City of Thunder Bay

ACTIVE TRANSPORTATION PLAN

Final Report

September 2019

CITY OF Thunder Bay
Superior by Nature

Prepared by
IBI Group

Acknowledgements

The creation of the City's Transportation Master Plan took considerable time, thoughtful debate and commitment from many individuals and groups. I would like to acknowledge their contributions and thank them for sharing their knowledge to improve the City of Thunder Bay.

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1 ABOUT THIS PLAN

1.1 Purpose

The Thunder Bay Active Transportation Plan is an action-oriented document intended to chart the network improvements, policies and programs that will encourage and support active transportation over the next 20 years (and beyond). Active transportation includes walking, cycling and other human-powered modes such as wheelchairs, skateboards, scooters, and others.

This plan has been prepared as part of the Thunder Bay Transportation Master Plan (TMP). The new TMP marks a significant evolution from the City's previous TMP from 1989, taking a multimodal approach to transportation planning with policies, projects, and programs for walking, cycling, transit, and driving. The TMP endeavours to fulfill the vision and objectives that have been shaped through consultation with the public and stakeholders under the guidance of the study Steering Committee, and review of other plans and policies enacted by the City of Thunder Bay.

One of the major themes underscoring the TMP is the need for enhanced mobility options, including active transportation (AT), for all residents. In support of the broad initiatives of the TMP, this Active Transportation Plan supplements and supports the work of the TMP by providing additional detail on the pedestrian and cycling networks, and identifying supporting initiatives.

1.2 What's Inside

1.2.1 Plan Development

The development of the TMP was structured around 4 main stages:

This document is structured around the following chapters:

- Chapter 2 – **Vision and Themes** presents the vision for active transportation in Thunder Bay and the supporting themes.
- Chapter 3 – **Setting the Context** describes the previous planning studies that inform and support the AT Plan and explores trends in Thunder Bay.
- Chapters 4 through 9 describe the projects, policies, and actions in the AT Plan as they relate to **six key themes**:
  - Fostering Walkable Environments
  - Connecting and Growing the Cycling Network
  - Engaging Children and Youth
  - Supporting Year-Round Travel
  - Building Community Capacity and Support
  - Tracking Progress
- Chapter 10 – **Achieving the Plan** – focuses on how this plan will be implemented in a sustainable and accountable manner

2 VISION AND THEMES

2.1 An Active Transportation Vision for 2038

To provide a clear direction for the AT Plan, a specific vision for active transportation was developed. The vision attempts to provide a concise and achievable goal for the City of Thunder Bay that addresses the significant public feedback received through the larger TMP process.

> **In 2038, active transportation is the preferred choice for short trips in Thunder Bay because it is easy, convenient, and safe.**

This vision reflects the desire to "normalize" active transportation in Thunder Bay as a year-round activity that provides the health benefits to support the TMP's broader vision for a healthy community and other City policies and initiatives.

2.2 Key Themes

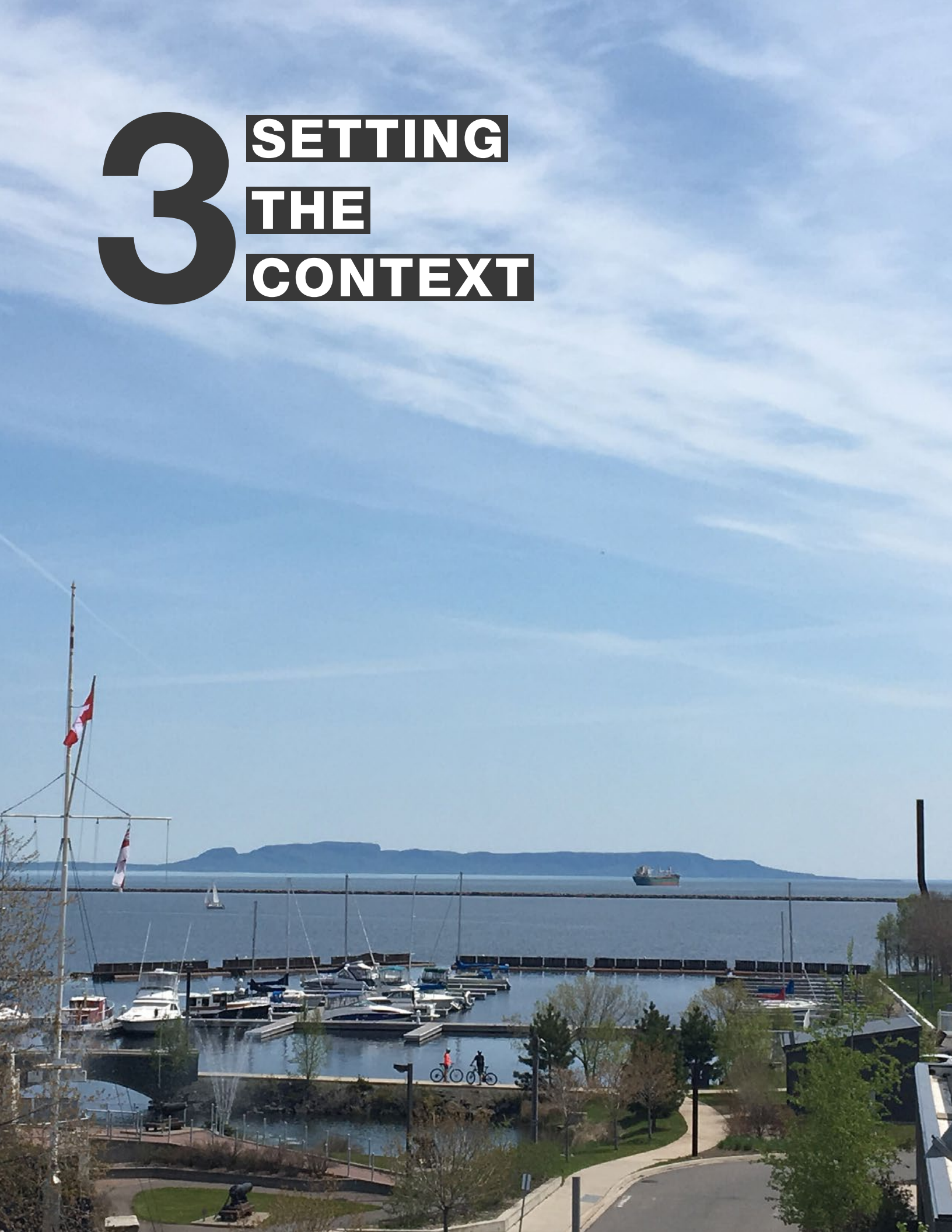
Six key themes in support of the active transportation vision were identified through public consultation and staff input. Each theme identifies targeted actions related to specific improvement areas. These themes also draw on and relate to elements of the overall TMP vision, as summarized in **Exhibit 2.1**.

These themes are not independent activity streams. Action must be made within each of these themes to see the true benefits of individual initiatives. This multi-pronged approach to active transportation is in keeping with the **five 'E's**: recognizing the overall value of an approach which incorporates solutions related to **Engineering, Education, Enforcement, Encouragement**, and **Evaluation and Planning**. For example, the development of new cycling facilities must be coupled with education and awareness programs to both inform and engage with the public regarding the new facilities. Similarly, in order to successfully engage parents and children to encourage them to walk to school year round, there must be appropriate sidewalk infrastructure that is well maintained. This AT Plan offers actions under all five E's within the context of the six themes.

Exhibit 2.1: Summary of AT Plan Themes and Related Elements of the Transportation Master Plan Vision

Active Transportation Plan Theme	Related to TMP Objective
Fostering Walkable Environments	Support a healthy, vibrant and prosperous community
Connecting and Growing the Cycling Network	
Engaging Children and Youth	
Supporting Year-Round Travel	Offer integrated, seamless mobility to individuals and families
Building Community Capacity and Support	
Tracking Progress	Be responsibly and accountably delivered

3 SETTING THE CONTEXT



3.1 Relationship to Transportation Master Plan

Active transportation issues presented within the TMP are generally summarized from the information within this Active Transportation Plan. The TMP outlines projects, programs, policies, and actions for the broader transportation network, while this document details the approach to active transportation.

Both documents can be read as individual plans, but were developed in tandem and are fully integrated.

3.2 Relevant Plans and Studies

The 2019 Active Transportation Plan is not a standalone document. Instead, it builds upon the support for active transportation reflected in many plans and projects in Thunder Bay to date, in addition to the TMP.

A sampling of the key relevant documents is shown in **Exhibit 3.1**. A compilation and summary of key documents is provided in Appendix A.

The City has repeatedly stressed the importance of sustainability, both fiscal and environmental, through its Official Plan and other strategic documents noted above. Enhancing mobility options such as walking and cycling is one way the City can provide sustainable and affordable options for travel in Thunder Bay. Due to the shortfall of funds available for infrastructure investment in Thunder Bay, the emphasis in both the TMP and the AT Plan is on prioritizing strategic improvements that have the most potential within a limited fiscal envelope.

Exhibit 3.1: Summary of Previous Plans/Studies with Implications for the Active Transportation Plan

Context for AT Plan		
Guiding City Documents		
Thunder Bay Official Plan (2018 Council Approved)	Transportation Master Plan (2019)	Becoming our Best 2015-2018 Corporate Strategic Plan
Previous Active and Sustainable Transportation Plans (City)		
Active Transportation Plan (2008)	Waterfront Trail Master Plan (2014)	Transportation Demand Management Plan (2014)
Other Relevant Documents		
Multi-Year Accessibility Plan (2013-2018)	Age Friendly City Services Action Plan (2015)	Climate-Ready City: City of Thunder Bay Climate Adaptation (2015)
EarthCare Thunder Bay Sustainability Plan (2014-2020)	Urban Design and Landscape Guidelines; Image Route Guidelines and Detailed Streetscape Designs (2015)	Walkability and Pedestrian Safety in Thunder Bay (2017)

3.3 How Thunder Bay Moves: Walking and Cycling

It is difficult to precisely estimate how prevalent walking, cycling and other active forms of travel are in Thunder Bay. The best available data, the 2016 Census, collects information on travel between home and work only. In that regard, there only a small proportion of Thunder Bay residents walking or cycling to work, just 4.6% and 1.3% percent respectively, as of 2016. However, travel to/from work represents only a portion of all travel in the Thunder Bay. Other travel that may be more suited to walking and cycling include trips to school, the corner store, or neighbourhood parks. Walking and cycling are popular recreational activities in Thunder Bay, particularly along the picturesque trails along the waterways and lakes. All of these non-work trips are not accounted for in the Census data. Without a robust and regular travel survey, walking and cycling trips are difficult to quantify.

Thunder Bay does not experience the same transportation challenges that many larger cities in Canada experience. Periods of traffic congestion are short and localized, not extensive enough to motivate people to walk or bike instead of driving.
Much of the desire to promote and encourage active transportation in Thunder Bay relates to health benefits for the community, improved liveability, improved mobility for residents without access to a vehicle, and the potential for reduced automobile dependency which can ultimately result in cost savings for the City through reduced needs for road capacity and infrastructure and offset fuel and vehicle maintenance costs for residents. Motivating people to walk and cycle for some trips will require safe infrastructure and comfortable environments, coupled with education, outreach, and other travel demand management (TDM) programs.

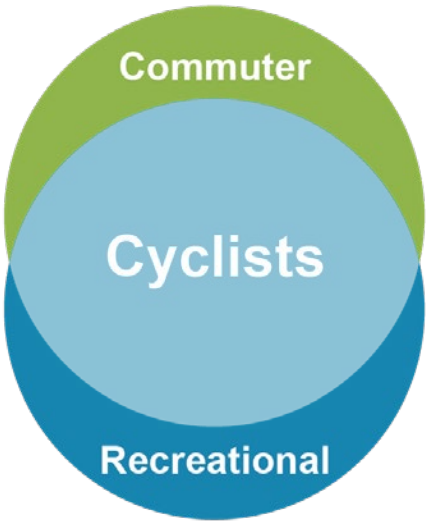
There is tremendous potential to shift some travel to more active modes. Nearly half (49%) of all work trips in Thunder Bay are reported to be less than 15 minutes (2016 Census). Though most of these trips are made by car, most 15 minute or shorter car trips can be made within a reasonably competitive travel time by bicycle, sometimes faster, depending on routing and traffic. The potential to convert a portion of these trips to active modes can be unlocked by making walking and cycling more appealing and more viable.

Perhaps even more telling, the travel demand model developed for the TMP estimates that approximately 17% of all trips during morning peak hour are less than 2 km and 48% are less than 5 km. Trips less than 2 km can be made by most people on foot in 25 or 30 minutes, while trips less than 5 km trips can be made by bicycle in 20 to 25 minutes, assuming a leisurely pace in both cases. These trips have high potential to be made by active transportation and are integral to the objectives of the AT Plan. The plans, projects, and programs in the AT Plan are aimed at making walking and cycling the best choice for these short trips.

