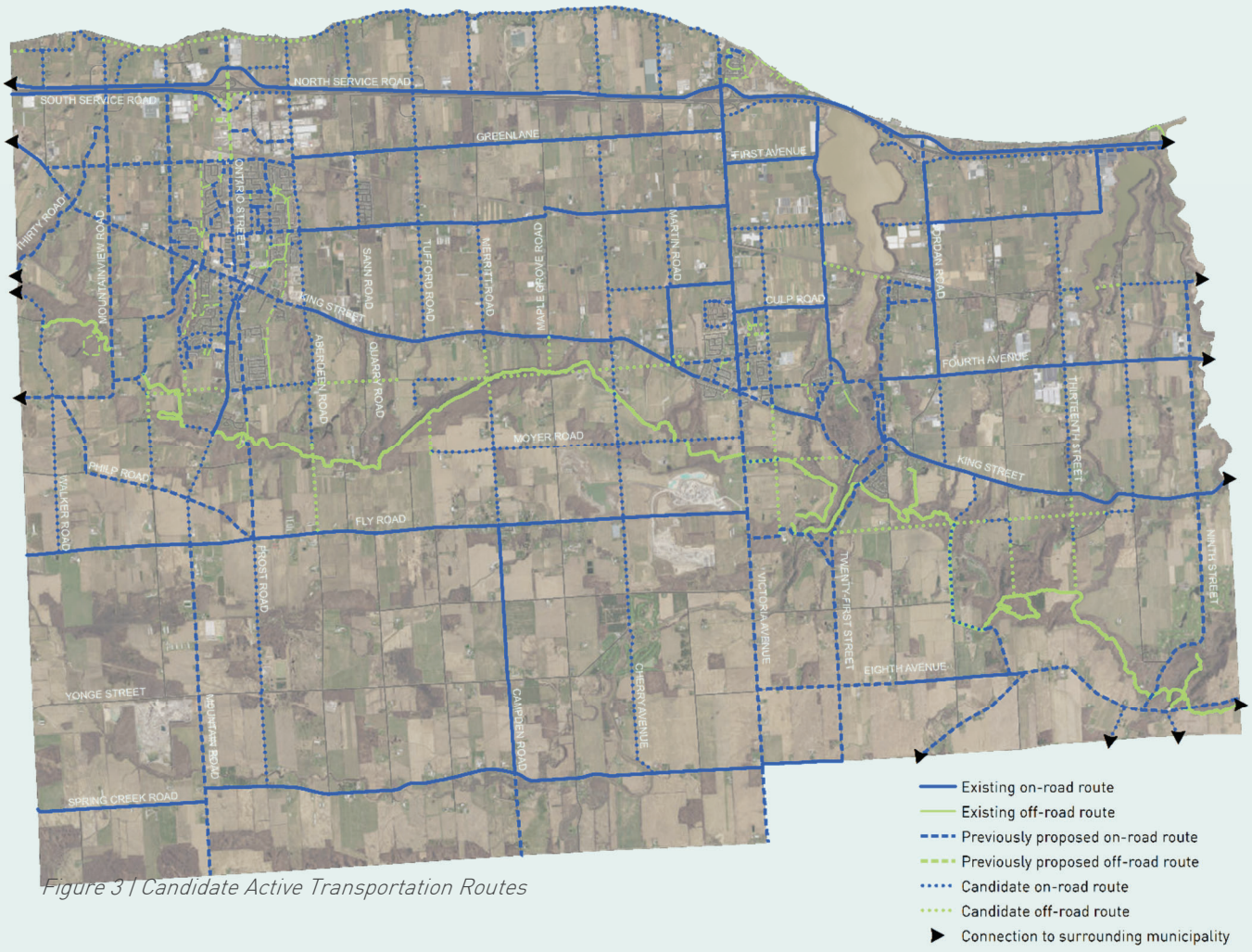
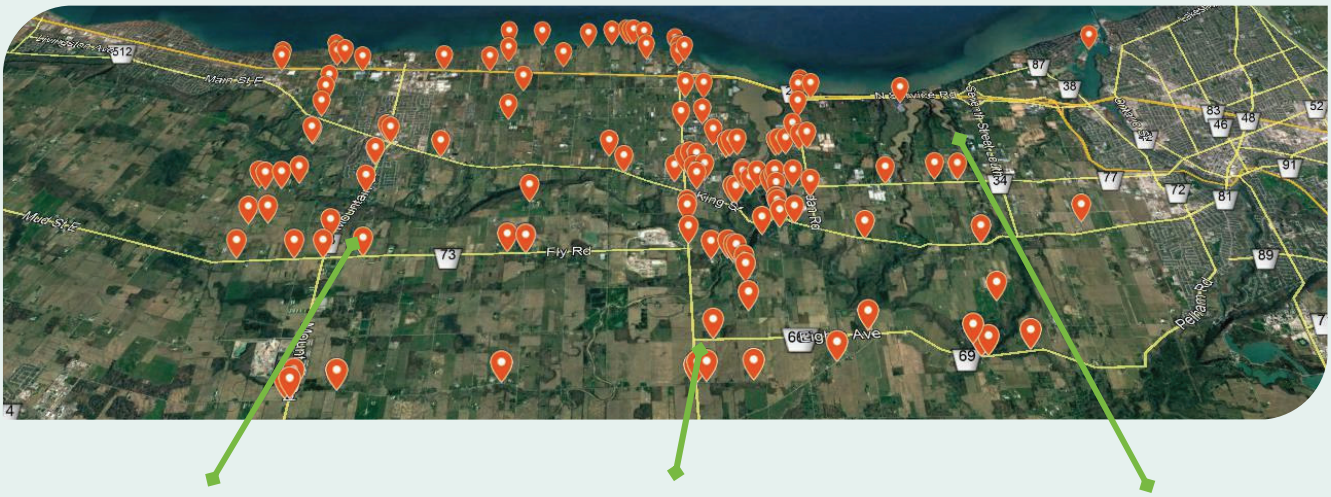


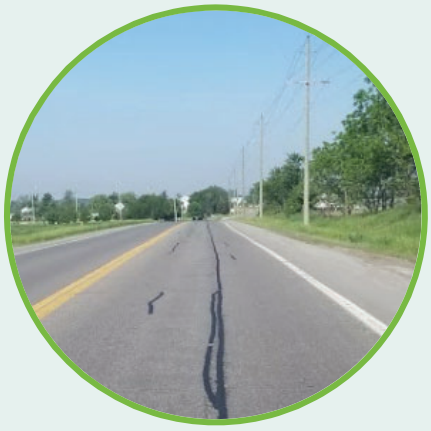
Figure 3 | Candidate Active Transportation Routes

STEP 4: ROUTE INVESTIGATION

Field investigation provides a deeper understanding of the candidate routes which allow for more meaningful evaluation and selection. The route selection criteria were applied and considered during the field investigation process. During the field investigation photographs and GPS waypoints were taken and used to record context-specific information. The information gathered was used to inform the selection of the preferred active transportation routes as well as the proposed facility types.

There were 172 photos and 132 waypoints taken which form a "database" of information that is intended to be used as a tool as the Town proceeds with the confirmation of preferred facility types and implementation of AT routes. **Figure 4** provides an example of the images collected and the conditions at three GPS waypoint locations.





Regional road with paved shoulder (Fly Road)

Share the Road signage on rural road (Spring Creek Road)

Bike Lake on 50km/hr road (Ninth Street)

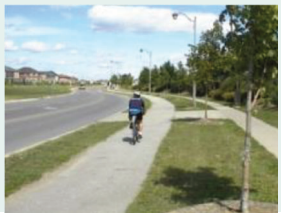
Figure 4 | Overview of Field Investigation Results

STEP 5: PREFERRED AT ROUTES & FACILITIES

Using the context-specific information gathered through the field investigation, input received from staff, stakeholders and the public and the application of route selection criteria, the alignment was refined and confirmed. Following the confirmation of the route alignment, a three-step selection process was applied to identify a preliminary facility for each route. The process that was used is based on the facility selection tool identified in OTM Book 18 with additional considerations for pedestrian infrastructure. A high-level overview of the three-step process is illustrated in **Figure 5.**

The proposed AT network is illustrated on **Map 2a** and **2b**.

STEP 1: PRE-SELECTION

SHARED	DESIGNATED	SEPARATED	OFF-ROAD
			

STEP 2: EXAMINE FACTORS

ON-ROAD	OFF-ROAD
– Function of the roadway – Vehicle mix & speed – Collision history – Cost – Anticipated use – Type of improvement – On-street parking – Intersection frequency	– Connectivity – Environmental protection – Safety – Potential use – User experience – Topography – Barriers – Cost – Maintenance – Accessibility (AODA)

STEP 3: RECOMMEND & DOCUMENT

- Review and confirm the preferred facility types based on staff input and context-specific understanding
- Document the final decision along with the rationale for recommendation (see section 2.3 of the ATS)

Figure 5 | Facility Selection Process Source; OTM Book 18 (adapted) WSP

The proposed AT network is intended to be used as the blueprint for the expansion and future build-out of the active transportation system within Lincoln. The facility types that have been identified reflects the current conditions of the roadway and does not assume road widening to accommodate the implementation of the facility.

The following table provides a summary of the proposed facility types which make up Lincoln's Active Transportation Network. Also included in the table is a break-down of route / facility type lengths by jurisdiction to help better understand the overall impact of responsibility.

The network summary and the mapping should be used as the guide for implementation of the AT network. More specifically, at the time the Town updates their Official Plan, the proposed AT network should be included as a schedule in the update and referred to as the resource for planning and improvements to walking and cycling.

	TOTAL KM	TOWN	REGION
Cycle Track	0.8	0.8	0
In-Boulevard Trail	1.3	0	1.3
Buffered Paved Shoulder	25	4.5	20.5
Buffered Bike Lane	2.5	0	2.5
Bike Lane	4.1	1.3	2.7
Paved Shoulder	7.9	5.6	2.3
Signed Route	96	94.6	1.4
Off-road Trail	7.6	7.6	0
Walking Trail	2.2	2.2	0

Table 6 | Summary of Proposed AT Routes and Facilities in Lincoln

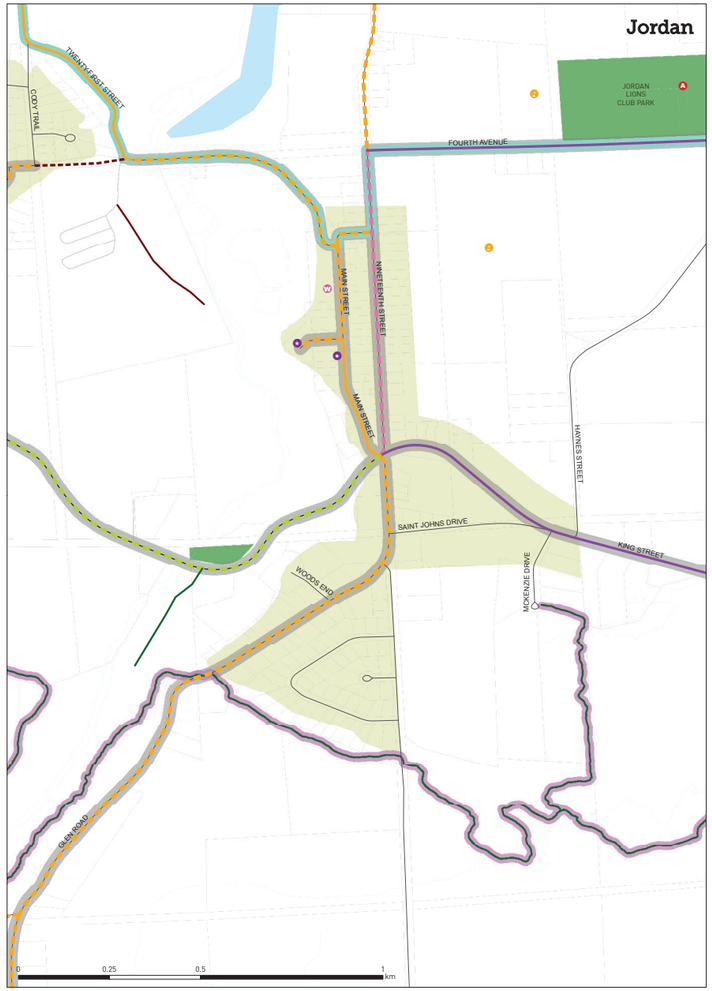
The proposed facility types identified as part of the AT network are considered a "minimum". This means that the Town is not recommended to pursue the implementation of a facility with less separation without appropriate documentation and rationale. For example, if a bike lane is proposed, a signed route should not be implemented unless there is sufficient rationale provided by Town staff.

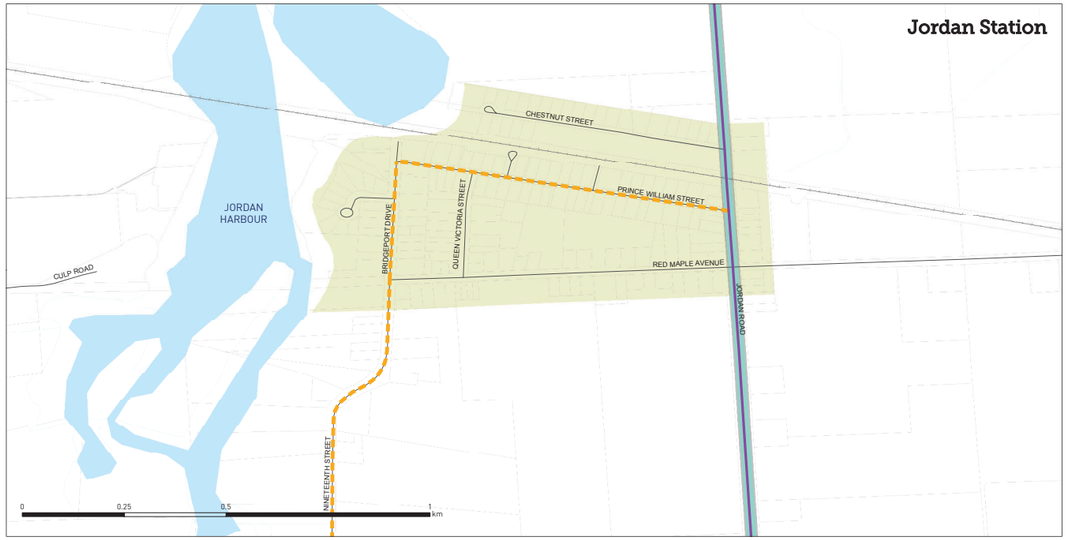
If the concern is regarding available budget the Town should consider exploring external funding sources (as outlined in section 3.2.4) or may wish to consider deferring the project until the monies are available to implement the appropriate facility.

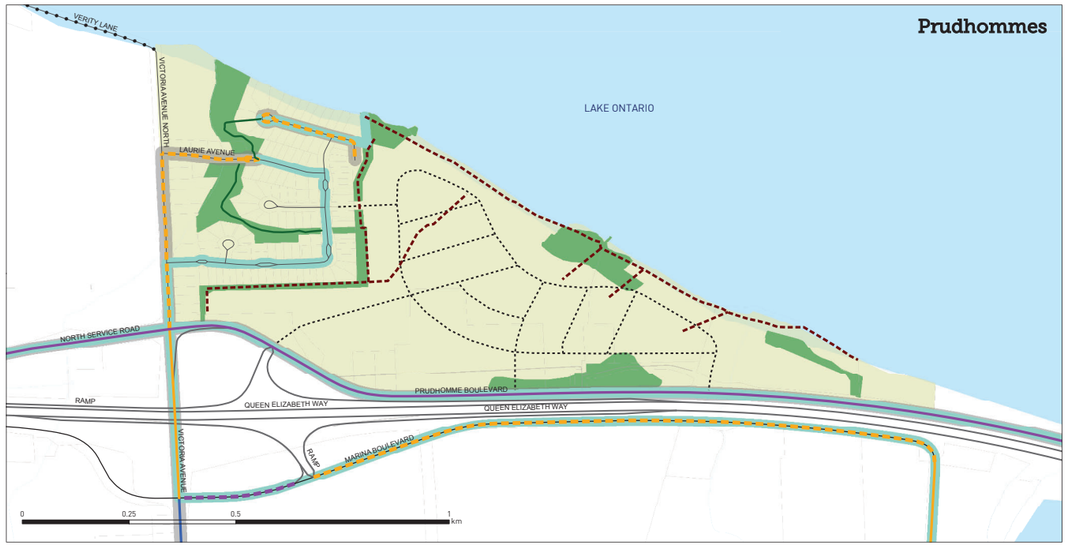
Map 2b

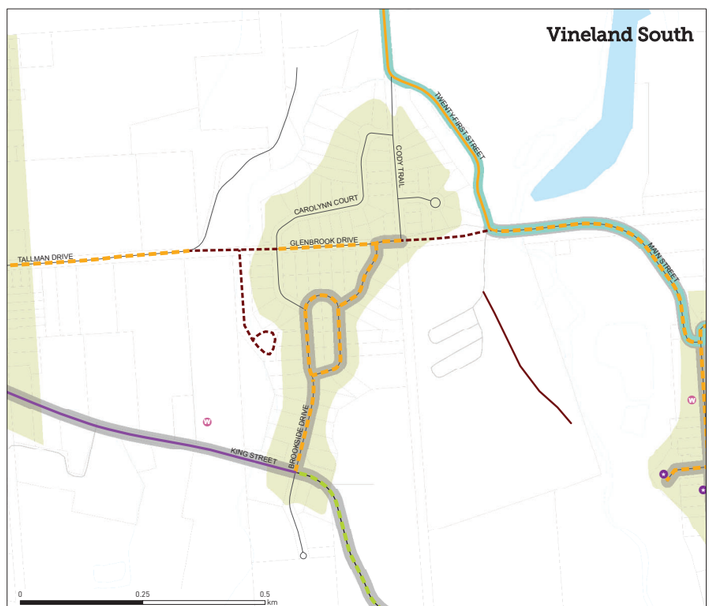
Draft Active Transportation Network by Facility Type

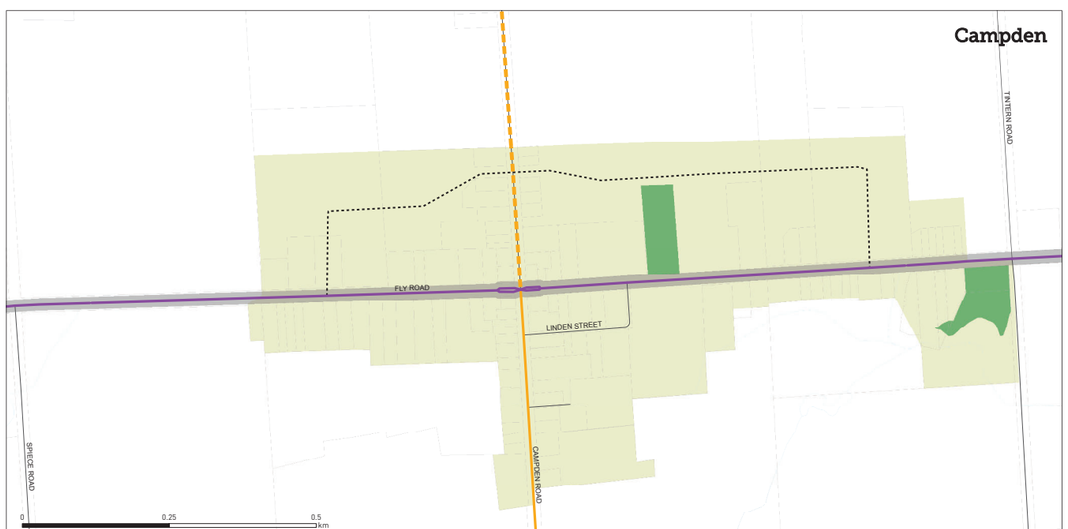
Town of Lincoln TMP | Draft September 2019











Legend

Existing Active Transportation Facility Types

- Bike Lane
- Paved Shoulder
- Signed Route
- Urban Shoulder
- Multi-use Trail
- Walking Trail

Proposed Active Transportation Facility Types

- Cycle Track
- In-Boulevard Pathway
- Buffered Paved Shoulder
- Buffered Bike Lane
- Bike Lane
- Paved Shoulder
- Signed Route
- Multi-use Trail
- Walking Trail
- Desired Connection

Regionally Significant Routes and Trails

- Waterfront Trail / Province-wide Cycling Network
- Bruce Trail
- Region of Niagara Cycling Network

Key Destinations

- Arena
- Grocery Store
- School
- Library
- Winery
- Other Community Destination

Transportation Features

- Provincial Highway
- Regional Road
- Municipal Road
- Private Road
- Proposed Road
- Railway
- Existing GO Transit Bus Stop and Park & Ride Lot
- Potential Transit Station

Land Use Features

- Watercourses
- Urban Area
- Park / Open Space
- Secondary Plan Area
- Parcel Property

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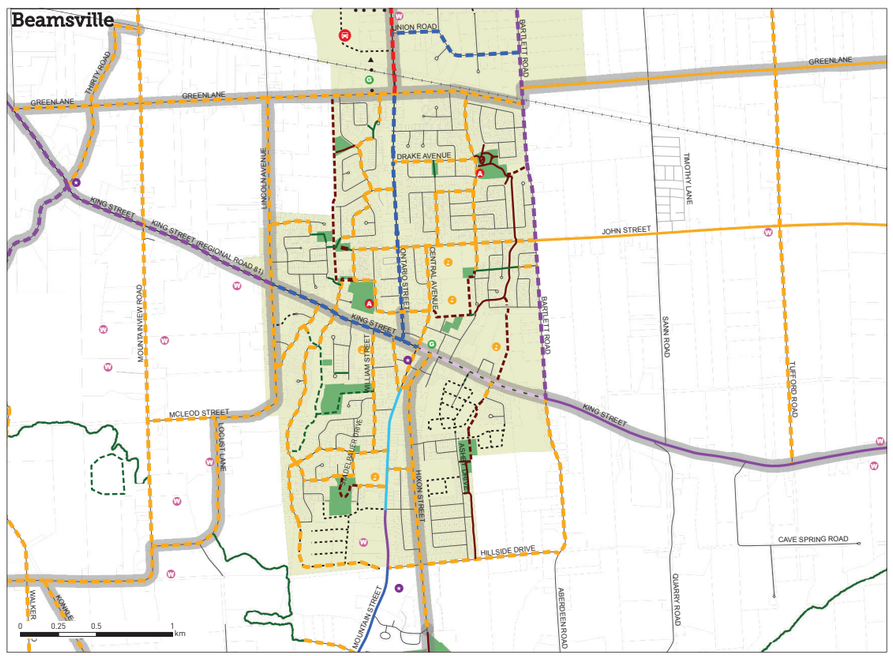
Map 2a

Draft Active Transportation Network by Facility Type

Town of Lincoln TMP | Draft September 2019



Legend

Existing Active Transportation Facility Types

- Bike Lane
- Paved Shoulder
- Signed Route
- Urban Shoulder
- Multi-use Trail
- Walking Trail

Proposed Active Transportation Facility Types

- Cycle Track
- In-Boulevard Pathway
- Buffered Paved Shoulder
- Buffered Bike Lane
- Bike Lane
- Paved Shoulder
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- Potential Transit Station
- Connection to Surrounding Municipality

Land Use Features

- Watercourses
- Urban Area
- Park / Open Space
- Secondary Plan Area
- Parcel Property

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STEP 6: NETWORK PRIORITIES & LOOPS

The approach proposed to "phase in" the AT improvements uses a unique loop / route focus. Significant interest was expressed by staff for more strategic implementation in the form of routes which create a continuous and connected loop system as opposed to implementing AT routes as roadways come up for redesign or budget becomes available. While it is important to consider the available budget and to allocate funds in a sustainable way, the priority loops / routes have been identified with specific intents and purposes and should be implemented in a way that achieves "system based" implementation as opposed to "opportunity based" implementation. There are five systems that have been identified including:

- **Local Spine:** Direct north-south and east-west connections within the major built-up areas in the Town of Lincoln.
- **Local Connecting Loops:** Local routes that provide connections to the spine system and provide access to major community destinations.
- **Inter-Municipal Links:** Routes that provide connections to the surrounding municipalities to Lincoln.
- **Inter-Community Links:** Routes that provide connections between the major built-up areas in the Town of Lincoln.
- **Tertiary Links:** All other connections identified as part of the Town's active transportation network.

