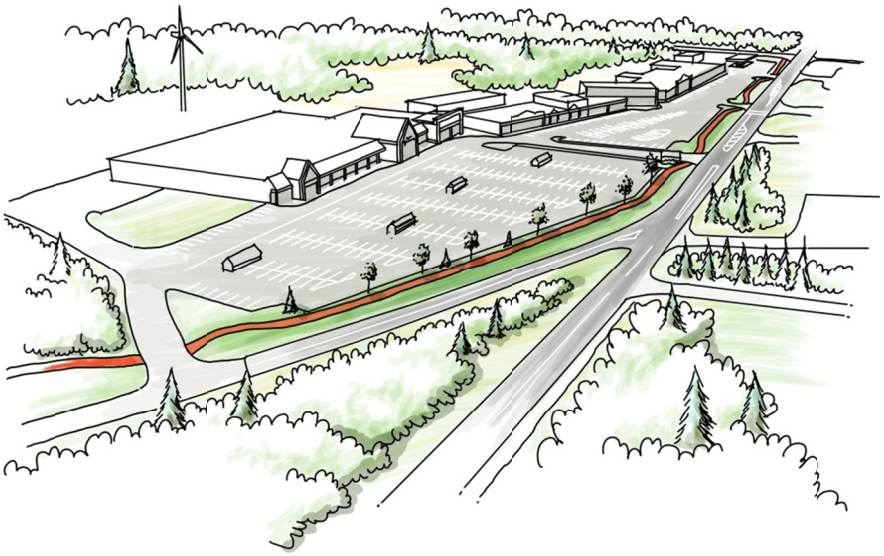

HALIFAX
REGIONAL MUNICIPALITY

FINAL REPORT

WSP

Active Transportation Plan

Porters Lake & Surrounding Communities

March 31, 2014

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1.0 Introduction

In recent years, Active Transportation (AT) has taken on an increasingly important role in improving the sustainability and functionality of transportation in Halifax Regional Municipality (HRM). The degree to which AT in HRM is safe, comfortable, and convenient will be an important determinant in the Municipality's ability to achieve the non-motorized mode split targets included in the *Municipal Planning Strategy (2006)*. Ongoing expansion and improvement of the AT network, combined with supporting programs that educate and inform the public about AT, will be critical in attracting and retaining AT users.

In recognition of the importance of AT in the growing communities within the Municipality, HRM has retained WSP Canada Inc. (formerly GENIVAR Inc.) to prepare an AT Plan for Porters Lake and the surrounding communities including the Chezzetcooks (East, Lower East, West, Head), East Lawrencetown, Three Fathom Harbour, Grand Desert, Seaforth, Conrod Settlement, and Gaetz Brook. Developed based on a thorough review of existing policies, infrastructure, public / stakeholder consultation, and assessment of available opportunities and best practices, the AT Plan provides a guiding document that will help facilitate AT investments and activities over the next several years.

1.1 What is Active Transportation?

Active Transportation (AT) is a general term that refers to any form of human powered transportation. Common examples of AT include walking, cycling, cross-country skiing, roller blading, and skateboarding.

AT is both a utilitarian and a recreational activity:

- **Utilitarian AT Trips:** AT trips that are completed with a purpose in mind not completely driven by pursuit of recreation or exercise. These are typically trips that would have been completed regardless of mode (i.e. commuting to/from work or school). These trips are often challenging to complete using AT in rural areas due to decreased population density, geography, and lack of dedicated AT infrastructure.

- **Recreational AT Trips:** Typically non-essential trips that are completed in pursuit of physical exercise, experience of the natural environment, or general enjoyment (i.e. bike ride / jog, nature walk). These trips can either begin and end at the same origin or include an intermediary step (drive to a trail or nature area). Given the physical environment in rural areas such as HRM's Eastern Shore, these trips can be very attractive to a wide range of people.

Planning for AT is not a new phenomenon – communities both large and small across the country are formally incorporating AT infrastructure and programs into their planning practices. AT planning processes are becoming an increasingly important step in establishing priorities and securing approvals and funding for the implementation of AT-related improvements.

To maximize the AT benefits realized, the planning process should consider a two-pronged approach: (i) infrastructure and (ii) education / promotion. A community can have excellent AT infrastructure, but the residents need to be educated on the proper use and benefits of this intrastructure. In most rural communities, social norms, such as using the car to go to the store, are entrenched. These can only be changed through education.

AT networks rely on the connectivity and quality of the infrastructure that makes up the network. Connectivity is gauged by the ease of access to the network. The accessibility of the network is determined by factors such as safety, aesthetics, and the location of key destinations. In many cases, accessibility of the network will differ for able-bodied people versus people with physical challenges.

1.2 Project Objective/Scope

The primary objective of this planning process is to develop an AT Plan that supports an increase in active transport options in Porters Lake and the surrounding communities. Specifically, this includes improving the functionality and connectivity of the AT network in the Study Area, as well as increasing awareness of AT issues in the community. The Plan should consider the needs of a wide range of users with varying levels of comfort and ability, and identify recommendations aimed at improving conditions that facilitate growth in AT-based trips.

> ***"We want more people to be active, cycling and walking – let's connect the community and develop its understanding of Active Transportation"***
> [SATA member: March 2013]

The scope of the project includes the following:

- Background research and review of existing conditions;
- Review of best practices and applicable standards;
- Consultation with project stakeholders and the general public;
- Develop recommended infrastructure upgrades;
- Recommend programs and initiatives aimed at increasing AT awareness; and
- Develop an implementation strategy for recommended improvements.

1.3 Guiding Principles

Active Transportation contributes to the goal of sustainability and health. The following guiding principles were applied in in preparing the AT Plan for the Study Area:

- Promoting healthy and active lifestyles for all ages and abilities;
- Promoting environmentally sustainable lifestyles by reducing our reliance on fossil fuels;
- Promoting connected active transportation opportunities to destinations within the communities on the Eastern Shore of Nova Scotia;
- Promoting environmental responsibility by protecting and enhancing green spaces/greenways in the community, and;
- Promoting economic sustainability through an attractive community that supports safety and social interaction.

1.4 Study Area

The Study Area (Illustrated in Figure 1-1), covering a total are of approximately 100 square kilometers, includes Porters Lake and the surrounding communities including the Chezzetcooks (East, Lower East, West, Head), East Lawrencetown, Three Fathom Harbour, Grand Desert, Seaforth, Conrod Settlement, and Gaetz Brook. Key regional destinations outside of the Study Area include nearby Musquodoboit Harbour and Lake Echo.

Porters Lake and the surrounding communities are relatively rural in the context of HRM, with a small population spread over a large geographic area. The area is expected to experience considerable growth in the coming years, however, as it has been designated as a 'Rural Growth District' under HRM's Regional Plan Five Year Review (RP+5).

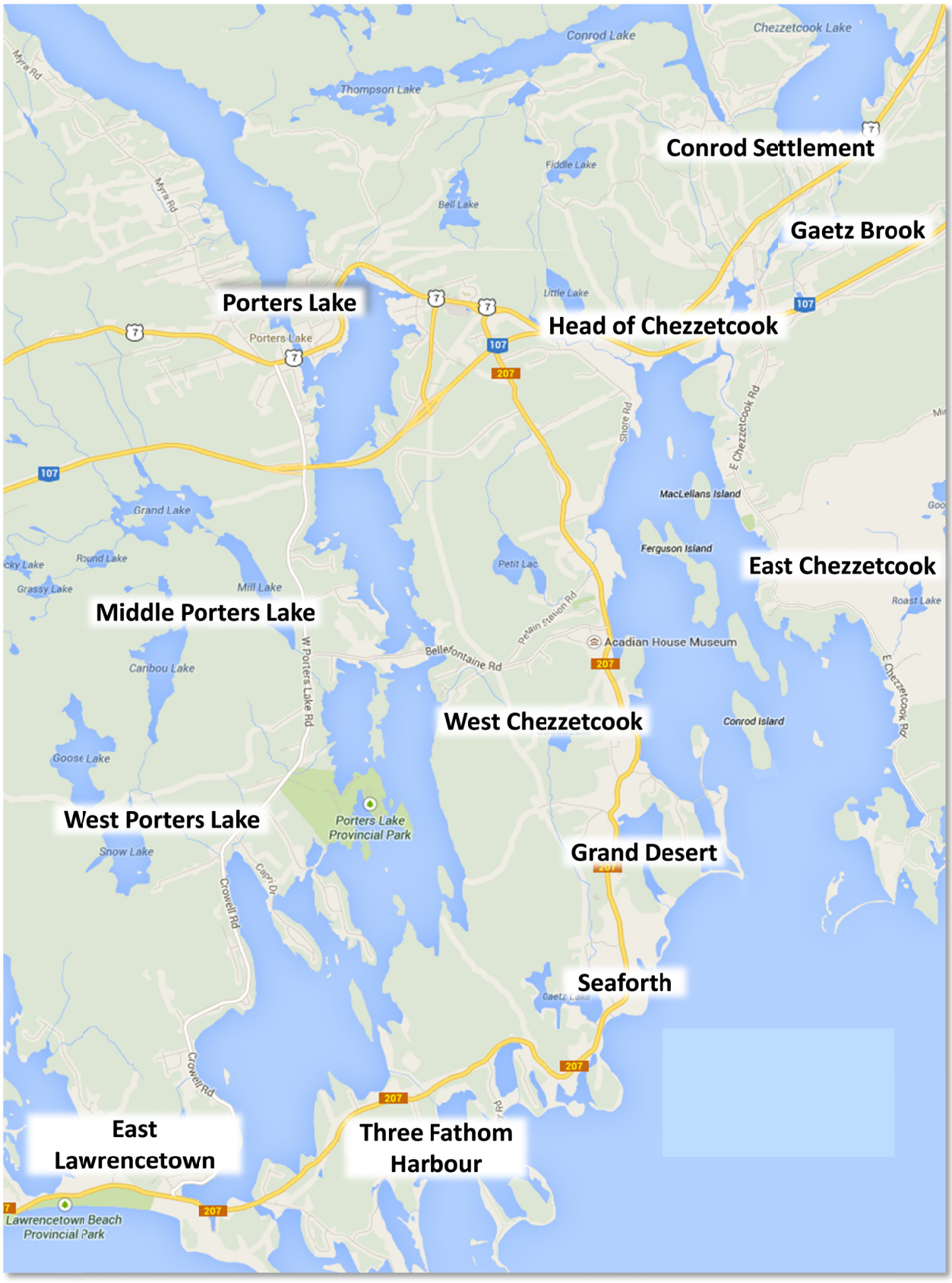
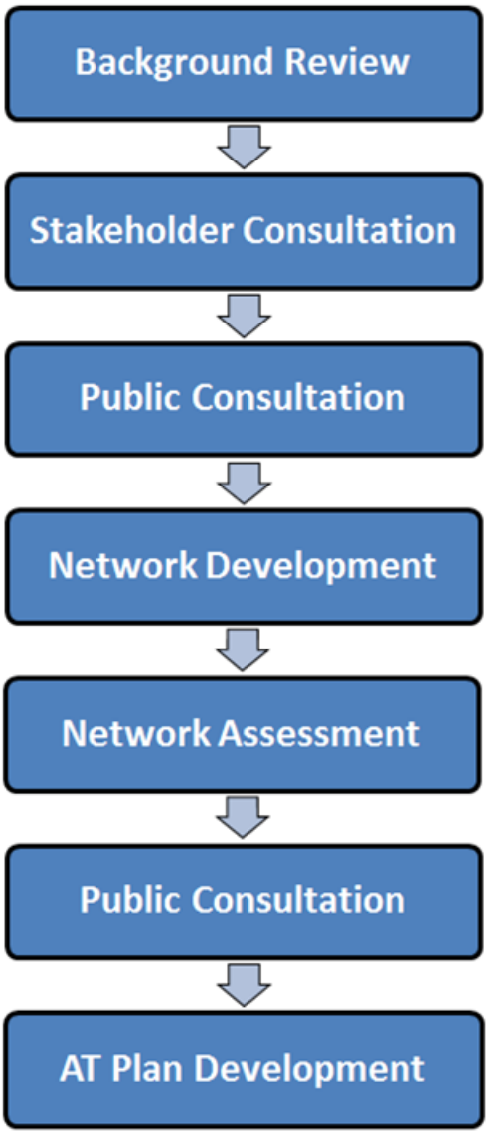


Figure 1-1: Study Area

1.5 Planning Process

The planning process that was applied to the development of the AT Plan placed a strong emphasis on the importance of consultation with project stakeholders and members of the community.



The process required extensive background research, including a review of existing infrastructure in the area, settlement patterns (past and planned), previously completed studies, land uses, and projects planned for the area in the coming years. Completed early in the project, the background review provided an important base of information that was essential in informing the subsequent project stages.

At various stages throughout the course of developing the Plan the Project Team met with the Project Steering Committee, which comprised representatives from HRM's Planning & Infrastructure Department and the Shore Active Transportation Association (SATA). SATA is a group of actively involved community members that was formed to aid the Project Steering Committee in preparation of the plan. In addition to providing a wealth of knowledge that was invaluable throughout development of the Plan, the Project Steering Committee was important to consider throughout the project, as they will ultimately be responsible for guiding the implementation of the recommendations of the Plan.

Consultation with project stakeholders and members of the public was a key component of the planning process. Meetings with key project stakeholders provided important information related to issues such as infrastructure planning, community programs, and funding opportunities. Meetings with the general public enabled the sharing of ideas, concerns, and priorities, and provided a forum for feedback that informed the recommendations of the Plan.

The AT Plan was developed with the goal of identifying appropriate solutions to address the specific needs, challenges, and opportunities identified throughout the planning process.

1.6 Integration with Region-wide AT Planning Efforts

HRM's *Active Transportation Functional Plan,* approved by Regional Council in 2006, provides an overall plan for AT in the HRM region. Although the Plan considers all areas in the Municipality from urban to suburban to rural, recommendations for rural areas are high-level and left for further refinement by each rural community based on size and proposed designation (Rural Commuter Centre, Rural Commuter District Centre, and Rural Commuter Local Centre). Designated as a Rural Commuter Centre, Porters Lake is one of the higher tier rural areas included in the Plan.

The *Active Transportation Plan: Porters Lake and Surrounding Communities* stems from the following recommendation for rural communities included in the region-wide AT Plan[1]:

> *[Completion of a] 'Healthy and Active Rural Communities Program' for all of the designated rural communities under the Regional MPS to refine the recommendations in the AT Plan. This refinement could follow a community economic development approach where each community engages a broad cross-section of residents (youth to seniors) to arrive at their own plan based upon the vision, goals and objectives, network objectives, route selection principles and facility descriptions contained in the AT Plan…..The intended outputs are:*
>
> 1. *An on-road or multi-use trail walking zone (+/- 550 m) from residential areas to schools.*
> 2. *An on-road or multi-use trail walking zone from the dominant residential area(s) to recreation facilities (including the regional trail system – if applicable).*
> 3. *The desirability for rural highway shoulder upgrades (a 2.0 metre paved shoulder on each side is recommended) within the community and to adjoining rural communities or other important destination areas.*

1.6.1 Regional Plan Five Year Review: Rural District Growth Centre

HRM's *Regional Plan Five Year Review (RP+5)* is the first scheduled formal review of the *Municipal Planning Strategy (2006).* As part of Draft Four of RP+5 (January 2014), Porters Lake has been identified as a "Rural District Growth Centre", a designation that includes the following proposed characteristics, many of which are complementary with the objectives of this plan to improve AT infrastructure and to enhance the core area:

Table 1-1: Future Characteristics for Rural District Growth Centre[2]

Land Uses and Design	Services	Transit, AT and Parking	Culture / Open Space
• Low to medium density residential, commercial, institutional and recreation uses. • Town scale • Redevelopment of retail plazas in traditional blocks with street-walls encouraged • Pedestrian supportive facades	• Individual on-site services • Consideration of central wastewater collection and water distribution for Porters Lake	• Park and ride with trail linkages, express bus service to Regional Centre • Enhanced pedestrian linkages • Shared surface parking for park and ride and commercial uses, with as much parking as possible to the rear or sides, linked by walkways to facades • Access to active transportation routes • Short block connectivity for pedestrians	• Private and public realm streetscaping featuring landscaped pocket parks and tree-lined streets • Focus on waterfront access, parks and trails and AT corridors • Riparian canopy cover to be maintained and improved • Landscaped and treed parking facilities • Interconnected private and public open space linked by greenbelting to include riparian, wildlife, cultural, recreational corridors • Preserve cultural landscapes and built heritage • Provisions for food security

[1] *Municipal Planning Strategy* (Halifax Regional Municipality, 2006), pp.4-18.
[2] *Municipal Planning Strategy – Draft Report 4* (Halifax Regional Municipality, 2014), Table 3-2 pp. 47.