3.4 Recreational and Commuter Cycling

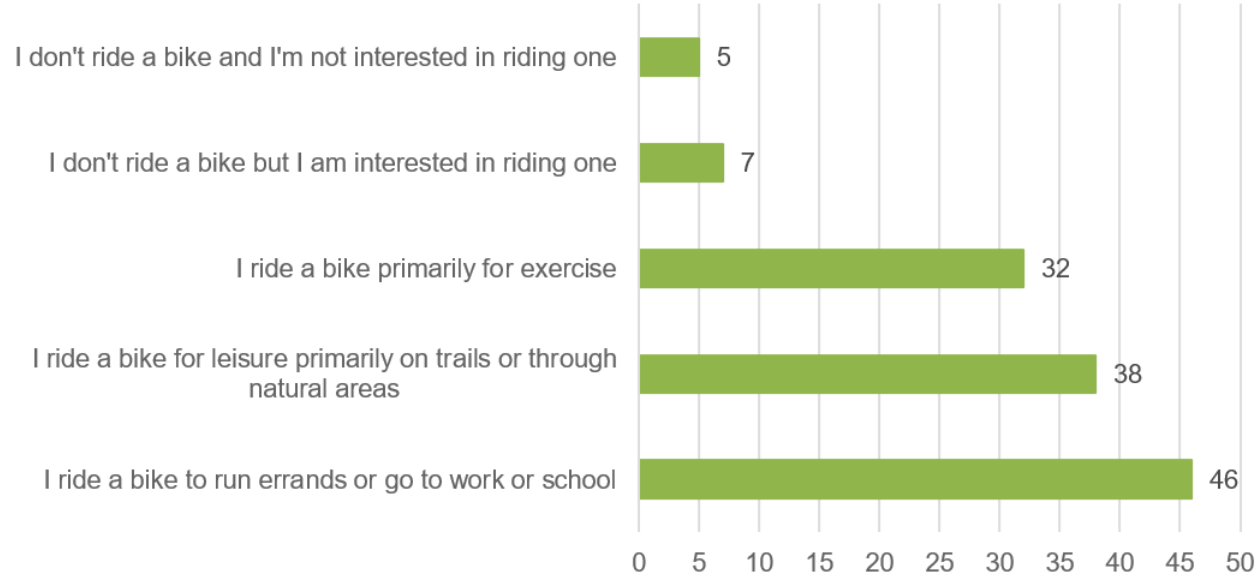
Historically, there has been debate about whether it is better to invest in facilities that benefit recreational cyclists or commuter cyclists. The discussion generally focuses on trade-offs between building off-road multi-use trails and cycling infrastructure on or along City roadways. In reality, however, recreational and commuter cyclists significantly overlap, and network improvements benefit all users.

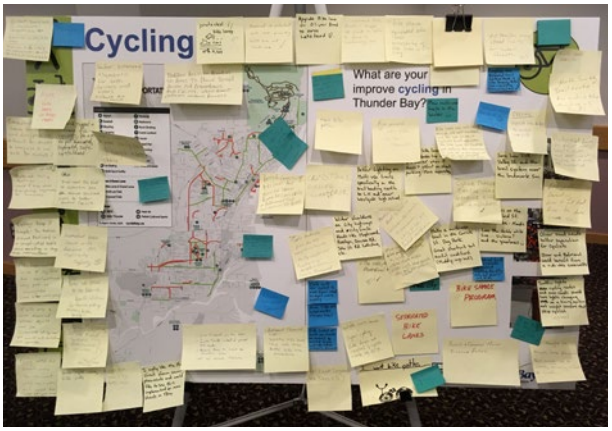
For example, participants at the City's 2017 Bike Summit were asked to indicate reasons why they cycle as part of the TMP engagement activities. In total, 74 participants provided 128 responses indicating that most respondents selected multiple reasons to cycle. The results (refer to **Exhibit 3.2**) show that there is significant overlap between recreational uses such as riding a bike for exercise or leisure and commuter uses such as running errands or travelling to work or school by bike.

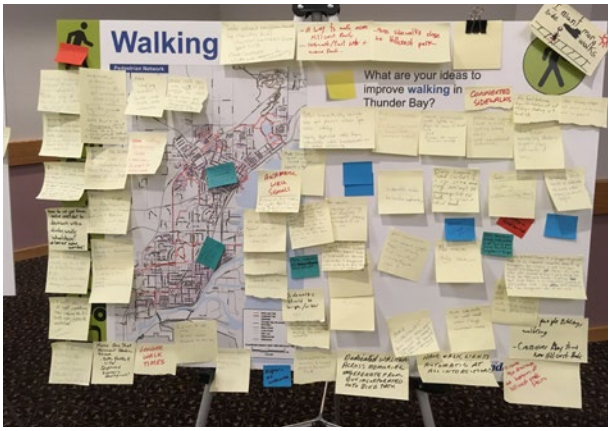


This overlap illustrates the importance of both the on-street network and the off-street network. To make the most efficient use of infrastructure investments, a balanced approach to network development is needed that emphasizes connectivity and convenience. This approach maximizes the value of the network for all cyclists, rather than a specific cyclist type, is reflected throughout this AT Plan and, in particular, Chapter 5.

Exhibit 3.2: Bike Summit Survey Responses – Types of Cycling







3.5 Public Input on Active Transportation

Through the TMP process, residents identified many ways to improve active transportation across Thunder Bay. The ideas and suggestions of residents and stakeholders who participated in the TMP's engagement activities helped to shape the final AT Plan. Engagement and consultation activities included:

- Three public open houses over the course of the study
- Two online questionnaires
- Listening sessions with Indigenous communities
- Three stakeholder advisory committee meetings
- Information booths at two community events

A sampling of various feedback noted through the TMP consultation sessions, and the corresponding theme in the AT Plan is noted in **Exhibit 3.3**.

Exhibit 3.3: Representative Public Input and Corresponding Themes of the AT Plan.

What we heard from the Public	AT Plan Theme
"You could start to create walkable links between spaces, e.g. between downtown and the Bay Street area" "More benches along sidewalks and trails near senior facilities"	Theme 1: Fostering Walkable Environments
"Cycling routes that connect across the City" "Direct route for cycling North to South separated from cars"	Theme 2: Connecting and Growing the Cycling Network
"Provide safe routes to school / maps" "Educate school children/teens how to ride the bus to increase ridership"	Theme 3: Engaging Children and Youth
"Coordinate snow removal – people have to stand on snowbanks to wait for bus"	Theme 4: Supporting Year Round Travel
"Would ♥ bike share" "More cycling safety awareness"	Theme 5: Building Community Capacity
"Prioritize people not cars" "A continued transition away from cars to more public and active transportation"	Theme 6: Tracking Progress

4 THEME 1: FOSTERING WALKABLE ENVIRONMENTS

The ability to walk comfortably to nearby destinations is fundamentally important to building an inclusive, integrated and sustainable transportation system. It is well publicized how the design of a community can impact public health. Supporting public health is especially important in Thunder Bay where there is a prevalence of physical inactivity, obesity, cardiovascular disease, diabetes, and an aging population. The Thunder Bay District Health Unit has been and will continue to be an important partner in achieving greater walkability through education and awareness, research and community engagement.

Fostering walkable environments benefits everyone, including those who take transit or drive. Every transit trip starts and ends with walking a part of the trip. Even drivers need a pedestrian connection from where they park their car to their final destination.

Theme 1 focuses on the infrastructure that will help create a high-quality pedestrian network. In addition to infrastructure, other themes of relevance to fostering walkable environments include:

- Theme 4 – Supporting Year-Round Travel – Infrastructure must also be well-maintained in order to invite people to walk as part of their everyday routine.
- Theme 5 – Building Community Capacity – Programs and initiatives are important to raise awareness of walking as a viable mode for daily activities.

4.1 Current Conditions and Challenges

The City of Thunder Bay has made on-going infrastructure improvements to the pedestrian network, including the following recent initiatives:

- Development of the Arundel Street/ Hudson Avenue and Bay Street/ Windsor Street **Active Living Corridors**
- Installation of **traffic calming** measures on Algoma Street South and Sunrise Boulevard.
- Installation of five **pedestrian crossovers** on Algoma Street (2016), Walsh Street (2017), Simpson Street (2017), James Street 92018) and Arundel Street (2018) with a plan for more to be installed every year.
- Efforts to improve **connectivity of the multi-use trail system**.
- Filling **gaps** in the sidewalk network (e.g. Arthur Street west of Thunder Bay Expressway).

There is also community support for pedestrian improvements and safety through established community initiatives such as the Walkability Committee (refer to **Section 8**). The City can build upon this momentum around pedestrian infrastructure to foster a truly walkable environment in Thunder Bay.

Despite these positive steps, the City's residents still face challenges in navigating their neighbourhoods as pedestrians, including:

- **Incomplete network –** missing sidewalks and trails that present barriers to residents completing trips entirely on foot, including barriers to accessibility such as missing curb ramps and non-AODA compliant legacy designs.
- **Local Improvement Charges Regulation and petition process –** a potential challenge to new sidewalk construction in established neighbourhoods where the cost of constructing sidewalks is shared between the City and property owners directly abutting the new sidewalk.
- **Incomplete connections to transit –** missing links between the pedestrian network and the transit network that make "first and last mile" trips unattractive to make on foot
- **Need for on-going and year-round maintenance –** the Thunder Bay 2016 Asset Management Plan identified a shortfall in annual funding to replace sidewalks at the end of their useful life. The estimated cost to replace the sidewalk network life is $4.6 M[1] per year, but the average funding has been only $1.6 M per year in the five years previous (2011-2015). Seasonally, the heavy snowfall and harsh winter conditions are seen as a deterrent to year round commuting by foot.

FAST FACTS

- 37% of Thunder Bay residents reported they were physically inactive during leisure time.[a]
- 71% of Thunder Bay residents reported being overweight or obese.[a]
- In 2012, the leading cause of death in Thunder Bay was cardiovascular disease (223.8 deaths per 100,000 people, which is higher than the provincial average of 180.7 deaths per 100,000 people).[b]
- In the same year, Thunder Bay had the second highest rate of diabetes mortality in the province (37.1 deaths per 100,000 people). [b]

Source:

a. Statistics Canada, Canadian Community Health Survey, 2015/2016.

b. Thunder Bay District Health Unit. (2017) Walkability and Pedestrian Safety in Thunder Bay.

[1] Asset Management Plan for the City of Thunder Bay (2016)

4.2 Action Areas

4.2.1 Define Priorities

With finite and limited funds, the challenge will be prioritizing infrastructure investment across the many needs of Thunder Bay. Accordingly, one of the key considerations in developing actions for the pedestrian network is to understand where investments should be prioritized.

Although pedestrians can travel along any road in the City of Thunder Bay, certain corridors naturally emerge as more necessary, whether because of access to destinations, neighbourhood density or existing safety concerns that need to be addressed. Through the TMP, two new network elements, pedestrian priority corridors and neighbourhood greenways, have been identified to help direct investment. These network elements are described in more detail in **Exhibit 4.1**.

Exhibit 4.1: New Pedestrian Network Elements

Pedestrian Priority Corridors	
Overview	**Examples**
Pedestrian Priority Corridors are intended to represent the "arterials" of the pedestrian network. They include corridors with mixed commercial and residential uses such as downtown Business Districts, as well as corridors serving major pedestrian destinations across the City such as Confederation College, Lakehead University and Thunder Bay Regional Health Sciences Centre. The City's Image Routes are included in the Pedestrian Priority Corridors, building upon and supporting previous planning and momentum around the development of the City's signature streets.	❍ Arthur Street ❍ May Street-Memorial Avenue-Algoma Street ❍ Red River Road ❍ Oliver Road ❍ John Street ❍ Balmoral Street
Neighbourhood Greenways	
Overview	**Examples**
Neighbourhood Greenways are the key "collector" and "local" connections of the pedestrian network. They define routes that pedestrians and cyclists find desirable due to the lower vehicular volumes. They provide feeder routes to and from the pedestrian priority corridors to connect to community destinations such as schools and recreation centres. While the designation of a greenway is not intended to dictate a particular set of infrastructure improvements, the City should pursue a continuous pedestrian facility on at least one side of a neighbourhood greenway (refer to Section 4.2.2).	❍ Donald Street ❍ Van Norman Street

Together with the off-road multi-use trail network, the pedestrian priority corridors and the neighbourhood greenways define a pedestrian priority network. **Map 1** illustrates the pedestrian priority and trail network.

The pedestrian priority network provides a means of guiding the City's investment in infrastructure and has implications for various programs / action areas throughout the AT Plan including collision / safety reviews, provision of amenities, prioritization of midblock crossings and future priority maintenance.

Action FWE-1

Adopt the Pedestrian Priority and Trail Network, including pedestrian priority corridors and neighbourhood greenways

The pedestrian priority network is not intended to restrict investments in other parts of the City. For example, regardless of whether a corridor is part of the priority network, accessibility requirements will still apply. More discussion on prioritizing investment in pedestrian infrastructure is presented in **Section 4.2.3**.

4.2.2 Fill Sidewalk Gaps

One of the main barriers to active transportation, particularly for youth travelling to school, are sidewalk gaps. Providing continuous pedestrian facilities is important to encouraging more physical activity and improving safety outcomes for all pedestrians.

The current process for addressing sidewalk gaps is to rank and prioritize the installation of sidewalks based on a thorough evaluation of pertinent criteria such as road classification, access to major destinations (schools, public transit routes, major parks, etc.) and existing conditions. While the methodology is sound, the process relies on external inputs (i.e. public requests) rather than City-wide needs.

As part of the development of the AT Plan, the pedestrian priority corridors and neighbourhood greenways were reviewed to identify sidewalk gaps. In addition, Thunder Bay Transit provided input on locations where sidewalks are needed to support existing or planned transit service. There are currently 34 km of sidewalk gaps within Pedestrian Priority Corridors, Neighbourhood Greenways and on roads that serve transit.

FAST FACTS

According to safety research from the US:

- Pedestrian crashes are more than two times as likely to occur at locations without sidewalks than would be expected on the basis of exposure.

Source: Knoblauch RL, Tustin BH, Smith SA, Pietrucha MT. Investigation of Exposure-Based Pedestrian Accident Areas: Crosswalks, Sidewalks, Local Streets, and Major Arterials. US Dept of Transportation; 1987. DOT publication FHWA-RD-87-038.

Coordination between the existing ranking approach and a systematic upgrading across priority routes may evolve over time, however initially it is envisioned that up to 25% of annual sidewalk funding be reserved for the priority infill links, with the remaining sidewalk capital required for existing sidewalk renewal.

The AT Plan is intended to provide a clear policy on how sidewalk gaps will be addressed moving forward. In general, the approach to addressing sidewalk gaps is summarized in **Exhibit 4.3**.