Each of the loop systems is meant to be as continuous and connected as possible with the intent of linking certain destinations for different trip types and purposes. Each system is made up of both existing and proposed routes. For the local connecting loops, inter-municipal links and inter-community links there are primary and secondary systems which are also intended to reflect local priorities and help to achieve phased implementation. **Table 7** summarizes the total kilometres of existing and proposed AT facilities that make up these systems.

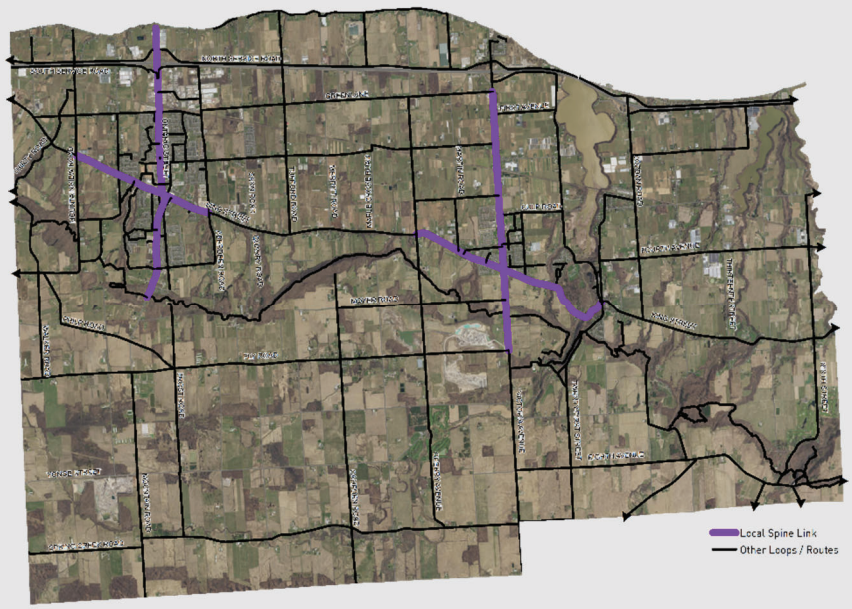
	EXISTING (KM)	PROPOSED (KM)
Local Spine	7.5	10.7
Local Connecting Loops	24.0	47.7
Inter-Municipal Links	27.4	33.2
Inter-Community Links	34.8	20.2
Tertiary	54.5	35.7

Table 7 | Overview of Existing and Proposed Routes that Make up Proposed Priority Loops

The proposed priority loops / routes are illustrated on **Maps 3a** and **3b.** A more detailed overview of the four loop route categories, their intent and purpose, the types of facilities proposed and sample locations are provided on the following pages.

Local Spine Links

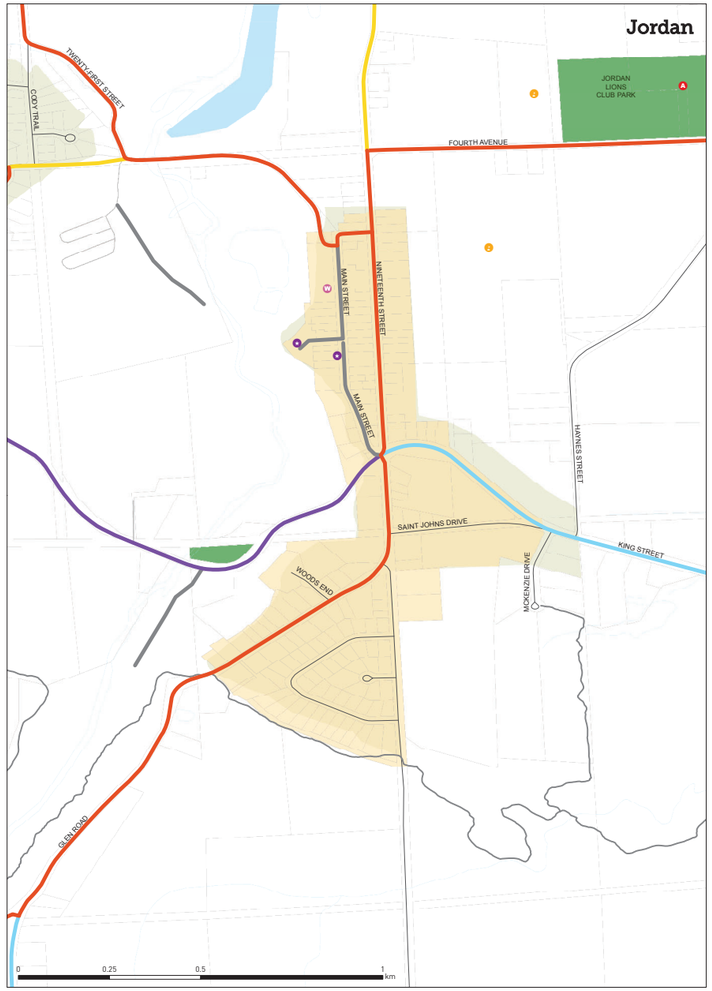
Description: Direct north-south and east-west connections within the major built-up areas in the Town of Lincoln.

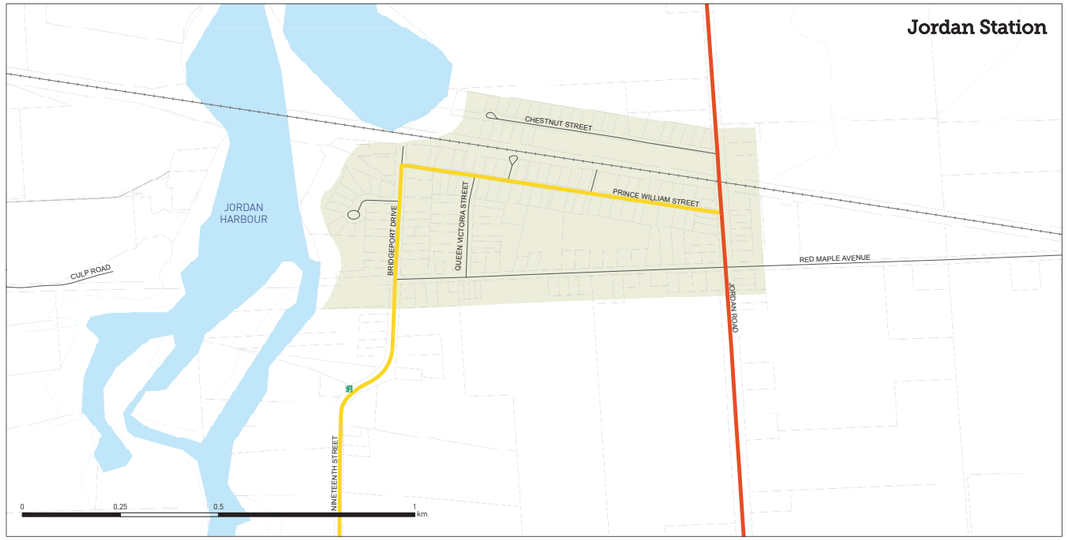
Facility Types	- Signed bike route - Urban shoulder - Paved shoulder - Bike lane - Buffered paved shoulder - In-boulevard pathway
Length KM	18.2 KM (existing: 7.5 + proposed: 10.7)
Examples	 Victoria Ave. (Vineland)  Mountain St. (Beamsville)
Route Locations	

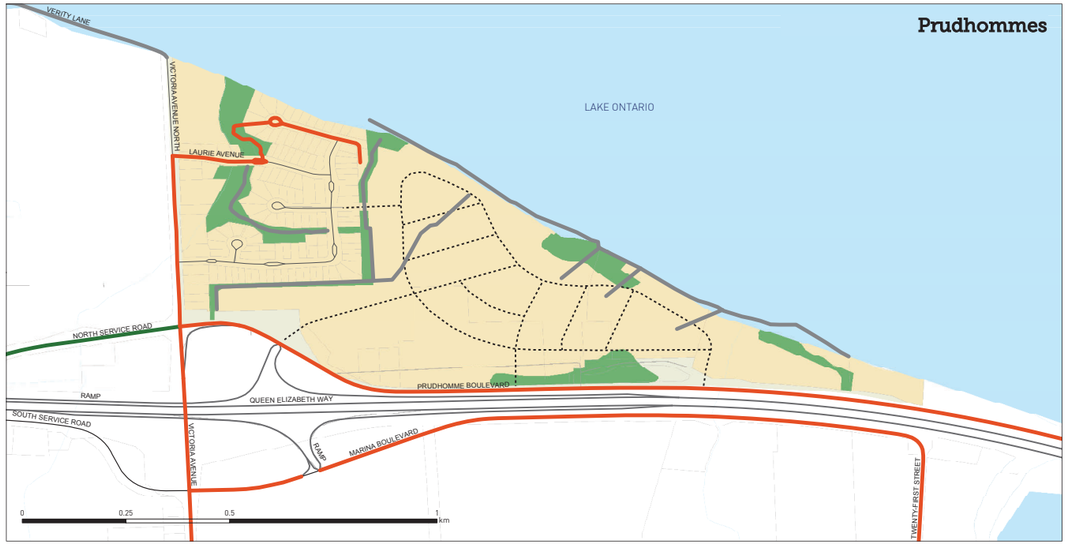
Map 3b

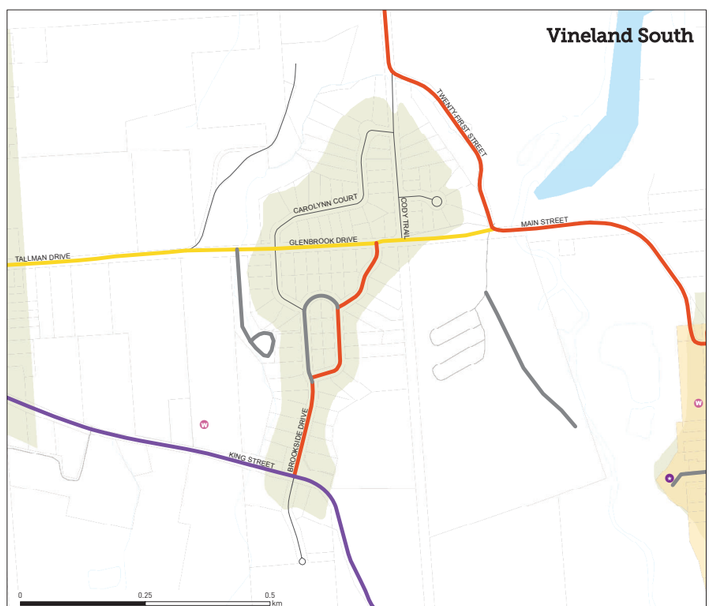
Proposed Active Transportation Priority Loops

Town of Lincoln TMP | Draft September 2019









Legend

Priority Routes

Municipal	Region / Provincial / Other[1]
	Local Connecting Loop - Primary
	Local Connecting Loop - Secondary
	Inter-Municipal Link - Primary
	Inter-Municipal Link - Secondary
	Inter-Community - Primary
	Inter-Community - Secondary
	Local Spine Link
	Tertiary

Key Destinations

- Arena
- Grocery Store
- School
- Library
- Winery
- Other Community Destination

Transportation Features

- Provincial Highway
- Regional Road
- Municipal Road
- Private Road
- Proposed Road
- Railway
- Existing GO Transit Bus Stop and Park & Ride Lot
- Potential Transit Station

Land Use Features

- Watercourses
- Urban Area
- Park / Open Space
- Secondary Plan Area
- Parcel Property

Note:

1. Includes routes located on roads and lands owned and / or managed by Niagara Region, the Ministry of Transportation Ontario and the Bruce Trail Conservancy.

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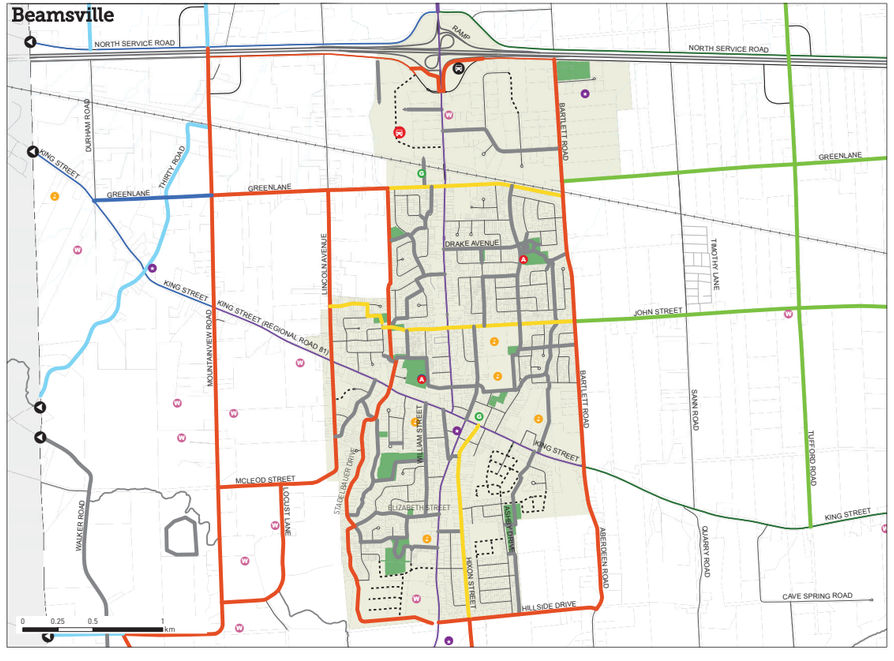
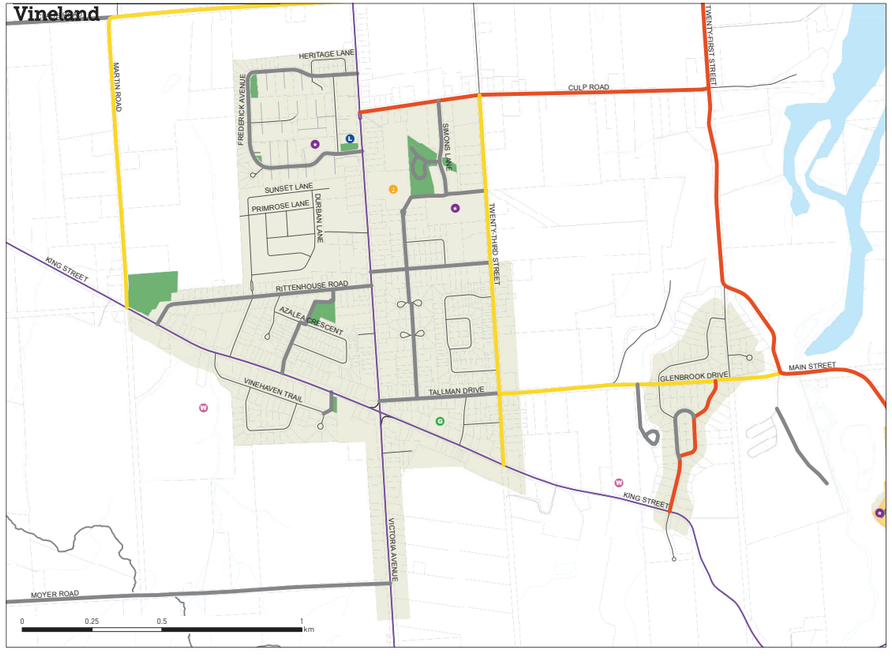
Map 3a

Proposed Active Transportation Priority Loops

Town of Lincoln TMP | Draft September 2019





Legend

Priority Routes

Municipal	Region / Provincial / Other[1]
	Local Connecting Loop - Primary
	Local Connecting Loop - Secondary
	Inter-Municipal Link - Primary
	Inter-Municipal Link - Secondary
	Inter-Community - Primary
	Inter-Community - Secondary
	Local Spine Link
	Tertiary

Key Destinations

- Arena
- Grocery Store
- School
- Library
- Winery
- Other Community Destination

Transportation Features

- Provincial Highway
- Regional Road
- Municipal Road
- Private Road
- Proposed Road
- Railway
- Existing GO Transit Bus Stop and Park & Ride Lot
- Potential Transit Station
- Connection to Surrounding Municipality

Land Use Features

- Watercourses
- Urban Area
- Park / Open Space
- Secondary Plan Area
- Parcel Property

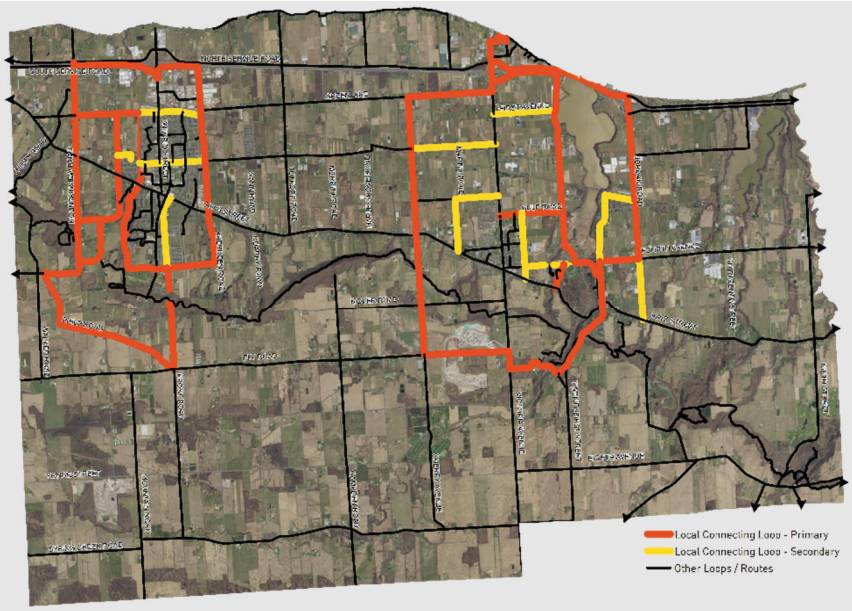
Note:

1. Includes routes located on roads and lands owned and / or managed by Niagara Region, the Ministry of Transportation Ontario and the Bruce Trail Conservancy.

Town of Lincoln *Make Moving Make Sense as Lincoln Grows!*

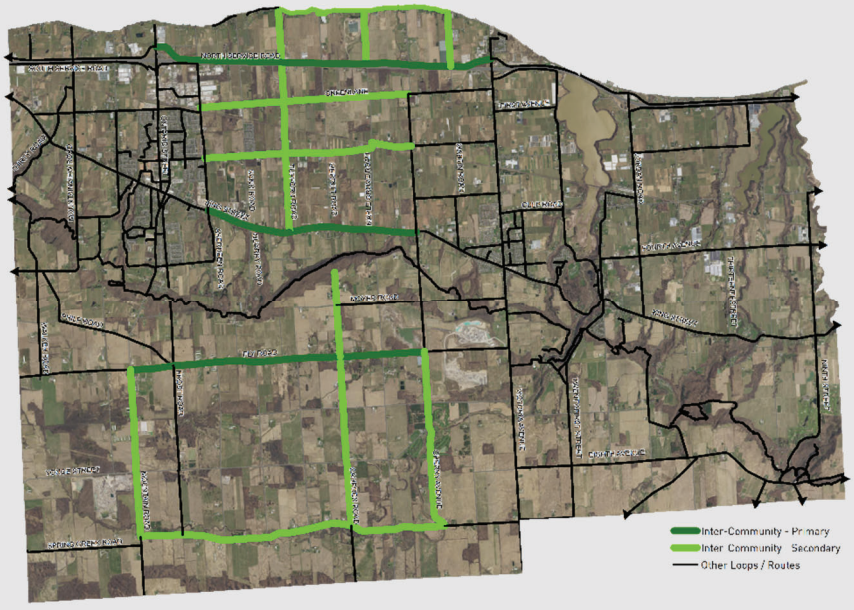
Local Connecting Loops

Description: Local routes that provide connections to the spine system and provide access to major community destinations.