1.6.2 Active Transportation Plan Review

As part of the RP+5 process, HRM is in the process of completing a five year review of the *Active Transportation Functional Plan* (2006). The stated objectives of the five year review include the following[3]:

- *Assess the success of the Active Transportation Plan to date in meeting its goals and objectives;*
- *Engage and educate HRM residents and stakeholder organizations regarding Active Transportation and their priorities for future actions; and,*
- *Develop a practical, costed, work plan to guide the next five years of Active Transportation Plan implementation.*

AT Facility Definitions

The HRM Active Transportation Functional Plan Review has identified several types of AT facility types for use in the region. Since AT facility names can often be ambiguous, the AT Plan review public consultation has proposed the following definitions for clarity[4]:

- Sidewalks: *A space typically alongside a roadway improved for use by pedestrians. Sidewalks in HRM are typically made of concrete, at least 1.5m wide, and separated from the roadway by a concrete curb and/ or grassed boulevard.*
- AT Greenways: *3-4m wide multi-use trails which accommodate the broadest range of AT users (e.g. walkers, cyclists, joggers, inline skaters, skateboarders, etc.). They are 'green' ways because they are usually in natural corridors and they support 'green' (environmentally friendly) transportation.*
- Bicycle Lanes: *1.5m lanes designated on the roadway for bicycles with a white painted line and associated regulatory signage.*
- Local Street Bikeways: *Quiet local streets designated for priority travel by bicycles. Traffic calming or traffic diversion measures may be used to reduce the speed and/ or volume of motor vehicles. Directional signage is provided, as well as assistance to bicyclists when crossing major streets.*
- Cycle Track: *Bicycle lanes which are physically separated from motor vehicle traffic by a barrier.*
- Shared Lane Markings ("Sharrows"): *Road markings used to indicate a shared lane environment for bicycles and automobiles. Sharrows reinforce the legitimacy of bicycle traffic on the street and recommend proper bicyclist positioning.*
- Signed Bike Route: *Green 'Bike Route' Signs are installed, but no other changes to the roadway are made. The route may have wide lanes or simply be one that is popular with existing cyclists.*

1.7 Active Transportation Planning in Rural Areas

1.7.1 Challenges

The Study Area, like many rural areas in Nova Scotia, faces challenges in terms of active transportation and its priority relative to other modes of transport. Infrastructure in the area has been developed primarily to accommodate motor vehicle travel, without consideration of AT modes. Covering a relatively sparsely populated, vast geographic area, challenges associated

[3] *Active Transportation: Let's Make Connections* (www.halifax.ca/activetransportation/documents/panel1-overview
[4] *Active Transportation: Let's Make Connections* http://www.halifax.ca/activetransportation/documents/Panel2-KeyInfrastructureDefinitions

with the advancement of AT in Porters Lake and the surrounding communities are similar to those experienced in a typical rural setting:

- Small, dispersed population: Although there is a concentration of development in the core area, the population of Porters Lake and the surrounding communities is relatively low, and the area encompasses a very large geographic area. As a result, travel distances between origins and destinations tend to be relatively long.

- Comfort and Safety: Existing road infrastructure in the Study Area is not conducive to AT trips, as exposure to high traffic speeds and lack of dedicated space for pedestrians and cyclists reduces comfort and perceived safety.

- Infrastructure Upgrade Costs: A significant amount of infrastructure is required to connect communities in the area. Due to the high cost of infrastructure upgrades and limited amount of available funding, it will not likely be feasible to develop ideal AT facilities everywhere. For this reason, prioritization is important in delivering solutions that best serve the community.

- Limited AT Awareness: Interaction with the public throughout the planning process indicated that a considerable portion of the population is not familiar with or is intimidated by the term 'active transportation', which can often times disengage some members of the public. This was not unexpected, and in fact was the impetus for persistent marketing of the planning process through presence of members of the planning team at public events and in community gathering places. It is important to consider how the message can be disseminated to the public without becoming lost in terminology.

- All-Terrain Vehicles and Trails: The use of off-highway vehicles (OHVs) such as all-terrain vehicles (ATVs) is a popular recreational activity in many rural areas of Nova Scotia, and ATVs can often be found traversing the trail network in the Province. Many consider the presence of motorized vehicles to be a hindrance to non-motorized recreation on trail facilities. However, ATV groups enjoy having access to trails and are often very passionate about maintaining it for OHV users. Whether or not trails permit access to ATVs has proven to be a very contentious issue in many communities in Nova Scotia.

1.7.2 Opportunities

Despite the challenges for AT inherent to rural areas, there are also important opportunities that should be considered:

- Natural Beauty: HRM's eastern shore is graced with picturesque natural surroundings that rival any that the region has to offer. This natural advantage provides incentive for residents (and tourists alike) to get out and enjoy the beautiful setting, and AT provides an excellent mechanism to do this.

- Changing Attitudes: Active transportation is becoming an increasingly important priority in areas throughout Nova Scotia and Canada overall as sustainability issues come to the forefront. This trend is not limited to urban areas - attitudes toward AT issues in rural areas are shifting as people realize the tangible benefits that are possible. As attitudes change, there exists considerable opportunity to increase the presence of AT as a viable transportation mode.

- Community: Rural communities often benefit from a strong sense of community, which is beneficial in many ways. In a tight knit community, messages and information can often be spread with relative ease, which can contribute to greater community buy-in for initiatives such as active transportation. With a strong local AT advocate group such as the Shore Active Transportation Association, the relatively small population may work in favour of the success of the plan.

2.0 Existing Conditions in the Study Area

2.1 Population and Demographics

The Study Area falls within HRM District 2 (Preston – Chezzetcook – Eastern Shore), which has a population (2011 Census) of 25,831. Porters Lake and its surrounding communities are located near the western edge of District 2 (See Figure 2-1), which is among the geographically largest and least densely populated districts in HRM. The Study Area itself is among the most densely populated within District 2, with an approximate population[5] of 7,860.

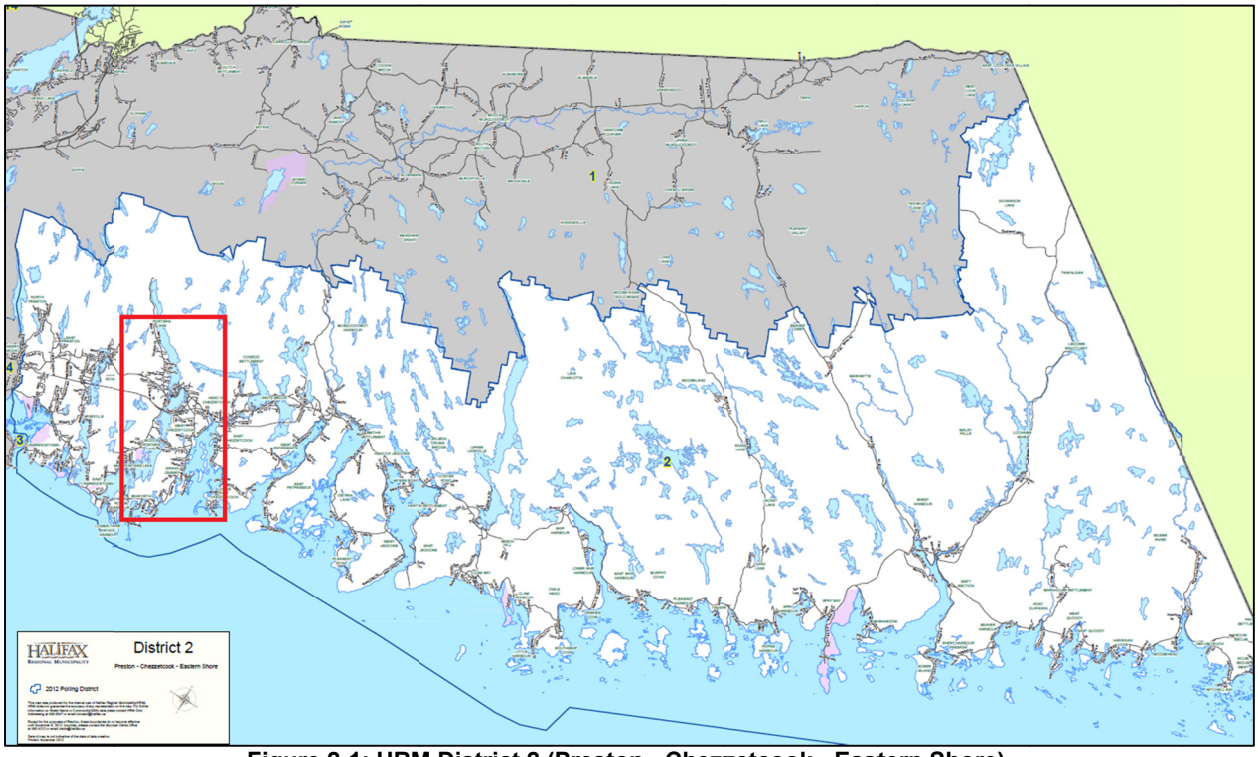


Figure 2-1: HRM District 2 (Preston - Chezzetcook - Eastern Shore)

The Porters Lake area is undergoing an exciting period of growth. Under HRM's 5-year Regional Plan Review (RP+5) the area has been designated as a "Rural Growth District" (Figure 2-2). Recently approved residential developments in the area are expected to add in excess of 600 residential units over the next 10-20 years, which should translate to a significant growth in population. The recent expansion of transit service to Porters Lake and initiation of this active transportation planning process reaffirm the commitment that HRM has made to the area as a growth centre.

[5] Study Area population approximated by Tetrad Sitewise Pro using 2011 Census Tract Data

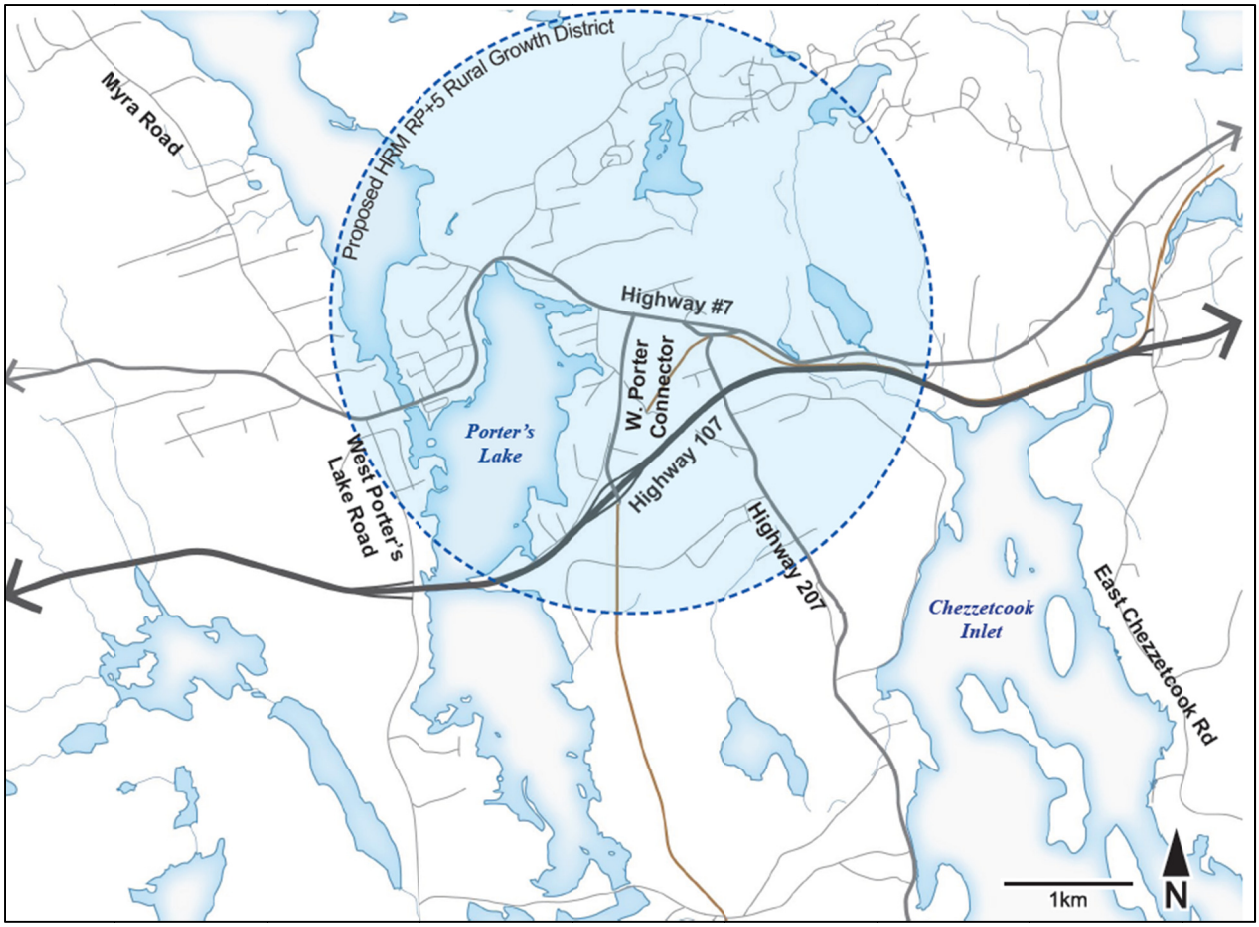


Figure 2-2: Proposed HRM RP+5 Rural Growth District

2.1.1 Travel Behavior

The majority of working residents of Porters Lake and the surrounding communities commute to employment in Dartmouth and Halifax. Figure 2-3, which summarizes the mode of transportation for trips to work for the Porters Lake area, indicates that the vast majority (approximately 94%) of Porters Lake residents travel to work in a personal vehicle (car/truck/van) either as a driver or a passenger. Mode share for transit and walking / cycling trips was approximately 2% and 3%, respectively, which is well below the mode shares for the HRM region as a whole. These figures are not surprising given the length of commuter trips and that transit service was not available at the time of the 2006 Census.

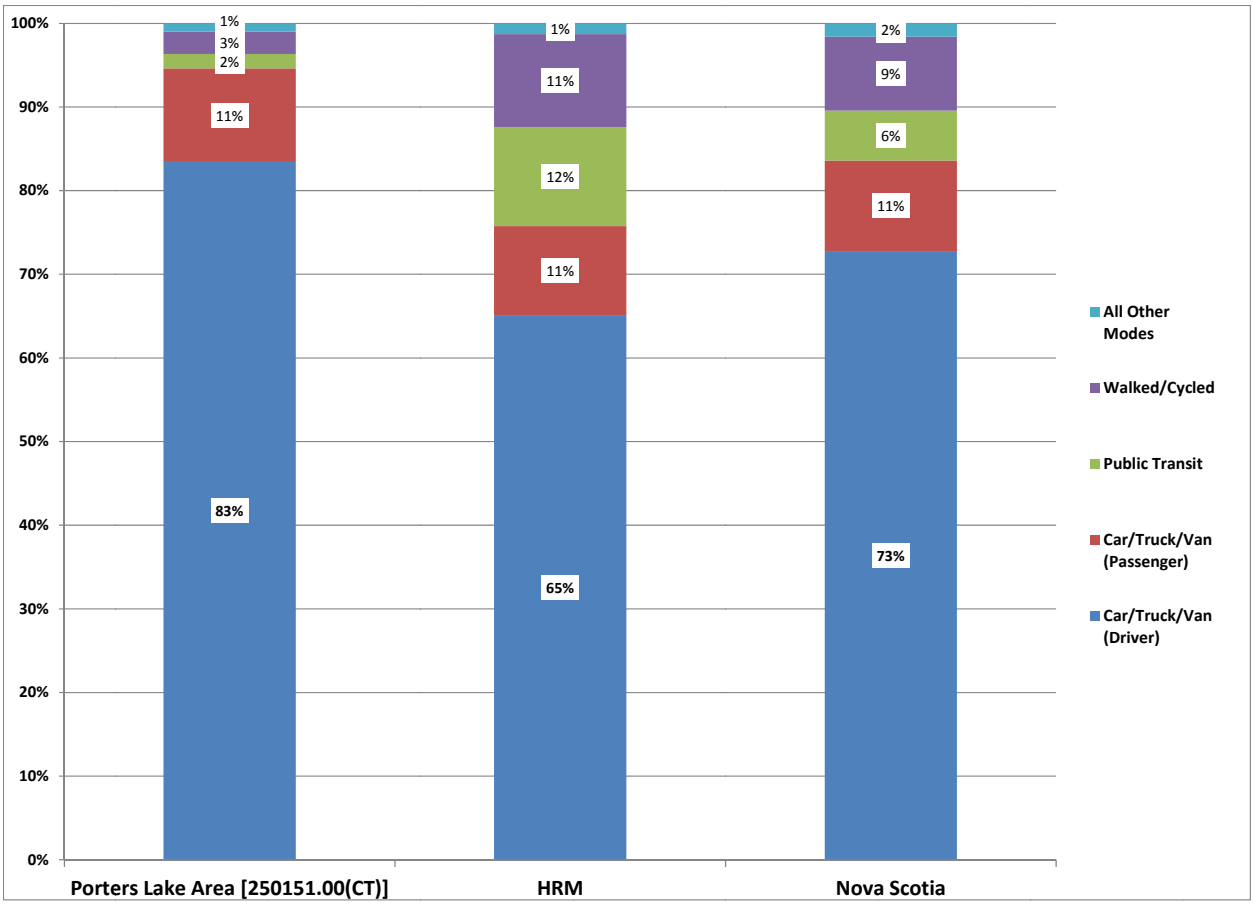


Figure 2-3: Mode of Transportation to Work – Porters Lake Area (Census Tract 250151.00)
Statistics Canada, 2006 Census

2.2 Existing Transportation Infrastructure

2.2.1 Road Network

The road network in the Study Area comprises approximately 60km of freeway, arterial, and collector roads (not including local roads), all of which are the responsibility of Nova Scotia Transportation & Infrastructure Renewal. Key information on Study Area roads is summarized in Table 2-1, and illustrated in Figure 2-4 (daily traffic volume) and Figure 2-5 (posted speed limit).