Exhibit 4.3: Sidewalk Gap Policies

Type of Project	Type of Corridor / Roadway Class	Sidewalk Requirements
Road Reconstruction	Any (within the urban settlement area)	Provide sidewalks as per the sidewalk policy preferably on both sides if feasible
Infill Project	Pedestrian Priority Corridor	Provide sidewalks on both sides
	Transit Priority Link	Provide sidewalks on both sides
	Neighbourhood Greenway along Collector or Arterial road	Provide sidewalks on both sides
	Neighbourhood Greenway along local roadway	Preferred: Provide sidewalks on both sides Minimum: Provide continuous sidewalk on one side or ensure safe crossing points if sidewalk changes to other side

The phasing of infill sidewalks will depend on budget availability, but it is intended that sidewalk gaps along pedestrian priority corridors, neighbourhood greenways, and those serving transit will be priority projects. **Map 2** illustrates the priority sidewalk gaps.

One challenge to filling gaps in the sidewalk network is the Local Improvement Charges Regulation and petition process. In many established neighbourhoods across the City, the cost of constructing sidewalks is shared between the City and property owners directly abutting the new sidewalk. This process requires agreement between the City and multiple impacted owners, which can be a challenge to negotiate. Therefore, community support from residents and property owners is required to advance a walkable environment in Thunder Bay. If this process becomes a significant barrier, a review of the City's policy and implementation practice should be considered.

Action FWE-2

Systematically address sidewalk gaps along pedestrian priority corridors, transit routes and neighbourhood greenways

4.2.3 Provide Convenient and Safe Crossings

FAST FACTS

Nearly half of all pedestrian collisions in Thunder Bay occurred at a location lacking a traffic control, and almost all of the collisions that occurred at a mid-block location lacked a traffic control

Source: 2004-2013 collision data, Walkability and Pedestrian Safety in Thunder Bay, Thunder Bay District Health Unit (2017).

Perceived safety is among the strongest determinants of whether individuals will choose to make a trip on foot or by bike. In some cases, the car is seen as the safest option, particularly when the trip requires travelling along arterial roads. Providing a safe and comfortable environment for active transportation is important to encouraging more sustainable, active lifestyles.

In addition to sidewalks, pedestrians require locations to safely and comfortably cross roads. Through the Walkability and Pedestrian Safety in Thunder Bay Report (2017), a number of existing intersections emerged as focus areas for pedestrian improvements, due to a higher number of pedestrian collisions.

Potential high-priority intersections for improvement include:

- Arthur Street / Edward Street
- Arthur Street / Mountdale Street
- Arthur Street / Waterloo Street
- Arthur Street / James Street
- Memorial Street / Isabel Street

The Walkability and Pedestrian Safety Report included a detailed analysis of pedestrian collision data from 2004 to 2013 to explore collision trends. Several key findings related to pedestrian safety are summarized below:

- 50% of pedestrian-vehicle collisions occurred at intersections;
- Among pedestrian-vehicle collisions at intersections, 50% were the result of a turning vehicle while a pedestrian crosses with the right-of-way.
- Almost 50% of pedestrian-vehicle collisions occurred within 500 m of a school; and
- Most collision hotspots, where more than three pedestrian-vehicle collisions were reported within the 10-year period, were located along the City's Image Routes where many business and services are located.

The City of Thunder Bay should initiate an intersection review program to identify the root cause of collisions and identify both short-term (immediate) actions and longer-term upgrades at the collision hot spots identified in the report. Short-term initiatives may include upgrades that are relatively inexpensive and simple to implement such as lane narrowing, enhanced crossing markings, the use of paint and bollards to tighten corner radii and/or signal timing modifications, while longer term upgrades may include more significant measures such as curb extensions, raised intersections, elimination or modification of right turn channelization or reconstruction of intersection geometry. Education and enforcement can also play a role.

Intersections on the Pedestrian Priority and Neighbourhood Greenway corridors should be reviewed for the presence of curb drops. Where no curb drops exist, reconstruction of the sidewalk at these locations should be advanced to meet AODA standards.

Action FWE-3

Undertake intersection reviews of high pedestrian collision intersections to implement short-term actions and identify longer-term modifications

Feedback from public consultation pointed to the need for more pedestrian crossing opportunities. Along many existing roads, formalized pedestrian crossing are often further than 400 m apart. The collision review completed as part of the Walkability and Pedestrian Safety in Thunder Bay Report noted that nearly half of all collisions occurred at a location lacking a traffic control, and almost all of the collision that occurred at a mid-block location lacked a traffic control. This would seem to indicate a need for additional formal pedestrian crossings. In order to address the need for increased permeability, applications of formal pedestrian crossings (pedestrian crossovers (PXO), stop-controlled or signalized crossings) should be explored.

Exhibit 4.4 presents factors to help identify appropriate locations for midblock crossings and to prioritize amongst competing locations. In all cases, appropriate warrants are required to be met.

The City of Thunder Bay Engineering Department maintains, and updates over time, a list of locations that have been identified as potential crossing locations.

Action FWE-4

Explore the addition of formal pedestrian crossings along pedestrian priority corridors and neighbourhood greenways, with the intent to add one to two crossing locations annually

Exhibit 4.4: Factors to Inform Selection of Pedestrian Crossing Locations

Category	Discussion & Factors
Safety	❍ **Collision History –** Locations with a history of mid-block pedestrians collisions may be prioritized ❍ **Proximity to other crossings –** Crossing cannot be implemented too close to other controlled crossing locations. For example, OTM Book 15 states that PXOs should not be installed within 200 m of other signal controlled pedestrian crossings. This will impact which locations may be selected. ❍ **Adequate Sight Distance –** Midblock crossing should be implemented only where there is adequate visibility of the crossing itself, including all signage and/or signals. ❍ **Supplementary Improvements –** When selecting between locations to serve a pedestrian desire line, it is preferable that new crossings be implemented in combination with other measures that can enhance safety of crossings, such as curb extensions, raised crossings or raised median refuge islands which can reduce crossing distances and improve safety outcomes. Locations that provide an opportunity to implement these additional measures may be prioritized.
Demand	❍ **Key Destinations –** Crossings which serve high demand destinations such as community centres, shopping centres, and schools may be prioritized ❍ **Vulnerable Users –** The presence of a concentration of seniors, children or those with mobility challenges may warrant prioritizing a crossing location. ❍ **Connectivity –** Locations which, by virtue of the active transportation network, create specific crossing demands should be considered as candidates for midblock crossings. An example of this is a popular off-road multi-use trail which crosses an arterial road at a midblock location. ❍ **Connections to Transit –** Locations which serve a transit stop without a safe crossing may be prioritized.

4.2.4 Provide Network Amenities

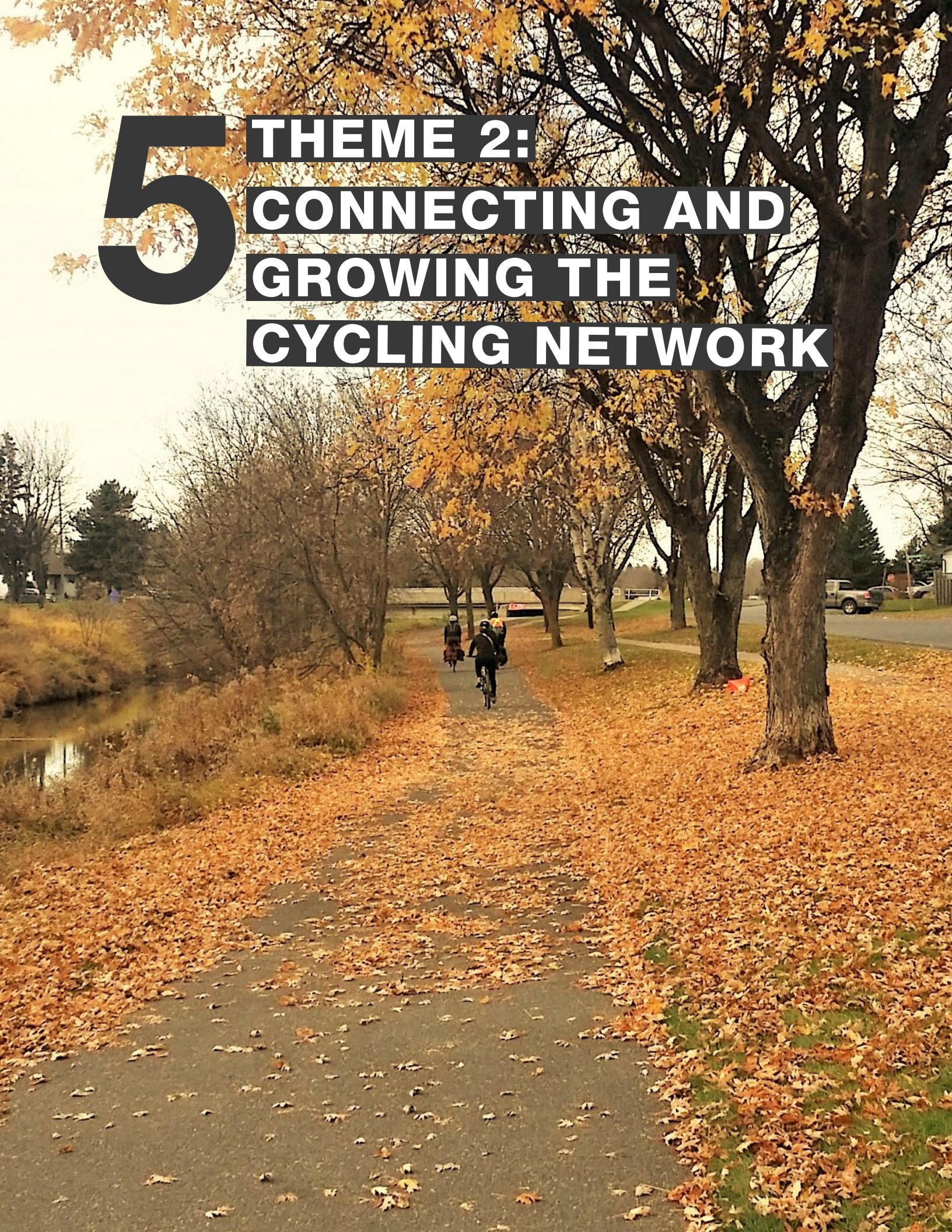
Many of the reasons why pedestrians choose to walk, or avoid walking, are related to the surroundings along the route in terms of perceived and actual safety, access to greenspace and natural areas, and a pleasant walking environment. For these reasons, access to amenities is important to attracting new walkers.

The City's guidelines for Image Routes provide direction on enhancing streetscaping and improving the public realm to provide a better environment for pedestrians, and also improve the experience for all road users including drivers.

A survey conducted as part of the Walkability and Pedestrian Safety in Thunder Bay study indicated that pedestrian lighting was highly desirable for pedestrian safety. Accordingly, opportunities to bundle pedestrian-scale lighting into the delivery of trail and Image Route sidewalk projects should be considered where beneficial and integrated into the multi-year capital budgeting process.

Action FWE-5

Investigate opportunities to bundle pedestrian-scale lighting with trail and Image Route sidewalk projects, and to bundle the delivery of benches, public art, street trees and other pedestrian amenities with road reconstruction projects



5 THEME 2: CONNECTING AND GROWING THE CYCLING NETWORK

Residents and stakeholders expressed a desire for more high-quality cycling infrastructure. Providing safe, comfortable, and integrated cycling infrastructure extends the range of destinations and activities that residents can reach without motorized transportation. Cycling facilities are complementary to pedestrian facilities in an inclusive, integrated and sustainable transportation system.

Theme 2 focuses on the **development of a connected cycling network.** In addition to infrastructure, other themes of relevance to connecting and growing the cycling network include:

- Theme 4 – Supporting Year-Round Travel – Infrastructure must also be well-maintained in order to invite people to walk as part of their everyday routine.
- Theme 5 – Building Community Capacity – Programs and initiatives are important to raise awareness of active transportation as a viable mode for daily activities.

5.1 Current Conditions and Challenges

The City has made significant progress installing cycling infrastructure, particularly since about 2010 when active transportation began to be integrated into City initiatives more broadly. There are now over 70 lane-km of on-road cycling facilities in Thunder Bay, in addition to over 60 km of multi-use trails.

The quickest path between two points in Thunder Bay often involves using arterial roads, but for most cyclists high traffic volumes and high speeds on these roads are deterrents to riding on these corridors. Cycling facilities that are separated from traffic are more appropriate on major roads but there are few such facilities currently in Thunder Bay. A connected cycling network is needed, particularly on key north-south and east-west routes.

The City has developed a network of cycling infrastructure, but only a small percentage of the network is physically separated from vehicular traffic. Industry best practices have evolved to recognize the need for a core network of protected facilities to be safe and comfortable for residents of every age and skill level.

The 2008 Active Transportation Plan, although an important step forward, had a limited scope to support the advancement of active transportation. The plan had some challenges that hindered efficient and effective implementation of the plan. For example:

- Current design standards and best practices for comfortable cycling facilities for a wide range of people who cycle or are interested in cycling has surpassed the guidance offered by the current Active Transportation Plan.
- The prioritization of various elements in the plan is unclear, making it challenging to determine how infrastructure elements should be rolled out to maximize benefits.
- Some infrastructure elements do not align with the City's roads capital program, making them infeasible to implement over a shorter time horizon without a significant capital funding program dedicated to cycling infrastructure.

The status quo in Thunder Bay is to construct cycling facilities as roads are reconstructed per the roads capital program and to build a small amount of infill cycling links each year as the AT program budget permits. However, in the interim, the resulting cycling network lacks connectivity and coherence. Implementing infill cycling links will need to be accelerated and roadworks that can provide active transportation links will need to be prioritized. To achieve an accelerated infill program, low-cost implementation strategies have been recommended for certain links.

5.2 Action Areas

5.2.1 Plan for a Minimum Grid

A series of guiding principles were used to establish and select corridors and routes to be included in the cycling network in order to target a minimum grid in existing and developing communities. These principles are presented in **Exhibit 5.1**.

The cycling network principles can also be used to inform secondary planning processes and development application reviews to identify cycling facilities early in the planning stage in new development areas.

The targets set out in the principles (refer to **Exhibit 5.1**) can also be used to track progress against the target network, for example by reviewing the number of key destinations served by the cycling network over time.