Route Types	**Primary**	Connections that provide access to major community destinations in built up areas.
	Secondary	Connections that provide access to secondary destinations within the community.
Facility Types		- Signed bike route - Paved shoulder - Bike lane - Buffered paved shoulder - Cycle track - Off-road trail
Length KM		71.7 KM (existing: 24 + proposed: 47.7)
Examples		 Primary route – Greenlane  Secondary route – Jordan Rd.
Route Locations		

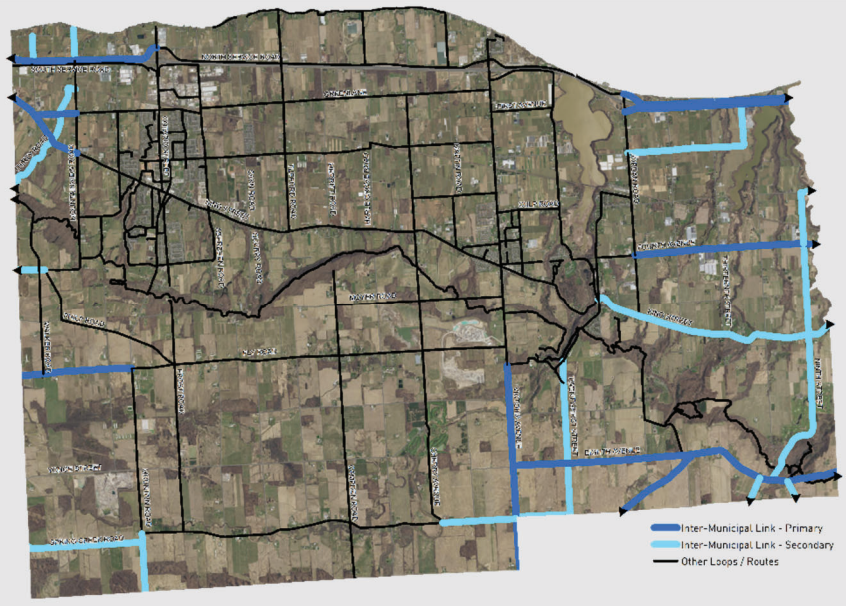
Inter-Community Links

Description: Routes that provide connections between the major built-up areas in the Town of Lincoln.

Route Types	**Primary**	Connections that provide direct east-west links between Beamsville and Vineland.
	Secondary	Connections that provide more meandering/touring connections between the communities.
Facility Types		- Signed bike route - Paved shoulder - Buffered paved shoulder
Length KM		55 KM (existing: 34.8 + proposed: 20.2)
Examples		 Primary route – Fly Rd.  Secondary route – Lakeshore Rd.
Route Locations		

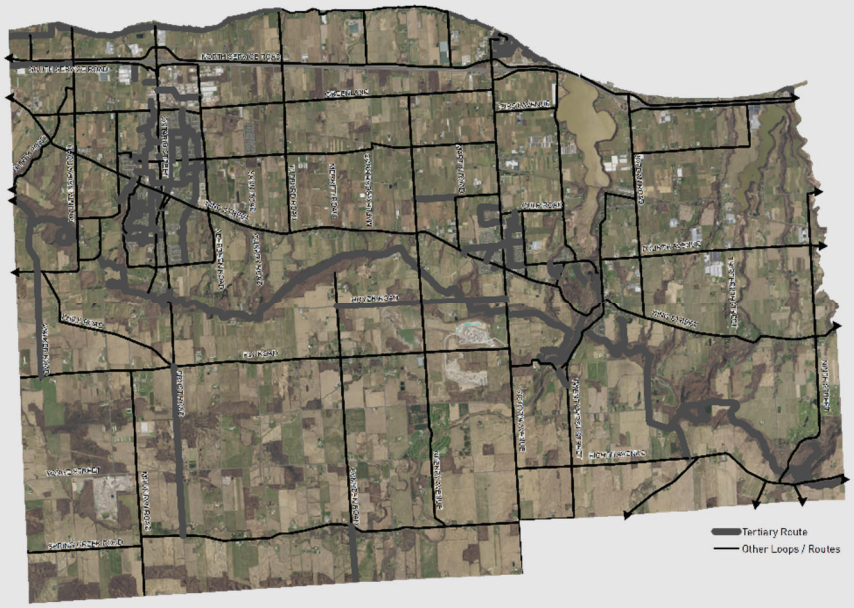
Inter-Municipal Links

Description: Routes that provide connections to the surrounding municipalities to Lincoln.

Route Types	**Primary**	Connections which provide linkages to existing or previously proposed routes.
	Secondary	Connections that provide linkages to external links where an active transportation facility is not established or proposed.
Facility Types		- Signed bike route - Paved shoulder - Buffered paved shoulder
Length KM		60.6 KM (existing: 27.4 + proposed: 33.2)
Examples		 Primary route – Fourth Ave.  Secondary route – North Service Rd.
Route Locations		

Tertiary Routes

Description: All other connections identified as part of the Town's active transportation network.

Facility Types	- Signed bike route - Paved shoulder - Bike lane - Off-road trail
Length KM	90.2 KM (existing: 54.5 + proposed: 35.7)
Examples	 Bruce Trail in Jordan  Staff Ave. (on-road connection along the Bruce Trail)
Route Locations	

A "level of priority" has been identified for each of the systems which corresponds to the proposed timeline for implementation. Consistent with the TMP, the AT network is proposed to be implemented within a 20+ year horizon and organized into three "phases" to help guide implementation and annual budgeting and decision making.

Table 8 provides a summary of the proposed priority loops / routes as they relate to the three-phase implementation approach which has been identified*.

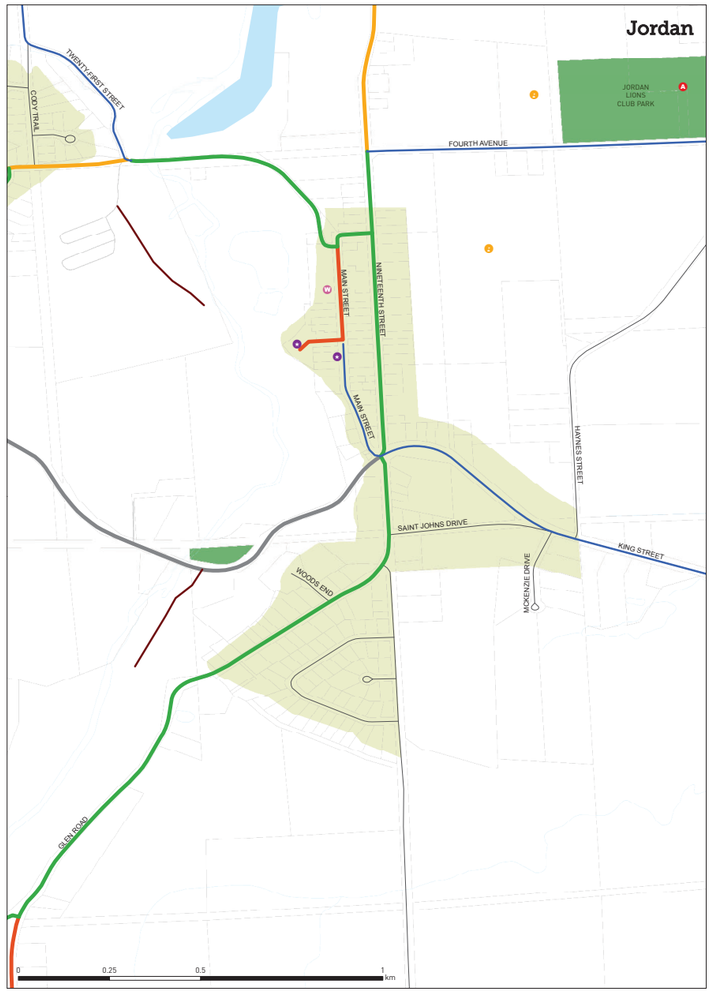
	SHORT-TERM PRIORITIES (WITHIN 5 YEARS)	MEDIUM-TERM ADDITIONAL LINKS (6 YEARS TO 2031)	LONG-TERM FINAL PIECES (2031-2041+)
Local Spine			
Local Connecting Loops			
Primary			
Secondary			
Inter-Community Links			
Primary	*There are only existing routes that make-up the primary inter-community link system		
Secondary			
Inter-Municipal Links			
Primary			
Secondary			
Tertiary			

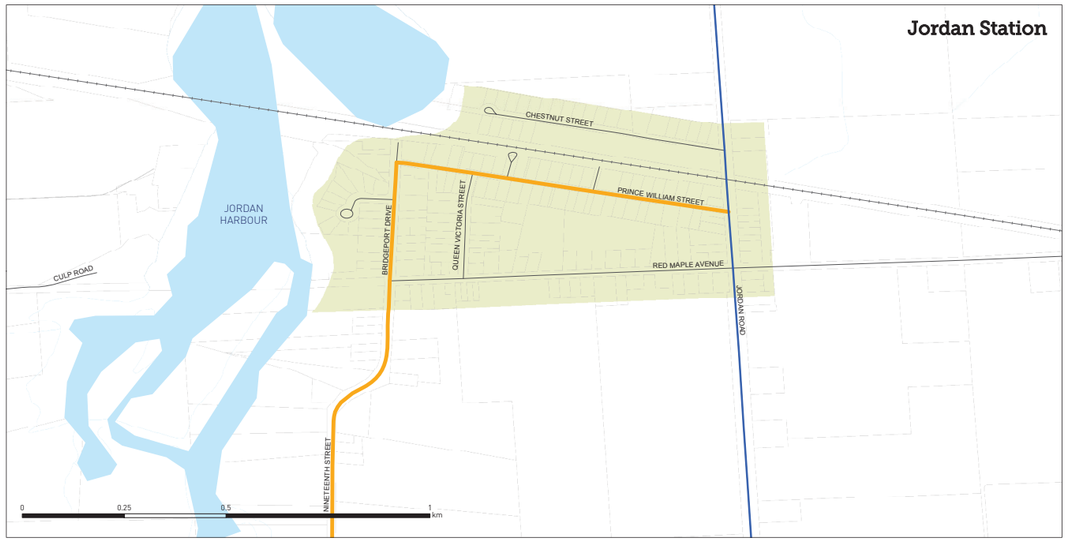
Table 8 | Summary of Priority Loops / Routes and Implementation Assumptions
**The cell colours correspond to the colours for each route type illustrated on Maps 3a and 3b.*

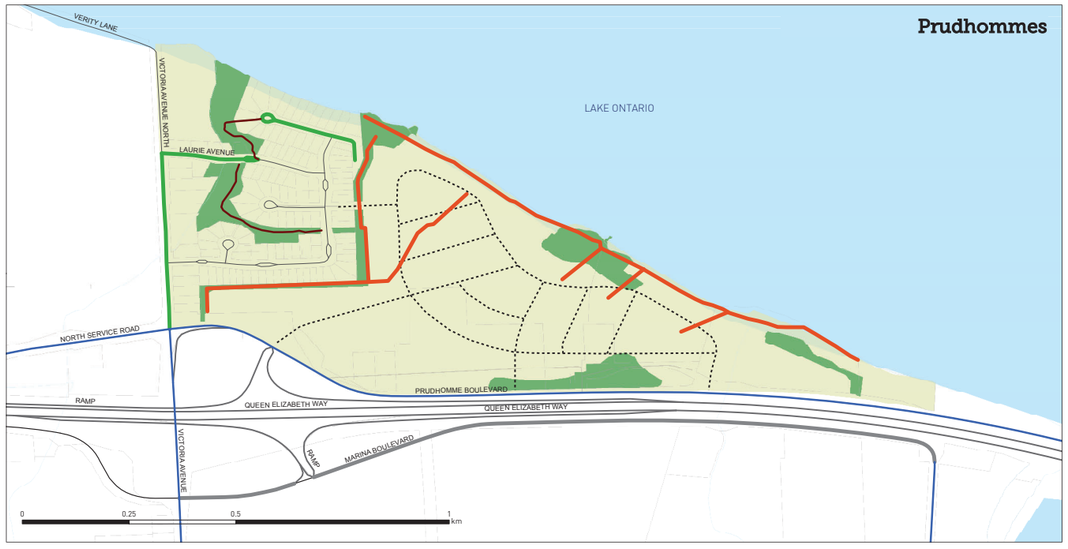
Map 4b

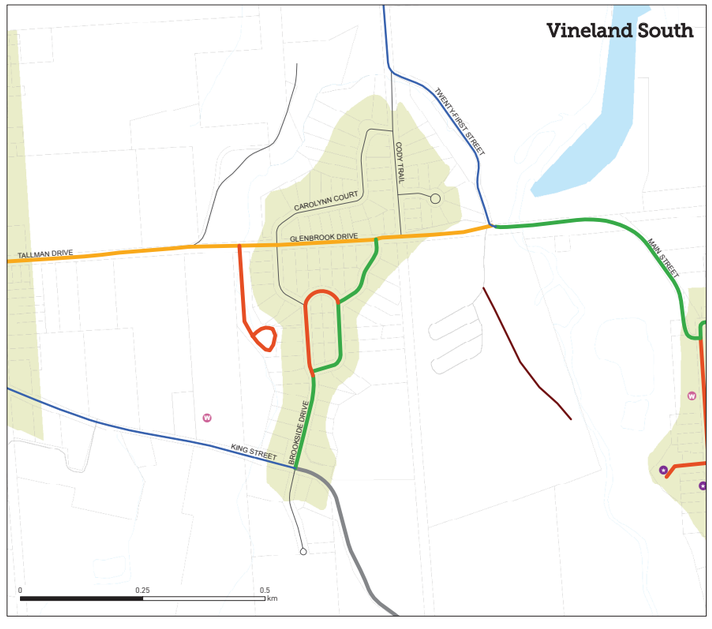
Draft Active Transportation Network Phasing

Town of Lincoln TMP | Draft September 2019









Legend

Proposed Active Transportation Phasing

- Short Term (next 5 years)
- Medium Term (year 6 to 2031)
- Long Term (2031 to 2041 and beyond)
- Regional Route[1]

Existing Active Transportation Facility Types

- On-Road Route
- Off-Road Route

Key Destinations

- Arena
- Grocery Store
- School
- Library
- Winery
- Other Community Destination

Transportation Features

- Provincial Highway
- Regional Road
- Municipal Road
- Private Road
- Proposed Road
- Railway
- Existing GO Transit Bus Stop and Park & Ride Lot
- Potential Transit Station

Land Use Features

- Watercourses
- Urban Area
- Park / Open Space
- Secondary Plan Area
- Parcel Property

Notes:

1. Refer to the Niagara Region Transportation Master Plan - Strategic Cycling Network Development Technical Paper for phasing and costing of routes under the jurisdiction of Niagara Region.

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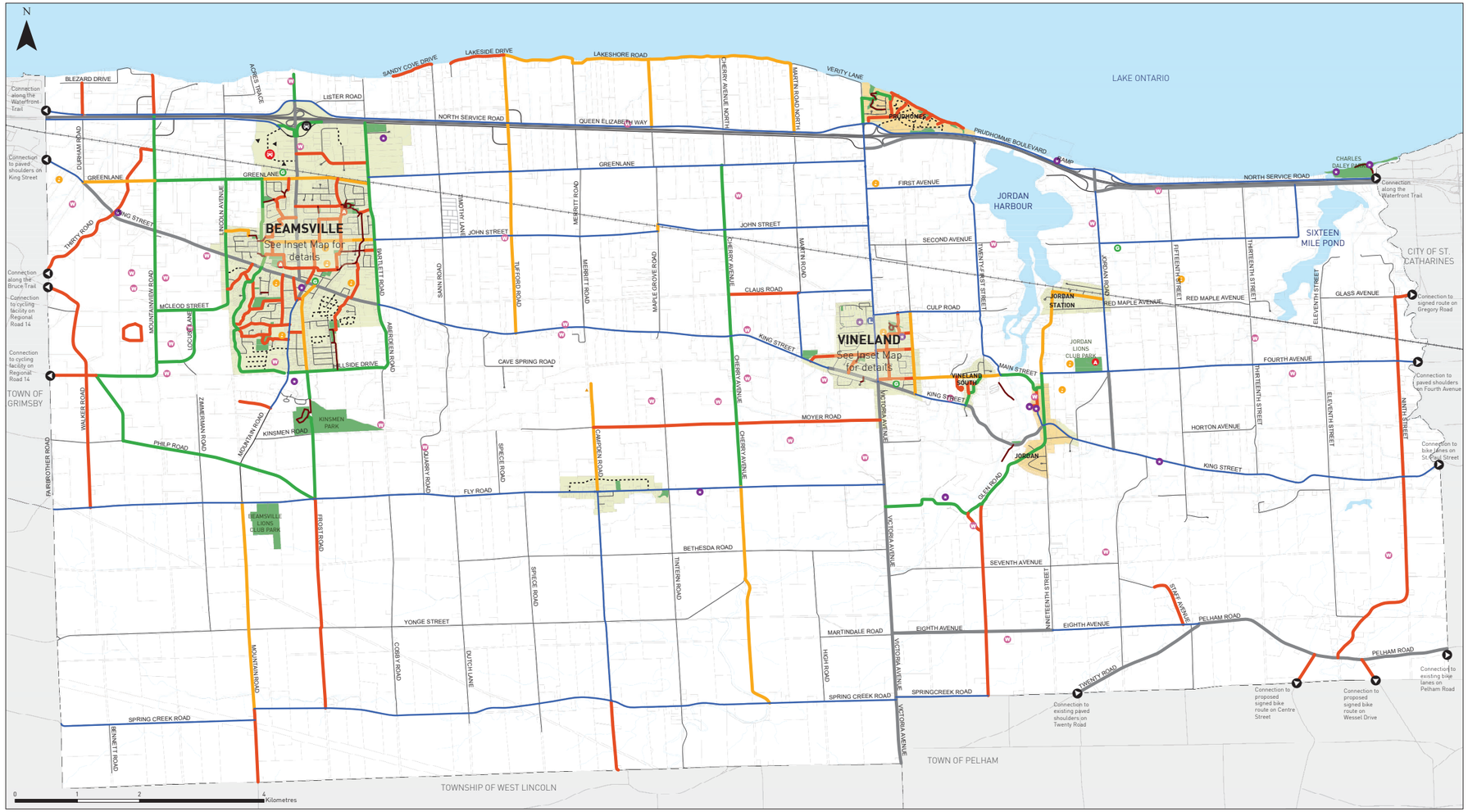
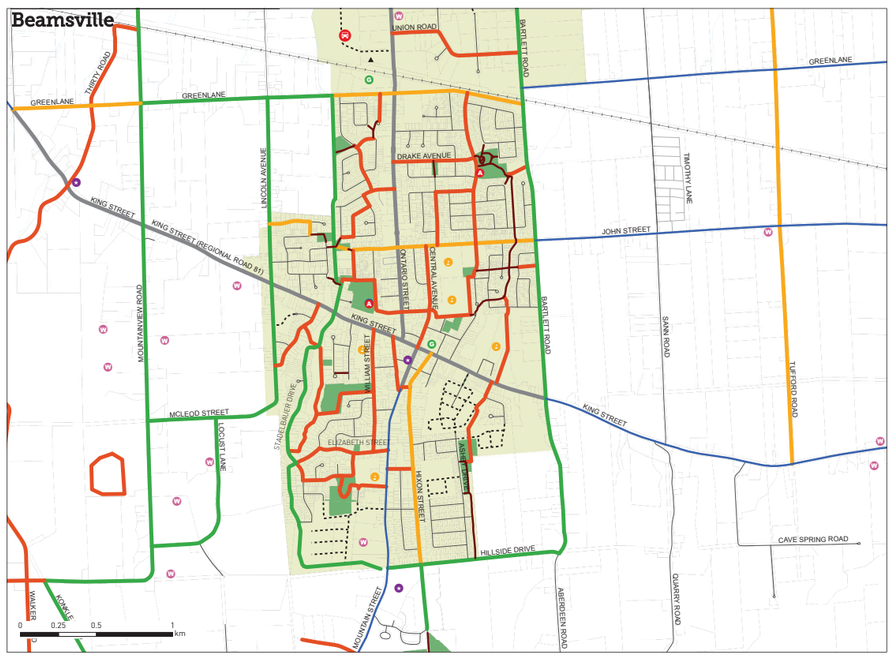
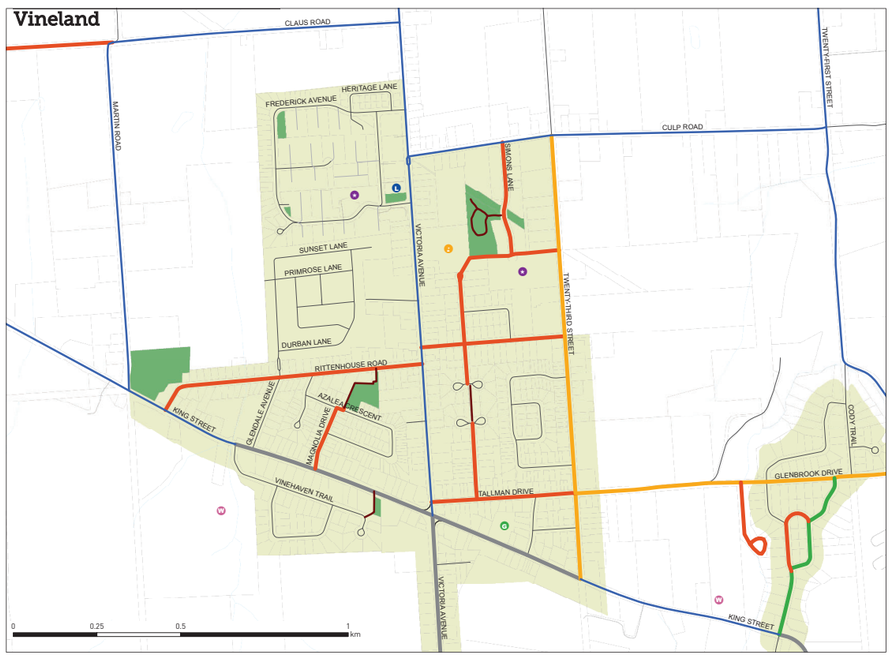
Map 4a

Draft Active Transportation Network Phasing

Town of Lincoln TMP | Draft September 2019







Legend

Proposed Active Transportation Phasing

- Short Term (next 5 years)
- Medium Term (year 6 to 2031)
- Long Term (2031 to 2041 and beyond)
- Regional Route[1]

Existing Active Transportation Facility Types

- On-Road Route
- Off-Road Route

Key Destinations

- Arena
- Grocery Store
- School
- Library
- Winery
- Other Community Destination

Transportation Features

- Provincial Highway
- Regional Road
- Municipal Road
- Private Road
- Proposed Road
- Railway
- Existing GO Transit Bus Stop and Park & Ride Lot
- Potential Transit Station
- Connection to Surrounding Municipality

Land Use Features

- Watercourses
- Urban Area
- Park / Open Space
- Secondary Plan Area
- Parcel Property

Notes:

1. Refer to the Niagara Region Transportation Master Plan - Strategic Cycling Network Development Technical Paper for phasing and costing of routes under the jurisdiction of Niagara Region.