Table 2-1: Key Road Infrastructure in the Study Area

Route	Classification	Owner	Speed Limit (km/h)	# Lanes	Length (km)
Highway 107	Freeway	NSTIR	100	2	8.8
Trunk 7	Arterial	NSTIR	50-80	2	9.9
West Porters Lake Road	Collector	NSTIR	60-70	2	6.6
Crowell Road	Collector	NSTIR	60-70	2	5.4
Myra Road	Collector	NSTIR	50	2	9.7
William Porter Connector	Arterial	NSTIR	80	2	1.4
Highway 207	Collector	NSTIR	80	2	9.8
Bellefontaine Road	Collector	NSTIR	70	2	4

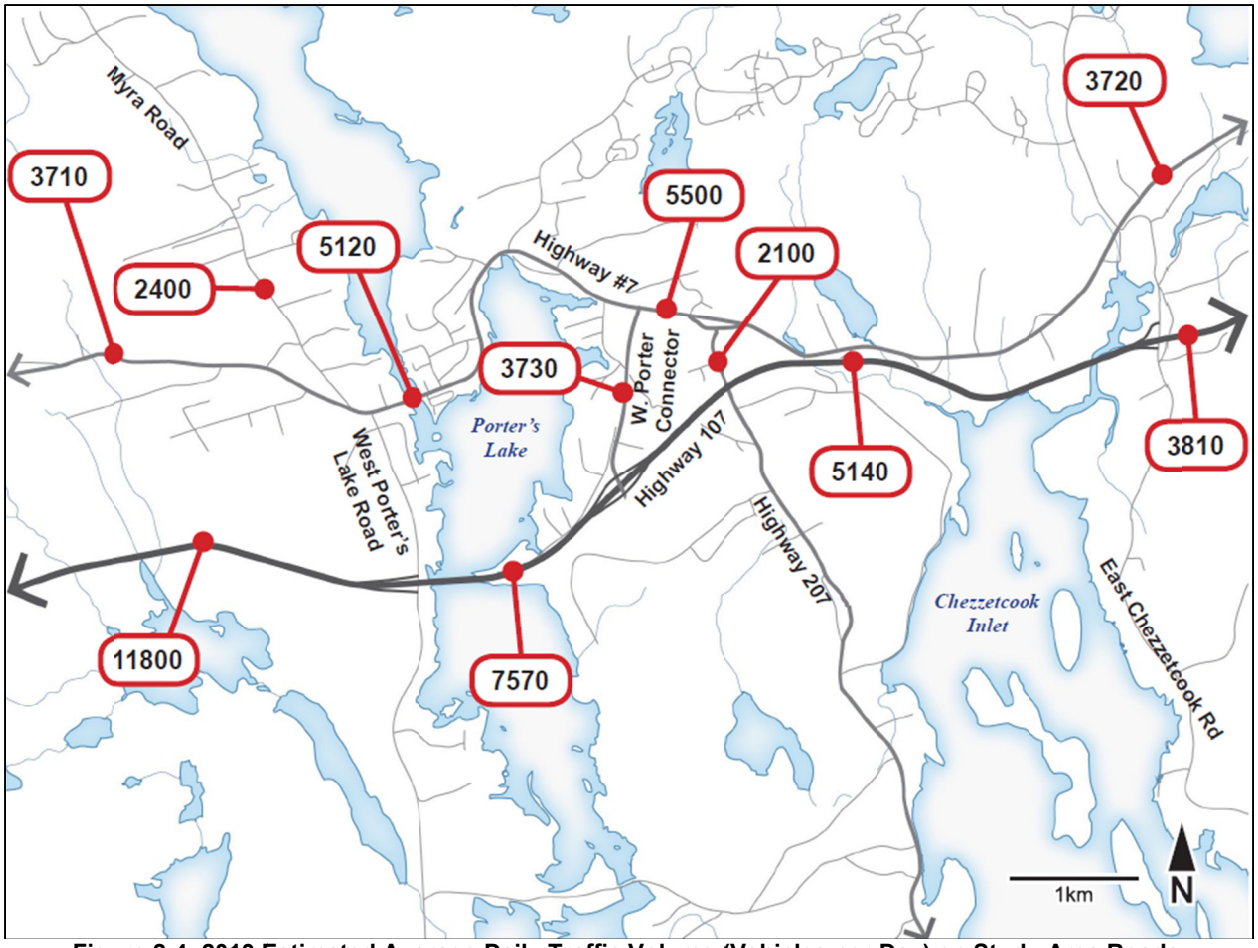


Figure 2-4: 2013 Estimated Average Daily Traffic Volume (Vehicles per Day) on Study Area Roads
[Source: Nova Scotia Transportation & Infrastructure Renewal]

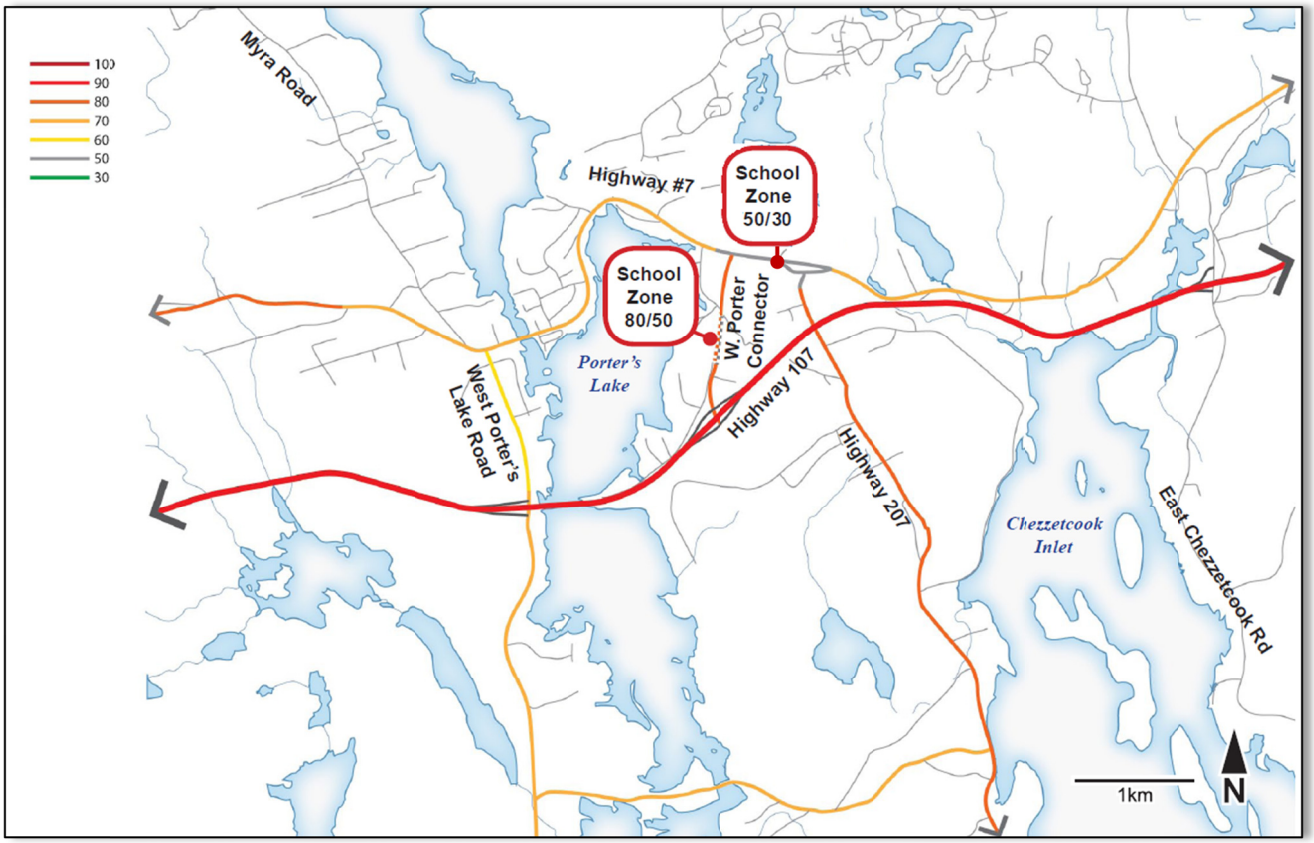


Figure 2-5: Posted Speed Limit (km/h) on Study Area Roads

2.2.2 Trails and Paths

Existing trails and paths in the Study Area include the former CN rail corridor as well as other recreational areas at parks and wilderness areas.

Rails-to-Trails Facilities

Responsibility for the administration and use of former CN rail corridors in the Province is shared between the Department of Natural Resources (DNR) and Department of Health & Wellness (DHW). Rails-to-trails facilities are developed through an agreement between DNR (administrator and provider of land base) and a local trail proponent, and support and funding for the development of trails as recreational facilities can be provided by DHW (in addition to other funding sources). HRM provides funding for rails-to-trails facilities through its Regional Trails Program. Policy framework is in place that dictates the recreational uses permitted on rails-to-trails facilities, which is typically determined through consultation with the local community.

Within the Study Area, the former rail corridor comprises three sections (illustrated in Figure 2-6):

- Atlantic View Greenway: An AT greenway approximately 10km in length that runs along the coast between the Cole Harbour Salt Marsh Trail in East Lawrencetown and Causeway Road in Three Fathom Harbour. The Atlantic View Greenway is maintained by the Atlantic View Trail Association, a volunteer trail group with assistance from HRM.

- Blueberry Run (Shared-Use Motorized Trail): The Blueberry Run is a section of the former CN rail corridor that runs approximately 10km between Causeway Road (Three Fathom Harbour) and Stella Drive in Porters Lake. The trail can be shared by a variety of users including pedestrians, cyclists, horseback riders, and off-highway vehicles. However, due to the relatively poor condition of the trail, it is not an ideal facility for AT uses such as walking and cycling. Breaks in connectivity at the Highway 107 (William Porter Connector) interchange also limit the utility of the trail for AT use. The Blueberry Run is maintained by the Marine Riders ATV Club, which holds the Letter of Authority (LOA) for its management.

- Proposed Chezzetcook Musquodoboit AT Facility: The Chezzetcook Musquodoboit Trail is a proposed AT greenway on the existing approximately 10km section of former rail bed running between East Chezzetcook Road and Musquodoboit Harbour. In its existing condition, the trail is in poor condition, with inadequate drainage, considerable surface wear / rutting, and bridge structures that are in disrepair. The Chezzetcook Musquodoboit Trail Association (CMTA), a community proponent group that was established in an attempt to formalize the link as an AT facility, coordinated preliminary investigations including *Trail Concept Plan* (Ekistics, 2007) and has solicited funding from various sources. However, despite interest from the community and initial funding for the project, CMTA has not successfully obtained the LOA for the corridor due to their intent to build a dedicated AT facility, while the province preferred shared use (the Province requires shared use unless community consultation indicates that prohibition of any uses is desired). As a result, progress on development of the trail has not been realized.

Other Trails and Paths

- Myra Road Wilderness Area: A network of approximately 18km of wilderness trails (Crowbar Lake Hiking Trail) located near the north end of Myra Road, approximately 9km north of Trunk 7.
- Informal Trails and Paths: There are numerous informal trails and paths located throughout the Study Area that are used for AT purposes.

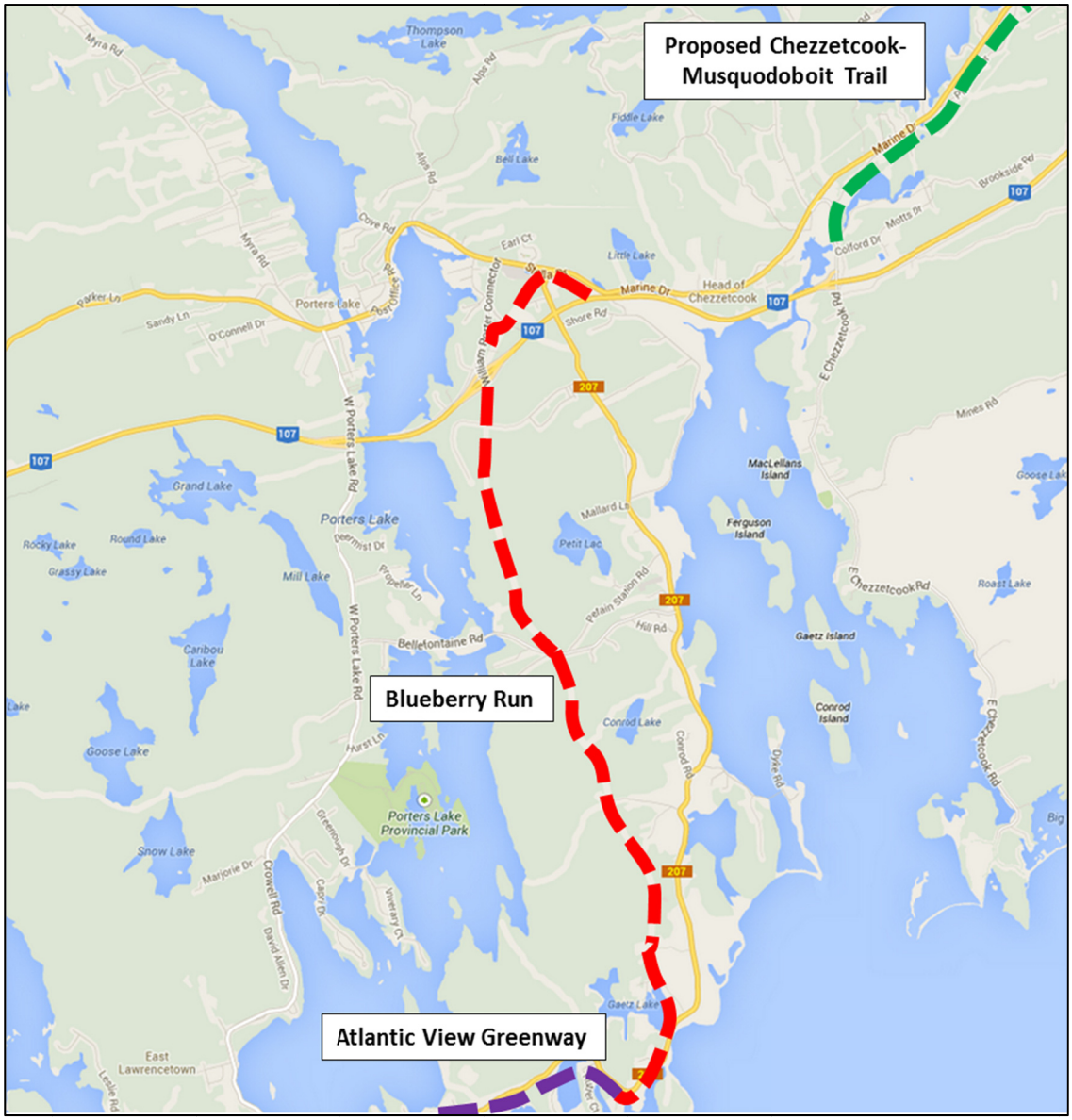


Figure 2-6: Former CN Rail Corridor Sections Including Existing and Proposed Trail Designations

2.3 Key Study Area Destinations

The majority of key destinations in the Study Area are concentrated in Porters Lake between Trunk 7 and Highway 107. Figure 2-7 illustrates key Study Area destinations that were identified through consultation efforts.

Many of the most popular destinations in the Study Area are clustered between Trunk 7 and Highway 107 in the vicinity of the William Porter Connector. This area includes a major commercial area (Porters Lake Shopping Centre), schools (École des Beaux-Marais, Porters Lake Elementary), the Lake & Shore Community Recreation Centre, and the recently opened (November 2013) MetroX park & ride transit terminal.

The community of Musquodoboit Harbour, located approximately 16km east of Porters Lake, is an important regional destination that includes a high school, medical centre, library, arena, and a variety of retail establishments.

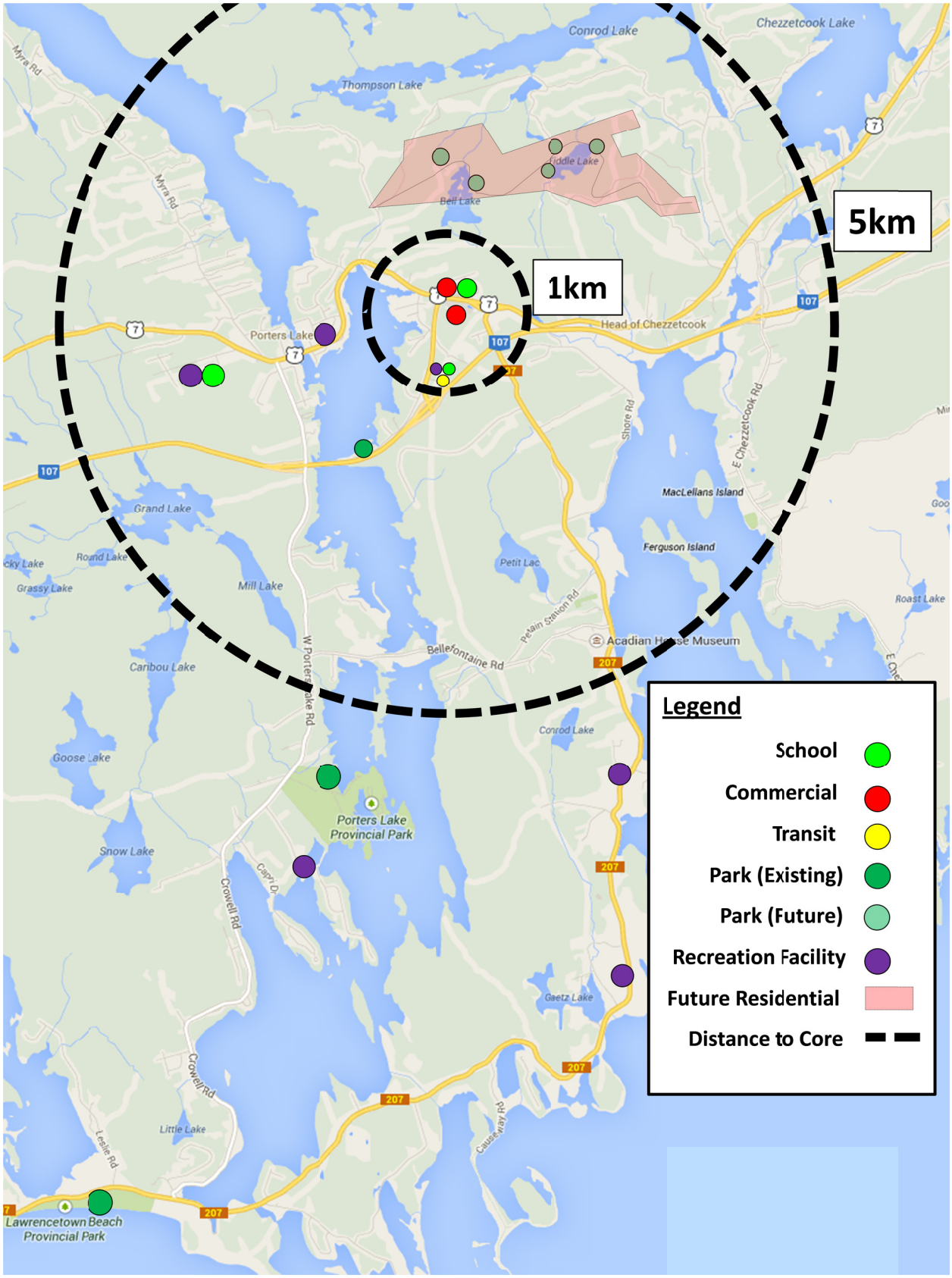


Figure 2-7: Key Study Area Destinations

2.4 Active Transportation Barriers

There are many aspects of the transportation network in the Study Area that act as barriers to AT. Barriers represent physical elements that can be intimidating or unsafe to AT users. Although some hardy pedestrians and cyclists may not be completely inhibited by these barriers, they offer considerable resistance to AT for much of the population. In order to attract and retain a wide range of AT users, mitigation options should be considered.