Action CGC-1

Adopt the cycling network guiding principles, both for established and developing parts of the city

5.2.2 Grow the Network

Network Development

Building upon the existing network, an initial list of potential links for the cycling network was developed based on the following:

- Links identified in a previous AT planning exercise (i.e. the 2008 AT Plan) which had not yet been implemented
- Links that connect to existing facilities or trail spine networks
- Links that provide access to major destinations

After several iterations and feedback from City staff, a candidate network was identified and evaluated using a three-pronged approach:

- **Cycling Impact –** A GIS-based analysis was used to assess the potential cycling impact of particular links, considering five key criteria: connectivity, safety, access to key destinations, population and employment density, and overcoming barriers.
- **Feasibility –** Links were reviewed to identify potential implementation strategies for cycling facilities that are both cost-effective and context sensitive.
- **Overall Network Connectivity –** The recommended network should include links that generally support the network principles such as spacing and access to key destinations.

The recommended ultimate cycling network is shown in **Map 3.**

Exhibit 5.1: Cycling Network Guiding Principles

Principle	Rationale	Approach	Target (Existing Community)	Target (development)
Address Demand and Serve Key Destinations	In order to promote cycling as a viable mode, the network must get cyclists where they want to go.	Evaluate how many destinations are within close proximity to the planned cycling network	❍ 75% of key destinations are located within 250 m of the proposed network ❍ 80% of schools are located within 250 m of the proposed cycling network	❍ 85% of key destinations are located within 250 m of the proposed network ❍ 100% of schools are directly served by the cycling network
Be Cohesive and Connected	The network must connect existing and planned pieces of cycling infrastructure in order to provide a connected network that is intuitive (i.e. no dead ends).	The network needs to provide a grid or modified grid of spine cycling facilities, supplemented by a network of neighbourhood connections.	❍ Core network generally designed to reflect a 1 km grid ❍ Secondary routes every 400 m ❍ Where cycling networks cross arterials, incorporate contemporary design	❍ Core network generally designed to reflect a 600 m grid ❍ Secondary routes every 250 m
Be Comfortable, Inviting and Safe	The network should help attract new riders and provide comfortable facilities that will help to normalize and increase the cycling mode share.	Within the central part of the City, aim to provide a core network of separated cycling facilities.	❍ Routes along arterials or major collector roads identified in the network undergoing reconstruction will typically include separated cycling facilities, depending on roadway context ❍ For retrofit conditions, opportunities to implement buffered or protected facilities along arterials or collector roads should be considered	❍ On all new arterials, cycling facilities should be separated ❍ On all new collectors, cycling facilities may be separated or designated, depending on roadway context
Be Flexible and Responsive	The network needs to be delivered in a responsible and accountable way that reflects the constrained fiscal realities of the City.	Allow for implementation of interim routes and incorporate facilities that can be upgraded over time, in order to 'pilot' the impacts of lane reconfigurations.	❍ Provide interim routes or alternative implementation strategies where ultimate facility is higher cost (i.e. cost/km > $500K)	

The recommended network provides the overarching long-term vision for the City of Thunder Bay to pursue and should be adopted and embedded into the Official Plan. Note that some projects will fall outside of the twenty-year horizon of the TMP and AT Plan (refer to Network Phasing below). In particular, long-term projects have been identified as "conceptual" and "future" projects to better illustrate the full network at build-out, and should opportunities arise to construct these links sooner they can be accelerated.

When complete, the ultimate cycling network will mark a significant advancement against the targets identified in the cycling network principles.

Action CGC-2

Adopt and implement the Ultimate Cycling Network as the long-term vision for cycling facilities across the city

For example, a summary of access to key destinations and schools for the existing and ultimate network is shown in **Exhibit 5.2**.

Exhibit 5.2: Comparison of Access to Key Destinations – Existing vs. Ultimate Network

	Type of Destination	
	Schools	Community Destinations
Served by Existing Network	69%	61%
Target (Cycling Network Principles)	75%	80%
Served by Existing + Ultimate Network	95% - exceeds target	96% - exceeds target

Cycling Facility Types

The facility types that make up the elements on the cycling network depend on several factors: vehicle volumes, vehicle speeds, and desired level of comfort. **Exhibit 5.3** illustrate cycling facility types and categories that are appropriate for Thunder Bay. Signed routes are shared facilities that are appropriate for quiet streets. Bike lanes and paved shoulders provide dedicated cycling facilities. Buffered bike lanes and cycle track are separated facilities that separate cyclists from vehicular traffic. Multi-use trails are fully separated and available to all forms of active transportation.

Exhibit 5.3: Cycling Facility Types and Categories

Type

Signed Routes

Along low volume and low speed roadways, signed bicycle routes can provide comfortable neighbourhood connections.

Bike Lanes

Bike lanes are travel lanes dedicated exclusively for use by cyclists through a combination of pavement markings and signage.

Buffered or Protected Bike Lanes

Buffered bike lanes are similar to conventional bike lanes but incorporate a painted buffer. Additional physical elements like bollards or rubber curbing may be added to improve comfort.

Cycle Tracks

Cycle tracks are enhanced cycling facilities that provide some form of permanent barrier protection between cyclists and moving cars – typically a bevelled, rolled or barrier curb.

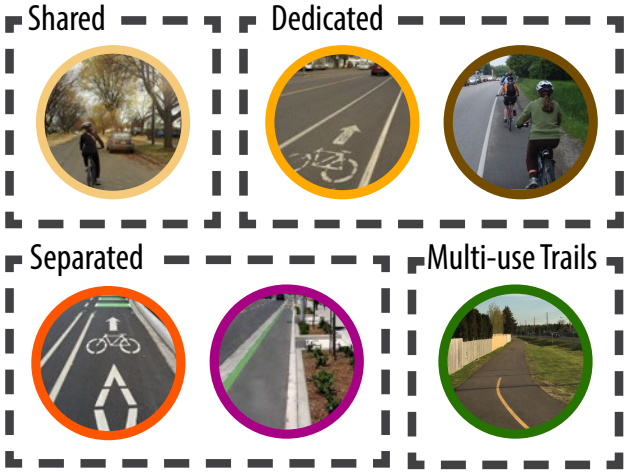
Multi-use Paths & Trails

Multi-use paths are located off-road, either in the boulevard of a roadway or through land without any roads. Both pedestrians and cyclists can use these facilities.

Shoulder Bikeways

Along roads with a rural cross-section, a paved shoulder may be designated for use by cyclists (similarly to a bicycle lane on an urban roadway). In most cases, a paved shoulder between 1.2 & 1.8m can be designated as a shoulder bikeway.

Category



North-South Route

One project of note in the cycling network is the north-south route, or 'Fort to Port' cycling route. The desire for a high quality north-south route was one of the key pieces of input received through public and stakeholder consultation for the TMP.

The north-south cycling route is proposed to be implemented in two phases:

- **Express Route –** an achievable cycling route that can be built over a five year to ten year timeline, connecting existing pieces of infrastructure through key improvements at crossings, intersections and along corridors.
- **Ultimate Route –** recognizes the desire for a central route providing direct access to many key services. This corridor will require significant capital investment to accommodate cycling facilities and will be implemented as roads are reconstructed over a longer timeframe.

The Express and Ultimate North-South Routes are shown in **Exhibit 5.4**.

Action CGC-3

Adopt and implement the north-south Express Route over the shorter term and pursue the longer term vision of the Ultimate Route as roads are reconstructed and opportunities arise

Network Phasing

The overall phasing of the ultimate cycling network will be refined over time to reflect funding availability, opportunities to bundle projects with larger road capital projects, and community input. **Map 4** illustrates the priority cycling network to be implemented over a shorter-term horizon (i.e. within the TMP planning horizon).

Action CGC-4

Adopt and implement the Priority Cycling and Trail Network

Network Policies

The following policies support and provide direction for network development:

- In addition to the cycling and trail network presented in **Map 3**, the City should consider and investigate opportunities to acquire rail corridors as they are retired for the purposes of converting the rail corridor into multi-use trails.
- Several of the on-road cycling facilities identified in the cycling plan rely on roadway lane reconfiguration or parking restrictions to accommodate the proposed cycling facilities. The use of pilot projects to "test" the impacts of these modifications is encouraged, as this provides an opportunity for iterative design improvements and helps to move projects forward. Monitoring of impacts to all modes should be considered as part of these pilot projects (refer to **Section 9**).

Exhibit 5.4: “Fort-to-Port” North-South Routes

5.2.3 Support the Network

End-of-trip facilities are required to support the cycling network and encourage higher cycling demand.

Bike parking is a critical piece of the cycling network. Several studies suggest that fear of bike theft may discourage cycling and that many bike theft victims do not buy a replacement.[2] Combating bike theft is a necessary step toward increasing cycling as a form of active transportation. A designated place to be able to lock a bike can encourage people to cycle to their destination. Designated bike parking installed properly in a good location prevents damage to street trees, street furniture and prevents bikes from blocking the sidewalk or other pedestrian or vehicular paths. It also helps establish cycling as a usual mode of transportation.

Short-term bike parking, for less than a few hours, can consist of a simple rack designed to support the frame of the bike and allow locking of both the frame and wheels. Short-term bike parking is usually provided for visitors and shoppers. Long-term bike parking typically consists of racks or lockers that are secured or enclosed and sheltered or indoors. Long-term bike parking is typically provided at multi-unit residential developments, workplaces and transit stations for all-day or overnight parking.

To ensure that new developments incorporate bike parking into the site plan, it is critical that bike parking requirements be incorporated in site plan application approval processes.

It is also important to consider showers, change rooms and washrooms to supplement bike parking at destinations such as workplaces, for example at City facilities (refer to **Section 8.2.3**).

Action CGC-5

Incorporate bicycle parking facilities into site plan application requirements

[2] Johnson, Shane D, Aiden Sidebottom, and Adam Thorpe, *Bicycle Theft*, Guide No. 52 Centre for Problem-Oriented Policing (2008)

The City operates a Bike Rack for Business program that provides assistance to businesses wishing to provide bike parking. Through this program, the City meets with businesses wishing to provide bike racks and provides guidance on rack type, placement and installation.

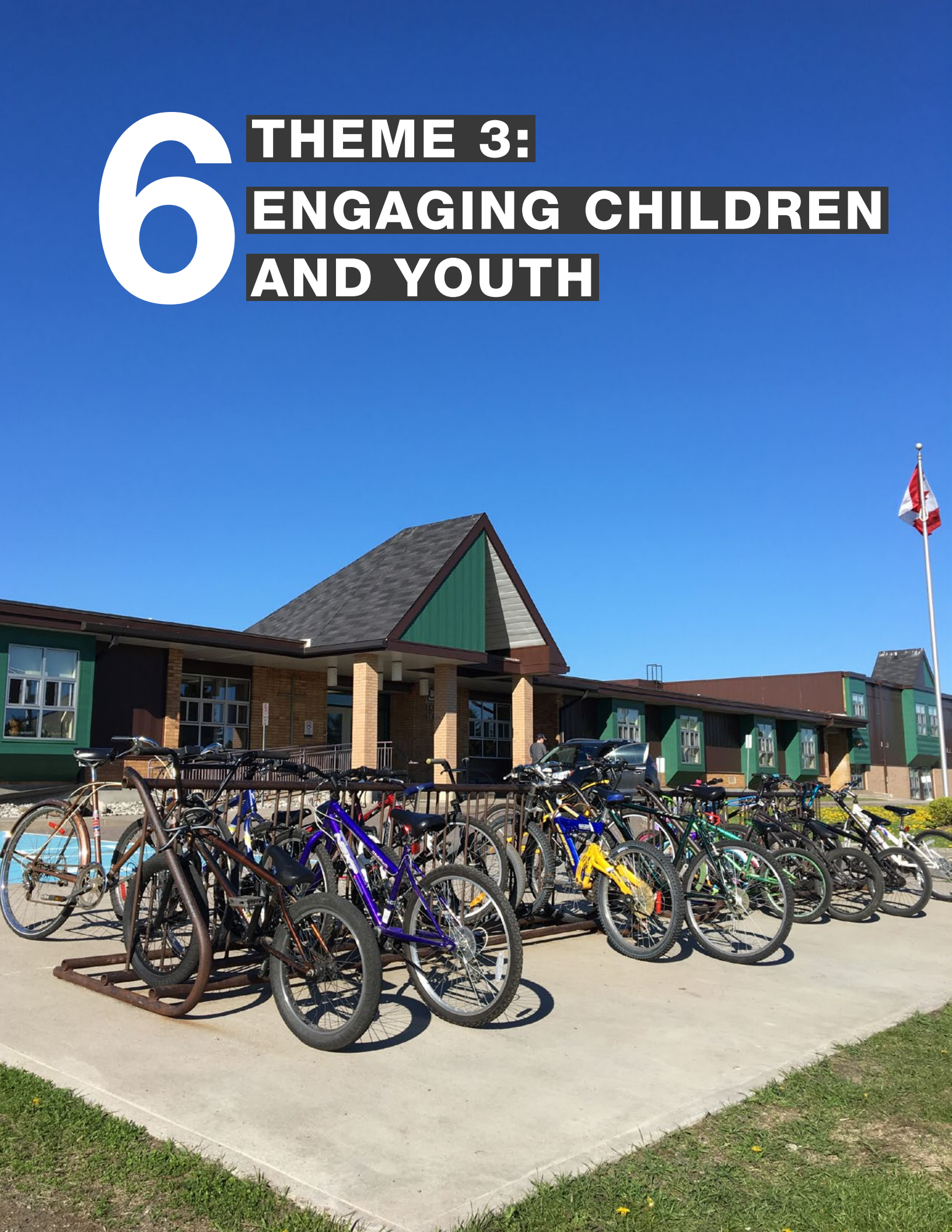
Some potential opportunities to expand/ improve this program are noted below:

- The City of Victoria, BC, has an extensive Bike Parking Strategy that includes a Bicycle Rack Installation Program with local businesses, specifically in the downtown core and commercial areas. Unlike in the City of Thunder Bay, the cost of installation is shared 50-50 between the City and the applicant. Considering opportunities to move to this funding structure in Thunder Bay would further incentivize businesses to provide bike parking.
- In the City of Kamloops, BC, local businesses are invited to install branded bike repair stations.
- In some communities in the US, mobility companies have worked with municipalities to install electric bike charging stations on public sites as a means of encouraging the use of electric bikes and electric bike share.