Town of Lincoln *Make Moving Make Sense as Lincoln Grows!*

STEP 7: COSTING

The ATS has been developed as a guide to support decision making around the implementation of AT infrastructure. To help inform the annual budget process a high-level cost estimate has been prepared for the Town's active transportation network. Preliminary cost estimates were derived using a set of unit prices that reflect recent tender prices from various municipalities in Ontario. These unit prices are based on typical construction, environmental and topographic conditions but do not include contingency, design and approvals costs, property acquisitions, signal modifications, utility relocations and major roadside drainage works, costs associated with site-specific projects such as bridges, railway crossings, retaining walls, and stairways; and applicable taxes and permit fees. A more detailed summary of the unit prices has been provided to the Town which includes all unit prices and the associated costing assumptions which is appended to the Transportation Master Plan report. An overview of anticipated costs, including maintenance and programming by phase has been included in **Chapter 3.0** of the ATS report.

The preliminary estimated cost to implement the Town of Lincoln's active transportation network is approximately $5.6 million. The total cost to implement the Town's active transportation network does not include routes located on roads and / or lands under the jurisdiction of Niagara Region. Reference should be made to the Niagara Region Transportation Master Plan - Strategic Cycling Network Development Technical Paper for phasing and costing of routes under the jurisdiction of Niagara Region. Additional information, resources and strategies on how the Town's active transportation network can be implemented and funded are outlined in Chapter 3. **Table 9** summarizes the costs by facility type and priority loops / routes*.

	Local spine link	Local connecting loop Primary	Local connecting loop Secondary	Inter-community Secondary**	Inter-municipal link Primary	Inter-municipal link Secondary	Tertiary	Total
Cycle Track	-	$313,921	-	-	-	-	-	$313,921
In-Boulevard Trail	-	-	-	-	-	-	-	-
Buffered Paved Shoulder	-	-	-	$748,303	-	$261,059	-	$1,009,362
Buffered Bike Lane	-	-	-	-	-	-	-	-
Bike Lane	$22,508	-	-	-	-	-	$48,777	$71,285
Paved Shoulder	-	$609,952	-	-	-	$186,578	$50,189	$846,718
Signed Route	-	$31,103	$8,801	$17,473	$848	$13,339	$29,845	$101,408
Off-road Trail	-	$711,114	$156,620	-	-	-	$1,731,078	$2,598,812
Walking Trail	-	-	-	-	-	-	$674,769	$674,769
Total	**$22,508**	**$1,666,090**	**$165,421**	**$765,775**	**$848**	**$460,976**	**$2,534,657**	**$5,616,275**

Table 9 | Summary of Costing for the Lincoln AT Network
**The cell colours correspond to the colours for each route type illustrated on Maps 3a and 3b. ** Primary Inter-community links are not included in this table as there are no proposed routes identified that make up this part of the system*

2.3 FACILITY DESIGN

The ATS recommends the implementation of different types of active transportation routes and facilities in addition to providing guidance on the design and implementation of other network components such as crossings or intersection treatments as well as amenities including but not limited to signage and wayfinding and bicycle parking. Th following section provides an summary of different design considerations which are applicable to support the implementation of the proposed AT network. The intent is for the content of this section to be shared and used as a resource by staff as they proceed with the detailed design of potential routes / facilities and possibly distributed to the public for additional education and awareness. In addition to the content of this chapter, there should be reference made to existing design guidelines and standards. OTM Book 18 and OTM Book 15 reflect best practices and emerging active transportation design concepts and considerations. The ATS is implemented in conjunction with other municipal guidelines, therefore, these documents should be used as primary references.

PROVINCIAL

- Ontario Traffic Manual Book 18: Cycling Facilities
- Ontario Traffic Manual Book 15: Pedestrian Crossing Treatments
- Ministry of Transportation Ontario (MTO) Bikeways Design Guidelines
- Accessibility for Ontarians with Disabilities Act – Built Environment Standards

NATIONAL

- Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads
- Transportation Association of Canada (TAC) Bikeway Traffic Control Guideline for Canada

INTERNATIONAL

- National Association of City Transportation Officials (NACTO) Urban Bikeways Design Guide and Urban Street Design Guide
- American Association of State Highway and Transportation Officials (AASHTO)

To start, a summary of the proposed facility types has been created as a "quick reference" for staff when considering the implementation of proposed routes. Table 10 is a summary of design guidelines and considerations consistent with OTM Book 18 for each of the proposed facilities including:

- An overall description;
- The applicable pedestrian facilities to incorporate (in the context of cycling routes);
- The location of the facility i.e. within or outside of the road right-of-way;
- The land-use context including rural, suburban or urban;
- The volume and speed of a typical roadway where the facility would be implemented;
- The typical minimum width as noted in OTM Book 18; and
- The applicable pavement markings and signage which would be implemented.

2.2.2 OTHER CONSIDERATIONS

A safe and comfortable network is not only achieved through the implementation of routes and facilities. Additional design considerations need to be addressed which target and provide solutions for specific user groups and route uses as well as areas where potential conflict could occur.

The following are additional design considerations which have been identified for the Town of Lincoln based on research and best while also reflecting the unique needs of the community.

- Providing access to people of all abilities by increasing the **accessibility** of facilities and perceived **level of comfort**;
- Providing **safe and comfortable connections to schools** to students of various ages and grades;
- Providing **seamless transitions** between different facility types;
- Enhancing **trail access points** by implementing supportive amenities;
- Making walking and cycling more comfortable for people getting to work, school, or other frequent destinations by implementing **end-of-trip facilities** and amenities; and
- Establishing a better understanding of the route network by designing and implementing **signage and wayfinding**.

In addition to implementing the proposed AT network the Town should review and consider these design considerations to enhance the overall interest and use of the AT network.

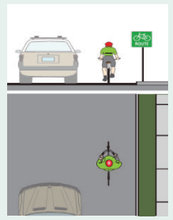
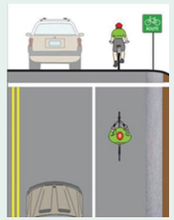
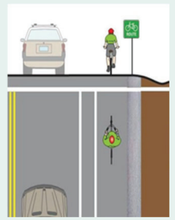
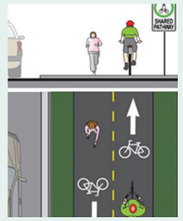
		SIGNED BIKE ROUTE	SIGNED BIKE ROUTE WITH EDGELINE	PAVED SHOULDER	BIKE LANE	BUFFERED PAVED SHOULDER	BUFFERED BIKE LANE	IN-BOULEVARD PATHWAY	OFF-ROAD TRAIL
Facility Type									
Description		Motorists and cyclists share the same vehicular travel lane. Bicycle route signs are used to provide route guidelines. Could be supplemented by a Share the Road Sign in select locations i.e. poor sightlines, etc.	Cyclists are provided their own space by painting an edgeline in the space designated for on-street parking. Parking is not restricted along the road; however, bike route signage is provided.	Cyclists are provided with a designated space on the road platform. The route is signed as a bicycle route and could include supplementary Share the Road signage in select locations.	Cyclists are provided with a designated space which is identified by pavement markings and signage. Bike lanes could include green painted treatment along key corridors.	On roads with higher volume and speed within rural areas, a buffer may be implemented in addition to the paved shoulder. The width depends on the speed and volume of the roadway.	On roads with higher volume and speed within urban and suburban areas, a buffer may be implemented to provide more separation between the cyclist and motor vehicles.	A separated space found within the boulevard of the roadway – in place of a sidewalk – which accommodates both pedestrians and cyclists in a shared space. Can be uni- or bi-directional.	A separated space that accommodates pedestrians and cyclists. The surface type can range from natural surface to asphalt depending on the location.
Pedestrian Facility		Sidewalk	Sidewalk	Share paved shoulder with cyclists	Sidewalk	Buffered paved shoulder	Sidewalk	In-boulevard path and / or sidewalk	Off-road trail and / or sidewalk
Location	O*								
	W*								
Context	Urban								
	Suburban								
	Rural								
Volume		▼	►	►	▲	▲	▲	▲	N/A
Speed		▼	►	►	▲	▲	▲	▲	N/A
Min. Width		N/A	1.5m	1.5m	1.5m	1.5m + buffer 0.5m	1.5m + buffer 0.5m	3.0m	3.0m
Signage	Bike Route								
	Bike Lane								
	Share the Road								
	Multi-Use Path								
Pavement Markings	Bike Stencil								
	Painted Line								
	Chevron								

Table 10 | Overview of Active Transportation Facility Types

Location Notes: O - Outside of the road right-of-way | W - Within the road right-of-way
Volume and Speed Notes: ▲ High traffic volume or speed | ► Moderate traffic volume or speed | ▼ Low traffic volume or speed

TOPIC #1: ACCESSIBILITY AND LEVEL OF COMFORT

The planning, designing and implementing of an active transportation network is not a "one size fits all" approach. As noted in chapter 1.0, every person has different interests, abilities and skill levels which can impact how routes and infrastructure are selected and used. The proposed AT network seeks to be safe, comfortable and accessible by users of different ages and abilities where possible.

In 2005, the Province of Ontario passed the Accessibility for Ontarians with Disabilities Act (AODA), with the goal of creating a fully accessible province by 2025. As part of the AODA, the Accessibility Standards for the Built Environment were established to address barriers in transportation. The Accessibility Standards for the Built Environment provide guidelines related to pathways, trails, and sidewalks, to help remove barriers to buildings and outdoor spaces. Sections 80.8 and 80.10 of the Accessibility Standards provide the technical requirements for multi-use recreational trails.

Though the AODA requirements and guidelines should be met to the greatest extent possible, it is recognized that this may not be possible in all locations along the active transportation network. For example, it may not be possible to implement an accessible trail due to its location, the surrounding environment, and the type of trail experience that is desired. In these cases, the Town should provide information to all potential users to make them aware of the conditions of expected experience.

To better understand a user's perception of accessibility, safety and comfort, the team applied a spectrum of comfort to assess the proposed routes and facilities that make up the AT network for Lincoln. There are four potential "levels of comfort" which could be applied which are based on the proposed facility type and the context of the route. To complete the network assessment, the four types of active transportation users was reviewed and considered. The four categories have been widely used and researched to better understand the percentage of the "population" that they represent. A description of the categories and the percent representation that they encompass is presented in **Figure 6**.

STRONG + FEARLESS	ENTHUSED + CONFIDENT	INTERESTED BUT CONCERNED	NO WAY, NO HOW
Willing to walk, bike or engage in other forms of active transportation with limited or no infrastructure	Willing to walk, bike or engage in other forms of active transportation if some designated infrastructure exists	Willing to walk, bike or engage in other forms of active transportation if high-quality infrastructure exists	Not interested in walking, biking or engaging in any form of active transportation even if high-quality infrastructure exists
7%	**5%**	**51%**	**37%**

Figure 6 | Four Types of Active Transportation Users
Source | Adapted from the City of Portland Bureau of Transportation – Four Types of Transportation Cyclist

Each "type" of active transportation will have a threshold of acceptance regarding their perception of comfort and safety; however, there are some general assumptions which could be made regarding the level of comfort related to the types of facilities recommended in the AT network and the users that are anticipated to explore those routes / facilities. An overview of this assessment is provided in **Table 11.**

Level of Comfort 1 — **Level of Comfort 2** — **Level of Comfort 3** — **Level of Comfort 4**

Highest level of comfort ... Lowest level of comfort

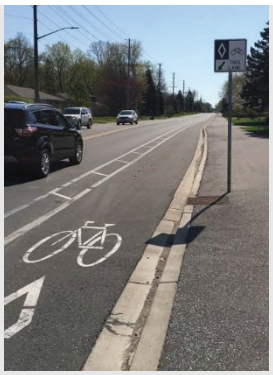
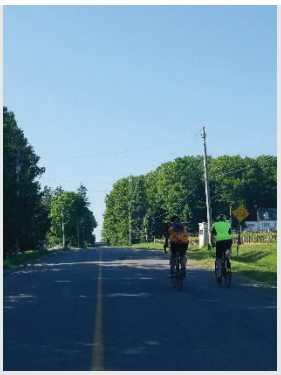
	LEVEL OF COMFORT 1	LEVEL OF COMFORT 2	LEVEL OF COMFORT 3	LEVEL OF COMFORT 4
User Group				
Facility Types	- Cycle Track - In-boulevard path - Off-road trail - Walking trail	- Buffered bike lane - Buffered paved shoulder	- Urban shoulder - Bike lane - Paved shoulder	- Signed bike route
Total KM (Existing + Proposed)	64.7	27.4	68.4	135
Example	 Off-road trail in Jordan Hollow Park, Jordan	 Example of a buffered bike lane in the Town of LaSalle, ON	 Bike lane on Mountain St. in Beamsville	 Cyclists on Mountainview Rd. (currently no cycling facility)

Table 11 | Level of Comfort Assessment for the Lincoln Active Transportation Network

Following this assessment; a level of comfort was identified for each of the proposed routes that make up Lincoln's AT network. The colours used to depict the level of comfort in the table above have been applied in **Figure 7**. This graphic represents the suggested level of comfort based on the existing or proposed facility type and can help to demonstrate how the active transportation network serves the diverse needs of various user groups.

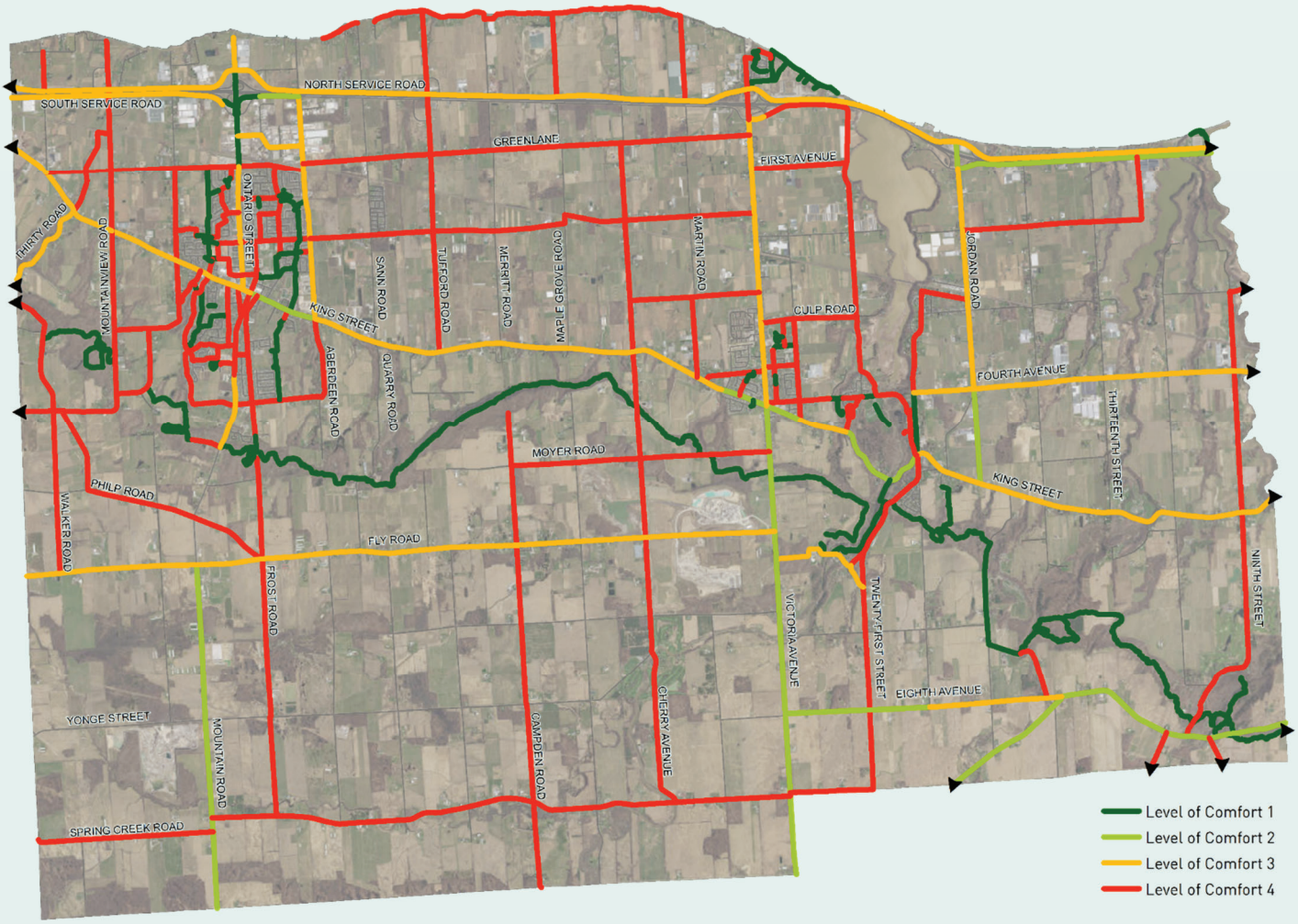


Figure 7 | Level of Comfort for Facility Types included in the Town's Active Transportation network

As the Town proceeds with the implementation of the AT network, additional promotion and encouragement materials should be developed to communicate the routing and opportunities to residents and visitors of the Town.

The map that has been created for the ATS has been provided to the Town in GIS format and can be adapted and utilized as needed by staff. Town staff are encouraged use the information contained within the graphic above to support the development of AT communication and promotion materials to support the goal of raising awareness about the active transportation network among various user groups.

A suggested approach for communications regarding the active transportation network and the Level of Comfort can be found in section 3.1.

TOPIC #2: ACTIVE AND SAFE ROUTES TO SCHOOL

Active and Safe Routes to School (ASRTS) refers to programs and initiatives that encourage students to walk, bike or engage in other forms of active transportation to and from school. Within Niagara Region, the ASRTS program is led by Niagara Region Public Health in partnership with the local municipalities, participating schoolboards, schools and community organizations.

Throughout Ontario, Green Communities Canada has developed and launched the Ontario Active School Travel Program which is integrated into a variety of regional and local projects such as classroom-level activities, to provincial-level strategies, policies, and research.

In 2017, the Ontario Active School Travel program received funding from the Provincial government to enhance active school travel through expanded support, including resources, training, coaching, campaigns, peer networking, and partnerships. The first round of funding was announced in May 2018, including $1.15 million for 12 community projects across the province. Niagara Student Transportation Services (NSTS) received funding to expand the Region's School Travel Planning program, pilot a walking school bus model and adopting an active school travel charter and continues to work with local municipalities to explore opportunities for program expansion and enhancement.

While Niagara Public Health is the lead for active school travel planning, local municipalities have a role in supporting and providing infrastructure to make walking and cycling more safe, comfortable and enjoyable for the youth within the community. While the Town has a role in supportive active school travel, there are policies and parametres in which we need to "work". The NSTS has established a policy to determine the eligibility of transportation services for students. The policy is consistent with the mandate for the District School Board of Niagara and the Niagara Catholic District School Board, and states that school bus transportation may be provided for elementary and secondary school students when the walking distance from the student's residence to their home school is equal to or greater than the distance noted below:

Junior Kindergarten to Senior Kindergarten	Grades 1 to 8	Grades 9 to12
0.80 km	1.60 km	2.50 km

Example of a Walking School Bus for St. Peter's Catholic Elementary School , St. Catharines

This means that for any students living within the distance for each of the age ranges noted above, there is a potential for greater use of active modes. To help articulate this, the walking / cycling distances were mapped. **Figure 8** illustrates the designated walking / cycling zone for each grade level based on the NSTS's Transportation Policy.