2.4.1 Existing Road Infrastructure

Existing road infrastructure in the Study Area is not ideal for walking and cycling. The combination of traffic volumes, high vehicle speeds, and lack of dedicated space for AT (sidewalks, paved shoulders) results in an uncomfortable and potentially unsafe environment that can deter many users.

Figure 2-8: Cyclist traveling westbound on Trunk 7 (posted speed limit = 70km/h)

2.4.2 Trail Conditions

The relatively poor condition of the former rail bed limits its effectiveness as an attractive and accessible AT facility. Due to poor drainage and a lack of adequate maintenance, the existing crusher dust surface is prone to issues including washouts, rutting, and low compaction. This results in a surface that is not conducive to AT, particularly for activities such as cycling and walking with a stroller. Active transportation benefits most from a hard, flat travel surface.

Figure 2-9: Blueberry Run existing conditions. Poor compaction (left) and ponding (right)

2.4.3 Poor Trail Connectivity

In addition to the poor conditions for walking and cycling on the existing rail bed trails, there are significant gaps in connectivity that limit their usefulness. The Blueberry Run has a major gap at the Highway 107 (William Porter Connector) interchange, and ends abruptly near Stella Drive. East of Stella Drive, an even larger gap in the former rail bed exists, spanning approximately 3.4km to the proposed Chezzetcook-Musquodoboit Trail at East Chezzetcook Road. These gaps in the continuity of the facility are a barrier to travel by AT modes both within the region (internally) and through the region (externally), as pedestrians and cyclists are forced to re-integrate with traffic.

Figure 2-10: Blueberry Run discontinuity at William Porter Connector interchange

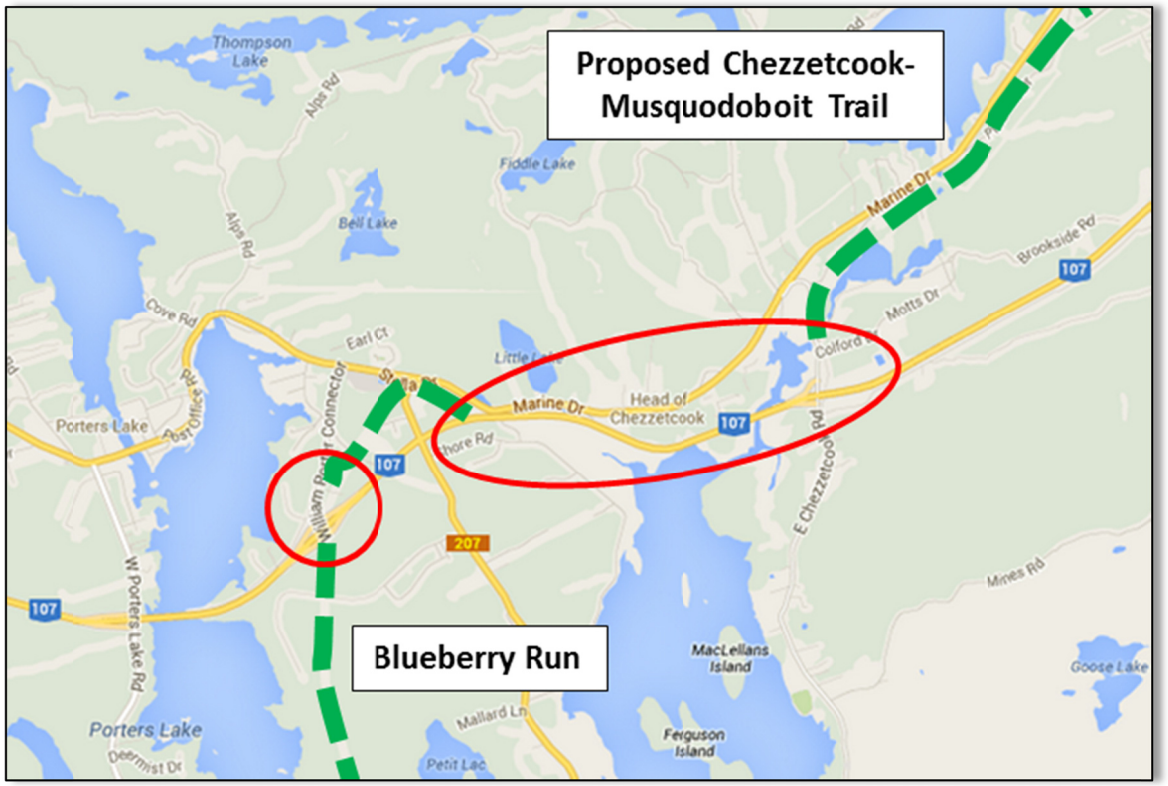


Figure 2-11: Gaps in Trail Connectivity

2.4.4 Key Pinch Points

There are several key 'pinch points' in the transportation network that present challenges for AT.

Stella Drive Intersections

Stella Drive is a short section of road that parallels Trunk 7 for approximately 500m at the north end of Route 207. The existing configuration includes non-standard intersections with tight angles and limited sight distance at Trunk 7, Route 207, and the Blueberry Run. Limited visibility can make these intersections challenging for pedestrians and cyclists.

Figure 2-12: Stella Drive Intersections

Narrow Crossings

Trunk 7 has two watercourse crossings in the Study Area including: (i) bridge 300m east of West Porters Lake Road and (ii) causeway at Alps Road (see Figure 2-13). Due to limited width at these crossing locations, pedestrians and cyclists are constrained and can be forced to enter the vehicle lanes.

There are also two tunnels in the Study Area that cross major road corridors including William Porter Connector and Highway 107. The tunnel under the William Porter Connector provides a key link connecting Porters Lake Station Road to the Blueberry Run Trail.

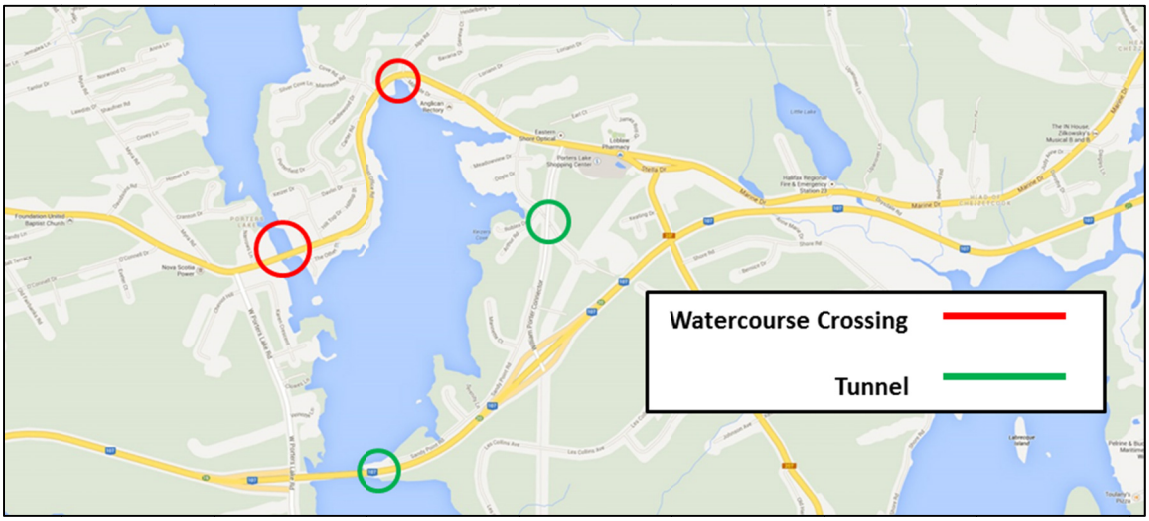


Figure 2-13: Trunk 7 Watercourse Crossings

Figure 2-14: Trunk 7 Bridge Crossing (Left) and Porters Lake Station Road Tunnel (Right)

3.0 Stakeholder Consultation

Consultation with project stakeholders and members of the public was a key component of the planning process. Completed early and often throughout the project, stakeholder consultation was critical to the process of establishing the specific needs, challenges and opportunities of the community and identifying appropriate solutions for addressing them as part of the Plan.

3.1 Government Stakeholders

Given that responsibility for infrastructure in the Study Area is split between levels of government (Municipal/Provincial) and further between different departments within each level of government, it was important that each be consulted directly. The following government departments were consulted at various stages during the project to determine constraints and opportunities related infrastructure development and funding programs.

Province of Nova Scotia (Provincial Government):
Nova Scotia Transportation & Infrastructure Renewal (NSTIR)
Nova Scotia Health & Wellness (DHW)
Nova Scotia Department of Natural Resources (DNR)
Local MLAs: Kevin Murphy and Keith Colwell

Halifax Regional Municipality (Municipal Government):
HRM Planning & Infrastructure
HRM Regional Council (Councillor David Hendsbee)

3.2 Key Community Stakeholders

Key community stakeholders included representatives for a wide variety of local groups and organizations in the Study Area including local schools, businesses, and recreational groups / associations. A consultation meeting, held with key community stakeholders on September 23, 2013, provided an opportunity to introduce the project to the community leaders and solicit early feedback. Community leaders were encouraged to disseminate information related to the project to their respective groups to increase interest and participation.

3.3 Public Consultation

Multiple public consultation methods were employed to spread awareness of the project and to solicit feedback from members of the community.

- Public Awareness: During the early stages of the project, members of the project team interacted with the public at information display tables in public places (Porters Lake Shopping Centre) and at important community events (i.e Lake & Shore Days) to inform the public of the project in an attempt to increase interest and participation in the planning process.
- 'Shape Your City' Online Portal: In conjunction with HRM Staff, an online portal was established that included a 20-question survey and discussion forums related to the project.
- Public Meetings: Two public consultation meetings were held in the community during the planning process.
    1) The first public meeting, held on September 20, 2013 introduced the project to members of the community and summarized the inventory of existing conditions and preliminary work that had been done to date, which included discussion of several options identified in the review of best practices that could potentially be considered in the Study Area. Attendees were encouraged to provide feedback

related to their use (or lack of) AT, and what could be done to improve AT for the area.

2) At the second public meeting, held on October 28, 2013, the results of the public consultation efforts were summarized and preliminary major recommendations were presented. The recommendations were presented in preliminary form in order to provide the community with further opportunity to influence their inclusion in the final plan.

3.3.1 Public Consultation Results

The following sections summarize the findings of the public consultation efforts.

Active Transportation Priorities

After being presented with an overview of potential AT improvements and issues in the Study Area, attendees at the first public consultation meeting were asked to review and prioritize their top five. The findings of this exercise are illustrated in Figure 3-1 and summarized below:

- Paved Roadway Shoulders: There was relatively strong agreement among participants that paved shoulders are an improvement that is desired and that would improve comfort and safety for pedestrians and cyclists.
- Trail Connectivity: The lack of connectivity of trails in the area was a concern for many participants.
- Trail Access: There was a notable debate between residents' desire to either maintain or prohibit access to motorized vehicles on existing sections of the trail. Horseback riders were another group that strongly voiced their desire to maintain access to the corridor.
- Crosswalks: Many residents were concerned about safety issues related to the crossing of major routes including William Porter Connector (in the vicinity of the Lake & Shore Recreation Centre) and Trunk 7 (adjacent to Porters Lake Shopping Centre), and strongly desire the installation of marked crosswalk(s).
- Traffic Speeds: Many participants were highly vocal of the opinion that the existing posted speed limits on the William Porter Connector and Trunk 7 should be lowered.
- Awareness: The lack of awareness of existing AT options was a concern for many with potential interest in AT pursuits.

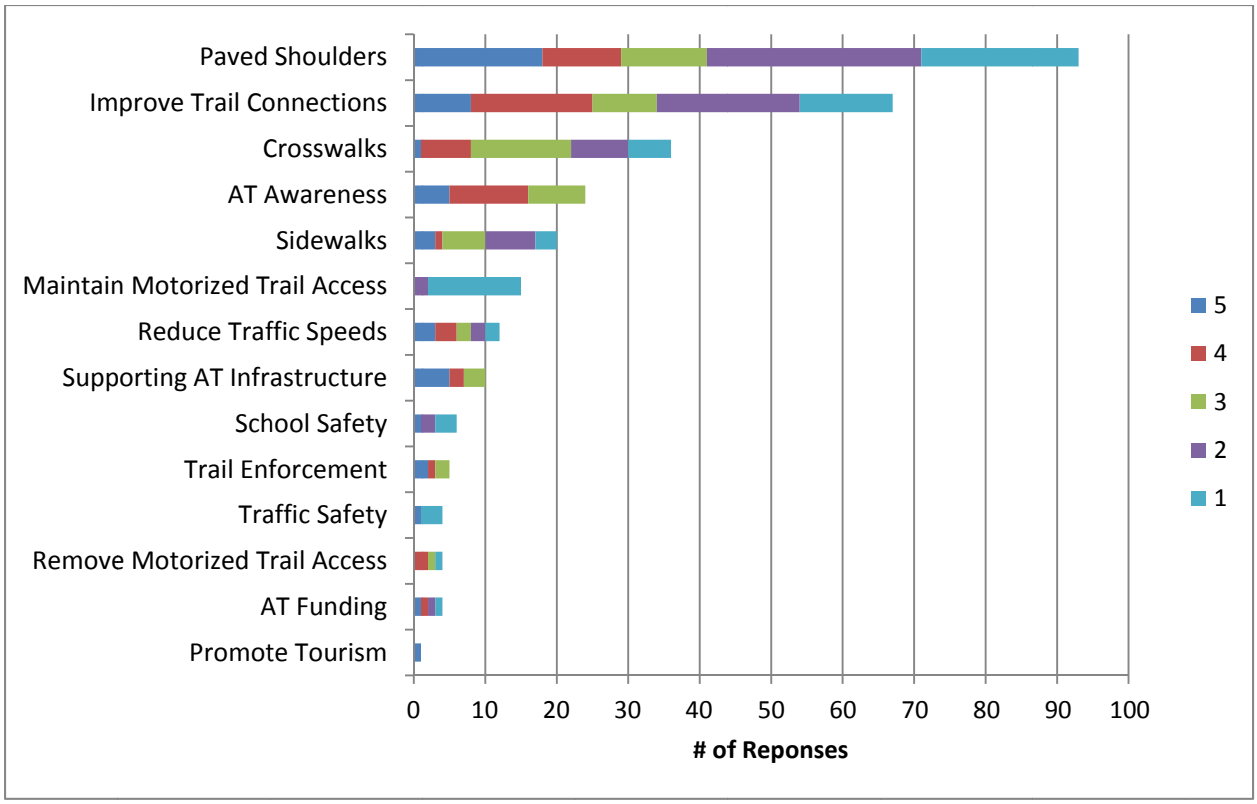


Figure 3-1: Ranked Priorities for Active Transportation Improvements

Online Survey Results

The 20-question online survey was completed by a total of 54 people. Detailed survey results are included in Appendix A. Highlights of the survey are listed below:

- There was a strong interest in improving AT in the community and region [96% (50)];
- Respondents enjoy walking [94% (50)] and cycling [75% (38)], but are concerned there are not enough safe facilities for walking [66% (6)] or cycling [50% (6)];
- Respondents primarily walk and cycle for recreation and fitness [78% (37)];
- A total of 74% (40) of respondents expressed speeding cars and unsafe driving on the roads as a "concern to major concern". Concern for personal safety mirrored these numbers. Safer road conditions were recognized by 53% (28) as the "single change" that could help the region be better for cycling and walking;
- A total of 84% (45) of respondents expressed "concern to major concern" regarding the lack of places to walk and cycle in the area;
- Incentives to walk and cycle receiving the strongest support includes; paved shoulders/sidewalks, maps and signage, improved street crossings, upgrade off-road routes for cycling and walking and a nicer more walkable village centre;
- Other incentives include, calm streets with less traffic, dedicated bike lanes, views and scenery and off-road trails;
- A walking/cycling network should consider: Increased connections, signage to destinations, improved pavement conditions/sidewalks, and more off-road trails;
- Transit is used by 32% of respondents (16) with 80% (40) having strong interest in the new MetroX service.