Action CGC-6

Establish a network of bike repair, tire-pumping, and e-bike charging stations in high-use areas (in conjunction with private business) and expand the Bike Racks for Businesses program

6 THEME 3: ENGAGING CHILDREN AND YOUTH



Encouraging active transportation as a means to get students to school has far-reaching benefits. The Ontario Active School Travel program broadly groups the benefits of children walking and cycling to school into four categories[3]:

- **Healthier Children:** Health benefits include reduced instances of childhood obesity and diabetes, as well as supporting brain development. Insufficient physical activity is also linked to poor mental health.
- **Less Traffic and Pollution:** Parent drop-off and pick-up produces emissions and pollution in the areas where our most vulnerable population spends their day. Improved air quality around schools is important both for health and environmental outcomes.
- **Safer School Zones:** Fewer cars around schools help to improve safety outcomes, while enhanced walking and cycling routes to school are a benefit for the broader community as well as the students.
- **Better Academic Performance:** The use of active modes for the journey to school has been found to increase alertness and attention during the school day and those who walk or cycle, especially girls, may have higher grades in school.

Exhibit 6.1: Public Comment at PIC

As a result of these extensive benefits, encouraging active school travel is an important goal for the City of Thunder Bay. This section identifies programs, policies and strategies for encouraging children and youth to use active transportation. Other themes of relevance to engaging children and youth include:

- Themes 1 and 2 – Fostering Walkable Environments and Connecting and Growing the Cycling Network – It is critical to build the infrastructure that will provide safe, high-quality routes for students to walk and bike to school.
- Theme 4 – Supporting Year-Round Travel – Infrastructure must also be well-maintained to provide a viable alternative year-round.

[3] Ontario Active School Travel, *Making the Case for Active School Travel: Fact Sheet & Reference List (Updated December 2018)*. Available online: http://ontarioactiveschooltravel.ca/benefits-of-active-school-travel/

6.1 Current Conditions and Challenges

The City's 2015 TDM Plan noted the lack of momentum around encouraging active transportation for school-aged children to date in Thunder Bay:

> [S]ustainable travel at Thunder Bay schools has had a low profile, with little action taken in particular by the Lakehead Public School Board. In the last couple of years, the Active and Safe Routes to School[4] (ASRTS) program was a joint effort of EcoSuperior, the Thunder Bay District Health Unit, Thunder Bay's Traffic and Engineering Department and the Thunder Bay Police Department. ASRTS events were held in a few schools but have not led to material progress in shifting school travel behaviour. Such behaviour changes do face significant challenges, including the structural nature of many safety issues (e.g. lack of sidewalks), parental concerns about personal security, the distance from home to school for many families, winter weather conditions, and the young age and physical vulnerability of elementary school students.

Despite these challenges, potential partners have expressed interest in pilot program initiatives related to improving access and uptake of sustainable transportation modes at schools. In a very positive development, the Lakehead Public School Board and the Thunder Bay Catholic District School Board recently endorsed a school travel planning pilot project to be led by the Thunder Bay District Health Unit and EcoSuperior. This program, Walk or Wheel Thunder Bay (WOW TBay) is currently underway through a Sustainable School Travel Program pilot, with several stakeholders including Thunder Bay Police and City of Thunder Bay Engineering, Parking Authority and Crossing Guard representatives regularly meeting with the school boards to discuss issues and possible improvements. If successful, this program could provide a template for other schools and future programs.

6.2 Action Areas

6.2.1 Support School Travel Planning

School travel planning is a resource-intensive, grassroots process led by school administrations, teachers, parents and students. The City can be an important partner in the success of individual school travel plans and in spreading their adoption in schools across the city including elementary, secondary and post-secondary institutions. Elected officials can be particularly effective champions of school travel planning initiatives.

In keeping with the recommendations of the City's previous TDM plan, it is recommended that the City remain as an active participant in the school travel planning pilot project, and offer whatever resources it can; a successful pilot project is vital to attracting other schools to launch their own travel plans. In the short term, it is recommended that the City continue to play a supporting role in school travel planning and/or future WOW Thunder Bay projects. The most effective leaders for active school travel would come from within the school community (either the boards or individual schools) or the Thunder Bay District Health Unit.

[4] Now operating as the Walk or Wheel Thunder Bay (WOW TBay) active school travel program.

A particularly valuable step that the City could take during pilot project preparation would be to sponsor a learning event featuring knowledgeable experts from communities with active school travel plans (e.g. Region of Halton) who can share their experiences and lessons learned. Other important roles for the City include planning and implementation of road safety measures around schools, including new sidewalks or trails and speed control or parking management measures.

As part of this work, the City can request travel plan baseline and impact measurements by schools or other partners, ranging from simple data on the number of participating schools and students, to data on changes in the attitudes and behaviours of students, parents and staff at participating schools. This data can inform the larger monitoring and data collection program (refer to **Section 9**).

Much of the effort to date around school travel planning has been with elementary schools. This should be expanded to secondary schools where the barriers associated with very young children walking or cycling on their own are eliminated and possibly more progress can be made.

Action ECY-1

Provide municipal support to pilot school travel planning processes through collaborative effort with stakeholders

6.2.2 Educate and Engage

The City's post-secondary institutions should be viewed as major partners in advancing active transportation for older teens and young adults. Various opportunities for partnership with Lakehead University and Confederation College include:

- Encouraging student-led research and implementation projects related to active transportation that can provide support for City initiatives. For example, studying bike rack usage to identify potential new bike parking locations or surveying students to understand their motivations / deterrents to active transportation.
- Collecting key data such as parking activity levels, transit ridership, automobile occupancy, bike parking and pedestrian counts (gathered by, or in collaboration with, administrations and student unions) that can help track progress over time.
- Implementing projects such as a bike share pilot, improving end of trip facilities, improving integration between campus trails and the road network, and working proactively with administrations and student unions to identify and address safety issues.
- Hosting and leading events (particularly bike month or pedestrian safety awareness campaigns).

Action ECY-2

Bolster relationships between the City and post-secondary institutions to engage students and share resources and data

7 THEME 4: SUPPORTING YEAR-ROUND TRAVEL

Public feedback noted concerns with the maintenance of sidewalks and trails, particularly in the winter months. The issue of maintenance is not only important for ensuring that commuting by bike, on foot, and by transit are viable alternatives year round, but also for ensuring quality-of-life and accessibility for seniors and those with mobility impairments.

This section focuses on the **on-going and seasonal maintenance of pedestrian and cycling facilities**. Other themes of relevance to supporting year-round travel include:

- Theme 1 and 2 – Fostering Walkable Environments and Connecting and Growing the Cycling Network – The design and construction of infrastructure must consider maintenance needs.
- Theme 5 – Building Community Capacity – Programs and initiatives to help get people of all ages outside during off-peak seasons (i.e. winter bike to work day, winter festival) help to improve perceptions about walking and riding all year round.
- Theme 6 – Tracking Progress – Seasonal count data must be used to track levels of year-round infrastructure use both to inform areas of priority maintenance and to understand the return on investment.

FAST FACTS

In a recent pedestrian intercept survey:

- Sidewalk snow clearing / removal was identified as a high priority for walkability and pedestrian safety in Thunder Bay (46%)
- Sidewalk maintenance improvement was also seen as critical (at 45%)

Source: Thunder Bay District Health Unit. (2017) Walkability and Pedestrian Safety in Thunder Bay.

7.1 Current Conditions and Challenges

Due to the harsh winter conditions in Thunder Bay, as well as the significant costs of winter maintenance, maintaining pedestrian and cycling facilities to a high standard is an on-going challenge.

The City has a set of approved standards for clearing snow along roadways and sidewalks during the winter season (refer to **Exhibit 7.1**). Unlike many municipalities, the City maintains all public sidewalks rather than rely on adjacent property owners.

The majority of the existing trail network is maintained year-round, while some are closed for the winter (and not maintained).

Exhibit 7.1: Thunder Bay Winter Maintenance Standards for Sidewalks

Sidewalk Class Level of Service Plowing	Overtime Authorized	Minimum Allowable Accumulation	Standard	Expected time of Completion	Plow/ Blow	Remarks
Roadways deemed to be Priority Routes	Yes	5 cm	Hard Pack Snow Surface	Plowing:14 hours Blowing: 36 hours	Yes	Priority Routes 1) Arterial and Collector Roadways 2) School zones 3) Transit Routes 4) Senior Facilities 5) Hospitals 5) Downtown Cores
All Other Roadways	Yes	5 cm.	Hard Pack Snow Surface	Plowing: 72 hours Blowing: 125 hours	Yes	Second most important routes; Sidewalks on Local Roadways
Sidewalk Class Level of Service Sanding	**Overtime Authorized**	**Minimum Allowable Accumulation**	**Standard**	**Expected time of Completion**	**Sand**	**Remarks**
Roadways deemed to be Priority Routes	Yes	5 cm	Hard Pack Snow Surface	24 hours	Yes	Priority routes 1) Arterial and Collector Roadways 2) School zones 3) Transit Routes 4) Senior Facilities 5) Hospitals 5) Downtown Cores
All Other Roadways	Yes	5 cm.	Hard Pack Snow Surface	72 hours	Yes	Second most important routes; Sidewalks on Local Roadways.

In addition to snow clearing, the City undertakes other seasonal maintenance such as street sweeping. The street sweeping program begins on arterial and collector roads over a six week period in the spring and then moves on to residential streets. Sidewalks are swept as crews move through the City.

Despite clear standards and an extensive program of sidewalk and trail clearing, the harsh winter conditions often still present challenges to both pedestrians and cyclists in navigating streets comfortably. For example, pedestrians with mobility challenges may not be able to navigate along hard packed snow surfaces in the winter. For these reasons, even minor adjustments to maintenance practices have the potential to improve conditions.

7.2 Action Areas

7.2.1 Monitor Service Levels

A variety of best practices in maintenance activities and policies are summarized below. Many of these are already implemented by the City, but some provide opportunities for adjustment or refinement over time. It is noted that there may be significant costs associated with many of these enhanced maintenance policies even if only for a small network.

Sidewalks

- Wherever sidewalks are adjacent to the curb (i.e. there is no boulevard), consider specifying maintenance standards that ensure a second sweep of the sidewalks after plows have finished the "winging" phase. In some cases, additional coordination between the clearing of transit stops and roads is useful to ensure that road plows do not create windrows after transit stops have been cleared.
- Continue to ensure that while clearing sidewalk ramps and transit shelters, there are regular breaks in the snowbanks formed in boulevards to allow runoff to drain. In most cases, this would simply mean ensuring driveways and sidewalk ramps have all been properly cleared.
- Continue to maintain multi-use trails along roadway boulevards where they replace sidewalks, i.e. designate boulevard multi-use paths as sidewalks for maintenance purposes.

Cycling Facilities

- Over time, consider maintaining bikeways identified as part of a priority Winter Cycling Network (see **Section 7.2.2**).
- Whenever possible, bikeway snow clearing equipment should use alternatives to plows, such as blowers or brushes.
- Spring maintenance is especially critical to encourage re-adoption of cycling. The City currently sweeps bike lanes once a month during the season, consider increasing the frequency and start of sweeping activities along priority cycling routes should opportunities arise to expand equipment / staffing over time.
- The City currently has limited resources for pavement marking re-application in the spring. There may be opportunities to ensure cycling infrastructure remains highly visible year-round by installing durable pavement markings on cycling facilities. Durable pavement markings have higher capital costs to install but last 5-10 years, particularly along cycling infrastructure which does not see the same wear and tear as markings on the roadway.

Bike Parking

Cyclists riding through the winter will need a place to park their bike. Ensuring that bike parking is clear can also improve conditions for pedestrians as it can reduce the likelihood of bikes parked haphazardly against street furniture and obstructing the pedestrian clearway.

- The City will seek to ensure that all bike parking at City facilities are cleared out, which includes taking care to minimize salt and sand erosion of bike racks. Similarly, the City will encourage residents/businesses to clear bike parking within the right-of-way along priority walking and cycling routes
- The City will continue to use galvanized or stainless steel bike parking racks. Powder-coated racks should be avoided as they require more intense maintenance efforts.
- As part of on-going standard practice, bike parking racks will continue to be mounted on hard-surfaced pads (typically made of asphalt, concrete or paving stones), which simplifies winter clearing and also helps cyclists avoid having to step in muddy earth as snow melts.

Action SYR-1

Continue to refine maintenance practices over time to ensure coordination and accessibility

7.2.2 Explore a Winter Cycling Network

In many municipalities, it is simply not fiscally feasible to maintain all cycling facilities on a year-round basis. However, many municipalities are beginning to experiment with the implementation of a priority winter cycling network.

Although this may not be a short-term reality in the City of Thunder Bay, the possibility of a future winter cycling network that may incorporate higher levels of service along a priority sub-section of the network (which may include trails, cycle tracks and/or on-road infrastructure) should be considered as ridership grows. Some potential thresholds to consider when electing to maintain a specific corridor or route:

- Most municipalities with winter networks tend to maintain separated cycling facilities (either trails or cycle tracks/protected bike lanes) within the downtown core that boast ridership in the top 10-20% of ridership across the City.
- The thresholds for ridership may be absolute, but should consider local context. When the City of Toronto identified their winter cycling network, a threshold of 2000 cyclists per day was used to identify candidate routes. However, in smaller municipalities thresholds may be lower to reflect a lower population and fair-weather ridership.

At such a time when it becomes feasible/ practicable to consider a winter cycling network, it is recommended that the first season be implemented as a pilot project to test the recommended policies and evaluate funding impacts. Development of this pilot would involve:

- Working with stakeholders to identify small sections of the winter network that could be used for the pilot project and would have a reasonable impact on winter walking and cycling.
- Working with stakeholders to determine what enhanced winter maintenance practices are most appropriate for the network sections that are identified and would improve conditions to a meaningful extent.
- Developing a monitoring or survey plan to ensure that any benefits of the enhanced winter maintenance pilot project can be measured.
- Working with maintenance staff to determine implementation costs.
- Identifying and securing a source of funding (for example, a lower cost project may be workable within the normal maintenance budget while a higher cost project would require dedicated funding).