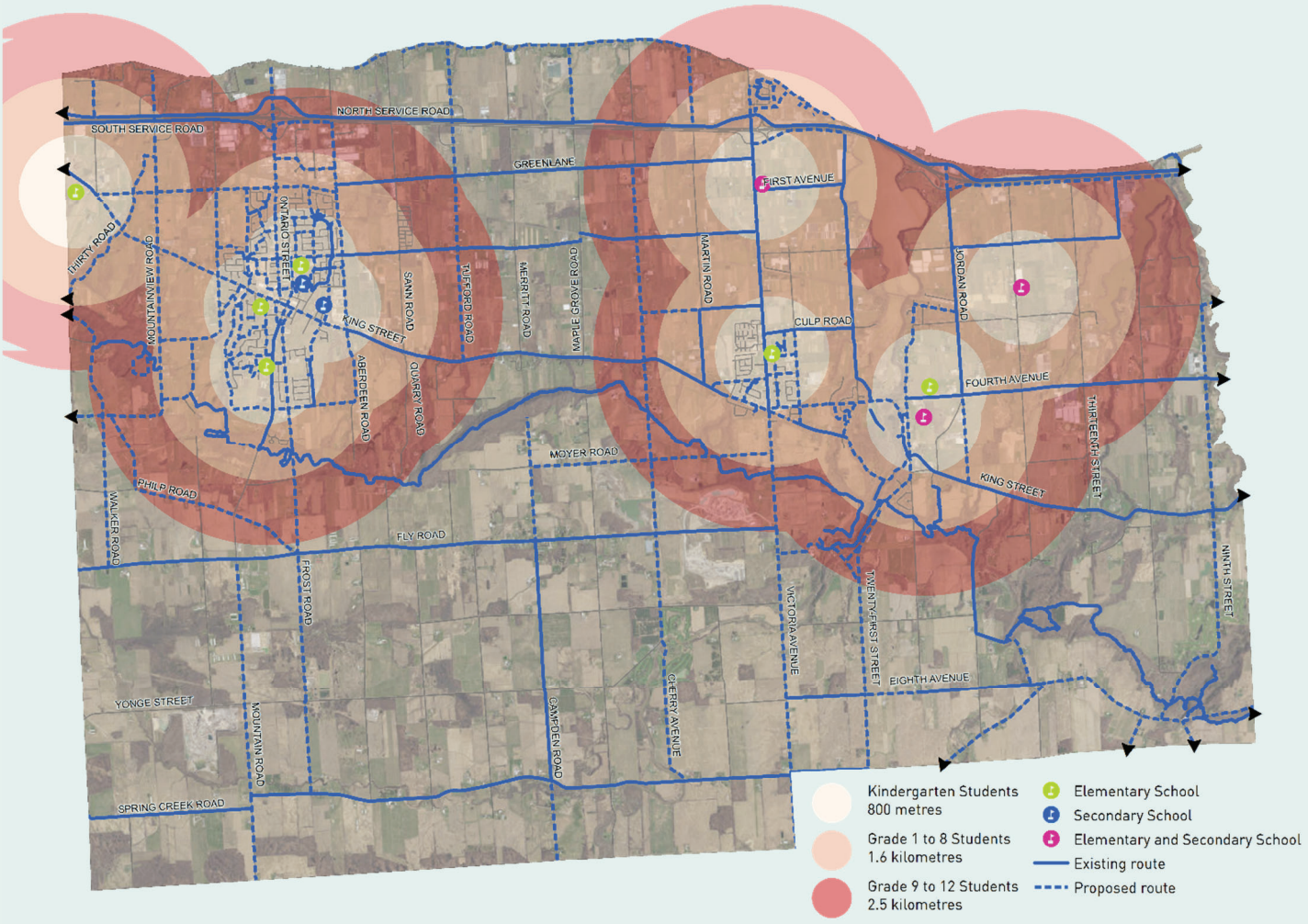


Figure 8 | Walk Zones to Schools based on Grade Levels

Based on the information illustrated above, most of the Town's urban areas (except for Campden) are contained within the NSTS's AT zones for all grade levels. Consideration for these areas was integrated into the identification and selection of proposed routes that make up the AT network and there are both existing and proposed routes identified along key corridors to facilitate walking and cycling within these areas from an infrastructure perspective.

It is recommended that Town staff use and / or adapt this figure as a communication tool to students and parents, to raise awareness about potential walking, cycling or other AT routes that connect to and from school – a critical school travel planning tool. In addition, there may be non-infrastructure related improvements which could be made within these areas depending on the age range and program purpose.

Section 3.1 provides additional details on how the Town may wish to pursue further action around active school travel planning.

TOPIC #3: TRANSITIONS

The Town's active transportation network includes a variety of facility types varying from a shared facility where the cyclist and motorized vehicles share their space and pedestrians use the sidewalk, to fully-separated where pedestrians and cyclists share a space within the boulevard. Due to the nature of the roadway and trails network, it is not possible to have a full network of the same facilities; as such users will likely be required to transition in between different facilities as they undertake their trip. On roads where the facility type transitions from one to another, users could be deterred from using the route if a seamless and smooth transition between facilities is not provided. Like the facilities themselves, the transitions between them can be designed in such a way that makes it easier and more comfortable for users. Based on the proposed facilities, there are three types of transitions that could occur which require more intentional and meaningful transition. When considering and applying these three 'categories" to the network a total of 66 locations were identified where the Town could consider additional enhancements to help facilitate the transition.

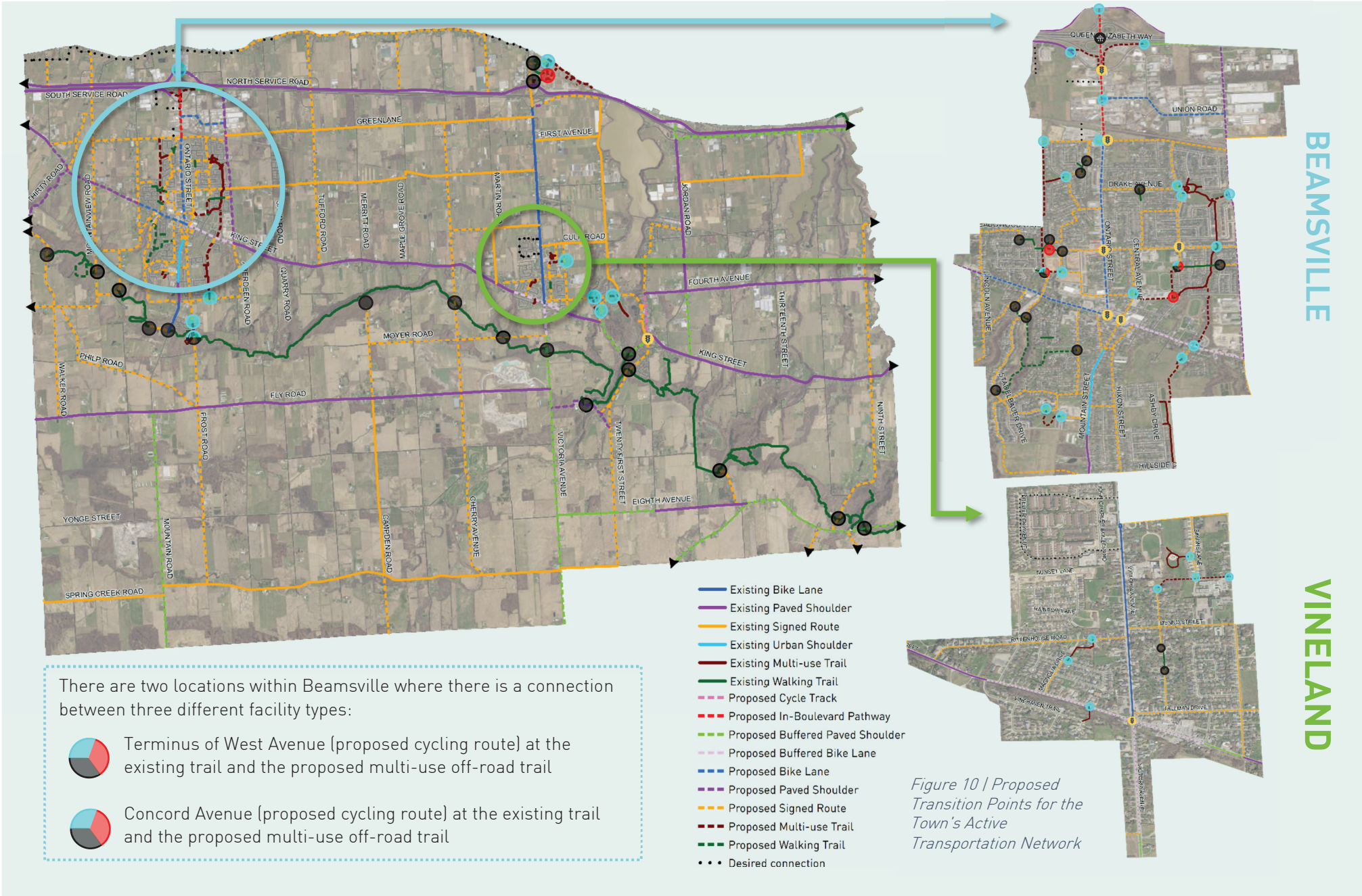
Multi-use route to trail (e.g. in-boulevard facility to a walking trail)

Multi-use route to cycling route (e.g. off-road multi use trail to a bike lane)

Cycling route to trail (e.g. signed bike route to a walking trail).

Figure 10 illustrates these transition points using the icons noted above. There are many treatments which can help to provide smooth transitions between different facilities of which the most effective is typically regulatory signage. **Figure 9** provides examples of the regulatory signage which is typically recommended at these transition points as identified in OTM Book 18 and OTM Book 15. *At the time the routes /facilities are implemented Town staff should refer to **Figure 10** and identify whether additional signage or design enhancements may be needed to improve user understanding and comfort at this transition points.*

Figure 9 | Examples of transition point signage



There are two locations within Beamsville where there is a connection between three different facility types:

- Terminus of West Avenue (proposed cycling route) at the existing trail and the proposed multi-use off-road trail
- Concord Avenue (proposed cycling route) at the existing trail and the proposed multi-use off-road trail

Figure 10 | Proposed Transition Points for the Town's Active Transportation Network

TOPIC #4: BARRIERS AND CONFLICT POINTS

Barriers and conflict points along an active transportation network can occur in several locations with the most prominent being at intersections, mid-block with the entry and exit of a trail and across railways or waterways. Like the transitions between different facility types, pedestrians, cyclists and other AT users could be deterred from using an entire segment of route in locations where a crossing is not appropriately design or implemented to help overcome a physical barrier or when crossing through an intersection.

The proposed AT network was reviewed following confirmation to determine the potential locations where proposed routes either cross or come in conflict with major barriers. Four major categories emerged.

Signalized intersection – consideration should be given to enhance the movement of pedestrians, cyclists and other AT users at signalized intersections. There are 7 signalized intersections where this applies in Lincoln.

Overpass crossing of a highway – a section of the roadway that crosses over a highway. There are 4 locations where a proposed AT route crosses over the QEW.

Underpass crossing of a highway – a section of the roadway that crosses below a highway. There is 1 location where a proposed AT route crosses under the QEW.

Railway crossing – a section of the roadway that crosses at a railway. Railway crossings can include signage, pavement markings and facility transitions. There are 7 locations where a proposed AT route crosses a railway.

Figure 11 illustrates the locations identified that may require the implementation of additional design features and an icon has been placed on the map to identify the type of barrier.

The Town of Lincoln should refer to this map as they implement the proposed AT network and should identify potential design treatments – consistent with OTM Book 18 and OTM Book 15 – which could enhance the overall experience of pedestrians and cyclists and to reduce potential conflicts with other road users.

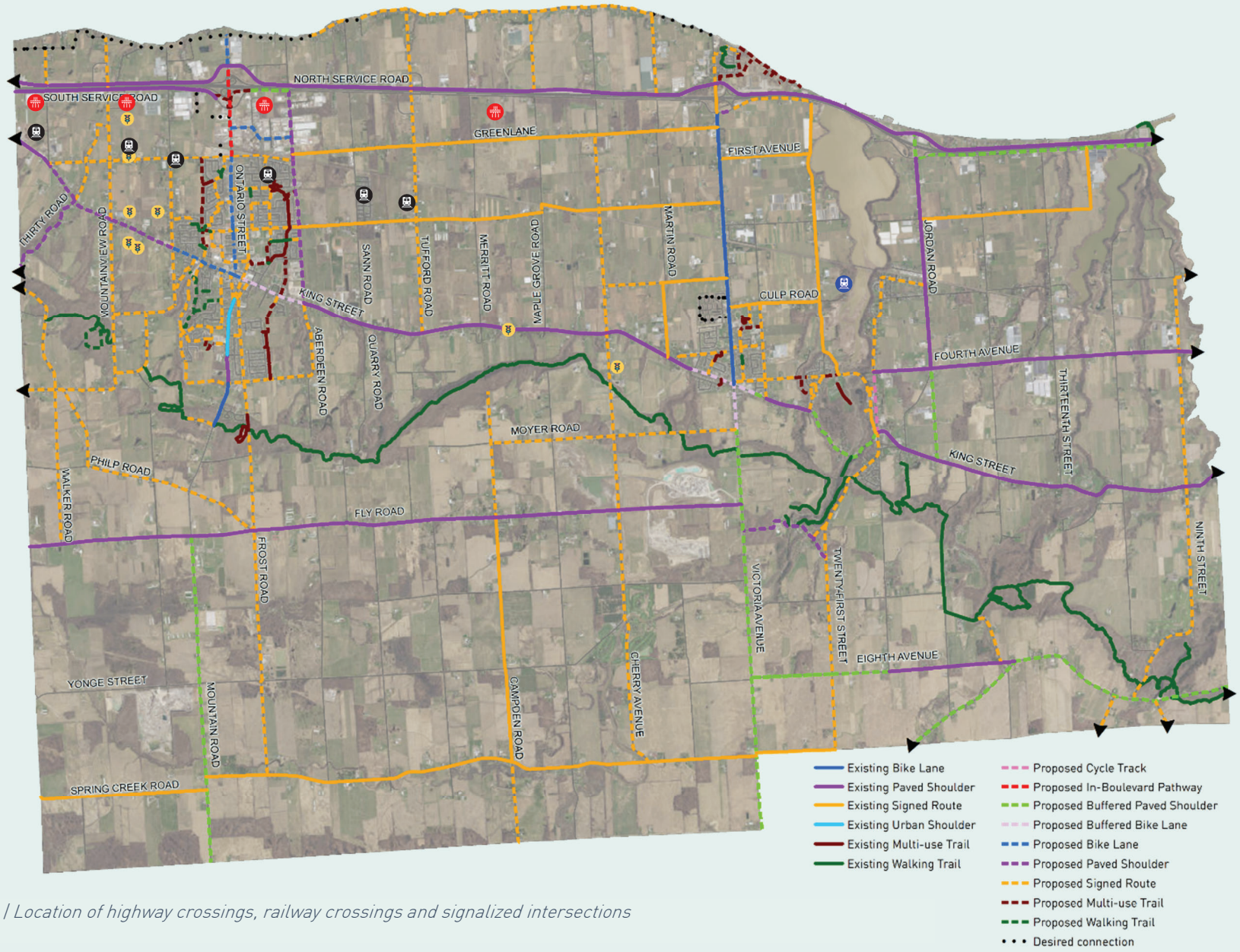


Figure 11 | Location of highway crossings, railway crossings and signalized intersections

Like the transition points, OTM Book 18 and OTM Book 15 provide guidance on when and how major crossings can be designed to better accommodate the safe and comfortable use by active transportation users. At each location, there should be consideration for the context around the barrier and the facilities that either approach or exit the barrier. Some potential treatments that could be implemented to overcome physical barriers include but are not limited to:

BIKE BOXES

TWO-STAGE LEFT-TURN QUEUE BOX

CROSS RIDES

PAVEMENT MARKINGS

BIKE SIGNALS

PHYSICAL ENHANCEMENTS

Photo Sources:

1. *Bike box: City of Tucson, Arizona https://usa.streetsblog.org/2016/10/14/american-traffic-engineering-establishment-finally-approves-bike-boxes/*
2. *Two-stage left-turn queue box: Highway 7, York Region (WSP)*
3. *Cross rides: Finch Hydro Corridor recreational trail, Toronto (WSP)*
4. *Pavement markings: Dunsmuir bike lanes, Vancouver https://www.raisethehammer.org/article/2597/intersection_pavement_markings_on_cannon_cycle_track*
5. *Bike signals: Bloor Street, Toronto (WSP)*
6. *Physical Enhancements: Red Hill Creek trail bridge, Hamilton https://www.thespec.com/news-story/2239473--round-the-lake-cyclists-detour-through-hamilton/*

TOPIC #5: TRAIL ACCESS POINTS

There are several existing and proposed off-road multi-use trails as well as single-track trails that will form part of Lincoln's AT network. An off-road trail requires entry and exit points which are commonly referred to as trailheads. Trailheads are typically organized into two categories: major trailhead and minor trailhead. A major and minor trailhead can be defined in two ways – the type of trail that is being accessed, the surrounding area and the intended use. Major and minor trailheads also differ in the way that they are designed and require the implementation of certain amenities to encourage use.

The locations of potential major and minor trailheads were identified along the proposed network through as part of the ATS. The locations were identified based on input from staff and stakeholders with the intent of providing greater access to specifically the Bruce Trail as well as other trail linkages throughout the Town. **Figure 12** illustrates the proposed locations for the Town's consideration.

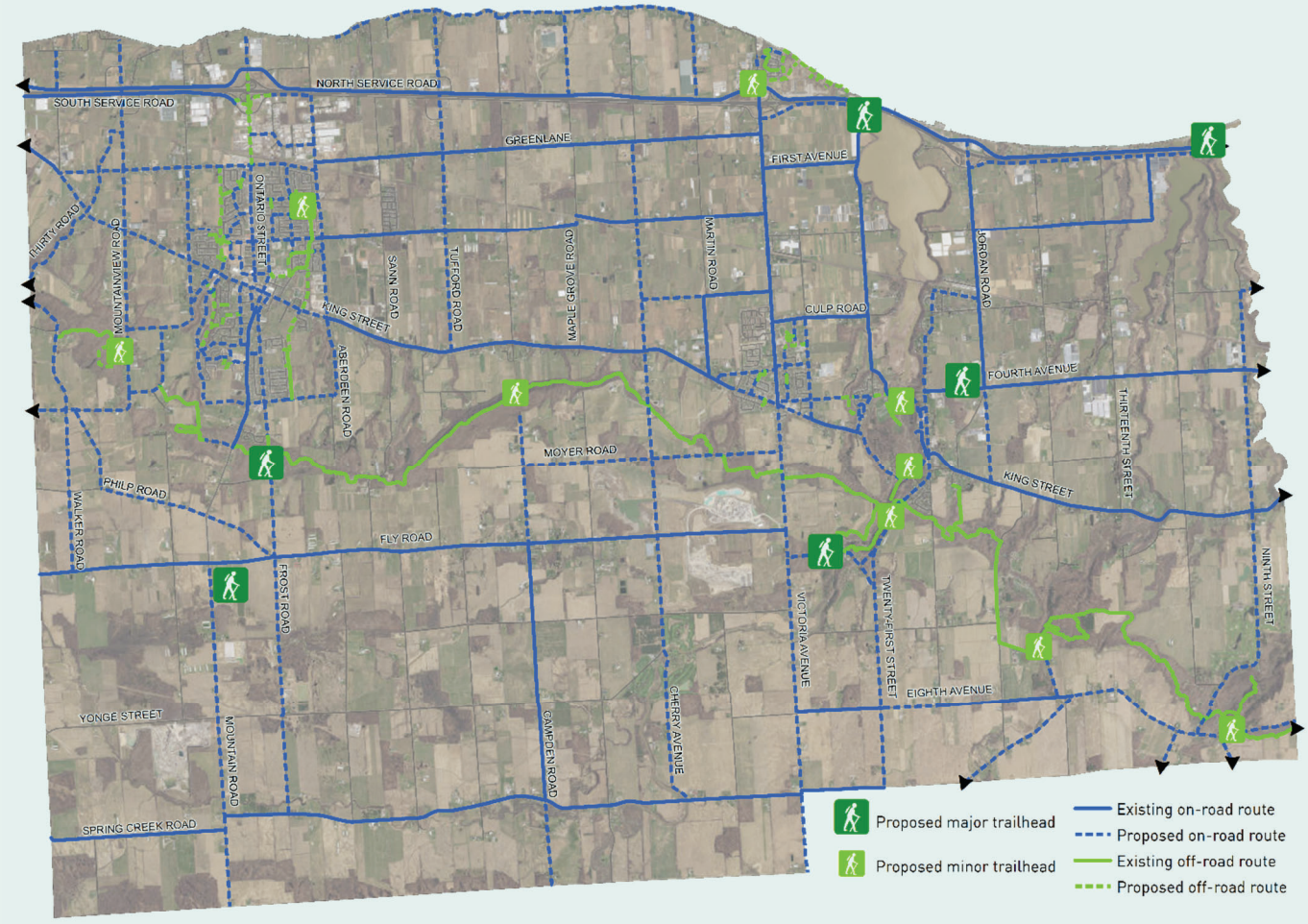


Figure 12 | Proposed Major and Minor Trailheads

The Town should refer to this map when implementing the proposed network and identify locations where trailheads can be enhanced or implemented to encourage overall use and interest. To support the design and implementation of trailheads the Town may wish to partner with external stakeholders such as the Bruce Trail Conservancy.

There are some existing major and minor trailheads found within the Town of Lincoln including:

MAJOR TRAILHEAD #1 JORDAN HOLLOW PARK

Includes:
- Car parking
- Portable washroom
- Shelter
- Benches
- Signage
- Garbage receptacles

MINOR TRAILHEAD #2 KINSMEN PARK TRAIL

Includes:
- Benches
- Signage
- Bike rack

The way in which major and minor trailheads are designed does differ. Major trailheads imply a greater number of amenities whereas the minor trailheads are less formal and more "stop points". **Table 12** provides an overview of recommended design features for major and minor trailheads.

	MAJOR TRAILHEAD	MINOR TRAILHEAD
Bike parking	✓	✓
Car parking	✓	
Rest area	✓	✓
Lighting	✓	✓
Signage	✓	✓
Drop-off area	✓	
Washrooms	✓	
Gates / barriers	✓	
Garbage	✓	✓
Loading zones	✓	
Shelter	✓	
Water fountain	✓	

Table 12 | Amenities in Major and Minor Trailheads

When designing major and minor trailheads there is an assumption that the elements are singular and in one place or location. In addition to trailheads, the amenities that are noted above can, at times, be implemented on or along a proposed on or off-road active transportation route to enhance and improve the overall comfort of the various users.

Feedback and research shows that the implementation of amenities such as seating and shelter significantly improve the overall experience by providing people of all ages and abilities with the opportunity to rest while washrooms and waste receptacles increase the overall time / duration of an active transportation trip. Signage is also a critical component to any active transportation route improving overall understanding of the route length, destination, and purpose, thus creating a predictable and enjoyable experience – more details on the types and applications of signage is provided on the following page.

Trail lighting; however, is an area of trail design which garners a significant amount of interest and discussion – both for and against its application. The most clear and concise set of Multi-use Trail Design Guidelines which includes considerations around lighting has been prepared by the City of Toronto and outlines guidelines that are consistent with our understanding of user preferences, the perception of safety and comfort as well as environmental impacts. In general, it is appropriate to assume that lighting may be implemented along multi-use trails unless there would be an impact on sensitive wildlife activities, if the lighting would encourage a trail user to participate in a dangerous situation or where lighting would conflict with special requirements e.g. hydro corridors.