4.0 Recommendations

Based on a review of existing infrastructure in the Study Area, results of public/stakeholder consultation, and review of best practices, recommendations have been developed that are intended to improve AT in the area. The following sections outline the recommendations of the Plan, which range from infrastructure improvements to public education and awareness programs.

4.1 Active Transportation Network

The recommended AT network envisioned as part of this plan (illustrated in Figure 4-1) includes a combination of on-road (paved shoulders, shared routes) and off-road (AT greenway) facilities. Implementation of the network, which represents the ultimate build-out, is expected to begin immediately and continue over the next 10-20 years as funding and retrofit opportunities become available. The components of the AT network are described in greater detail in the subsequent sections of this chapter.

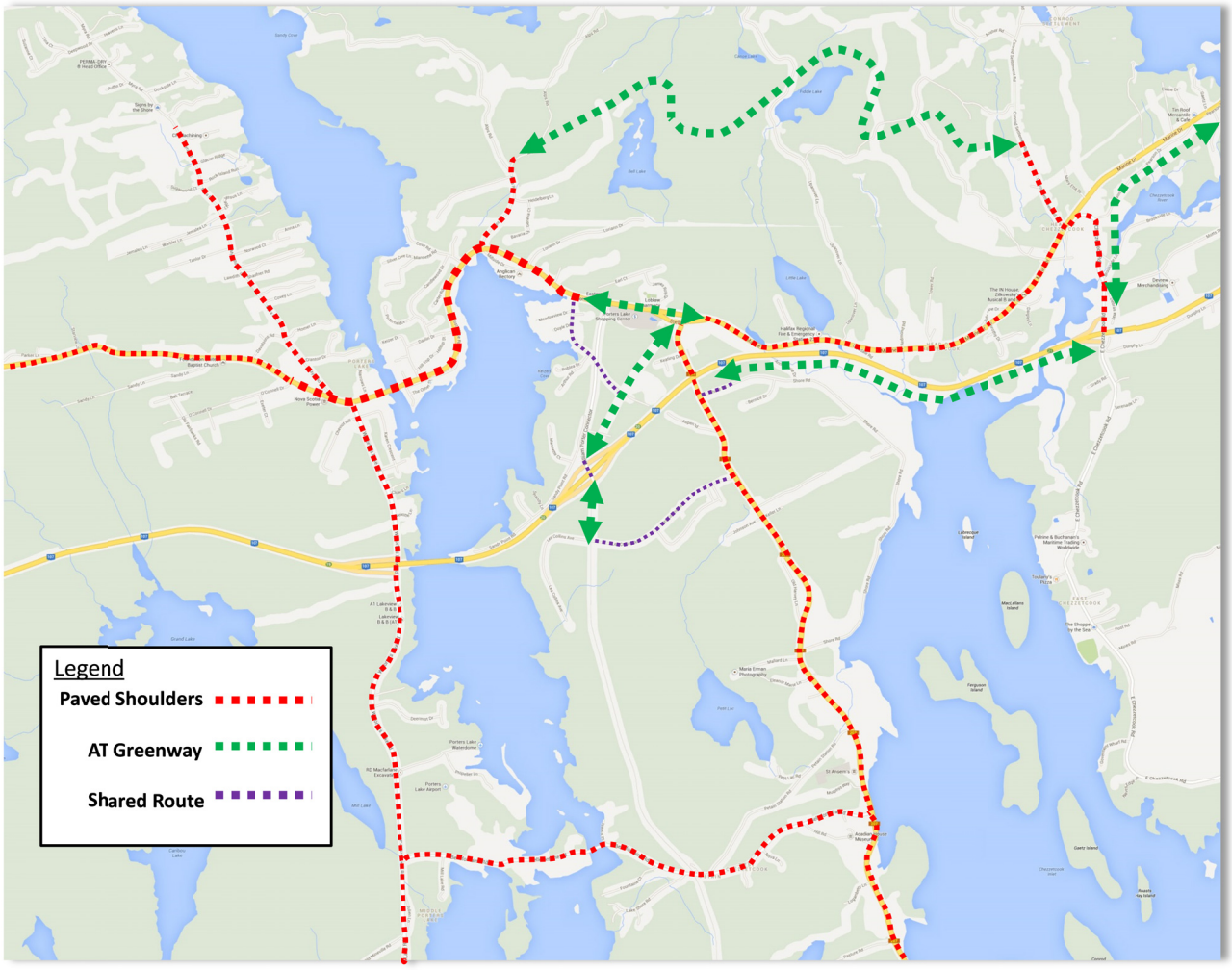


Figure 4-1: Recommended Active Transportation Network

4.1.1 Improvements to the Porters Lake Core Area

➢ *DEVELOP A GREENWAY LINK IN THE CORE (RECOMMENDATION 1)*

The "core" area of Porters Lake, located between Trunk 7 and Highway 107 at the William Porter Connector interchange, is concentrated with several amenities that are accessed by the community on a regular basis. The opening of the Porters Lake Elementary School / Lake & Shore Community Centre and recent opening of the MetroX transit terminal have increased the importance of the area as a key destination, building on the established commercial presence that exists on Trunk 7.

The elementary school / community centre and transit terminal are located approximately 1km south of the existing core area on Trunk 7. Existing AT connections between the areas are less than ideal – travel by foot or bicycle must be completed on the shoulder of the high-speed William Porter Connector, or on the former rail bed, which is in poor condition and not well suited to the most accessible range of AT uses.

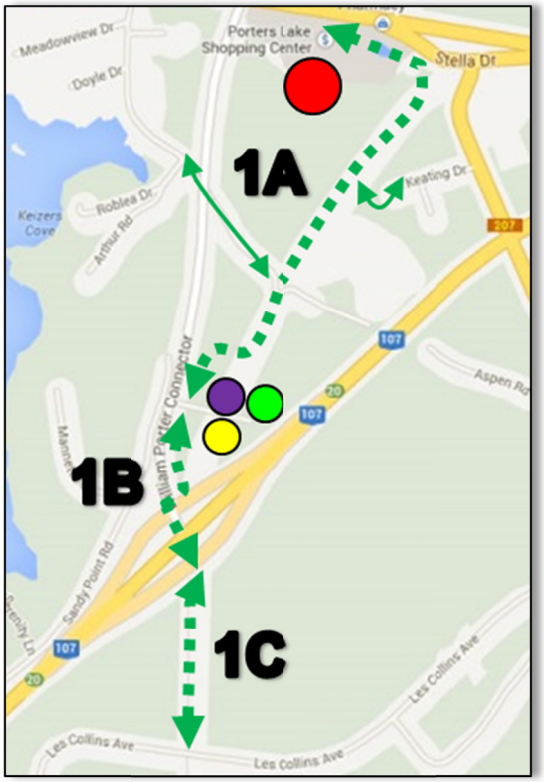
Figure 4-2: Concept rendering of AT greenway on existing section of the Blueberry Run Trail

The ongoing concentration of key destinations in the area clearly indicates the need for an improved AT connection. It is recommended that an AT greenway is developed between the Porters Lake Elementary School / Lake & Shore Recreation Centre and Stella Drive, with key connections made at Keating Drive and the commercial properties on the south side of Trunk 7. Extension of the greenway south from the MetroX terminal to Les Collins Avenue (approximately 1km) should also be pursued in conjunction with expected AT upgrades to the

William Porter Connector overpass. The former rail corridor provides an exceptional opportunity for an off-street AT facility - the existing rail bed should be upgraded to an AT greenway.

This core greenway facility, located in the heart of the Study Area, would aim to accommodate the widest range of abilities and ages. Given the concentration of land uses, importance of the area within the community, and the desire to appeal to a wide range of users, it is recommended that the greenway is developed to a high AT standard including a paved asphalt surface. The high standard greenway will provide a facility that is convenient and comfortable for users ranging from pedestrians with strollers to senior citizens with walking aids to cyclists with trailers.

In order to develop a high quality paved greenway connection, HRM will need to work with the Department of Natural Resources, the land owner. They have issued the letter of authority (LOA) for most of this section to the Marine Riders ATV Club. Consultation with the community has indicated that this section of the rail bed is not well used by ATV riders, and it is noted that legal access for ATVs is not available across Highway 107 at the William Porter interchange. Given low current ATV usage of the former rail bed, it is proposed that this section be developed as a higher-order Active Transportation Greenway.



Due to the immediate benefit associated with this project, it is expected that it will be a strong candidate for funding in the short-term. As a greenway with excellent community connections and a component of the Trans Canada Trail, it could be eligible for funding consideration by HRM's AT Plan Implementation and Regional Trails Program budgets as well as the Trans Canada Trail Foundation. It may also be eligible for support from the Province (discussed in greater detail in Section 5.3).

Recommendation #1: Develop a Greenway Link in the Core	
1A	Develop an AT greenway link on the former rail bed between Inspiration Drive and Stella Drive (incl. connections to Keating Dr. and Shopping Centre).
1B	Develop an AT greenway link between Inspiration Drive and the William Porter Connector Highway 107 overpass (incl. add sidewalk to overpass).
1C	Develop an AT greenway link on the former rail bed between the William Porter Connector Highway 107 overpass and Les Collins Avenue.

➢ *TRUNK 7 CORE AREA IMPROVEMENTS (RECOMMENDATION 2)*

The core area of Porters Lake on Trunk 7 between the William Porter Connector and Stella Drive includes a diverse range of commercial land uses, and is flanked by residential areas and public facilities (schools, community centre, sports fields, transit) on either side. The area has a high concentration of development that is relatively dense, particularly in the rural context of the overall Study Area. The nature of the services available in the core area makes it a frequent destination for a considerable segment of the local population. It is also quite likely that synergies exist between land uses in the area – for instance, a trip to the grocery store may be followed by a stop at the bank or the coffee shop.

Despite the relatively dense nature of the core that lends itself well to AT uses, at present there is minimal infrastructure to support increased walking and cycling. Although there are storefront sidewalks internal to the Porters Lake Shopping Centre, there is no dedicated AT infrastructure on or across Trunk 7 in the area to accommodate trips between land uses. The lack of a formal crosswalk was a common sentiment among community members and local stakeholders.

Within the core area, there are multiple intersections that have been identified by community members and local stakeholders as less than ideal from the perspective of safety. Of particular concern are the intersections of Trunk 7 with Stella Drive and James Roy Drive, as well as the intersection of Stella Drive and the Blueberry Run trail.

The following are recommended for improvements to the Porters Lake core area:

- Complete upgrades to Trunk 7 in the core area of Porters Lake between the William Porter Connector and Stella Drive. Specifically, upgrades should include the addition of an AT greenway along south side of Trunk 7, combined with the addition of a paved shoulder on the north side of the street. It may be possible to develop the multi-use path within the grassy area abutting the parking lot of the Porters Lake Shopping Centre. However, where there is insufficient width, widening on the north side of Trunk 7 may be necessary. Integrated in an overall streetscaping scheme and access management review, these improvements will provide a safe and effective way for people to move within the core, either as a destination or as a thoroughfare.

- Consideration should be given to the installation of a marked and signed crosswalk to accommodate traffic crossing Trunk 7 in the core area. NSTIR has indicated that warrants for crosswalk installation are not currently met, however, with the anticipated population growth in the area and recommended upgrades, crossing demand may increase to the level required. Ongoing monitoring of pedestrian crossing and periodic crosswalk warrants should be considered.

- Improvements to the intersections of Trunk 7 with Stella Drive and James Roy Drive should be completed. Discussions with NSTIR have indicated that these intersections have been identified as a priority in the area, and that planning is underway to develop improvements that will be beneficial both in terms of functionality and safety. Any proposed intersection reconfiguration should consider the accommodation of AT uses.

- Periodic monitoring of the speed limit on Trunk 7 between O'Connell Drive and William Porter Connector, and consideration for a reduction in speed limit – possibly from the existing 70km/h to 60km/h. This section of Trunk 7 can be particularly intimidating to pedestrians and cyclists, and as the population grows over the coming years its

character will likely become less of a dedicated thoroughfare and more of a village centre "Main Street".

In order to complete these upgrades to the core area, it will be necessary for HRM and NSTIR to work together in consultation with affected property owners. Since the installation of dedicated pedestrian facilities on provincially owned roads is not included in NSTIR's mandate, upgrades will likely be at the expense of HRM. However, any access management and intersection upgrades deemed necessary would fall within provincial responsibility. Due to the potential scale of the project, it may be advantageous to roll all improvements into an overall project (i.e. Porters Lake Core Area Revitalization) and seek funding from multiple sources including all levels of government.

Recommendation #2: Trunk 7 Core Area Improvements	
2A	Develop an AT greenway link on the south side of Trunk 7 between the William Porter Connector and Stella Drive.[4]
2B	Add a paved shoulder to the north side of Trunk 7 between William Porter Connector and Stella Drive.
2C	Consider installation of a marked and signed crosswalk to accommodate traffic crossing Trunk 7 in the core area.
2D	Intersection improvements on Trunk 7 at James Roy Drive and Stella Drive.
2E	Monitor and consider reducing the the posted speed limit when warranted on Trunk 7 between O'Connell Drive and William Porter Connector, possibly from 70km/h to 60km/h.

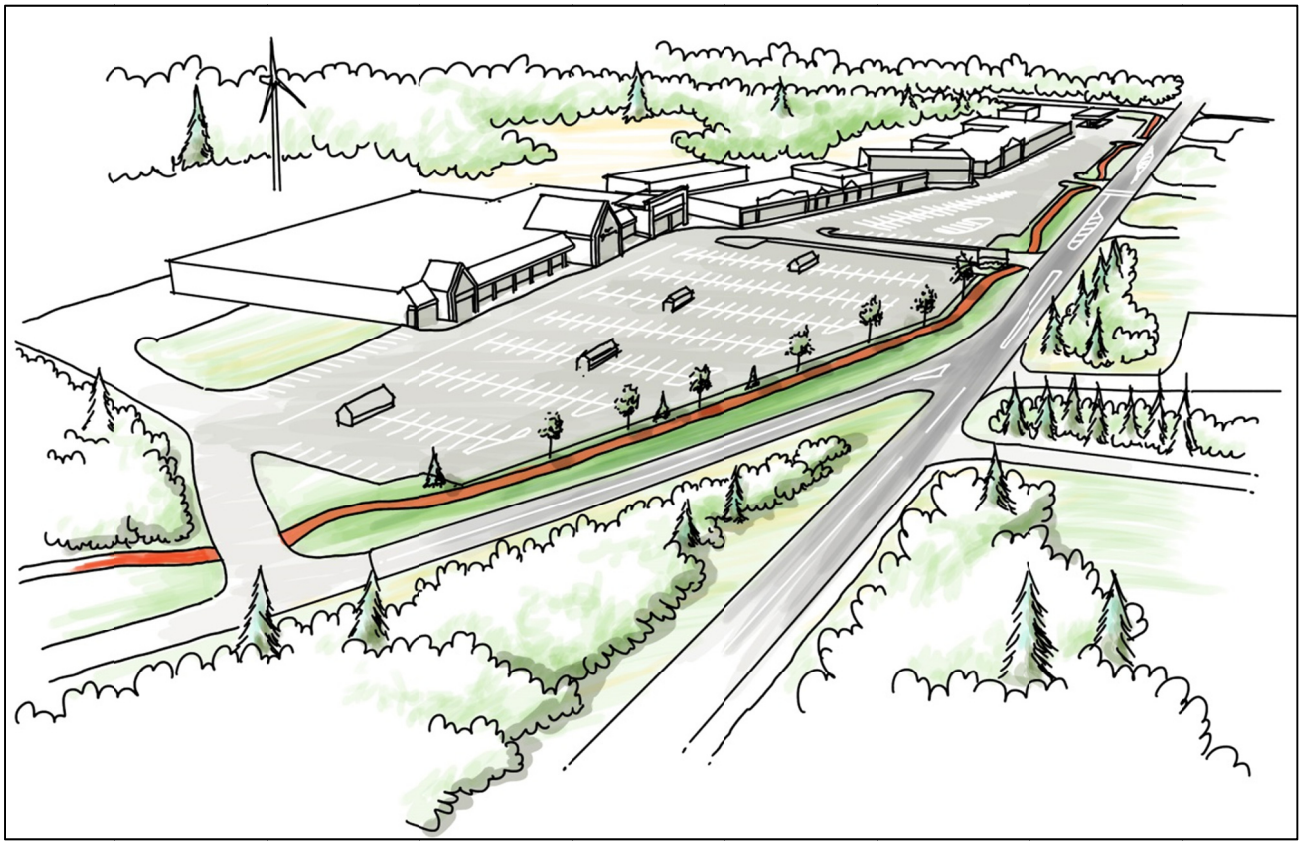


Figure 4-3: Conceptual Rendering of Trunk 7 Core Area Improvements

4.1.2 Paved Shoulders on Key Routes

The addition of paved shoulders to rural roads can be advantageous for a variety of reasons. Aside from the improving conditions for pedestrians and cyclists, the extended paved surface provides benefits including[6]:

- Additional recoverable area for motorists, which has been shown to improve road safety;
- Improved conditions for vehicles in need of a stop (disabled, deliveries, etc.) to more safely pull off the roadway;
- Maintenance costs can be reduced, as the additional pavement limits degradation of asphalt in the travel lanes through increased pavement structure strength and improved drainage. There is also increased space for snow storage and placement of temporary signage.
- Increased roadway capacity.