Balancing the size of the pilot project network, proposed maintenance practices and expected user benefits against the cost will help ensure that the pilot project is a feasible and meaningful test of enhanced winter maintenance practices.

Action SYR-2

Monitor ridership and interest in winter cycling network for potential future pilot program

8 THEME 5: BUILDING COMMUNITY CAPACITY

Cities that are successful in achieving high cycling and walking mode shares are often cities with both "top-down" political and organization leaders and "ground-up" community support. To achieve the vision of active transportation as a preferred mode, both top-down and ground-up support will need to be cultivated in Thunder Bay.

This theme focuses on the **policies, programs and initiatives that help to raise awareness of active transportation.**

Other themes of particular relevance to building community capacity (in addition to network development Themes 1 and 2) include:

- Theme 3 – Engaging Children and Youth – Working with children and parents to encourage walking and cycling to school is a targeted component of a broader effort to engage with the Thunder Bay community

8.1 Current Conditions and Challenges

In addition to providing the infrastructure to enable active transportation, the City of Thunder Bay recognizes the need to raise awareness of the available active transportation options and to engage residents on how best to use available infrastructure. There are a number of existing programs and initiatives that aim to build awareness of active transportation options.

EcoSuperior Environmental Programs (a non-profit organization working in partnership with the City of Thunder Bay) delivers education programs to attract more users to cycling by helping new or infrequent riders feel safer and more confident on the network. EcoSuperior offers safe cycling courses that are geared towards specific target audiences, including children, seniors and workplaces.

The City also develops education programs to raise awareness for specific infrastructure investments. For example, the City launched a pedestrian crossover (PXO) education campaign to align with the City's first installation of the new PXO type at the Algoma Street and Cornwall Avenue intersection in 2016. The program was intended to increase community awareness of this new type of crossing facility; to increase understanding of the physical appearance of pedestrian crossovers; and to identify how to safely interact with pedestrian crossovers.

The City has worked with partners including the Thunder Bay District Health Unit and EcoSuperior to organize and participate in a number of community events, including:

- Yearly participation in the national Commuter Challenge – Thunder Bay runs a very successful commuter challenge program, ranking first of eighty participating organizations in Ontario (based on population)
- Yearly participation in Jane's Walk program
- Annual Open Streets Program
- Bike Summit (2015, 2017)

Some formal engagement opportunities have also been established in Thunder Bay. For example, the Thunder Bay District Health Unit chairs the Thunder Bay Walkability Committee, which is a multi-disciplinary advocacy group to encourage and build support for walkability. The committee has launched a number of initiatives including a pedestrian wayfinding signage campaign, hosting community meetings and workshops, and leading tours of walkable infrastructure with City Council.

The City has achieved significant milestones in recognition of their efforts in active transportation to date. Thunder Bay was recognized by the Share the Road Organization as a bronze level bicycle-friendly community in 2015, becoming the first northern Ontario municipality to receive a designation. Also in 2015, the City of Thunder Bay, in partnership with the Thunder Bay District Health Unit, applied for a WALK Friendly Community designation through Canada Walks and received an Honourable Mention.

Despite these efforts, active transportation in Thunder Bay is still not viewed as a viable alternative for many residents, even for short trips that could easily be completed by bike or on foot. Some of the possible reasons for this include:

- **Fledgling Walking and Cycling Culture** – oftentimes residents, particularly newcomers, will choose the travel mode that they see others using under the notion that this mode is “normal”. When residents do not see many people using active modes for daily trips, they are less likely to choose active modes themselves.
- **Access to Information** – many residents are not aware of the safe and convenient routes they can take to walk or bike to destinations so they choose what they see as the most convenient alternative—driving
- **Lack of Training** – despite knowing that active transportation infrastructure is in place, some residents do not feel adequately prepared to bike on public roads. Their safety concerns often override any desire to choose more sustainable modes. In Thunder Bay, a lack of training is not a result of a deficit of programs (extensive cycling training programs and options are available), but rather due to a lack of broader community awareness about these initiatives.

Therefore, it is critically important to continue to provide and expand education, programs and outreach to encourage new active transportation users.

8.2 Action Areas

8.2.1 Raise Awareness

Although the City runs a number of existing initiatives and programs that provide excellent resources and skills to residents, they are not widely adopted across the City, which can be at least partially attributed to a lack of awareness of these programs. Opportunities to raise the profile of active transportation through large events and City-wide initiatives should be pursued as valuable opportunities to engage with the residents who are interested in cycling but hesitant to do so. The City should also continue to collaborate with organizations with common goals such as the Thunder Bay District Health Unit, EcoSuperior, Ministry of Transportation, Cooperative X and EarthCare Walkability Committee to expand capacity and increase active mode shares.

Source: Open Streets Thunder Bay

Various initiatives may include:

- **Cyclovia / Open Streets Program** – Many communities have grown significant open streets programs, from a single day event along one street to recurring monthly events along a network of routes closed to vehicular traffic. Open Streets returned to Thunder Bay in 2017, hosted by EcoSuperior, with events on three separate dates. These events attracted recreational cyclists, rollerbladers and pedestrians and invited them to see (and use) public streets in a different way.
- **Bike to Work Week / Bike Month** – The City's TDM Plan notes that a small number of Thunder Bay employers have supported Bike to Work Week in recent years, but with little coordination, support or success. Adoption of Bike to Work Week by the City as a community-wide event could be a key to promoting the active transportation network and cycling-related initiatives. Given the City's success with the Commuter Challenge, it may be possible to take advantage of existing contacts and momentum from the Commuter Challenge to improve participation in Bike to Work Week/Month.
- **Bike Valet and TDM Support for Major Events** – Continue to partner with large events to provide valet bike parking or to provide information via websites about walking and cycling routes to the event. Festivals and similar events face the challenge of attracting large numbers of attendees, many of whom want to arrive and leave at the same time, without being able to provide sufficient parking for all attendees to drive their cars. Organizers often see value in measures that encourage and facilitate event attendees to travel by foot, bike, carpool or public transit, and can make eager partners for TDM programs. Expanding this offering brings more visibility to cycling as a viable mode of transportation.

- **Car Free Day** – A number of Canadian municipalities also support worldwide Car Free Day each September 22. Car Free Day is a celebration of sustainable travel options that typically focus around a temporary street closure with a festival atmosphere. It is recommended that Thunder Bay could benefit by rebranding the day and partnering with a local BIA to host a festival with displays, vendors and kiosks promoting active transportation and transit.

Action BCC-1

Raise awareness of active transportation through broad-reaching community events

8.2.2 Make it Irresistible

The experience of other municipalities demonstrates the power of investments and programs that help to attract new riders through visibility. Two key, high-visibility initiatives for consideration in Thunder Bay to help make walking and cycling irresistible include:

- Pedestrian and cycling wayfinding signage; and
- A public bike share system.

Wayfinding assists cyclists and pedestrians by navigating users along trails, walkways or bikeways to points of interest. When wayfinding is successful, it goes beyond providing just information, but supports placemaking and enriching the public realm. It can also have the important function of raising awareness of existing infrastructure.

A wayfinding program that highlights options for walking and cycling can be an important investment to help build a multi-modal transportation system and help highlight the ease of accessing destinations via walking or cycling. For these reasons, it is recommended the City complete a wayfinding strategy and undertake a pilot signage implementation project.

Action BCC-2

Undertake a pilot of active transportation wayfinding signage, including destination signage

The City of Hamilton launched their SoBi bike share system in 2015, and the number of active members has now reached over 12,000 active users, including a 20% increase in 2017. The highly visible and recognizable blue bikes have helped to 'normalize' biking across the City.

A bike share system is where a shared pool of bikes is available for short-term use for a fee. Public bike share systems have the potential to attract new riders and leverage additional investments in infrastructure, particularly in smaller communities. Bike share can reduce barriers to cycling such as owning and storing a bike, concern for bike theft, and the need for flexibility if plans or weather changes.

The City of Thunder Bay should investigate the feasibility of a bike share system. There are various alternatives in bike share at this time that may be considered:

- Zagster, a bike share operator, advertises free feasibility studies.
- DropBike offers dockless bike share programs that are intended to function without a subsidy.

Pilot programs can be implemented to test the concepts on a smaller scale before initiating a full network implementation. A successful bike share system can help accelerate uptake of cycling as an easy and efficient way to get around the city, especially for shorter trips.

Action BCC-3

Undertake a bike share feasibility study

Blue Bikes – SoBi in Hamilton

The City of Hamilton launched their SoBi bike share system in 2015, and the number of active members has now reached over 12,000 active users, including a 20% increase in 2017. The highly visible and recognizable blue bikes have helped to 'normalize' biking across the City.

8.2.3 Lead by Example

The City can promote active transportation by taking a leadership role in supporting walking and cycling through a number of initiatives:

- Undertake a travel survey of staff commuting behaviours, as recommended through the City's TDM Plan, to understand key habits and attitudes, and measure their impacts over time. A baseline survey would support program design and act as a benchmark for subsequent surveys (note that a sample commuter survey is included in Transport Canada's Commuter Options: The Complete Guide for Canadian Employers, although any survey should be customized before delivery).
- Explore the feasibility of an employee bike share for the City of Thunder Bay at key facilities for staff use or as part of the City's fleet.
- Provide end-of-trip facilities at all City offices and buildings including both short-term and long-term bike parking (e.g. post-and-ring racks and bike storage lockers, showers and change rooms at employment centres).
- Collaborate with local enforcement to provide appropriate and meaningful enforcement of both cyclists and vehicular behaviours, including consideration for a program where a cyclist can choose to take a cycling course through the Safe Cycling program in lieu of paying a ticket.

In addition to these tangible actions, it is imperative that staff and stakeholders at all organizational levels recognize the role of active transportation as a legitimate travel mode and the enormous potential benefits that active transportation can bring to the City (reduced road expenditures, support for transit, community health benefits, community equity outcomes, tourism spending, etc.). This will involve strategies to overcome a culture that has historically prioritized the automobile in transportation decision-making. This culture presents on-going challenges to implementing high-quality design as there is often a shortage of time and resources allocated to the consideration and accommodation of active transportation and transit users. Potential strategies to explore include:

- Provide regular and recurring staff training and guest lectures that emphasize emerging best practices in urban street design.
- Bring in municipal staff from other municipalities to work with existing staff and document the benefits their cities have accrued from investment in active transportation.

Action BCC-4

Take on a City ambassador role to demonstrate leadership in active transportation initiatives

8.2.4 Resource Engagement Effectively

In order to take on a broader number of these initiatives, it is essential to have sufficient resources to facilitate and coordinate internally. While it is ultimately desirable to create a new full-time equivalent position to resource engagement, in the interim these actions will be delivered through existing staff resources.

Until it becomes feasible to add new staff, the following programs / initiatives should be considered the priority:

- Support the City's existing education and community engagement programs.
- Support programs to increase active school travel.
- Coordinate the City Ambassador program to grow internal support for active transportation.
- Investigate the feasibility of bike share.

Action BCC-5

Prioritize education and engagement programs to maximize benefit to the City and increase active mode share

9 THEME 6: TRACKING PROGRESS

Collecting and tracking data, setting targets, and monitoring progress are essential to evaluate the impacts of various initiatives and to provide direction for future work. The Transportation Association of Canada's Briefing on Strategies for Sustainable Transportation Planning identifies "measuring performance" as one of four key principles for sustainable transportation, noting that:

> "Most transportation plans start to become obsolete soon after they are approved: external conditions change, action plans are adjusted, costs rise or revenues fall, and early initiatives shift the playing field for later ones. Given this fact, one way to provide decision makers with continuously relevant guidance is to follow a rigorous performance measurement process. The major elements of a thorough transportation plan performance measurement strategy include key targets and indicators to be monitored, data collection activities and schedules, reporting parameters and frequencies, and required resources."

Theme 6 focuses on **on-going performance monitoring initiatives** to improve the data collection and reporting on active transportation initiatives. This theme is broadly related to all of the other themes in this report as it identifies strategies for tracking progress for each of the focus areas.

9.1 Current Conditions and Challenges

The City of Thunder Bay currently undertakes a number of initiatives to track pedestrian and cycling activity and safety:

- In partnership with the Thunder Bay Police Services, the City of Thunder Bay maintains a Collision Database of collisions that have occurred in Thunder Bay since 2004. This database includes information about collisions with pedestrians and cyclists. The Thunder Bay District Health Unit, City of Thunder Bay and Lakehead University have worked collaboratively to explore the pedestrian and cycling collision data and trends in an effort to inform future plans.
- The City's Engineering department operates a traffic count program that collects data for all signalized intersections including information on pedestrians and cyclists, which provides a City-wide source of baseline information.
- A selection of infrastructure projects have included specific pedestrian and cycling data collection. For example, in 2016, the City Parks and Open Spaces division purchased a mobile pedestrian counter to be used on the multi-use trails. In 2017, the construction of a multi-use trail at Atikokan Drive (Confederation College) included the installation of a pedestrian/cyclist counter.

However, there are some on-going challenges to tracking progress more broadly across the City. For example:

- Mode share data is only available broadly through Census data collected on main commuting mode for the journey to work on a five year basis. There are no formal travel surveys within Thunder Bay. Prior to the development of the current model, the City had no macro-level network models to anticipate travel demand patterns.
- A limited data collection budget has meant that data collection is often more informal and ad-hoc which makes it harder to justify expenditures.

There are also the broader challenges that all active transportation practitioners face in terms of data collection. Despite the inclusion of pedestrian and cycling volumes at conventional intersection counts, there is evidence of systematic under-counting of pedestrians and cyclists. This occurs for a variety of reasons: the relatively small number of pedestrians and cyclists compared to the high volumes of vehicle traffic make it easy to miss active transportation users, walking and cycling movements may not be fully captured at intersection traffic counts where it is possible to reach a destination without crossing through an intersection, etc. Other conventional data collection techniques (such as the pneumatic tubes used to record mid-block traffic volumes) also do not consistently and reliably count pedestrians and cyclists.