Section 7.3 of the guidelines includes the following guidelines / considerations which the Town of Lincoln is encouraged to incorporate when designing / implementing trails and trail amenities throughout the Town:

1. Where lighting is not included on existing trails there should be consideration for the implementation of lighting at entrances and exits and at any intersections unless the above noted impacts occur;
2. Trail lighting should not be partially implemented between access points. Lighting should be implemented along the entire corridor or should not be implemented if this cannot be achieved;
3. Professional lighting and electrical design is required for all trail lighting and should be certified by the Electrical Safety Authority when implemented; and
4. Where trails are not lit, the Town should consider including critical design information in an alternate format such as signs or information at trail entrances.

The Town should explore the appropriate application of trail lighting along major multi-use trail corridors that are designated for high volume recreational and utilitarian use and should consider additional design or safety principles and measures when doing so. In consultation with appropriate stakeholders including but not limited to local law enforcement. New or upgraded trails should be considered independently before a decision is made to implement lighting.

Should the Town determine that it is appropriate and possible to implement lighting along select corridors of multi-use trail connections, additional consideration should be given to the specific design standards for trail lighting including but not limited to the trail standards adopted by the City of Toronto found on page 87 of the Multi-use Trail Design Guidelines.

TOPIC #6: SIGNAGE AND WAYFINDING

A key element of overall network connectivity is the signage and wayfinding. Though not a formal "facility" it plays a significant communication role to help existing and potential users understand where and how to use infrastructure and connect to new areas within the municipality. An AT network should include a meaningful and effective wayfinding and signage component where possible including the implementation of a "family" of signs i.e. different signs for various purposes. In addition to the mandatory implementation of regulatory signage as per OTM Book 18 (see **Table 13** for an overview of the regulatory signage which would be required for the proposed AT network) a branded "family" of signs typically includes:

- **Directional Signage:** informs cyclists and pedestrians of the direction and distance to a nearby destination. This sign should be installed at locations where additional directional guidance is required.
- **Trail Entry Signage:** installed at entrances to off-road segments of the AT network. This sign should provide information regarding level of difficulty, trail name, trail map, trail length, QR code and branding logo.
- **Information Signage:** installed on off-road segments of the AT network to inform users of restricted activities (as per municipal by-laws). This sign could be installed above trail entrance sign presented above.
- **Route Marker Signage:** implemented at regular intervals or in locations where additional guidance may be needed e.g. change in direction on a trail. The sign is intended to inform users of their distance travelled along a trail.

The design and implementation of signage and wayfinding to complement the proposed facilities that make up the AT network should be a priority for the Town. *In addition to prioritizing the implementation of short-term routes that make-up the spine system of priority links, the Town should consider working with communications and the AT committee to establish a signage concept which could be established as a branded "look and feel" for active transportation-related signage throughout the Town.*

LINCOLN

ST. THOMAS

DUTTON / DUNWICH

KINGSTON


Bruce Trail
CONSERVANCY
On March 25, 1962, the first blaze on what was to become the Bruce Trail was placed here by members of the Niagara Escarpment Trail Council on the farm of Delby Bucknall

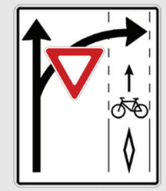
SIGN NAME, CODE AND DIMENSIONS	FACILITY TYPE	PLACEMENT	ADDITIONAL CONSIDERATIONS		
Bicycle Route Marker sign  M511 (OTM) 450mm x 450mm	- Paved shoulder - Signed bike route - Urban shoulder	Placed on the far side of intersections Urban roads: one sign every 400-800 metres Rural roads: one sign every 2.0 kilometres	Could be supplemented with Share the Road signs to caution all road users on the approach to locations where there may be a change in the road configuration. Could be supplemented with Shared Use Lane Single File signs in locations where motorists are discouraged from passing cyclists e.g. if the travel lane width is less than 4.0 metres.	Share the Road sign  Wc-19 (OTM) (60 cm x 60 cm)  Wc-19t (OTM) (30 cm x 60 cm)	Shared Use Lane Single File sign  WC-20 (TAC) (60 cm x 60 cm)  WC-20S (TAC) (30 cm x 60 cm)
Reserved Bicycle Lane sign  RB-91 (TAC) 600mm x 750mm  Rb-84t (OTM) (20 cm x 60 cm)	- Cycle track - Buffered bike lane - Bike lane	Placed on the far side of intersections Maximum spacing: 200 metres	The Rb-84t tab sign should be installed below the Reserved Bicycle Lane sign where the bike lane begins. The Reserved Bicycle Lane Ends sign should be installed at the end of the reserved bicycle lane. Could be supplemented with Turning Vehicles Yield to Bicycle signs at conflict zones where motorists turn across a bicycle facility and are required to yield to the cyclist e.g. where there is a solid bike lane marking all the way to the stop bar indicating that right-turning vehicles must not encroach on the bike lane on the approach to an intersection.	Turning Vehicles Yield to Bicycles Sign  RB-37 (TAC) (60 cm x 75 cm)	Reserved Bicycle Lane Ends sign  RB-37 (TAC) (60 cm x 75 cm)
Shared Pathway sign  RB-93 (TAC) (300 mm x 450 mm)	- In-boulevard pathway	Placed on the far side of intersections and other decision points.	The Pedestrian and Bicycle Crossing Ahead sign (and Crossing tab sign) should be placed on the perpendicular roadway at the approach to an in-boulevard facility. The Bicycle Trail Crossing Side Street sign should be placed on the roadway at the approach to an intersection with a side street where a parallel in-boulevard facility crosses the side street close to the through road. The right or left version of the sign should be used as appropriate.	Pedestrian and Bicycle Crossing Ahead sign  WC-46 (TAC) (60 cm x 60 cm)  WC-7S (TAC) (30 cm x 60 cm)	Bicycle Trail Crossing Side Street Sign  WC-44L (TAC) or WC-44R (TAC) (30 cm x 45 cm)  WC-44T (TAC) (30 cm x 60 cm)

Table 13 | Overview of Regulatory and Warning signs for the Town's Active Transportation network

3.0 IMPLEMENTATION

A comprehensive active transportation strategy requires more than just a network. There should be a clear, methodical and effective approach to support education, encouragement, evaluation and enforcement along with a plan to facilitate short and long-term implementation of the recommendations.

The implementation of the ATS is intended to be coordinated with the implementation of the Transportation Master Plan but will also require some targeted efforts by Town staff and its partners to prioritize active transportation improvements.

Chapter 3.0 outlines a strategy to address and pursue the 5E's – engineering, education, encouragement, enforcement and evaluation and a plan to facilitate implementation of the ATS and supportive recommendations. The implementation plan is intended to be used as a guide for Town staff to support next steps and includes recommended initiatives and tools which are designed to support day-to-day work.

The intent is for the content of this chapter to be shared with other staff and stakeholders to support coordination and collaboration where possible with the goal of establishing long lasting changes within the community.

3.1 Enhancing Active Transportation

With the development of more comprehensive active transportation master plans and strategies, there has been an increasing amount of research regarding what makes a successful long-term strategy. Best practices show that to change behaviours there needs to be strategic focus on not only the development and implementation of walking, cycling and active mode infrastructure but an intentional effort to create change through engineering, education, encouragement, evaluation and enforcement, typically referred to as the five E's.

The following is a high-level overview of the intents and purposes of the Five E's further referred to as the AT "topics" as well as some best practices which have been successfully implemented by municipalities of a similar scope and scale.

The Five E's of AT...

Table 14 | Overview of Five E's of Active Transportation

TOPIC	DEFINITION	BEST PRACTICES
ENGINEERING	Creating safe and convenient places to walk, ride and roll and designing land uses which are supportive of active forms of transportation.	– Implement effective and well-designed transitions between different facility types – Identify design solutions for high conflict areas – Design facilities for comfort, safety and accessibility – Provide and strategically locate end-of-trip facilities – Consider AT at the outset of development charrettes as a first principle
ENCOURAGEMENT	Generate support within the community for AT as a viable alternative for day-to-day travel and for recreation and tourism.	– Create programs, and prior to implementation, identify desired behaviour changes and barriers – Create incentive programs and challenges for residents – Ensure designs accommodate all users (age/ability) – Work with local employers to pilot programs
EDUCATION	Teach people of all ages and abilities the skills that they need to use AT safely for different trip types and purposes	– Make information easily accessible – Partner with not for profit organizations and local agencies – Utilize existing platforms such as local newsletters, Town webpages, social media platforms – Target centralized / popular locations

TOPIC	DEFINITION	BEST PRACTICES
EVALUATION	Monitoring the success of the ATS and undertaking complementary initiatives to enforce AT in Lincoln	– Application of ongoing and continuous evaluation tactics to gauge potential change and influence – Establish partnerships with local agencies, stakeholders, clubs / organizations – Develop and apply a range of measures including planning, engineering and design considerations – Integrate technology and manual documentation
ENFORCEMENT	Ensuring all users' safety by applying roadway laws and regulations in a consistent and effective manner	– Enforcement is typically geared towards sidewalks, roads and trails for all users – Make regulations available and clearly communicated – Implement patrols and safety blitzes, as well as Share the Road campaigns by the municipality and its partners

It is important to note that active transportation initiatives and programs typically do not exclusively address one specific "topic". The benefit of some programs can be their ability to help enhance more than one of the Five E topics with the intent of influencing the greatest possible change.

Chapter 2.0 addresses the majority of the "engineering" recommendations for the Lincoln ATS component of the Five E Approach including but not limited to:

- Accessibility and level of comfort;
- Active and safe routes to school;
- Design solutions for potential conflict points and intersections;
- End of trip facilities; and
- Wayfinding and signage considerations.

Based on the input received through the consultation and engagement activities undertaken from the TMP as well as discussions with Town staff, six recommended initiatives / programs have been identified for consideration by the Town and its partners. Each initiative is described in further detail on the following pages. The details include:

- Program description;
- Roles and responsibilities;
- Timeline for implementation;
- Cost considerations; and
- Type of theme achieved.

These are not intended to be an exhaustive list of potential initiatives; they are more-so intended to be a guide for the AT committee that reflects the interests of those who provided to the ATS.

Initiative #1: Sidewalk Prioritization

Program Description:

The intent of the sidewalk prioritization program is to provide the Town with support and direction on the identification and selection of sidewalk improvement priorities on an annual basis. The Town of Lincoln receives inquiries and requests from residents regarding the implementation of new sidewalk linkages and requires a methodical and well documented approach to assessing the validity of the request and ranking the various linkages to identify priorities for implementation.

Key Elements:

As part of the development of the ATS, there was consideration for pedestrian enhancements Town-wide; however, there is not currently an existing database of missing sidewalk linkages nor was the identification of those missing links part of the scope of the project. As such, first and foremost the Town should complete a comprehensive assessment and mapping of existing sidewalks to better understand the location of missing linkages.

A proposed ranking framework has been developed for the Town's consideration and use to support the identification and prioritization of sidewalk improvements. The ranking framework has been developed / designed based on several best practices from small to medium sized municipalities and reflects a range of context specific considerations to inform ranking.

An overview of the ranking can be found on the page 64. There is a total of 100 points which are available for each linkage. The rating points on the right-hand side of the table represent the maximum number of points that could be allocated to that criteria / theme which generates a score for each potential route. As this is a "manual" tool, the intent is for an informed staff member to complete this assessment with the necessary context and information available.

Through the application of the ranking tool each of the missing sidewalk links would receive a score which would help to identify low, medium and high priorities for consideration by the Town. Priority ranking can be determined based on threshold for the various linkages that are being assessed. A potential threshold is provided below:

HIGH	MEDIUM	LOW
Linkage receives a score between 100 and 60	Linkage receives a score between 59 and 30	Linkage receives a score between 29 and 0

Roles & Responsibilities:

- Town staff member to complete the investigation of existing sidewalks and update to the current GIS database
- Town staff member to complete a review of the missing sidewalk links using the evaluation tool and complete a prioritization of the missing sidewalk linkages
- Town staff member and AT committee to work together to identify candidates for funding on an annual basis as funding is made available

Timeline for Implementation:

Depending on the availability of budget, the implementation of the sidewalk prioritization program should start to inform the prioritization and "funding" of sidewalk improvements starting in 2020. If a sidewalk specific budget cannot be allocated annually, the prioritization tool should be used to assess existing missing sidewalk linkages to develop a list of priorities which would inform the allocation of funding as it becomes available.

Cost Considerations:

Funding of sidewalk improvements are currently incorporated into the Town's capital budgeting approach through other larger road reconstruction projects. While this can be an effective tool, the Town may also wish to consider the allocation of a lump sum identified annually to cover the prioritization and construction of select sidewalk improvements utilizing the tool provided through the ATS. Consider the allocation of $20 - $50K for this program.

A typical construction cost for sidewalks is ~$300/m which does not include additional pedestrian enhancements along major corridors. The allocation of a lump sum annually for sidewalk improvements can help to ensure predictability of budget impacts; however, the prioritization tool would also help to rationalize the selection of specific improvements should there be more or less available budget on a yearly basis.

Five E's Achieved:

- Engineering
- Encouragement
- Evaluation

Rating Date

Revised Rating Date

Location	From	To	Side	Approximate Linear M

Criteria		Rating System	Points	Ranking
Pedestrian Safety	Road classification (pick one)	Arterial	10	
		Collector	5	
		Local	2.5	
	Walking Alternatives (pick one)	No Space to Walk in Blvd.	7.5	
		Some space (min 1.5m)	5	
		Existing sidewalk (1 sd.)	2.5	
	Street Lighting	No = 2.5; Yes = 0	0 or 2.5	
	Roadway hazards (pick all the apply)	Horizontal Curvature	2.5	
		Vertical Grade	2.5	
		Confirmed Speeding	2.5	
Pedestrian Trip Generators	School system, within 500m (pack all that apply)	Elementary	10	
		Secondary	4	
		Post-Secondary	1	
	Generators associated with vulnerable populations (2.5 pts within 1000m and 5 pts within 500m)	Seniors Facility	2.5 or 5 (score each with maximum 15)	
		Hospital or Health clinic		
		Assisted / Community Housing		
		Other (specify)		
	Community Attractions (2.5pts within 1000m and 5 pts within 500m)	Mall / Retail Centre	2.5 or 5 (score each with maximum 15)	
		Community Centre		
		Major Employment		
		Park		
		Other (e.g. Library, specify)		
Connectivity & Latent Demand	Existing and predicted daily pedestrian usage (pick one)	Heavy (more than 50)	2.5	
		Light (less than 50)	1	
	Direct Connection to Existing Systems (Pick all that are applicable)	Sidewalk system	5	
		Off-road Trails	2.5	
		In boulevard Trail	2.5	
		On Transit Route	5	
	Worn Pathway in ROW	Yes	5	
	Request by Residents	Yes	5	
		Total (maximum 100)		

Initiative #2: Active Transportation Map

Program Description:

Understanding where, when and how to get to active transportation facilities is a critical component of increasing overall interest and use. Through the development of the TMP and the ATS, input from stakeholders and the public indicated a need for more communication materials around the Town's existing and proposed active transportation network.

Key Elements:

Building upon the GIS data that has been generated for the ATS, the Town is encouraged to develop and start promoting an active transportation map Town-wide. The intent of the map would be to promote routes to existing residents as well as tourists visiting the Town. The following are some mapping applications that could be considered for this initiative:

- Utilize the information illustrated on Maps 1a and 1b – Existing AT Network – to develop the basis of an AT map;
- Work with local businesses to identify opportunities for promotion and buy-in with the development of the map with the potential for acquiring additional funding through the purchase of ad space;
- Review and determine the use of some additional mapping information provided within the ATS including but not limited to the level of comfort assessment that is provided in section 2.0;
- Work with the Town's communications department to develop an overall look and feel for the map which is consistent with the approach that is used for other municipal materials;
- Acquire relevant information from external sources such as the Region of Niagara or the Ministry of Transportation regarding safe use of active forms of transportation;
- Ensure that key destinations are illustrated on the mapping including AT amenities such as bicycle parking, trailheads, rest areas, as well as major destinations throughout the community; and
- Work with surrounding municipalities to determine how to present / articulate connections to bordering municipal routes.

A couple of sample active transportation and / or cycling maps have been included in the ATS report following the initiative description.

Roles & Responsibilities:

- Town staff should work with the AT committee to review the ATS GIS database to determine the information that could or should be included on the AT map;
- Work with the AT committee and representatives from other municipalities to gather a selection of active transportation or cycling maps which could be used as the basis for a review of potential content and development of Lincoln specific content;
- Town staff member work with communications staff to develop overall look and feel of the AT map; and
- Town staff member to develop base content including mapping and relevant background information for the AT map and work with communications to refine and confirm formatting and content.

Timeline for Implementation:

There is significant demand for the development of communication and education materials around active transportation routes and facilities. The Town is encouraged to pursue the development of an initial map in 2020 with continual updates to the mapping undertaken every 2 years to ensure that new facilities, changes to existing facilities or amendments to the network are captured.

In addition to distribution throughout the Town, Town staff may wish to consider providing the mapping to its partners including surrounding area municipalities, the Region and public health to increase promotion and outreach.

Cost Considerations:

The development of an AT-specific map has a couple of cost impacts including:

- Staff level of effort to develop the content for the map;
- Staff level of effort to develop the layout and format of the mapping;
- External production of mapping; and
- Ongoing staff time to update the mapping as needed.

After the first year of investment, the cost for the updates of the AT map will significantly decrease due to the update nature of the work. When the Town selects to pursue the development and implementation of the AT map, it is suggested that an initial start-up budget of $25K be identified for development and production and that an ongoing budget of $5k be identified for updates and production.

Five E's Achieved:

- Encouragement
- Education

Initiative #3: AT Webpage

Program Description:

In addition to the development of an AT-specific map, it is also important to provide residents and visitors with a central hub of information regarding the active transportation opportunities found within the Town of Lincoln. When people are travelling to new destinations or exploring information about the municipality in which they live, their first resource is typically the municipal website. Utilizing the Town's website web interface, a central source / webpage should be developed with content specifically related to the available active transportation routes / facilities and resources.

Key Elements:

An effective active transportation webpage typically includes the following elements:

- Education information on:
  - What is active transportation
  - Biking
  - Walking
  - Etiquette
  - Resources to "Get Started"
  - Design Elements
  - Safety
- Photos and information about specific elements of the network and an invitation to provide additional photos
- Key destination information and information on the "best route" to get there
- A survey to gather input from users
- Contact information
- An overview of key partners and stakeholders
- Successes that have been achieved and ongoing initiatives

The following are a couple of next steps which could be used to guide Town staff efforts:

- Determine a preferred outline for online information related to AT
- Work with the AT Committee and communication staff to establish a "brand" for the Town's AT initiatives
- Provide report-back information and key contact for any inquiries that are submitted

Roles & Responsibilities:

- Town communication staff to work with Transportation Staff to determine the appropriate content to be included on the webpage
- Communication and transportation staff to work together to update information as needed
- Staff to identify other opportunities for additional information gathering including the development of an interactive map of facilities similar to what has been developed for Niagara Region as well as a mobile app (long-term)

Timeline for Implementation:

A significant amount of graphic information has been generated because of the development of the TMP and the ATS. The Town is encouraged to use these materials to develop content for an AT specific webpage on the Town's existing website. The Town may wish to wait until the AT map has been developed to provide additional information on the Town's website; however, it would be valuable to provide some preliminary information following adoption of the TMP and ATS to demonstrate momentum in AT promotion. A 2020 target for preliminary online information would be recommended.

Following the development of the initial webpage, the Town may wish to implement and utilize online surveys embedded onto the page after a couple of years to help document and evaluate how behaviours and preferences have changed.

Cost Considerations:

Depending on the level of effort which the Town wishes to employ to develop this page, a typical cost to develop an AT specific webpage could range from about $2.5k - $15k. The cost will depend on the level of staff effort and the amount and availability of information that could be used to populate content.

Five E's Achieved:

- Education
- Evaluation

Initiative #4: Active School Pilots

Program Description:

While there are several schools within the built-up areas within Lincoln there is still a strong reliance on single occupancy vehicles to drive kids to school. We know from research that much of this has to do with the attitudes and preferences of the parent as opposed to the interests and wants of the child. While the challenges and issues with active transportation for youth are acknowledged, there is a growing movement around identifying programs, tools, tactics and improvements to encourage and empower both students as well as their parents to travel to school using active modes of transportation.

Key Elements:

The Town is encouraged to work with the Active School Travel Planning Committee from Niagara Region Public Health to identify a school or set of schools of varying ages where a pilot active and safe routes to school program could be developed. There are a few candidate schools which could be considered using the information developed regarding the walk / bike catchment area in chapter 2.0 of the ATS.

Once the preferred school or schools has been confirmed, the Town should work with the Principal and local teachers to work through a typical school travel planning process.

Roles & Responsibilities:

- Town staff should reach out to Active School Travel Niagara Region to explore the opportunity to expand one or two pilots within the Town
- Town staff should reach out to local schools to gauge interest in the development of a pilot
- Town staff should support Niagara Region and the schools to provide the necessary resources and identify potential education and encouragement supports for local initiatives
- Town staff to work with OPP to ensure that safety is of the utmost priority and to enforce safe behaviour by students as well as parents

Timeline for Implementation:

Initial discussions can take place regarding the potential for a pilot program following the adoption of the ATS. These discussions will be needed to ensure that future implementation is as seamless as possible and to ensure that the appropriate stakeholders are involved. This initiative may be a longer-term endeavour as there are several steps / stages that need to take place before launching the program. Niagara Region Public Health can be a significant partner and support for this program.

Cost Considerations:

Some initial staff time may be needed and involvement by the AT committee to coordinate with Niagara Public Health. In addition, a small amount of funding would be helpful to support the development of materials or to help enhance the overall environment surrounding the school zones i.e. signage, wayfinding, traffic calming. An annual budget of $10K should be considered for this support; however, the primary budget would be provided by the school board as well as Niagara Public Health.

Five E's Achieved:

- Education
- Encouragement
- Evaluation
- Enforcement

Initiative #5: Signage & Wayfinding

Program Description:

Signage and wayfinding is a critical component of any connected and continuous active transportation network. The Green Bike Route and Share the Road signage is part of a family of signs that help to articulate where or how to use the infrastructure that has been implemented. With the identification of the priority loops, there is an opportunity to highlight key links and systems throughout the Town, its major communities and destinations in a more understandable and tourism focused way. Once the Town starts to implement the priority loops, there should be consideration for the development of a signage and wayfinding strategy to articulate the intent, purpose and connectivity of these routes.