Many of the roads in the Study Area have shoulders, most of which are gravel. Gravel shoulders do not typically provide a surface that is suitable for cycling, and can be uncomfortable for pedestrians (particularly for persons in wheelchairs or pushing strollers). In the case of cyclists, the lack of a paved shoulder often necessitates use of the paved vehicle lane, which, when combined with relatively high traffic volumes speeds, creates an uncomfortable environment that can be a considerable barrier to AT use in rural areas.

The cost to pave the shoulders of an existing roadway can vary considerably based on the nature of the road, but is invariably quite expensive. Higher order roads such as 100-series highways and trunk roads, which have relatively wide right-of-ways and are typically built with wider shoulders, can often accommodate shoulder paving at a lower cost than secondary and local roads that may require that the shoulder be widened or built up. The cost is also highly dependent on whether or not the work is incorporated into an overall resurfacing project or is a specific shoulder widening project. Unit cost estimates obtained from both NSTIR and HRM have indicated a range between $75,000 and $300,000 per km.

It is most often the case that paved shoulders are only added to an existing road during the complete re-paving of a road section, and only after special consideration by NSTIR Staff. NSTIR will generally not consider paving shoulders on a road with fewer than 1,000 vehicles per day (AADT) or a road that is paralleled by a separate AT facility. However, it is also noted that HRM does have the ability to contribute funds to NSTIR to cover the cost associated with the paving of shoulders on provincial roads.

Consultation with the Porters Lake Community overwhelmingly indicated that the addition of paved shoulders to routes in the Study Area is strongly desired. Though it was recognized that paved shoulders are not a perfect solution that will attract users of all ages and abilities, many people felt that the having paved shoulders would remove an AT barrier and encourage them to make more everyday utilitarian trips by walking or cycling. Based on the feedback from local stakeholders and members of the public, paving of existing road shoulders is the top priority in terms of active transportation in the Study Area.

Given the lack of viable alternatives for AT infrastructure in the Study Area and strong desire from the community, it is recommended that NSTIR consider paving the roadway shoulders on several key routes to create a connected network of AT-friendly facilities. The proposed network (illustrated in Figure 4-4) will increase AT connectivity for a significant portion of the Study Area population. Given the high costs associated with paving shoulders and limited resources

[6] *Reasons for Highway Shoulders* (Oregon Department of Transportation)

available for funding these projects, recommended sections have been prioritized based on their ability to improve safety and connectivity for the most people in the community.

Nova Scotia Blue Route

The Nova Scotia Blue Route is an effort by Bicycle Nova Scotia and the Province of Nova Scotia to develop an interconnected network of bikeways across Nova Scotia. Modeled after the Province of Quebec's "Route Verte", the Blue Route will include designated on-road and off-road cycling routes. The Blue Route will incorporate existing cycling infrastructure and add new links that are needed through strategic upgrades. Although any routing of the Blue Route in the Study Area is not yet known, there are options that may be ideal for inclusion. NSTIR has taken the lead role in implementing the initiative – the Department should be consulted during the implementation of both the Blue Route and this AT Plan to determine if and how Study Area roads and trails may be incorporated.

➢ *ADD PAVED SHOULDERS TO KEY ROUTES (RECOMMENDATION 3)*

It is recommended that the following roads should be considered for the addition of paved shoulders in the future. In some cases (e.g. Trunk 7) the current traffic volumes and speeds as well as the public perspectives indicate that paved shoulders would more comfortably accommodate pedestrians and cyclists. On some of the less-traveled roads described below, further research on volumes, speeds and community engagement may be warranted to confirm that paved shoulders would make a significant difference in accommodating AT uses.

- **Trunk 7:** Paved shoulders should be added to the section of Trunk 7 between O'Connell Drive and Stella Drive as soon as possible. This section of Trunk 7 provides a key east-west connection through the community to destinations including schools, recreational facilities, and commercial uses, and will become increasingly important with increased future development. In combination with a reduced speed limit (suggested 60km/h), AT accommodation will be enhanced considerably.
- **William Porter Connector:** Paved shoulders should be considered as part of any future paving projects, however, will not be considered a priority if a greenway connection can be implemented on the abandoned rail corridor between Porters Lake Elementary School and Stella Drive.
- **West Porters Lake Road:** Paved shoulders should be added between Trunk 7 and Porters Lake Provincial Park (5.3km), with consideration being given to an extension as far south as Crowell Road (additional 1.8km). In addition to providing a connection to an important destination at the provincial park, connecting to Bellefontaine Road forms part of a potential community AT loop.
- **Bellefontaine Road:** Paved shoulders should be considered as part of any future paving projects. Bellefontaine Road provides an important east-west connection between West Porters Lake Road and Route 207 (4km), and also provides access to the Blueberry Run Trail for area residents on the west side of Porters Lake.
- **Crowell Road:** Paved shoulders should be considered as part of any future paving projects. Upgrading of this section, approximately 5.4km in length, in conjunction with Route 207 would provide a complete circuit of Porters Lake.
- **Route 207:** Paved shoulders should be considered as part of any future paving projects. Route 207 is a scenic route that connects to communities including West Chezzetcook, Seaforth, and Grand Desert and provides exceptional coastal views. NSTIR has previously advised against installation of paved shoulders on the section of Route 207

that runs parallel to the Blueberry Run Trail. Candidates for additional funding sources include HRM and potentially the Nova Scotia Blue Route initiative.

- **Myra Road:** Paved shoulders should be considered between Trunk 7 and Deepwood Drive (3.7km) as part of any future paving projects.
- **Alps Road:** Paved shoulders should be added between Trunk 7 and the entrance to the Seven Lakes development (0.5km). The future development will generate increased vehicular traffic and AT trips.
- **Conrod Settlement Road:** Paved shoulders should be added between Trunk 7 and the entrance to the Seven Lakes development (1km). The future development will generate increased vehicular traffic and AT trips.
- **East Chezzetcook Road:** Paved shoulders should be considered between Trunk 7 and Highway 107 as part of any future paving projects.

It is important that any road under consideration for shoulder paving be identified early in order to seek approval from NSTIR and take advantage of paving projects. Many planned paving projects are identified in NSTIR's *5-Year Highway Improvement Plan*, an annual report that lays out all planned capital and maintenance work slated to be completed during the next five year period.

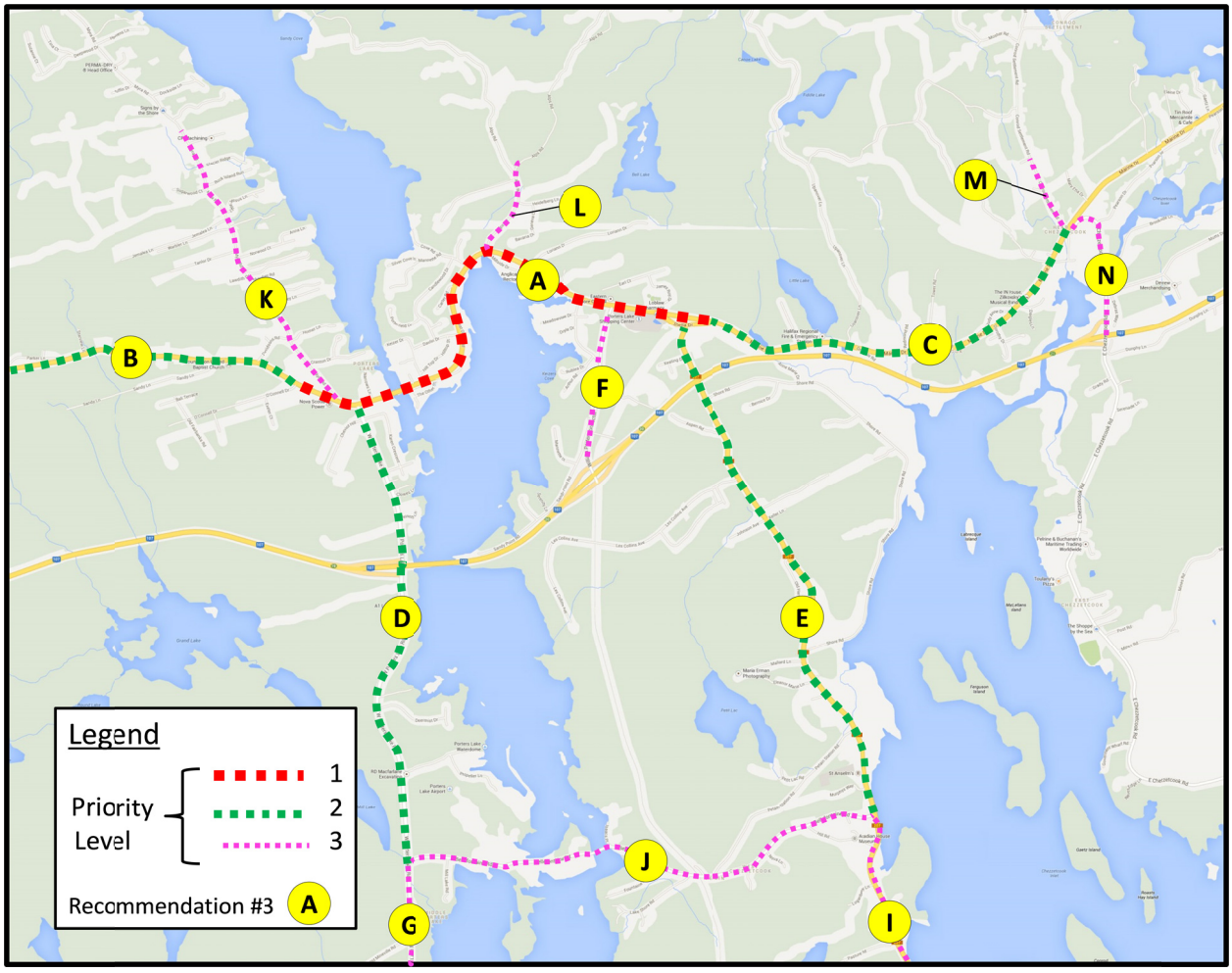


Figure 4-4: Proposed Paved Shoulder Network

Recommendation #3: Add Paved Shoulders to Key Routes				
#	Route	Section	Length	Priority (1-3)
3A	Trunk 7	O'Connell Drive to William Porter Connector	3.5	1
3B	Trunk 7	Lake Echo to O'Connell Drive	3.4	2
3C	Trunk 7	Stella Drive to East Chezzetcook Road	3.5	2
3D	West Porters Lake Road	Trunk 7 to Bellefontaine Road	3.8	2
3E	Route 207	Trunk 7 to Bellefontaine Road	4.4	2
3F	William Porter Connector	Highway 107 to Trunk 7	1.4	3
3G	West Porters Lake Road	Bellefontaine Road to Crowell Road	1.6	3
3H	Crowell Road	Marjorie Drive to Route 207	5.4	3
3I	Route 207	Bellefontaine Road to Seaforth	5.0	3
3J	Bellefontaine Road	West Porters Lake Road to Route 207	4.0	3
3K	Myra Road	Trunk 7 to Deepwood Drive	3.7	3
3L	Alps Road	Trunk 7 to Heideberg Lane	0.5	3
3M	Conrod Settlement Road	Trunk 7 to Seven Lakes Development	1.0	3
3N	East Chezzetcook Road	Trunk 7 to Highway 107	1.2	3
3O	Liaise with the NSTIR during implementation of the Blue Route to pursue any potential infrastructure upgrades that may become part of the route.			

4.1.3 Active Transportation Greenways

Active transportation greenways are separated off-road trails or paths that provide a dedicated linear corridor for AT uses. Greenways are particularly popular for AT as they provide safe, comfortable, and convenient facilities that can be used for recreational and utilitarian trips alike. Reduced exposure to vehicular traffic enables a wide variety of potential users to comfortably and safely enjoy the outdoors in an AT environment.

'Rails-to-Trails' Development

The development of greenways on former railway corridors – often referred to as 'rails-to-trails', is a practice that has been well used across North America for several years as railway infrastructure has been rationalized. The largely undeveloped linear corridors provide an exceptional opportunity that has been used in major AT projects such as the Trans Canada Trail. The rails-to-trails approach to greenway development has been used with success on several facilities in the area including the nearby Atlantic View Greenway, Cole Harbour Salt Marsh Greenway, and the Musquodoboit Trailway. With relatively undeveloped sections of the former railway corridor running through the Study Area including the Blueberry Run and

proposed Chezzetcook-Musquodoboit Trail, there is considerable opportunity to develop AT greenways.

Challenges for the Development of AT Greenways

Despite the opportunities that the former rail beds provide for AT greenway development, there are important factors that limit its potential:

- It is preferable that AT greenways are restricted to access for non-motorized uses only, as the presence of motorized uses such as off-highway vehicles (OHVs) can be a deterrent to active transportation[7]. The accommodation of motorized off-highway vehicles (OHVs) on trails can be a contentious issue. The position taken by Department of Natural Resources (DNR) and Department of Health & Wellness (DHW) is that all users shall be accommodated (including motorized uses) on rails-to-trails facilities, unless public and stakeholder consultation has been completed that establishes community desire to prohibit motorized access[8].
- In order to develop a section of rail bed, a Letter of Authority (LOA) must be obtained from DNR. At present, the LOA for the Blueberry Run is held by the Marine Riders ATV Club, and the LOA for the proposed Chezzetcook-Musquodoboit Trail section has not been issued by DNR. Previous efforts to acquire the LOA for sections of these former rail corridors by AT greenway proponents (CMTA) have been unsuccessful.
- In many cases, access to funding for trail development on former rail corridors is tied to the facility type:
    - Funding sources including HRM's Active Transportation Plan implementation budget and the Trans Canada Trail Foundation typically only fund AT facilities.
    - Funds from DHW will support non-motorized facilities only if the prescribed public consultation process has determined that is the desire of the community.

The current situation, unfortunately, is not ideal for anyone in the community. Groups including CMTA have been unable to obtain permission or funding to facilitate greenway development, and are left with a facility that is not favorable for AT uses. Meanwhile, OHV proponents retain authority over sections of the corridor that are admittedly used only sparingly[9] and that are without connectivity to other motorized trails.

➢ *DEVELOP DESTINATION GREENWAYS (RECOMMENDATION 4)*

There are exciting opportunities in the Study Area for the development of destination greenways. A destination greenway serves as an attraction in itself, attracting walkers and cyclists to experience the natural surroundings while exercising. Although often thought of more in a recreational sense, in Porters Lake destination greenways have the potential to serve utilitarian uses as well, in addition to potentially filling in missing links in the regional trail network, Trans Canada Trail, and the Nova Scotia "Blue Route" province-wide cycling network over the longer term.

[7] Numerous research studies have documented the negative impact that OHVs can have on recreational trails. Key impacts include noise, trail surface degradation, air quality, and wildlife. A study based on trails in Nova Scotia (Janmaat and vanBlarcom, 2007) suggests that permitting ATV access to trails can reduce non-ATV trips by approximately 48% (relative to ATV-prohibition).

[8] DNR and DHW have established a 10-step process: *Procedures for Community-Based Trail Planning and Development on Abandoned Railway Corridors* (2005)

[9] The section of the Blueberry Run between Highway 107 and Stella Drive, in particular, which has limited connectivity due to the lack of a legal ATV crossing at the William Porter Connector interchange.

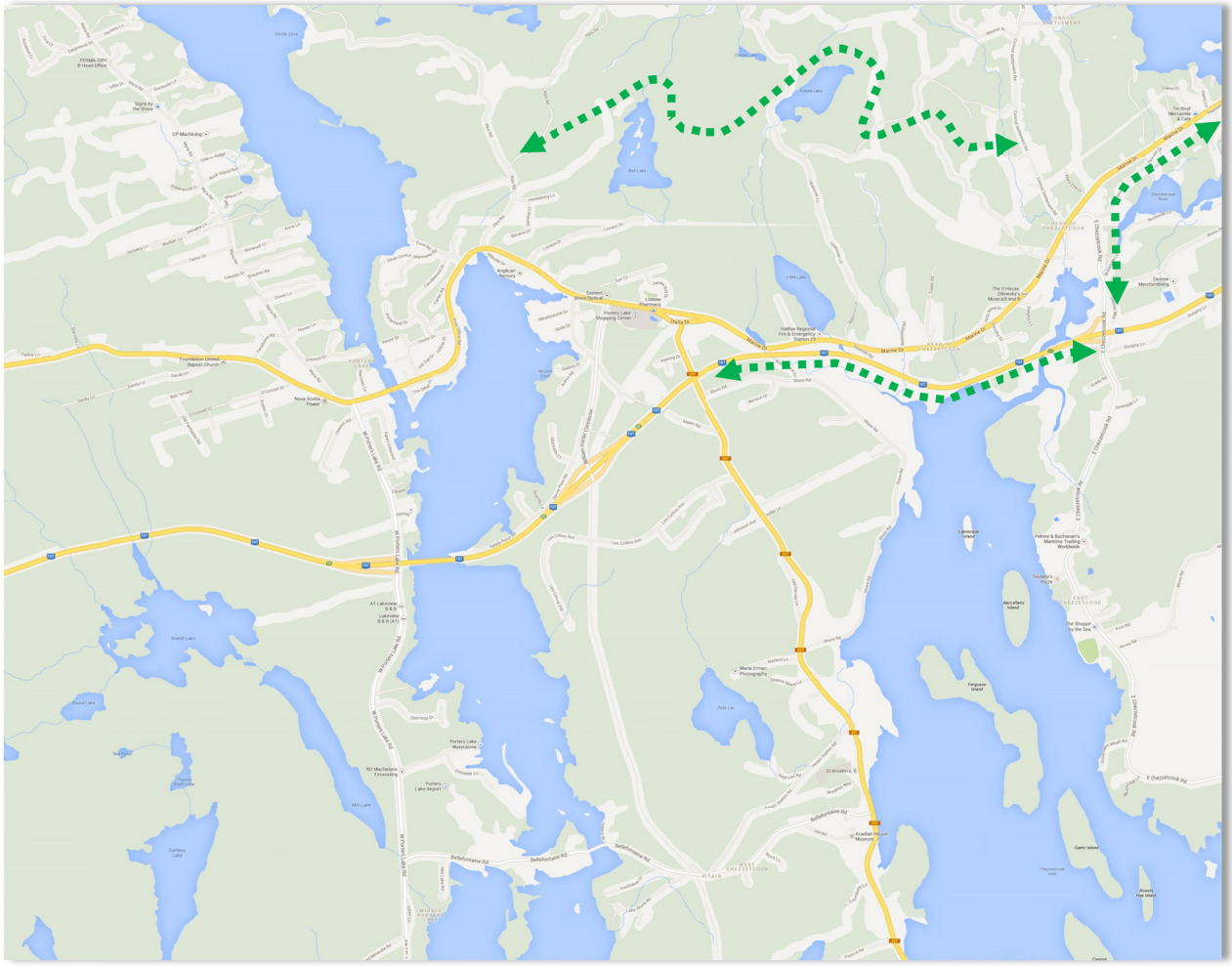


Figure 4-5: Proposed AT "Destination Greenways"

It is proposed that the following destination greenways be considered for development in the Porters Lake area:

(A) Chezzetcook Marsh Greenway: When Highway 107 was constructed in the late 1970s, much of the section between Porters Lake and East Chezzetcook Road was developed within the alignment of the former rail bed. Unfortunately, this created a substantial gap in the continuity of the former rail bed, which in more recent times has become a highly sought after opportunity for "rails to trails" development. Persons wishing to walk or bike between Porters Lake and communities to the east are forced to travel alongside fast moving traffic on either Highway 107 or Trunk 7 with little (if any) room on the shoulder. This is unacceptable for many, and represents a considerable barrier for AT in the area.