For these reasons, data collection related to active transportation users and reliable tracking remain key challenges to be addressed.

Opportunities to increase monitoring and evaluation capacity by collaborating with the Thunder Bay District Health Unit, Lakehead University and Confederation College should by explored.

9.2 Action Areas

9.2.1 Track Usage and Mode Share

The City of Peterborough has used the Pedestrian and Bicycle Documentation Project methodology for more than five years, drawing on community volunteers to lead the count program. This has led to detailed ridership analyses, which show a 20% increase in ridership across the City within the last five years. This analysis provides support for on-going investment in cycling facilities.

Establishing an on-going reliable count methodology across the City is an important first step in understanding use of pedestrian and cycling facilities across the City.

The National Pedestrian and Bicycle Documentation Project (http://bikepeddocumentation.org/), is an annual bicycle and pedestrian count and survey effort (initiated in the US, but widely referenced in Canada). Through their website, the program provides a methodology, training materials and count forms to initiate an annual count program, drawing on volunteers to undertake the counts. The methodology includes annual two-hour counts in September which can be used to infer monthly and annual total volumes along facilities with specialized count factors, developed based on an on-going review of pedestrian and cycling count data submitted to the program.

The City of Thunder Bay can employ this methodology on an annual basis to provide consistent year over year tracking of pedestrian and cycling counts. The list of locations to be included in the survey should be about 15 initial locations that are important to the pedestrian and cycling network (i.e., major trails, major commuting routes, and downtown pedestrian routes which may include the pedestrian priority corridors) and can be expanded over time as the count program becomes more established.

Action TP-1

Initiate annual volunteer-run pedestrian and cycling counts using the National Pedestrian and Bicycle Documentation Project materials

In addition to initiating an annual count of pedestrian and cyclists, it is recommended that specific pedestrian /cyclist counters be routinely installed when new cycling facilities or multi-use trails are constructed and for their costs to become part of the year-over-year capital budgeting process.

Counters specific to pedestrians and cyclists are important to directly measure the impact of a particular piece of AT infrastructure. Furthermore, counts undertaken on AT infrastructure over longer periods are better able to account for weather or seasonal uptake. These counters provide valuable hourly data over a long period of time or even indefinitely, providing insight into long-term trends or particular events (e.g. bike month) that may impact the volume of pedestrians and cyclists.

Action TP-2

Install pedestrian / cycling counters on key cycling facilities and multi-use trails

Counts in Mid-Sized Cities

The City of Peterborough has used the Pedestrian and Bicycle Documentation Project methodology for more than five years, drawing on community volunteers to lead the count program. This has led to detailed ridership analyses, which show a 20% increase in ridership across the City within the last five years. This analysis provides support for on-going investment in cycling facilities.

As a longer-term goal to more reliably track mode share, the City of Thunder Bay should investigate opportunities to partner with Lakehead University to conduct household travel surveys on a five-year rolling basis. This could take a similar approach to the data collected for the Transportation Tomorrow Survey, which is a cooperative effort by local and provincial government agencies to collect information about urban travel in southern Ontario, housed through the University of Toronto Data Management Group. Funding opportunities through various provincial cycling programs should be considered to contribute to the costs of undertaking a travel survey because of the potential usefulness of this information to tracking progress in active transportation.

Action TP-3

Investigate partnership and funding opportunities to conduct a recurring household travel survey in Thunder Bay to better understand long-term mode share changes

9.2.2 Understand Safety Outcomes

Continued monitoring of collision data is important as a baseline for investigating changes in overall reported collisions. However, because of the relative infrequency of collisions between pedestrian and cyclists, it is often difficult to discern meaningful patterns to inform actions. In addition, regardless of the actual safety of a corridor the 'perceived safety' of walking or cycling has significant impacts on usage.

To address the limitations of collision data, it is suggested that the City select a few key intersection and corridors and undertake a series of on-site safety reviews. One of the key factors that can be evaluated beyond standard collision data using a site safety review is comfort (through an intercept survey) and field reviews of evasive actions (i.e. collision avoidance). An evasive action can be identified through the following stages:

- Stage 1. A road user performs a manoeuvre; e.g., changing lanes, breaking suddenly.
- Stage 2. A second user is on a course to collide with the first user.
- Stage 3. The second user reacts by performing an evasive manoeuvre
- Stage 4. The second user then proceeds to complete the movement through the intersection once the potential for conflict is cleared.

Evasive manoeuvres taken by the second vehicle will often be seen as obvious swerving or breaking. For vehicles, braking can be observed as brake-light indications. For cyclists, swerving is an obvious movement, but observing braking can be more difficult. The observer may have to look for a noticeable movement of the rider's hands to engage the brakes or a lunging forward of the body to determine if an evasive manoeuvre has been made. For pedestrians, a complete stop or even change in pace could suggest evasive manoeuvres. Near-miss situations without evasive action would also be considered under this analysis approach.

The technique of reviewing site operations is considered to be a standard and cost-effective method to monitor changes in conflict rates over time and to assess the success of transportation improvements in increasing the safety for road users. It has been shown to be an accurate predictor of collision rates and provides a supplement to monitoring safety using data from reported collisions.

Action TP-4

Undertake site safety reviews of key pedestrian and/or cycling facilities, including reviews of evasive action

In addition to safety reviews, the City should continue to partner with the Thunder Bay District Health Unit and Lakehead University to review collision data and conduct intercept surveys to better understand perceptions of safety.

The production of collision and survey summary reports every three to five years will provide an on-going baseline of data. These reviews should result in targets for collision reductions and improvements at key intersections where collisions are systematically over-represented.

Action TP-5

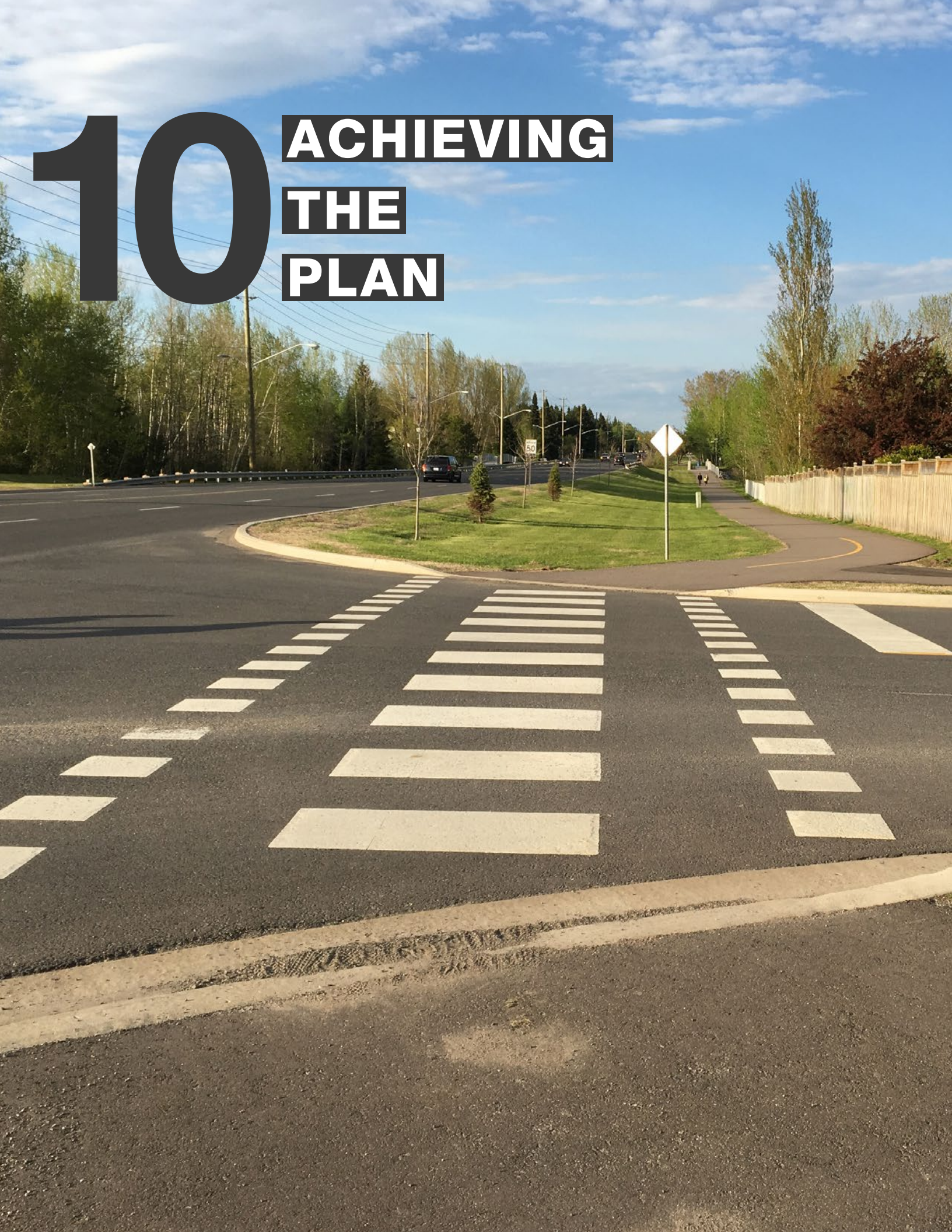
Continue to partner with Thunder Bay District Health Unit and Lakehead University to analyze pedestrian and cycling collision data and direct investment to high-collision intersections to achieve targeted collision reductions

9.2.3 Review Network Progress

On an on-going basis, the sidewalk and cycling network should be updated in the City's GIS dataset, and progress against the AT Plan should be reviewed annually. One way to summarize and present this data is to develop a mini performance monitoring report card and checklists associated with the AT Plan goals and objectives, and remarks on the progress being made towards those goals. Metrics to be documented can draw upon the Cycling Network Principles identified in this plan (refer to **Section 5.2.1**) and may include percentage of key community destinations served by the cycling network, percentage of schools served by the cycling network, spacing of core routes, etc. This reporting can be rolled up regularly into a public-facing document which summarizes the progress made against the network and other initiatives.

Action TP-6

Prepare an active transportation update on a recurring horizon to document progress on the network and to raise the profile of new infrastructure and initiatives



10 ACHIEVING THE PLAN

This section compiles the key recommendations of the study and summarizes the next steps needed to advance the Active Transportation Plan. Implementation of the Plan will be the responsibility of City of Thunder Bay Engineering.

For each action identified under the six themes presented in the plan, Exhibit 10.1 summarizes the following pieces of additional information:

- **Horizons –** Steps to execute the action are identified for three time frames – priority, proposed and long term (beyond 2038).
- **Financial implications –** identifies approximate capital costs. Costs are high-level and more detailed analysis should be considered before project initiation. Expansions to pedestrian and cycling infrastructure will incur annual operational maintenance costs on a go-forward basis.

Exhibit 10.1: Summary of Actions

Action	Description	Timing			Capital Costs
		Priority	Proposed	Long Term	
Fostering Walkable Environments					
FWE-1	Adopt the Pedestrian Priority and Trail Network, including Pedestrian Priority Corridors and Neighbourhood Greenways	Initiate	Review & Refine	Review & Refine	See details below
FWE-2	Systematically address sidewalk gaps along pedestrian priority corridors, transit routes and neighbourhood greenways	Initiate	Continue	Continue	Per existing sidewalk program $250,000 annually
FWE-3	Undertake intersection reviews of high pedestrian collision intersections to implement short-term actions and identify longer-term modifications	Initiate	Continue	Continue	TBD

Exhibit 10.1: Summary of Actions (continued)

Action	Description	Timing			Capital Costs
		Priority	Proposed	Long Term	
FWE-4	Explore the addition of formal pedestrian crossings along pedestrian priority corridors and neighbourhood greenways, with the intent to add one to two crossing locations annually	Continue	Continue	Continue	$50,000 - $250,000 annually
FWE-5	Investigate opportunities to bundle pedestrian-scale lighting with trail and Image Route sidewalk projects, and to bundle the delivery of benches, public art, street trees and other pedestrian amenities with road reconstruction projects	Investigate	Initiate	Continue	30% of capital construction
Connecting and Growing the Cycling Network					
CGC-1	Adopt the cycling network guiding principles, both for established and developing parts of the City	Initiate	Review & Refine	Review & Refine	See details below
CGC-2	Adopt and implement the Ultimate Cycling Network as the long-term vision for trail and cycling facilities across the City	Initiate	Review & Refine	Review & Refine	$57,998,000
CGC-3	Adopt and implement the north-south Express Route over the shorter term and pursue the longer term vision of the Ultimate Route as roads are reconstructed	Initiate & Complete (Express)	Continue (Ultimate)	Continue (Ultimate)	$2,700,000 (Express)

Exhibit 10.1: Summary of Actions (continued)

Action	Description	Timing			Capital Costs
		Priority	Proposed	Long Term	
CGC-4	Adopt and implement the Priority Cycling and Trail Network	Initiate & Complete	Maintain	Maintain	$14,083,000 (includes N-S Express Route)
CGC-5	Incorporate bike parking facilities into site plan application requirements	Initiate	Review & Refine	Review & Refine	Developer cost
CGC-6	Establish a network of bike repair, tire-pumping, and e-bike charging stations in high-use areas (in conjunction with private business) and expand the Bike Racks for Businesses program	Investigate	Initiate	Continue	Share cost with businesses
Engaging Children and Youth					
ECY-1	Provide municipal support to pilot school travel planning processes through collaborative effort with stakeholders	Continue	Review & Refine	Review & Refine	TBD
ECY-2	Bolster relationships between the City and post-secondary institutions to engage students and share resources and data	Continue	Continue	Continue	As per existing
Supporting Year-Round Travel					
SYR-1	Continue to refine maintenance practices over time to ensure coordination and accessibility	Review & Refine	Review & Refine	Review & Refine	TBD

Exhibit 10.1: Summary of Actions (continued)