Key Elements:

When developing a wayfinding and signage strategy for the priority loops the following should be considered:

- The Town should determine whether there is interest in promoting the loops as they are existing from a connectivity perspective or if promotion should start at the time the entire route has been implemented;
- An overall look and feel should be developed / determined for the AT-specific wayfinding and signage that builds upon other municipal signage that has been developed – in the past or going forward;
- Consideration for "naming" the priority looks should be given as an opportunity for the community to participate in a branding exercise and to establish greater community buy-in;
- The amount of information that is included on the signage will need to be determined including the use of directional signage to key community destinations along with the branded route markers; and
- Consideration for the Region of Niagara's recent wayfinding and signage guidelines will need to be considered to ensure consistency in application and potentially design.

As is with any signing strategy there should be significant consideration for sign pollution which occurs when there are too many signs found within one location. This can cause more confusion than benefit and where possible should be avoided. Should the Town pursue the development of a wayfinding and signage strategy specific to AT, it may be appropriate to consider removing green bike route signs to avoid sign pollution from happening.

It is important to note that any branded wayfinding and signage should also be complementary or applied with the design and implementation of major and minor trailheads along the existing off-road trail system.

Roles & Responsibilities:

- Town staff to review the Region of Niagara's wayfinding and signage guidelines that were developed through the recently adopted Regional TMP;
- AT Advisory Committee to work with Town staff to determine an approach to the wayfinding and signage program based on the options noted above;
- Town staff to work with the AT Advisory Committee in partnership with the communications to determine a potential look and feel for signage and wayfinding from a branding perspective; and
- Public engagement to be undertaken to determine the preferred look and feel prior to production.

Timeline for Implementation:

It would be the recommendation of the consultant team that the Town pursue the development of a signage and wayfinding program as an additional project which is outsourced to an external consultant for the best potential outcome and production. The implementation of this initiative would require:

- The development and distribution of an RFP – suggested for 2020 or 2021;
- The selection of a preferred consultant and completion of the project – 6 to 12-month timeline;
- The productions of signs and implementation throughout the Town; and
- Ongoing monitoring and maintenance of the effectiveness of the signage and replacement as needed.

Cost Considerations:

With the implementation plan noted above in mind, a suggested budget of $50K - $75K should be identified for the development of a comprehensive wayfinding and signage strategy specific to AT.

Five E's Achieved:

- Education
- Encouragement
- Evaluation

Initiative #6: Open Street Events

Program Description:

Open Streets events have in the past provided an excellent opportunity for general education as well as enforcement of safe active transportation practices and are designed to increase community interest and involvement for those who are typically interested but concerned. They have been implemented in several municipalities and provide a passive means of engaging with the community as well as an active method of providing information and education.

Increasing the profile of active transportation was a considerable priority for members of the community in Lincoln; however, there can be challenges if an event solely relies on the interest of active transportation users. The intent of this initiative would be to develop a community event which provide opportunities for active transportation users as well as non- active transportation users with the intent of generating a wider spread interest in AT and active living in general.

Key Elements:

Open Streets events are intended to be designed with a couple of key components including but not limited to:

- Food availability: Making sure that people are "fed" is key. Coordinating local vendors or food trucks can help to generate interest and ensure general population attendance;
- Local pop-ups: Invite local vendors to participate in the event to bring their "storefronts' onto the street and encourage partnership with local businesses;
- Street Painting and Games: encouraging all attendees to get creative and paint their ideas on the street or provide large scale games to engage attendees;
- Fix-it Stations: a temporary fix-it station and someone to support education around how to fix bikes would be available on site to provide support for those in attendance;
- Cycling Education: high-level cycling education would be provided on-site for youth or new cyclists to provide the basic rules of the road and rider etiquette;
- Coordinated Rides / Walks: The coordinated rides / walks would be multi-purpose in the sense that they would help to enhance the cycling education provided in real-life scenarios and would also be used to highlight some of the key AT infrastructure including new on-road cycling infrastructure and / or walking trails;
- Distribution of Materials: Promotional materials should be acquired and / or developed and distributed at these events to encourage existing and potential users to engage in AT beyond the event; and
- Bike Valet: A bike valet is an excellent way to encourage and incentivize people to come to an event. Providing priority and free parking for those who cycle is a positive tool for change. The bicycle valet can be acquired and monitored by staff and the AT Advisory Committee to ensure safe and secure parking options are provided for cyclists.

The planning and preparation for these events should not be haphazard. The intent would be to "roll out" the events throughout each summer taking advantage of local events which are already promoted / coordinated by the Town and its partners. Throughout the summer months there would be a target of hosting at least 2 of these events and using the Town's AT webpage (see initiative #3).

Roles & Responsibilities:

- Town staff in partnership with the AT Advisory Committee to determine appropriate streets which could form past of the potential events
- Town staff and AT Advisory Committee to identify local partners to coordinate events
- Work with OPP to ensure safety of attendees and provide education programs

Timeline for Implementation:

Open Streets will require methodical planning and coordination and should take advantage and / or highlight some of the new infrastructure that is implemented as part of the AT network. The Town should consider exploring the coordination of an open streets event once critical elements of the network are implemented within the built-up areas of the Town. The implementation of the events would be heavily based on coordination and contribution from partners including local businesses, and tourism operators. Once these relationships have been established and buy-in has been created, the Town should pursue their direct event as a pilot within the community.

Cost Considerations:

The scale of the event should start small and should be enhanced with time depending on interest and participation. An annual budget should be identified for the events and updated on an annual basis as needed. To start, the Town should consider allocating $50k to the planning and coordination of the open streets events.

Five E's Achieved:

- Encouragement
- Education
- Enforcement

3.2 AT Implementation Strategy

Implementation of the Active Transportation Strategy will require on-going coordination between Town staff and its partners which will be facilitated using tools to guide future decision making and next steps. Section 3.2 outlines a recommended set of tools and strategies to support the implementation of the ATS to ensure that following adoption, the ATS is implemented, maintained and monitored on an annual basis. The information contained within this section is meant to reviewed, adapted (as needed) and shared with staff who will be involved with day-to-day implementation of the ATS and integrated into current practices and processes.

3.2.1 Implementation Process & MCEA

There are two processes which should be referenced when implementing the Town's ATS including the steps which follow the master planning identification of active transportation infrastructure and policies (i.e. the five-step implementation process) and future design and implementation through the municipal class EA process for infrastructure. They are described in more detail below.

PROCESS #1: FIVE-STEP IMPLEMENTATION PROCESS

The implementation of an active transportation route or facility is only part way through the implementation process undertaken by municipalities. There are steps that need to be undertaken to see a proposed route move from the master planning stage through to design and implementation. Once the ATS has been adopted through the TMP, next steps will evolve through environmental assessment planning and capital budget processes. **Figure 13** illustrates a typical set of next steps which would need to be undertaken. More details are found in section 6.1 of OTM Book 18.

1 PRELIMINARY REVIEW
Review responsibility, timeline, cost, effectiveness and feasibility.

2 FEASIBILITY
Prepare functional design and consider design principles, characteristics and context-specific considerations.

3 IMPLEMENTATION
Complete detailed design and proceed with tender followed by construction.

4 MONITOR
Monitor demand / use of facility and maintain regularly. Undertake evaluation and adjustment as needed.

5 POLICY
Reflect status of active transportation in existing policies and Official Plans when updated.

Figure 13 | Five Step Implementation Process

PROCESS #2: MUNICIPAL CLASS EA

Typically, large-scale infrastructure projects require the completion of an Environmental Assessment. Because of completing the TMP and ATS, Town staff will have completed the necessary steps to fulfill Phases 1 and 2 of the Municipal Class EA (MCEA) process. Further assessment and potential environmental impacts will need to be discussed in the future stages of implementation to determine next steps. Updates have been made to the MCEA Act which pre-approves the construction or operation of walking and cycling facilities both within and outside of the road right-of-way.

The following are examples of the changes that were made by the Province:

- Normal or emergency operation and maintenance of linear facilities now includes multi-use trails, and are pre-approved;
- Projects where the proposed improvement does not require significant changes to the roadway or where traffic impacts have been studied and mitigated;
- Construction or removal of multi-use trails within existing or protected rights-of-way are pre-approved; and
- Construction or removal of multi-use trails including water crossings outside existing rights-of-way.

Schedule A and A+ projects are considered pre-approved and do not require a full Class EA. Pre-approved project include those where the proposed project does not require significant changes to the roadway or where traffic impacts have been studied and mitigated.

Projects valued between $2.4M or leas should adhere to Schedule B, and over $2.4M should adhere to Schedule C. The exemption is maintained for smaller projects and larger projects are to follow a well-accepted and proven process. Based on the preliminary costing identified for the ATS, it is safe to assume that all the projects identified do not fall within the schedule B or C category. While additional confirmation would be needed through the five-step process, the Town should be confident that the projects would be considered pre-approved and would note require additional Class EA assessment, evaluation or documentation.

Photo Source: Town of Lincoln https://www.facebook.com/TownofLincolnON/

3.2.2 Implementation Tools

There is a substantial amount of information that has been generated through the development of the ATS. The management, coordination and use of that information can be overwhelming and at times hard to communicate if not explained or organized properly. To support the day-to-day implementation of the ATS, three "tools" have been developed to support the implementation of the ATS including a more technical GIS database of network related information, a corresponding excel spreadsheet and existing condition waypoints and photos. They are each described in more detail in **Table 15**.

Table 15 | ATS Network Management Tool

TOOL #1: GEOGRAPHIC INFORMATION SYSTEM (GIS) DATABASE

The primary tool – in addition to the ATS itself – to support implementation is the ATS GIS database. The database was developed based on information provided by Town staff and contains updated information including the proposed routes, facility types, and phasing. that make up the active transportation network. GIS is used by municipalities as an asset management tool and the information contained within the ATS database can be integrated into the Town's existing GIS database and asset management information.

TOOL #2: WAYPOINTS AND PHOTOS

During field investigation, GPS waypoints and photographs were taken at specific locations along both the existing and proposed network. Together with the GIS database, these photos and waypoints can be used to develop a KML file which geographically positions the photos and waypoints in Google Earth to more clearly highlight their location.

The geo-located photos can also be used as a communication tool for staff when proceeding with the assessment of feasibility of select routes and can also help to better understand community questions or concerns which may arise as they proceed with detailed design and construction.

TOOL #3: NETWORK MANAGEMENT SPREADSHEET

An Excel spreadsheet has been created containing the same information as the GIS database. The spreadsheet is meant to be a tool for those who do not have access to GIS software who will also be responsible for supporting and / or managing implementation of the ATS. As the GIS database is updated so should the excel spreadsheet. Due to its flexible formatting, the excel spreadsheet also contains additional information related to costing for each of the proposed routes and can be used as an additional implementation resource for annual budgeting and decision making.

It is recommended that the Town should utilize, maintain and update the implementation tools on an annual basis, and use the tools to assist in planning, implementation and management of AT infrastructure. Annual updates to both the GIS database and network management spreadsheet are critical to the accuracy of the information that is provided to staff and will help should new staff become involved in the implementation of the ATS over time.

3.2.3 Roles & Partnerships

Though the ATS is being developed by the Town of Lincoln, the implementation of the ATS will require involvement, interest and partnership with external stakeholders and agencies. The involvement and continued interest by local champions will help to make the ATS a success. With so many potential stakeholders involved, there will need to be a clearer set of roles and responsibilities. Defining a reporting and implementation structure is an important step to achieve an effective decision-making process. A suggested reporting structure and an overview of partners who are anticipated to be involved in the implementation of the Lincoln ATS is presented in **Figure 14.**

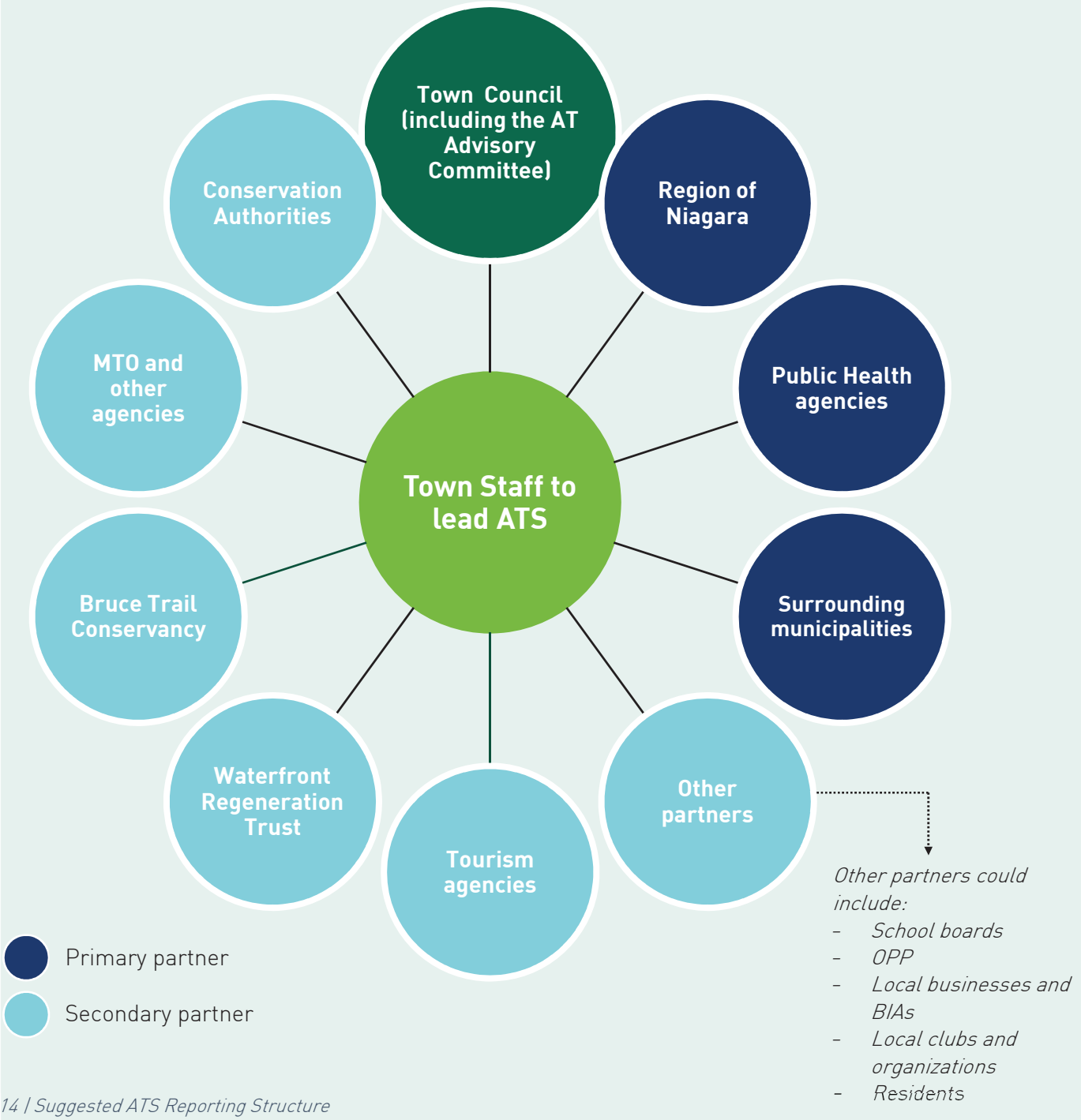


Figure 14 | Suggested ATS Reporting Structure

The reporting structure noted in Figure 14 identifies "primary" and "secondary" partners. Primary partners include those agencies or stakeholders who will have some level of involvement in decision making around components of the ATS – for example, the Region of Niagara is responsible for the implementation and maintenance of proposed AT routes along Regional roads and Public Health is responsible for some of the elements of promotion and outreach. Secondary partners include those groups / agencies who could help to support future education or encouragement tactics as well as potential infrastructure connectivity but do not have jurisdiction over municipal roads, policies or initiatives.

When pursuing partnerships to facilitate the implementation of the ATS, it is recommended that the Town of Lincoln consider and apply the following assumptions that were established to inform the development of the reporting structure outlined in **Figure 14**:

- Implementation of the ATS will be lead by Town staff within various departments including Public Works, Planning and Development, Community Services and Financial Services. Town staff will be responsible for liaising and coordinating with Town Council and the AT Advisory Committee regarding annual budgeting, prioritization and future planning / decision-making.
- After 2 – 3 years of implementation, the Town should re-evaluate the coordination of implementation and should consider establishing a more formal staff role to lead the implementation of the ATS and to manage future planning, design and construction.
- Residents should be engaged on a continuous basis as the ATS is implemented. As necessary, members of the public should be invited to attend the AT Committee meetings (in addition to Council meetings) or provided with multiple opportunities to provide input on a project-by-project basis.

Town of Lincoln Council Meeting
Photo Source: Town of Lincoln https://www.facebook.com/TownofLincolnON/

3.3 Monitoring and Evaluation

A monitoring plan is an important component of the ATS to support the evaluation of the overall success regarding the implementation of the ATS and the achievement of municipal objectives. Establishing measures to assess progress can help Town staff prioritize future projects, rationalize investments and appropriately allocate resources. Research indicates that meaningful performance measures can help to:

- **Demonstrate the value** of cycling projects to citizens and elected officials;
- **Track the success** of a cycling program, or facility;
- **Inform smarter investments** through data-driven measures of success;
- **Comply with funding requirements** at varying levels of government;
- Produce a **better built environment** for cycling;
- Provide **information to engage** a broad set of stakeholders; and
- **Capture the value** of new and innovative datasets and data collection methods for cycling.

The type of performance measures applied by municipalities can vary depending on desired outcomes and data available. As performance measures become more widely used by municipalities, the need to incorporate them into municipal planning processes becomes critical, especially to help inform the annual budgeting process to leverage increased capital investments that support the implementation of the ATS.

Table 16 outlines performance measures that the Town could consider using to document results of implementing the proposed cycling network. The proposed performance measures are based on best practices and key indicators used by municipalities in Ontario. The first step towards development of the monitoring plan is to identify key stakeholders that can collect and compile the performance measures.

Town staff are encouraged to track the measures on a yearly basis, and create a report that summarizes the indicators as it relates to the goals and objectives of the ATS. This annual report could be used to demonstrate the meaningful improvements in cycling and other associated improvements and to publicly demonstrate return on investment. Through the life cycle of the strategy, the performance measures should be re-evaluated on a regular basis, and the data used to inform future improvements.

PERFORMANCE MEASURE	METRIC	INDICATOR
COLLISIONS	Number of collisions	#
	Traffic volumes	#
	85th percentile operating speed	#
	Perceived safety	qualitative
PUBLIC HEALTH	Individual activity levels	#
	Time biking per day	#
	Air quality index	#
	Environmentally conscious design	#
FACILITY USE	User counts	#
	Mode split	%
	Duration of bike trip	#
	Bike trips to school by youth	%
EQUITY / COVERAGE	Proximity to vulnerable populations	%
	Number of major destinations connected	#
NETWORK	Number of on-road bike routes added	#
	Number of off-road trails added	#
SUPPORTIVE FEATURES	Number of bike parking spots	#
	Use of bike parking spots	%
	Number of new trail / route signed added	#
INVESTMENT	Capital allocation on bike projects	#
	Grant applications for cycling projects	#
ECONOMIC DEVELOPMENT	Number of cycle tourists	#
	Customers by travel mode	%
	Revenue by travel mode	#
PROMOTION	Number of campaigns undertaken	#
	Creation of cycling specific guides	#
	Development of a cycling specific online hub	#
ENFORCEMENT	Drivers ticketed for unsafe road practices (e.g. 1 metre passing rule)	#
	Sidewalk cycling tickets issued	#

Table 16 | Suggested Performance Measures
Source | Adapted from Fehr and Peers Active Transportation Performance Measures (2015)

3.4 Operations & Maintenance

With the integration and inclusion of new active transportation infrastructure throughout the Town of Lincoln, there will need to be consideration for and potentially adaptation of current maintenance practices. The following section provides an overview of key risk management, liability and maintenance guidelines, costs and considerations which is intended to be used as a resource by staff as they pursue the implementation of the AT network.

3.4.1 Risk Management & Liability

The way in which active transportation routes are designed and maintained can have a direct influence on the municipality's liability. On-road facilities are compared against the same liability criteria as roadways and sidewalks, which means that the Town can be partially liable if the facility is improperly designed, constructed and maintained.

Bicycles are legally defined as a vehicle under the Highway Traffic Act. Trails where cycling is permitted may require additional consideration regarding seasonal or year-round maintenance – like a roadway or a highway. It is critical that municipalities adhere to provincial and national design guidelines and standards as they provide the greatest legal protection.

In addition to using the current guidelines and standards to mitigate potential municipal risk and liability issues, the Town should also consider the following when designing, implementing and maintaining active transportation routes and facilities:

1. Improve the physical environment, increase public awareness of the rights and obligations of users and improve access to educational programs;
2. Select and design facilities in compliance with the highest prevailing standards, and ensure that designs comply with any applicable laws and regulations;
3. Conform to acceptable standards and if hazards cannot be removed, they should be isolated with a barrier or notified by clear warning signs;
4. Monitor on- and off-road facilities through regular patrols, document the physical conditions and operations and promptly respond as needed;
5. Keep written records of all monitoring and maintenance activities;
6. Avoid using descriptions such as "safe" or "safer" routes;
7. Maintain proper insurance coverage; and
8. When considering new cycling routes or modifications to the system, document the assessment using the OTM Book 18 facility selection process.

3.4.2 Maintenance Considerations

Municipalities currently use the Provincial Maintenance Standards to inform maintenance practices. The Ministry of Transportation Regulations 239/02 were updated in May of 2018 and outline the minimum maintenance requirements. The standards are based on the potential for hazardous road conditions for motorists, including cyclists. The standard defines a "bicycle facility" as an on-road and in-boulevard cycling facility identified in OTM Book 18. As cyclists are more vulnerable to poor road conditions (i.e. potholes and cracks), additional consideration for standards that accommodate all users, including cyclists, is needed. The minimum standards include:

- Monitoring of weather conditions and snow accumulation on bicycle lanes and sidewalks;
- Addressing winter road conditions including snow accumulation, ice formation and clearance on bike lanes and sidewalks;
- Potholes, shoulder drop-offs, cracks and debris;
- Lighting, signs and traffic control signals;
- Bridge deck spalling (concrete splintering and breaking); and
- Roadway and sidewalk surface discontinuities.