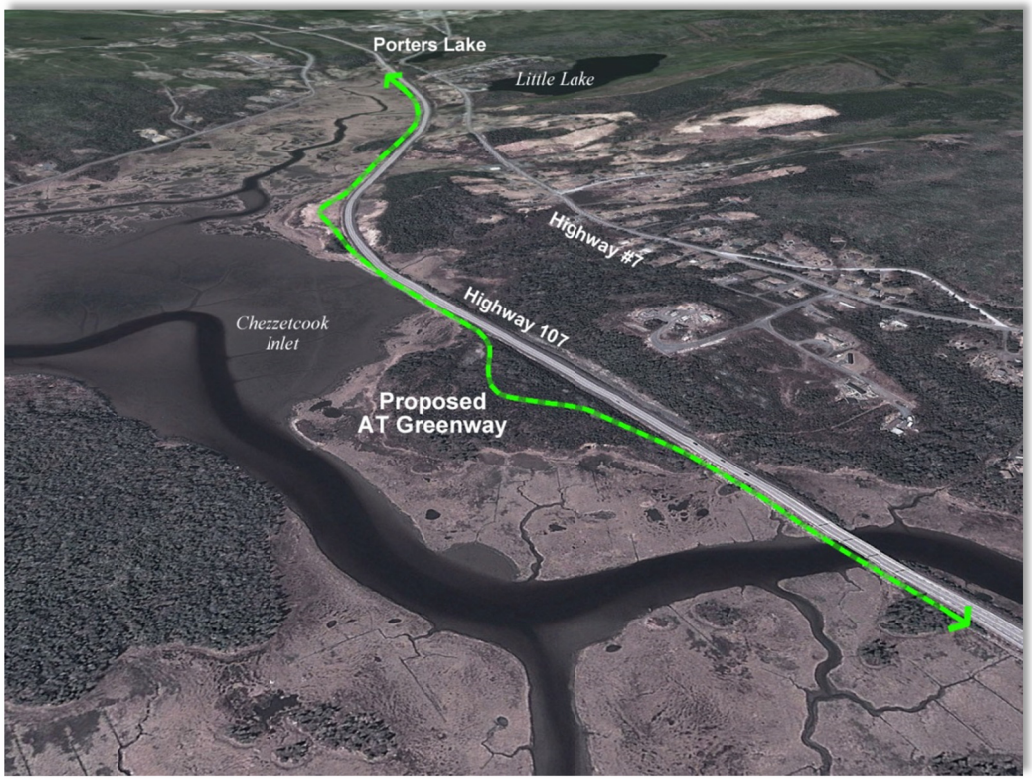


Figure 4-6: Proposed Chezzetcook Marsh Greenway Alignment

There is an exceptional opportunity to add a greenway link along the south side of Highway 107 between Porters Lake and East Chezzetcook Road (Exit 21). The natural beauty of the Marsh would be on full display to the south, creating one of the most picturesque trail vantage points in the Province. This could potentially create a "Signature AT Facility" for Porters Lake and the Surrounding Communities, attracting visitors from near and far to experience the trail.

The greenway, approximately 3km in length, would provide a vital link between Porters Lake and the east end of the Study Area that would better facilitate access to commercial activities, transit, and other utilitarian uses by foot or bike. It would also fill in a significant gap in connectivity along the abandoned rail corridor, presenting opportunities for integration with the regional trails network and the Trans Canada Trail. Further, it is an ideal length for walkers and cyclists to make a return trip comfortably from one end to the other, which when combined with its physical surroundings could make it an excellent destination trail for recreational pursuits.

Development of the Chezzetcook Marsh Greenway is not without challenges. Since it would be developed within Highway 107 right-of-way (and adjoining Crown Land parcels) in an area that is environmentally sensitive, coordination with provincial departments including Transportation & Infrastructure Renewal (NSTIR) and Environment (NSE) will be required. Additionally, the following should be considered:

- Its location adjacent to Highway 107 may also require that it be limited to non-motorized uses. Typically, OHVs are not permitted adjacent to NSTIR right-of-ways due to issues such as headlight glare (unless adequate physical separation is provided).
- There are at least two watercourse crossings that may require the construction of trail bridges.

- There are currently no formal connections to the existing rail bed at either end of the proposed greenway. In order to make direct connections and facilitate a connected trail network, it may be necessary to add grade separated crossings. Alternatively, indirect connections via the existing road network are necessary.
- In the absence of connections, the greenway would likely require the addition of parking facilities at a trailhead to support recreational users.

Due to the considerable cost required to implement the greenway, it may require several years to obtain funding and proceed through the functional planning, design, and construction phases. However, due to the significant benefit to the community and potential for integration with funding partners including (but not limited to) HRM, Trans Canada Trail, and Nova Scotia Health & Wellness, there may be opportunity to facilitate development of the trail in a more expedited manner.

(B) Seven Lakes Greenway: Development of Seven Lakes, a 634-unit open space residential community north of Trunk 7 in Porters Lake, has been proposed to include a multi-use trail that will parallel the road internal to the development. The proposed trail will be approximately 5km in length (running east-west through the development), and will be built out in phases over the next approximately 10 years.

Though the trail will be of particular benefit to residents of the Seven Lakes community, it can also be considered an excellent opportunity for a destination trail for members of the overall community. An approximately 5km trail, the facility would be attractive for recreational use as part of either a return trip within the development or as part of a larger loop in conjunction with existing roads in the Study Area. There will be several parks and a considerable amount of green space within the development, which will create a scenic environment that can be enjoyed by a wide range of potential users.

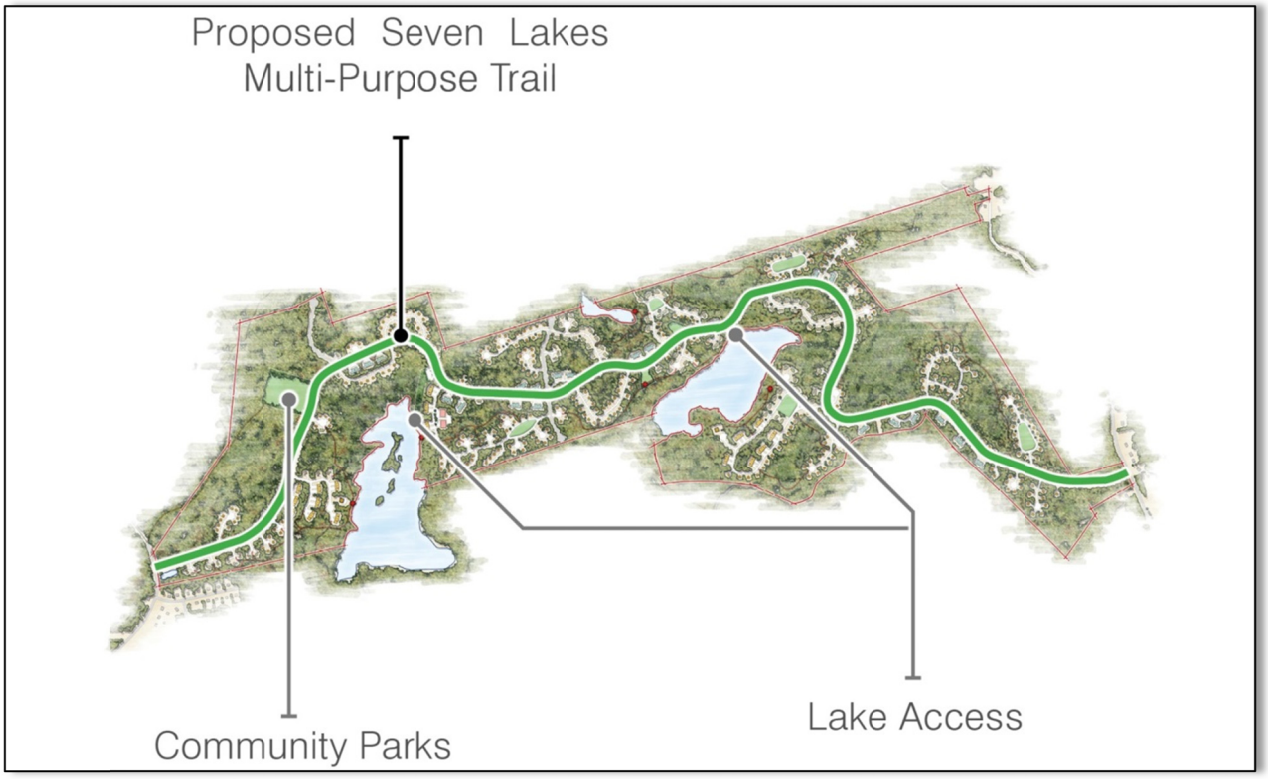


Figure 4-7: Seven Lakes Greenway: Proposed Alignment

It is recommended that HRM and SATA work with the Seven Lakes community to develop the trail in conjunction with the buildout of the development. The following issues related to the development of the trail should be considered:

- The trail should be developed to an AT standard acceptable to HRM. A 4m wide paved surface should be considered.
- It is expected that a significant portion of trail users not residing within the Seven Lakes development would use the trail as a destination trail, typically driving to the site in a vehicle. For this reason, it will be important that appropriate trail head facilities (i.e. parking, signage, etc.) are considered.
- Access to the Seven Lakes development is currently planned from Alps Road and Conrod Settlement Road at either end of the development. This will require a long and circuitous route for residents of the community to access key destinations in the Porters Lake core, which will be particularly challenging for AT uses. A more direct north-south route between the centre of the development and the Porters Lake core area should be considered in the future as development progresses on lands between Seven Lakes and Trunk 7.

It is anticipated that a significant portion of the capital cost of the trail will be borne by the developer of the Seven Lakes community, with ongoing maintenance the responsibility of HRM. This presents a significant opportunity to add a high-standard AT facility to the community at relatively low cost to the public.

(C) Chezzetcook – Musquodoboit Trail: The development of the Chezzetcook Musquodoboit Trail, a proposed 'rails-to-trails' AT greenway on the former rail bed between East Chezzetcook Road and Musquodoboit Harbour, has not progressed in recent years due to the inability of the proponent group (Chezzetcook Musquodoboit Trail Association (CMTA)) to obtain the letter of authority for the corridor. Preliminary work has been completed for the greenway, including the *Trail Concept Plan* (Ekistics, 2007), and funding has been solicited from various sources. It is recommended that the CMTA, in conjunction with SATA, continue to work with Provincial Government Departments including DNR and DHW to obtain the letter of authority for the rail corridor and subsequently proceed with plans to develop the corridor as an AT greenway.

Recommendation #4: Develop Destination Greenways	
4A	Develop AT greenway link on the south side of Highway 107 between Route 207 and East Chezzetcook Road.
4B	Develop AT greenway link as part of the Seven Lakes residential development.
4C	Develop the Chezzetcook-Musquodoboit Greenway, a proposed AT greenway between East Chezzetcook Road and Musquodoboit Harbour.

4.2 Design Standards

The following sections provide guidelines for design standards that should be considered for the infrastructure improvements included in this plan.

4.2.1 On-Street Facilities

Paved Shoulders

Paved shoulders provide additional space for pedestrians and cyclists, which can improve comfort considerably. Although the paved shoulder width that can be accommodated depends on the amount of available right-of-way, NSTIR has established recommended paved shoulder widths based on the traffic speed and volume for a given roadway (See Table 4-1).

Table 4-1: Paved Shoulder Width for Active Transportation
[Nova Scotia Transportation & Infrastructure Renewal *(2011)*]

Speed (km/h)	Paved Shoulder Width (m)			
	ASDT < 2000[1]		ASDT > 2000	
	New Construction / Reconstruction[2]	Repaving[3]	New Construction / Reconstruction	Repaving
50	1.2	1.0	1.2	1.0
51-70	1.2	1.0	1.5	1.0
71-80	1.5	1.0	1.75	1.5[4]
>80	1.75	1.5	1.75	1.75

Notes:
1. ASDT = Average Summer Daily Traffic (ASDT)
2. New construction / reconstruction guidelines may apply to construction or repaving work areas where the existing subgrade is wide enough to meet the new construction shoulder standards (e.g. removing climbing lanes, narrowing lane width)
3. Repaving: No widening of subgrade is planned.
4. This may be unachievable due to subgrade constraints. Every effort will be made to have the shoulder as wide as possible, with a minimum of 1.0m. If 1.5m is unachievable, signage may be necessary.
5. No shoulder widening is recommended when pavement preservation, maintenance overlays, etc. are planned.
6. ASDT < 1000 does not require paved shoulders for cycling, unless otherwise specified.
7. A minimum of 1.5m is required next to guardrail, curb or other fixed objects. On shoulders 1.5m or greater, add 0.2m to 0.5m in areas where there is a fixed object.
8. See TAC "Bikeway Traffic Control Guidelines for Canada"

Shared Routes

Shared routes are typically on-street connections with low traffic volumes and speeds. In urban environments, shared routes often include signage and pavement markings. In the Study Area, it may be sufficient to identify shared routes through addition of wayfinding signage and/or inclusion on AT infrastructure mapping (See Section 4.4.1).

4.2.2 Off-Street Facilities

Active Transportation Greenways

It is expected that the development of AT greenways will have a significant influence on the advancement of AT in the Study Area. The AT greenways that have been recommended in this plan vary from 'rails-to-trails' upgrades to new development. The following design criteria are recommended for AT greenways in the Study Area.

- Cross Section Elements: Minimum width of 3.0m (4.0m preferable) (see cross-section in Figure 4-8). DNR has established construction standards for the development of trails on

abandoned railway corridors, and NSTIR has standards for multi-use trails along Provincial highways. The appropriate standard should be consulted during design of greenways.

- Surface Material: Trail surfaces may vary between crusher dust and asphalt paving. Paved greenways provide a significantly improved surface for AT, and are capable of attracting a wide range of AT users. Although they have an increased capital cost, they also provide an improved life cycle. A paved surface should be considered wherever possible - it is strongly recommended that the greenway links proposed for the Core area be implemented with asphalt paving.
- Motorized Access: Where possible, the AT greenways recommended in this Plan should be restricted to non-motorized uses only. This will require coordination with the Province and members of the community.

Figure 4-8: Recommended Cross-Section for Active Transportation Greenways

4.3 Active Transportation Supporting Infrastructure

4.3.1 End of Trip Facilities

Effective bicycle infrastructure also includes end of trip facilities. End of trip bicycle facilities, which can include amenities such as bike racks, bike lockers, showers, and changing rooms, are important as they remove barriers to AT trips.

Bike Racks and Storage Options

Placed at key destinations in the Study Area, bike racks and potentially bike storage lockers would be an excellent amenity that may encourage residents to ride a bicycle rather than drive. Depending on the location, demand for bike parking may be short-term or long-term:

- Short-term: Trips lasting only a short time, for instance a visit to a local business or activity. Short-term bike parking can be facilitated using bike racks that allow cyclists to use a lock to secure their bike. Bike racks are an effective and relatively low cost option for bike parking. They should be considered in locations such as the Lake & Shore Recreation Centre and other recreational areas and schools in the Study Area. They should also be promoted to local businesses as a low-cost solution to attract cyclist traffic.
- Long-term: Long-term bike storage is for trips that may require several hours. Storage lockers, which provide increased security for bikes, can improve the comfort level of cyclists in leaving their bike for extended periods, such as at their place of employment or while using transit. The Porters Lake MetroX terminal is a location that may benefit from the installation of bike storage lockers, allowing transit users to leave their bike at the terminal during the day.