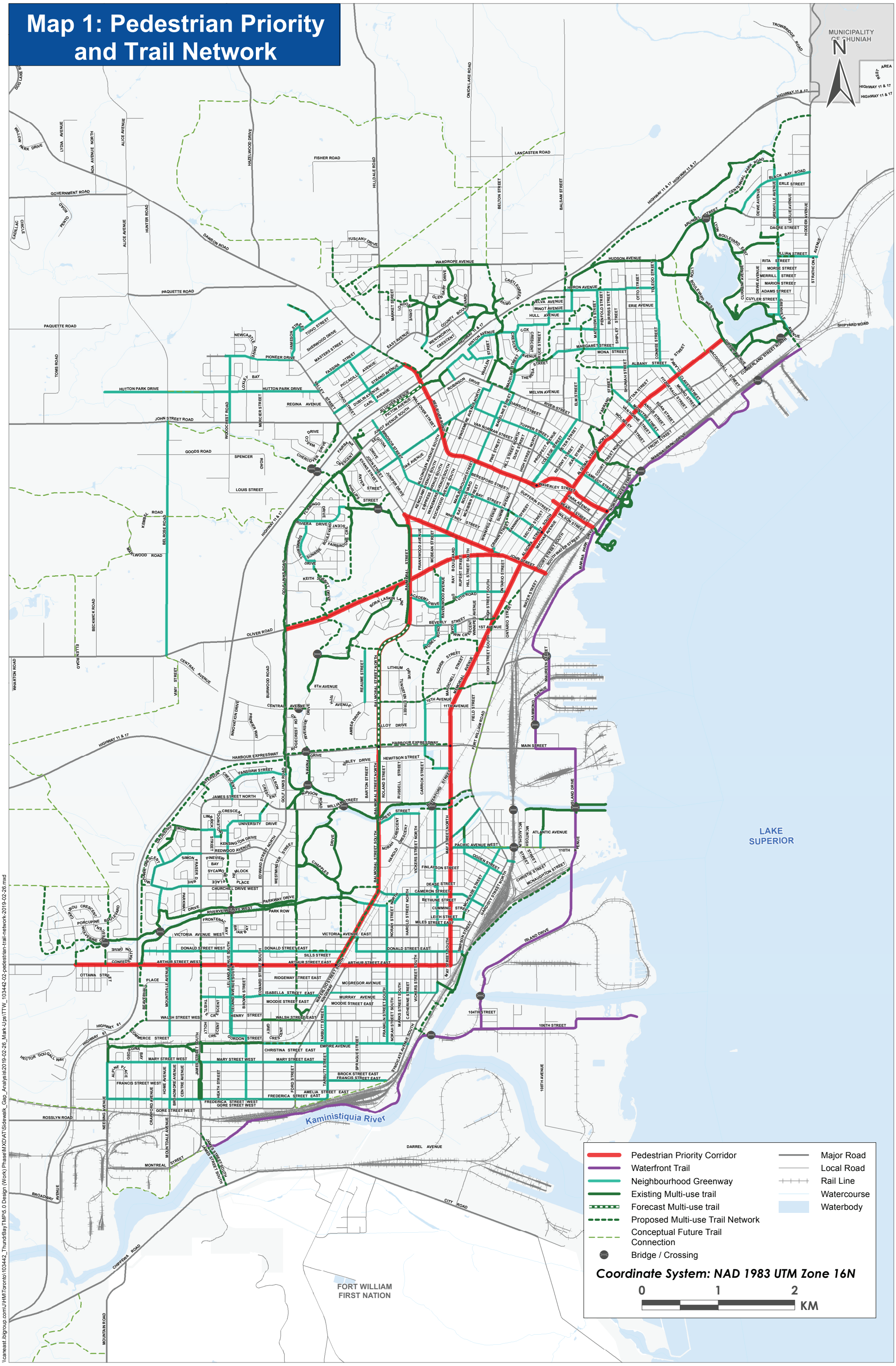
Action	Description	Timing			Capital Costs
		Priority	Proposed	Long Term	
SYR-2	Monitor ridership and interest in winter cycling network for potential future pilot program	Investigate	Investigate	Investigate	TBD
Building Community Capacity					
BCC-1	Raise awareness of active transportation through broad-reaching community events	Continue	Continue	Continue	$2,000 - $10,000 annually
BCC-2	Undertake a pilot of active transportation wayfinding signage, including destination signage	Initiate	Review & Refine	Review & Refine	$50,000
BCC-3	Undertake a bike share feasibility study	Initiate	TBD	TBD	$5,000- $25,000
BCC-4	Take on a City ambassador role to demonstrate leadership in active transportation initiatives	Initiate	Continue	Continue	$2,000-$5000 annually
BCC-5	Prioritize education and engagement programs to maximize benefit to the City and increase active mode share	Initiate	Continue	Continue	$120,000 annually
Tracking Progress					
TP-1	Initiate annual volunteer-run pedestrian and cycling counts using the National Pedestrian and Bicycle Documentation Project materials	Initiate	Continue	Continue	$1,000 annually
TP-2	Install pedestrian / cycling counters on key cycling facilities and multi-use trails	Initiate	Continue	Continue	$5,000- $10,000 annually

Exhibit 10.1: Summary of Actions (continued)

Action	Description	Timing			Capital Costs
		Priority	Proposed	Long Term	
TP-3	Investigate partnership and funding opportunities to conduct a recurring household travel survey in Thunder Bay to better understand long-term mode share changes	Investigate	Initiate	Continue	$25,000 biannually
TP-4	Undertake site safety reviews of key pedestrian and/or cycling facilities, including reviews of evasive action	Initiate	Continue	Continue	TBD
TP-5	Continue to partner with Thunder Bay District Health Unit and Lakehead University to analyze pedestrian and cycling collision data and direct investment to high-collision intersections to achieve targeted collision reductions	Continue	Continue	Continue	TBD
TP-6	Prepare an active transportation update on a recurring horizon to document progress on the network and to raise the profile of new infrastructure and initiatives	Initiate	Continue	Continue	As per existing

MAPS

Map 1: Pedestrian Priority and Trail Network



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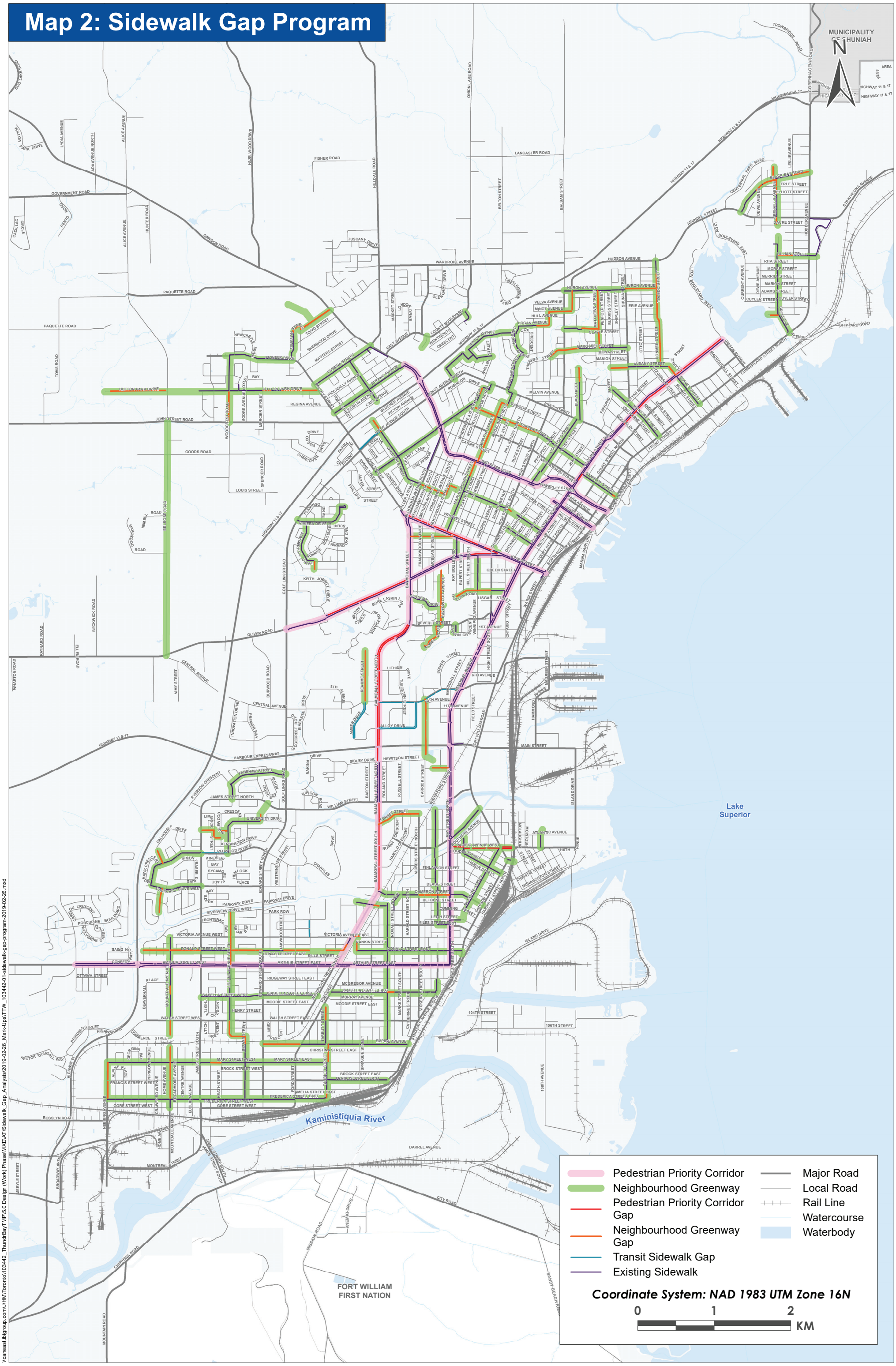
Map 2: Sidewalk Gap Program



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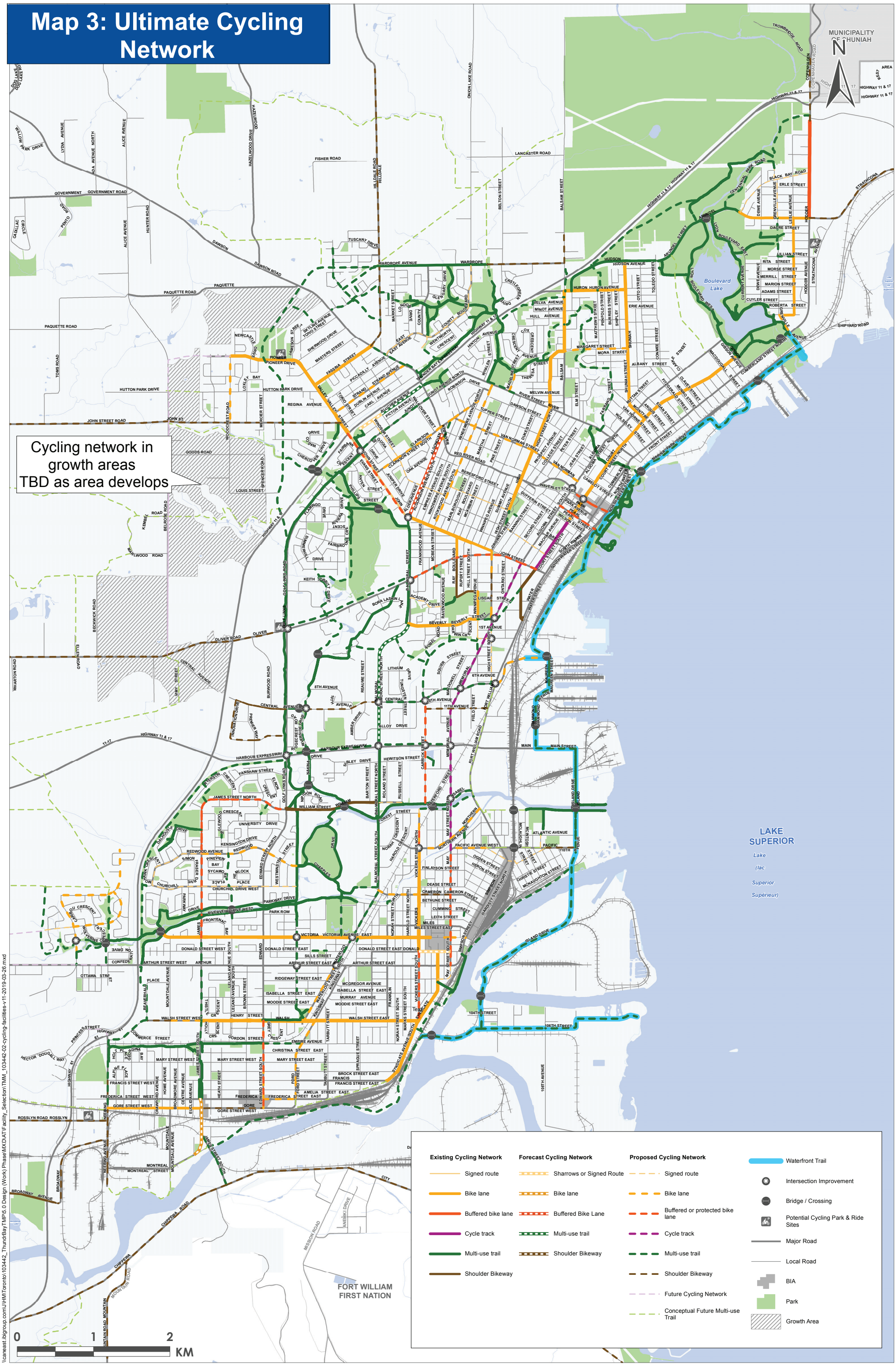
Map 3: Ultimate Cycling Network



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Map 4: Priority Cycling and Trail Network

Cycling network in growth areas TBD as area develops

Existing Cycling Network
- Existing On-Road Facility
- Existing Multi-use Trail

Forecast Cycling Network
- On-Road Facility
- Multi-use Trail

Proposed Cycling Network
- On-Road Facility
- Multi-use trail
- Intersection Improvement
- Multi-use Bridge

- Major Road
- Local Road
- Growth Area
- Park
- School

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