Maintenance of on- and off-road active transportation facilities should be part of the Town's commitment to providing high-quality routes and experiences for residents and visitors of Lincoln. Maintenance practices may vary by municipality and the requirements are typically different for the routes found within and outside of the road right-of-way.

The appropriate maintenance of active transportation facilities can leverage capital investments, support user safety and comfort while also increasing the lifespan of the infrastructure. All season maintenance typically includes:

- Sweeping;
- Surface repairs;
- Pavement markings and signage;
- Vegetation management;
- Snow clearing / ice control; and
- Drainage improvements and drainage gates.

As noted above, as the AT network expands, the maintenance practices and level of service will need to be adapted to address new facilities, expectations of the public and minimum standards. In principle, priority should be given to routes and roads where there is high volume of automobile, pedestrian and cyclist traffic.

Additional consideration should be given to enhancing the Town's existing maintenance practices if active transportation facilities are to support year-round use. **Table 17** provides an overview of estimated unit prices and assumptions for year-round maintenance of different components of an AT network.

Table 17 | Summary of Potential Maintenance Costs for AT Facilities

ITEM	UNIT COST	ASSUMPTIONS
PAINTED LINE MARKINGS	$2.5 / m	Unit price is for a single 100 mm wide painted line marking, therefore assume - $5 / m for both sides of the road. Maintenance cost assumes that painted line markings are fully replaced / renewed on an annual basis.
COLD PLASTIC LINE MARKINGS	$5 / m	Unit price is for a single 100 mm wide cold plastic line marking, therefore $10 / m for both sides of the road. Maintenance cost assumes that plastic line markings are replaced every 5 years (or 20% annually). See calculations below: – $5 / m x 20% - $1 / m
PAINTED STENCILS	$50 / each	Assumes stencils are placed every 75m as per OTM Book 18, therefore 26 stencils / kilometre on both sides of the road (13 signs on each side of the road). Maintenance cost assumes 30% of painted stencils will need to be replaced / renewed on an annual basis. This equates to $400 per year. See calculations below: – $50 x 26 - $1,300 – $1,300 x 30% - $400
COLD PLASTIC STENCILS	$275 / each	Assumes stencils are placed every 75m as per OTM Book 18. 26 signs in 1 kilometre on both sides of the road (13 signs on each side of the road). Maintenance cost assumes 30% of painted stencils will need to be placed / renewed on an annual basis. This equates to $2,200 per year. See calculations below: – $275 x 26 - $7,150 – $7,150 x 30% - $2,200
ROUTE SIGNS	$200 / each	Assumes 26 signs per kilometre (13 on both sides of the road / route). Maintenance cost assumes 5% of all signs will need to be replaced annually. This equates to $260 annually. See calculations below: – $200 x 26 - $5,200 – $5,200 x 5% - $260
SWEEPING COSTS	$2,400 to $4,000 / km	Assumes sweeping frequency of 6 times a year per roadway km (uni-directional, one side of the road).

For reference, we have provided an estimated cost to maintain the Town's proposed AT network should a year-round approach to maintenance be considered.

Similar to the facility costs noted in chapter 2.0, this is not meant to be prescriptive but should be used as a reference for future costings and budgeting associated with AT facility and route maintenance along with planning, design and construction.

Table 18 | Summary of Estimated AT Network Maintenance Costs

FACILITY TYPE	TOTAL TOWN KM* (EXISTING AND PROPOSED)	PER KM COST (PER YEAR)	COST PER YEAR
Cycle Track	0.8	$6,650 - $8,050	$5,567 - $6,739
In-Boulevard Trail	0.0	$4,235 - $4,860	$0
Buffered Paved Shoulder	4.5	$7,660 - $9,260	$34,363 - $41,541
Buffered Bike Lane	0.0	$8,050 - $9,650	$0
Bike Lane	1.3	$6,650 - $8,050	$8,944 - $10,827
Paved Shoulder	6.4	$6,260 - $7,660	$40,344 - $49,367
Signed Route	132.4	$260	$34,420
Urban Shoulder	7.6	$6,260 - $7,660	$47,637 - $58,290
Off-Road Trail	6.6	$1,060 - $1,060	$7,048
Walking Trail	2.2	$2,550 - $2,550	$5,728
TOTAL COST			
$184,051 - $212,788			

**Only includes routes located on roads and lands owned / managed by the Town of Lincoln.*

3.5 Prioritization & Budgeting

The tools, strategies, initiatives, infrastructure and maintenance recommendations outlined in Chapter 2.0 and 3.0 of the ATS will all require a significant financial commitment by the Town over the next 20+ years. It is important to identify an annual strategy to inform the identification of appropriate budgets to support the various facets of implementation.

Table 19 */ Summary of Costing by Phase and Facility Type* provides a summary of a number of anticipated financial impacts which could result from the adoption of the ATS. The information contained within this section is not meant to be prescriptive but to provide the Town of Lincoln staff with a consolidated set of financial recommendations which can be used to help inform annual budgeting for active transportation improvements.

	SHORT-TERM (WITHIN 5 YEARS)		MEDIUM-TERM (6 YEARS TO 2031)			LONG-TERM (2032-2041+)		Total
	Local connecting loop - Primary	Local spine	Inter-municipal link - Primary	Local connecting loop - Secondary	Inter-community Secondary	Inter-municipal link - Secondary	Tertiary	
INFRASTRUCTURE COSTS								
Cycle Track	$313,921		$0			$0		$313,921
In-Boulevard Trail	$0		$0			$0		$0
Buffered Paved Shoulder	$0		$748,303			$261,059		$1,009,362
Buffered Bike Lane	$0		$0			$0		$0
Bike Lane	$22,508		$0			$48,777		$71,285
Paved Shoulder	$609,952		$0			$236,766		$846,718
Signed Route	$31,103		$27,122			$43,184		$101,409
Off-road Trail	$711,114		$156,620			$1,731,078		$2,598,812
Walking Trail	$0		$0			$674,769		$674,769
Total	$1,688,598		$932,044			$2,995,633		**$5,616,275**
MAINTENANCE COSTS								
On-Road Routes	$1,000,060		$1,000,060			$2,000,120		$4,000,240
Off-Road Routes	$63,880		$63,880			$127,760		$255,520
Total	$1,063,940		$1,063,940			$2,127,880		$4,255,760
PROGRAM COSTS								
Sidewalk Prioritization	$250,000		$250,000			$500,000+		
AT Mapping	$40,000		$12,500			$25,000+		
AT Webpage	$75,000		$75,000			$75,000+		
Active School Zones	$50,000		$50,000			$100,000+		
Signage & Wayfinding	$5,000		$75,000			$500,000+		
Open Streets	$0		$0			$500,000+		

Table 19 | Summary of Costing by Phase and Facility Type
**The cell colours for each loop type correspond to the colours for each route type illustrated on Maps 3a and 3b. ** The cell colours for each phase correspond to the phasing horizons illustrated on Maps 4a and 4b.*

A typical master plan or implementation strategy is meant to be adopted and used for approximately 5 years prior to review and potential revision. The first 5 years of implementation will be critical to the success of the active transportation strategy and more importantly a shift to a more active and sustainable community. As part of the development of the Transportation Master Plan and the Active Transportation Strategy, a comprehensive network management tool was prepared. The document is provided in **Appendix I** of the report. This document provides an overview of the projects that are recommended within each of the project phases. The following is a summary of those projects which have been identified within the Short-Term phase, which indicates critical active transportation linkages throughout the Town. This list of projects is intended to be used as a guide when budgets and projects are identified on an annual basis by staff for support by Council. They are not listed in order of importance as each route has been identified as part of one of the key priority loop / route systems.

Road / Route Name	From	To	Proposed Facility	Length (KM)	Priority Loop / Route
Aberdeen Road	King Street	Hillside Drive	Signed Route	1.0	Local Connecting Loop - Primary
Bartlett Road	South Service Road	Union Road	Paved Shoulder	0.6	Local Connecting Loop - Primary
Bartlett Road	Greenlane	Greenlane	Paved Shoulder	0.1	Local Connecting Loop - Primary
Bartlett Road	Union Road	Greenlane	Paved Shoulder	0.2	Local Connecting Loop - Primary
Bartlett Road	Greenlane	East of Northgate Crescent	Paved Shoulder	0.4	Local Connecting Loop - Primary
Bartlett Road	Bartlett Road	King Street	Paved Shoulder	1.6	Local Connecting Loop - Primary
Brookside Drive	Epp Street	King Street	Signed Route	0.2	Local Connecting Loop - Primary
Cherry Avenue	Greenlane	King Street	Signed Route	2.7	Local Connecting Loop - Primary
Cherry Avenue	King Street	Fly Road	Signed Route	2.4	Local Connecting Loop - Primary
Frost Road	Kinsmen Park	Fly Road	Signed Route	1.3	Local Connecting Loop - Primary
Glen Road	King Street	Sixth Avenue	Signed Route	1.5	Local Connecting Loop - Primary
Glen Road	Sixth Avenue	Glen Road	Signed Route	0.2	Local Connecting Loop - Primary
Glenview Drive	Glenbrook Drive	Epp Street	Signed Route	0.3	Local Connecting Loop - Primary
Greenlane	Thirty Road	Lincoln Avenue	Signed Route	0.8	Local Connecting Loop - Primary
Greenlane	Lincoln Avenue	Konkle Trail	Signed Route	0.4	Local Connecting Loop - Primary
Highland Park Drive	Stadelbauer Drive	Kayla Street	Signed Route	0.4	Local Connecting Loop - Primary
Hillside Drive	Mountain Street	Ashby Drive	Signed Route	0.3	Local Connecting Loop - Primary
Hillside Drive	Ashby Drive	Aberdeen Road	Signed Route	0.6	Local Connecting Loop - Primary
Hillside Drive	Mountain Street	Ashby Drive	Signed Route	0.2	Local Connecting Loop - Primary
Hixon Street	Ann Street	Edelheim Street	Signed Route	0.4	Local Connecting Loop - Primary
Konkle Creek Trail	Greenlane	West of West Avenue	Off-Road Trail	1.2	Local Connecting Loop - Primary
Konkle Road	Mountainview Road	Philp Road	Signed Route	1.1	Local Connecting Loop - Primary
Laurie Avenue	Victoria Avenue	Waterfront Trail	Signed Route	0.2	Local Connecting Loop - Primary
Lincoln Avenue	King Street	McLeod Street	Signed Route	0.8	Local Connecting Loop - Primary
Lincoln Avenue	Greenlane	King Street	Signed Route	1.2	Local Connecting Loop - Primary
Locust Lane	McLeod Street	Mountainview Road	Signed Route	0.8	Local Connecting Loop - Primary
Locust Lane	McLeod Street	Mountainview Road	Signed Route	0.4	Local Connecting Loop - Primary
McLeod Street	Locust Lane	Lincoln Avenue	Signed Route	0.4	Local Connecting Loop - Primary

Road / Route Name	From	To	Proposed Facility	Length (KM)	Priority Loop / Route
McLeod Street	Mountainview Road	Locust Lane	Signed Route	0.4	Local Connecting Loop - Primary
Mountainview Road	Konkle Road	Locust Lane	Signed Route	0.9	Local Connecting Loop - Primary
Mountainview Road	Locust Lane	Bruce Trail entrance	Signed Route	0.5	Local Connecting Loop - Primary
Mountainview Road	Overpass at QEW	Bruce Trail entrance	Signed Route	2.5	Local Connecting Loop - Primary
Mountainview Road	Overpass at QEW	Bruce Trail entrance	Signed Route	1.1	Local Connecting Loop - Primary
Nineteenth Street	Red Maple Avenue	King Street	Cycle Track	0.8	Local Connecting Loop - Primary
Ontario Street North	Road terminus	North Service Road	Bike Lane	0.4	Local Spine Link
Philip Road	Konkle Road	Fly Road	Signed Route	2.5	Local Connecting Loop - Primary
Proposed Highland Park Drive Extension	Kayla Street	West of Hillside Drive	Signed Route	0.8	Local Connecting Loop - Primary
Sixth Avenue	Victoria Avenue	Twenty-First Street	Paved Shoulder	1.1	Local Connecting Loop - Primary
South Service Road Trail	South Service Road	South Service Road	Off-Road Trail	0.8	Local Connecting Loop - Primary
South Shore Boulevard	Waterfront Trail in Prudhommes	Waterfront Trail in Prudhommes	Signed Route	0.2	Local Connecting Loop - Primary
Stadelbauer Drive	Taylor Court	North West of Highland Park Drive	Signed Route	0.5	Local Connecting Loop - Primary
Stadelbauer Drive	Poplar Drive Trail	Taylor Court	Signed Route	0.3	Local Connecting Loop - Primary
Stadelbauer Drive	King Street	Proposed off-road trail	Signed Route	0.2	Local Connecting Loop - Primary
Stadelbauer Drive	Saint George's Drive	Proposed trail north of Highland Park Drive	Signed Route	0.1	Local Connecting Loop - Primary
Twenty-First Street	Connection to proposed off-road trail	Wismer Street	Signed Route	0.6	Local Connecting Loop - Primary
Victoria Avenue North	Laurie Avenue	North Service Road	Signed Route	0.4	Local Connecting Loop - Primary
Wismer Street	Twenty-First Street	Nineteenth Street	Signed Route	0.1	Local Connecting Loop - Primary

3.5.1 Funding

The "cost" for the implementation of infrastructure will also need to be an annual consideration for budget allocated to the AT Advisory Committee or Town staff to support programming and outreach. In addition, as new facilities are implemented as part of the AT network, additional consideration will need to be given to funding for facility maintenance. It is acknowledged that it may not be possible to allocate all funds from the municipality.

To help support the financial component of implementation, the Town should explore external funding opportunities. It is important for the Town to seek a diverse range of funding sources for the various initiatives and programs highlighted in this strategy. External funding is an effective way to reduce the Town's s costs and can be an opportunity to find and develop new partners for the implementation of the ATS. **Table 20** */ Potential Funding Sources* outlines some of these potential external funding sources which were available at the time the ATS was prepared. Considering the changing nature of federal and provincial funding sources, Town staff should endeavour to monitor funding opportunities as they proceed with the implementation of the AT network.

Table 20 / Potential Funding Sources

FUNDING OPPORTUNITIES	ADDITIONAL DETAILS
Ontario Cycling Strategy Funding	For additional details regarding the #CycleON strategy refer to: http://www.mto.gov.on.ca/english/publications/ontario-cycling-strategy.shtml http://www.grants.gov.on.ca/GrantsPortal/en/OntarioGrants/GrantOpportunities/PRDR017150
Federal / Provincial Gas Tax	For the federal program please refer to: https://www.infrastructure.gc.ca/plan/gtf-fte-eng.html For the provincial program refer to: http://www.mto.gov.on.ca/english/service-commitment/gas-tax-program.shtml
Transport Canada's Most (Moving on Sustainable Transportation)	For details on the MOST program and the projects that fall in-line with their funding alternatives refer to: http://data.tc.gc.ca/archive/eng/programs/environment-most-menu-711.htm
ecoMobility (TDM) Grant Program	For details on the ecoMobility Grant Program refer to: http://data.tc.gc.ca/archive/eng/programs/environment-ecomobility-menu-eng-144.htm
Federation of Canadian Municipalities Green Municipal Fund	For additional details regarding the Green Municipal Fund and potential funding alternatives refer to: https://fcm.ca/home/programs/green-municipal-fund.htm
Healthy Communities Fund	For additional details regarding the Healthy Communities Fund refer to: http://www.grants.gov.on.ca/GrantsPortal/en/OntarioGrants/GrantOpportunities/PRDR006918

FUNDING OPPORTUNITIES	ADDITIONAL DETAILS
Federal and Provincial Infrastructure / Stimulus Programs	For Federal Government infrastructure stimulus fund details refer to: https://www.canada.ca/en/office-infrastructure.html For Provincial Government infrastructure stimulus fund details refer to: https://www.ontario.ca/page/ministry-infrastructure
Ontario Trillium Foundation	For details regarding potential funding alternatives refer to: https://otf.ca/
Ontario Rural Economic Development Program	For details refer to: http://www.grants.gov.on.ca/GrantsPortal/en/OntarioGrants/GrantOpportunities/PRDR006918
Ontario Sport and Recreation Communities Fund	As part of the Ontario Sport and Recreation Communities Fund: http://www.grants.gov.on.ca/GrantsPortal/en/OntarioGrants/GrantOpportunities/PRDR006918
Tourism Development Fund	For additional details regarding the Tourism Development fund refer to: http://www.grants.gov.on.ca/GrantsPortal/en/OntarioGrants/GrantOpportunities/OSAPQA005130
Service Club Support	Lions, Rotary and Optimist clubs who often assist with highly visible projects at the community level.
Corporate Environmental Funds (e.g. Shell, TD, MEC, Etc.)	For example refer to: https://www.shell.ca/en_ca/sustainability/communities/funding-guidelines-process.html for Shell Canada's Social Investment Program or https://www.td.com/corporate-responsibility/fef-grant.jsp for TD's Friends of the Environment Foundation Grant
Private Citizen Donation / Bequeaths	Can also include tax receipts for donors where appropriate.

Photo Source: Town of Lincoln

3.6 Summary of Recommendations

The implementation of the ATS is meant to be coordinated over the next 20+ years using the proposed implementation and monitoring strategy. Taking into consideration the tools and strategies outlined in Chapter 3.0, the following are a set of implementation-specific recommendations for the Town's consideration and adoption.

1. The proposed phasing strategy and costing for the proposed AT network should be adopted by the Town to support the timeline of route implementation as well as annual budget decisions regarding AT infrastructure;
2. When the Town next updates their Official Plan, the proposed AT network should be included as a schedule along with enhanced AT-supportive policies which align with the recommendations found within the ATS and the TMP;
3. The proposed AT network should be reviewed and revised every 5 years consistent with the Planning Act requirements for any functional master plans; however, future updates should focus on revising the network based on new land-use planning conditions and trends as opposed to a wholesale revision of the network;
4. The design guidelines included within Chapter 2.0 of the ATS should be used and shared as a critical design resource for AT infrastructure and amenities along with provincially accepted design guidelines such as OTM Book 18: Cycling Facilities and OTM Book 15: Pedestrian Crossings;
5. Town staff should be trained and informed of the appropriate design of active transportation infrastructure and should continue to monitor changes in design guidelines or standards that influence facility design;
6. In addition to the proposed routes and facilities, Town staff should also refer to the design considerations outlined in Chapter 2.0 of the ATS to ensure that other network elements are incorporated including facility transitions, intersections, end of trip facilities and trailheads;
7. Through the implementation of the ATS, the Town should identify at least one potential initiative to support and encourage AT use on an annual basis and allocate funding to facilitate the design and implementation of that initiative and should refer to the best practices identified in Chapter 3.0 of the ATS;
8. The Town of Lincoln should utilize the proposed sidewalk prioritization tool to support the identification and prioritization of missing sidewalk linkages throughout the Town and should communicate the prioritization criteria, process and outcomes to the public on an annual basis;
9. The Town of Lincoln should utilize the information contained within the ATS and specifically the GIS database (i.e. proposed routes, existing routes, level of comfort) to prepare an AT map and should work with the AT Advisory Committee and other stakeholders to distribute the map Town-wide;
10. The Town of Lincoln should utilize the content within the ATS as well as publicly available education, safety and encouragement information to prepare an AT-specific webpage embedded onto the Town's website and should update content on an annual basis as the AT network is implemented, facilities are constructed and programs are launched;

11. The Town of Lincoln should partner with Niagara Public Health and specifically the Active School Travel Planning committee to identify pilot locations where active school planning could be undertaken;
12. The Town of Lincoln should prioritize the implementation of improvements along the spine network within the walking / cycling zones around schools as identified in Chapter 2.0 of the ATS;
13. A wayfinding and signage concept should be prepared by the Town and applied along with regulatory signage as the priority loops are implemented throughout the Town. Town staff should work with the AT committee and other stakeholders to develop a "look and feel" that is consistent with the intent of the loop as well as Town and Regional branding;
14. The Town should plan for and facilitate at least two annual open streets events throughout the summer months to celebrate the AT successes which have been achieved, provide educational information for existing and new cyclists and to partner with local interest groups and businesses to increase commitment and contribution;
15. The five-step implementation process identified in Chapter 3.0 of the ATS and section 6.1 of OTM Book 18 should be used as the guide for the implementation and future updates of both the network as well as the report. The process should be integrated into day-to-day decision making by Town staff and communicated to decision makers and the public;
16. The implementation tools identified in section 3.2 of the ATS should be shared with Town staff and used to monitor and manage the implementation of the AT network. The GIS database and excel spreadsheet should be updated on an annual basis and form part of the Town's asset management practices;
17. Town staff should work with both primary and secondary partners to support the implementation of the ATS. The assumed roles and responsibilities should be clearly communicated to those partners and updates provided on an annual basis on the status of the plan;
18. The Town should continue to explore external funding sources based on the opportunities identified in Chapter 3.0 of the ATS to support and enhance the annual budget that is allocated by the Town;
19. Town staff should continue to monitor available funding sources to ensure that opportunities are leveraged and not missed;
20. The Town should monitor and evaluate the implementation and the success of the AT network through the application of performance measures and should work with staff and the AT Advisory Committee to support data collection and evaluation;
21. Town staff should provide an update to Council on the status of the ATS and its implementation on an annual basis or every two years including an update on the status of the network, new priorities and potential initiatives and partnerships;
22. As the Town implements the proposed ATS, an assessment of maintenance level of service and practices should be undertaken to ensure that they support seasonal active transportation where appropriate; and
23. Town budgets should be revised to reflect additional maintenance for active transportation infrastructure as new routes and facilities are implemented. Town staff should use the information contained within Chapter 3.0 of the ATS to inform those budget revisions but should also review acceptable practices and the minimum maintenance standards.