Shower / Change Facilities:

Encouraging employers to provide employees with access to shower and changing facilities is another way of encouraging commuting to work via AT modes. Although the Porters Lake area is not a major employment centre, trips made by biking or walking will typically be over a relatively long distance, which may require physical exertion that necessitates a change in clothing and/or shower.

Benches

Benches are an amenity that can improve the aesthetics of an area and the functionality of an AT network. Providing pedestrians and cyclists with opportunities to rest along their trip and at key destinations should be considered as the AT infrastructure in the Study Area is implemented.

Bicycle Maintenance & Repair Equipment

Provision of basic bicycle maintenance and repair equipment at key locations is becoming a common amenity in many jurisdictions, as it is relatively inexpensive and can improve comfort and convenience for cyclists in need of minor repair issues (i.e. flat tire, chain adjustment, etc.). It can also provide a novelty that draws attention to cycling in public areas, acting as a perpetual marketing tool. Consideration should be given to the installation of a basic bicycle repair station at a public place in the Study Area, potentially the Porters Lake Shopping Centre or the Lake & Shore Recreation Centre.

4.3.2 Integration with Transit Facilities

The recently opened Porters Lake MetroX terminal provides a transit option to commuters from the area. The public consultation process indicated that there is considerable excitement in the community about the service, and that many intend to use it. It is important that amenities are provided that enable users of the MetroX service to travel to and from the terminal by bicycle. Metro Transit has installed bike racks at the facility, and has included bike racks on the buses that enable cyclists to take their bike with them. It is recommended that consideration is given to the addition of bicycle storage lockers at the terminal to enable cyclists to securely leave their bicycle throughout the day. SATA and HRM should work with Metro Transit to facilitate this amenity.

➢ *ADD ACTIVE TRANSPORTATION SUPPORTING INFRASTRUCTURE (RECOMMENDATION 5)*

The following are recommended as infrastructure that supports active transportation in the community and improves comfort and convenience for AT users.

Recommendation #5: Develop AT Supporting Infrastructure	
5A	Work with local businesses to facilitate the installation of bike racks at key destinations in the area.
5B	Work with Metro Transit to facilitate the installation of bike storage lockers at the Porters Lake MetroX terminal.
5C	SATA and HRM should encourage employers to provide shower and/or changing facilities for staff to encourage commuting by AT.
5D	Provision of benches should be considered as part of recommended infrastructure upgrades.
5E	Consider installating a basic bicycle repair station at a public place in the Study Area (Shopping Centre or the Lake & Shore Recreation Centre)

4.4 Active Transportation Awareness

Lack of awareness of existing AT facilities is an issue that was identified often during public and stakeholder consultation. Many people indicated that they were unaware of the existence of some recreational areas and existing AT programs, and that they would be likely to use them had they known. Given that implementation costs are relatively low for signage and awareness materials, it represents a key opportunity to achieve short-term success for AT in the community.

As the AT network in Porters Lake continues to grow, it is important to ensure that the public is aware of available facilities. Having a clear, consistent, and easy to understand wayfinding system in place improves the awareness of AT facilities, as well as enhancing convenience for users. Similar to on-road vehicular traffic, AT users can benefit considerably from wayfinding information that informs them of the facility they are using, their location relative to their destination, and the location of nearby connecting facilities and landmarks.

4.4.1 Active Transportation Wayfinding

Wayfinding Signage

The National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide (2012) outlines the following three types of wayfinding signage that are suitable for bikeway facilities (See Table 4-2). Although these are intended specifically for bikeways, the general framework is applicable to a variety of AT facilities.

Table 4-2- Bikeway Wayfinding Signage Type
(Source: *NACTO Urban Bikeway Design Guide (2012)*)

	Purpose	Information	Placement
Confirmation Signs	Inform cyclists and motorists of that they are using a designated AT facility	Route names	Prescribed distances along routes based on facility type
Turn Signs	Inform cyclists of route shift beween streets and destination locations	Destination names and directional arrows	In advance of route shifts and locations not along route
Decision Signs	Inform cyclists of key locations and intersections with other routes	Time and distance to destinations and landmarks	In advance of key decision points

Unlike roadway signage, which is typically bound to standards developed by the Manual of Uniform Traffic Devices (MUTCD) and the Transportation Association of Canada (TAC), active transportation wayfinding signage can often include area specific designs and branding that suit the needs of a municipality. Examples of signage types that may be considered are summarized in Table 4-3.

Table 4-3 - Examples of Active Transportation Wayfinding and Informational Signage

Destination Distance / Time: Indicates the travel distance and time (by biking and/or walking) to key destinations.	
Distance Markers: Typically used on trail facilities, indicates distance and helps users maintain an understanding of their current location. Many participants in the public consultation phase indicated an interest in including distance markers on area trails.	
Trail Head Signage: Trail head signage, placed at the head of a trail facility, identifies a trail and provides information including mapping, regulations, and trail highlights.	
Interpretive Signage: Interpretive signage provides information that describes a special aspect of an area. Typically placed at key locations along a trail or similar facility, interpretive signage would be an excellent option to include in the proposed AT greenway facilities that have been recommended for the area in this plan.	

The HRM Planning & Infrastructure department is currently in the process of developing an AT wayfinding signage system, which will include a "family of signs" that will provide a consistent framework that can be used throughout HRM.

AT Facility Mapping:

Development of improved AT infrastructure should be supported with mapping that provides an inventory of routes, increasing awareness of AT routes and allowing existing and potential users to better plan for walking and biking trips. HRM has created similar mapping (albeit more detailed than required for the Study Area) that identifies infrastructure that best accommodate pedestrians and cyclists. Display of AT mapping at key community destinations (i.e. community centres, schools, and businesses), distribution by SATA at community events, and online availability can increase awareness of AT infrastructure in the community.

4.4.2 Public Promotion / Education

The findings from community engagement initiatives have shown that knowledge of AT among many residents is still in its relatively preliminary stages. The AT Plan should be supported with a continuous community education campaign designed to inform the public of the benefits of AT, while encouraging the safe use of infrastructure for both AT users and motorists. The promotion of the Plan and AT infrastructure should go hand-in-hand with community education. Every act of community education should be used as an opportunity to promote the Plan, the use of AT infrastructure and vice versa.

Contribute Content in Local Publications

Local news publications provide an excellent mechanism for circulating information about active transportation issues in the community. Establishment of a regular article, advertisement, or educational graphic discussing AT in the area (i.e. upcoming events, noteworthy AT routes, rules of the road, etc.) can provide an opportunity to maintain AT as a visible and important issue in the community. Examples of publications that may be considered include:

- SATA Brochure
- Community websites
  - HRM Trails website
  - Porterslake.com website
  - Musquodoboit Trailway website
  - Chezzetcook-Musquodoboit Trail website
  - What's Happening on the Eastern Shore (Facebook Site)
  - SATA website and Facebook Site
  - Seaforth Hall (Facebook Site)
  - Lake & Shore Recreation Centre
  - Porters Lake Community Centre
  - Eastern Musquodoboit Community Health Board
- Community Newsletters
  - Chronicle Herald Regional Supplement

- Shore News
- Shore Advertising
- Shop the Shore
- Eastern Shore Family Resource Association Newsletter
- Community Connections Newsletter (Eastern Shore Musquodoboit Community Health Board)
- Porters Lake Elementary School Newsletter
- O'Connell Drive Elementary School Newsletter
- École des Beaux-Marais Newsletter
- Elected Representatives (Local HRM Councillor and Provincial MLAs)

Social Media

Social media websites including Facebook and Twitter are becoming an increasingly important tool in community engagement. SATA has been active in the use of its Facebook webpage in promoting local events, and should continue to do so.

Community Events

Community events offer some of the most effective ways of improving the visibility of AT in the community and engaging the public. There are several community events already in place that promote AT in the community. Examples include:

- Bike Rodeo: A bike rodeo is an event that provides instruction to children on the safe operation of bicycles. SATA has initiated a bike rodeo for children in the community in conjunction with the 'Lake & Shore Days' community festival.
- A Shore Thing: Lake & Shore Days Fun Run: A local 'fun run' running race on the Blueberry Run Trail.
- Craig's Cause Walk/Run/Bike: A Pancreatic Cancer awareness event that has been held annually since 2007 in the Porters Lake area. Participants walk, run, or bike on circuits around Porters Lake and the Eastern Shore area.
- Pole Walking Classes: Regularly scheduled pole walking sessions.
- HRM Bike Week: HRM's annual celebration of cycling. SATA has participated in the past through coordination of bike rides in the community (i.e. 'Explore the Shore').

The following is a list of community events that could be considered as an opportunity to further promote AT in the community:

- Duathlon / Triathlon: The Porters Lake area may be an ideal setting to conduct a duathlon (cycling / running) or triathlon (swimming / cycling / running) race.
- "Walk to School" Initiatives: There are several established programs that aim to promote walking to school and draw attention to challenges and opportunities associated with walking to school in a community. Examples include "iwalk: International Walk to School Month", "Walking School Bus", "Winter Walk Day", "School Travel Planning (STP)", and "Youth Trans-Actions". The Ecology Action Centre is active in promoting these programs in Nova Scotia.
- CAN-BIKE: CAN-BIKE is a program administered by the Canadian Cycling Association that provides a variety of safety-oriented training courses. Courses, which are tailored to all ages and skill levels, are taught by nationally certified CAN-BIKE instructors
- Making Tracks: Active Transportation Safety Education for Children and Youth: A program administered by the Ecology Action Centre that provides active transportation education to children in communities throughout Nova Scotia. Making Tracks focuses on skill-based, experiential workshops. As stated in its promotional materials, Making Tracks *"offers walking, cycling, in-line skating and skateboarding safety skills. The goals*

of Making Tracks are to increase the use of active transportation, increase safety skills of active transportation users and ultimately make it safer for children and youth to walk or wheel on our travel ways".

- Co-operative Bike Repair: Bicycle repair co-ops are not-for-profit organizations at which volunteers assist with bike repair. They have been established in many communities as a means of providing cost-effective bike repair, sharing knowledge, and fostering an interest in cycling. Although the Porters Lake community is too small to sustain a full-time bicycle repair co-op, establishing occasional "Co-operative Bike Repair Days" in the community may be a good opportunity to promote cycling.

4.4.3 Advocacy

Active transportation advocacy is one of the most important determinants in the success of advancing AT in a community. Without committed, persistent volunteers to pursue AT initiatives, progress can be very challenging. Fortunately, SATA has enthusiastically filled the role of AT advocates in the area.

Ongoing advocacy for AT, led by SATA, will be essential in carrying out the implementation of this Plan. For this reason, SATA should continue to maintain a visible presence in the community, with ongoing efforts to encourage membership and build support. The group should establish connections with related government organizations (HRM, NSTIR, DHW, DNR) and funding sources (See Section 5.3) to advocate for funding and resources to carry out the plan.

➢ *INCREASE AT AWARENESS IN THE STUDY AREA (RECOMMENDATION 6)*

It is recommended that SATA work with HRM to improve signage and AT awareness in the Study Area.

Recommendation #6: Increase AT Awareness in the Study Area	
6A	Add AT wayfinding signage on key routes.
6B	Develop Study Area AT Map
6C	Contribute AT-related content in local publications including community newsletters and websites.
6D	Utilize social media websites to promote AT issues in the community.
6E	Continue to carry out existing AT-oriented events on annual basis.
6F	Explore opportunities for the initiation of a duathlon / triathlon race or similar competitive event in Porters Lake. Potential to expand on the existing Lake & Shore Days Fun Run.
6G	Work with local schools to encourage participation in "Walk to School" initiatives.
6H	Consider hosting educational programs in the community including CAN-BIKE courses "Making Tracks".
6I	Consider implementing occasional "Cooperative Bike Repair Days"
6J	Promote SATA in the community in an ongoing effort to increase membership and interest in AT issues.
6K	Establish connections with appropriate stakeholders and funding sources to advocate for implementation of the plan.

5.0 Implementation Plan

Implementation of the recommendations of this AT Plan will require several years of incremental progress. HRM Staff and members of SATA will need to work together to obtain support from policy makers, plan the recommended initiatives, and secure the required funding.

The recommendations included in this plan have been prioritized in order to aid in the implementation process. The recommended implementation sequence is intended to serve as a guiding tool. It is expected that over the course of the implementation period, opportunities may arise to achieve synergies with other projects. These opportunities should be considered whenever possible.

5.1 Summary of Plan Recommendations

The recommendations discussed in Chapter 4.0 for are tabulated in Table 5-1, along with additional information including prioritization, order of magnitude cost estimates (where applicable) and a list of relevant stakeholders for each.

5.2 Recommended Phasing Plan

For the purposes of planning the implementation of the AT Plan, a phasing plan has been recommended that aims to balance the costs and benefits of upgrades, potential for funding, and the need to keep the community engaged and interested in AT. The recommendations included in the AT Plan, which have varying costs and levels of priority, have been considered in the development of a phasing plan that will be implemented over the next approximately 20 years. The following phases have been assigned to each recommendation:

- **Phase 1 (0-5 Years):**
  Immediate upgrades that have been considered to have high priority and/or have a good chance at receiving funding support, as well as “quick wins” that can be implemented cost effectively and will draw attention to the AT issues in the community.

- **Phase 2 (5-10 Years):**
  Phase 2 (5-10 Years): Medium-term upgrades that are considered to have strong benefits but that will likely require further planning, fundraising, and coordination with planned infrastructure upgrades (i.e. paved shoulders) prior to implementation.

- **Phase 3 (10-20 Years):**
  Phase 3 (10-20 Years): Long-term upgrades that have lower priority at present and/or require considerable funding support prior to implementation.

Phasing recommendations for implementation of the Plan are tabulated in Table 5-2.

Table 5-1: Summary of AT Plan Recommendations

	Recommendation		Length (km)	Estimated Cost ($)[1]	Priority (1-3)	Stakeholders
	Recommendation #1: Develop a Greenway Link in the Core					
1A	Develop an AT greenway link on the former rail bed between Inspiration Drive and Stella Drive (incl. connections to Keating Dr. and Shopping Centre). [2]		1.1	$ 200,000.00	1	MRATV,DNR,DHW,HRM, TCT, SATA
1B	Develop an AT greenway link between Inspiration Drive and the William Porter Connector Highway 107 overpass (incl. add sidewalk to overpass). [3]		0.4	$ 170,000.00	2	HRM,NSTIR,TCT
1C	Develop an AT greenway link on the former rail bed between the William Porter Connector Highway 107 overpass and Les Collins Avenue. [2]		0.5	$ 90,000.00	3	MRATV,DNR,DHW,HRM, TCT, SATA
	Recommendation #2: Trunk 7 Core Area Improvements					
2A	Develop an AT greenway link on the south side of Trunk 7 between the William Porter Connector and Stella Drive. [4]		0.5	$ 200,000.00	1	NSTIR,HRM,PLSC
2B	Add a paved shoulder to the north side of Trunk 7 between William Porter Connector and Stella Drive.		0.4	$ 50,000.00	2	NSTIR, Property owners
2C	Consider installation of a marked and signed crosswalk to accommodate traffic crossing Trunk 7 in the core area.		-	$ 5,000.00	2	NSTIR
2D	Intersection improvements on Trunk 7 at James Roy Drive and Stella Drive.		-	$ 1,500,000.00	1	NSTIR
2E	Monitor / consider speed limit reduction when warranted on Trunk 7 between O'Connell Dr and W. Porter Connector, possibly from 70km/h to 60km/h.		3.5	-	2	NSTIR
	Recommendation #3: Add Paved Shoulders to Key Routes[5]					
3A	Trunk 7	O'Connell Drive to William Porter Connector	3.5		1	NSTIR
3B	Trunk 7	Lake Echo to O'Connell Drive	3.4		2	NSTIR
3C	Trunk 7	Stella Drive to East Chezzetcook Road	3.5		2	NSTIR
3D	West Porters Lake Road	Trunk 7 to Bellefontaine Road	3.8		2	NSTIR
3E	Route 207	Trunk 7 to Bellefontaine Road	4.4		2	NSTIR
3F	William Porter Connector	Highway 107 to Trunk 7	1.4		3	NSTIR
3G	West Porters Lake Road	Bellefontaine Road to Crowell Road	3.0	*See Note 5	3	NSTIR
3H	Crowell Road	Marjorie Drive to Route 207	5.4		3	NSTIR
3I	Route 207	Bellefontaine Road to Seaforth	5.0		3	NSTIR
3J	Bellefontaine Road	West Porters Lake Road to Route 207	4.0		3	NSTIR
3K	Myra Road	Trunk 7 to Deepwood Drive	3.7		3	NSTIR
3L	Alps Road	Trunk 7 to Heideberg Lane	0.5		3	NSTIR
3M	Conrod Settlment Road	Trunk 7 to Seven Lakes Development	1.0		3	NSTIR
3N	East Chezzetcook Road	Trunk 7 to Highway 107	1.2		3	NSTIR
3O	Liaise with the NSTIR during implementation of the Blue Route to pursue any potential infrastructure upgrades that may become part of the route.		-	-	2	NSTIR
	Recommendation #4: Develop Destination Greenways					
4A	Develop AT greenway link on the south side of Highway 107 between Route 207 and East Chezzetcook Road.[6]		3.0	$ 1,000,000.00	2	NSTIR, DOE,TCT
4B	Develop AT greenway link as part of the Seven Lakes residential development.[7]		5.0	$ 100,000.00	2	HRM, Seven Lakes
4C	Develop the Chezzetcook-Musquodoboit Trail, a proposed AT greenway between East Chezzetcook Road and Musquodoboit Harbour. [8]		10.0	$ 1,150,000.00	2	HRM, DNR,DHW,TCT
	Recommendation #5: Develop AT Supporting Infrastructure					
5A	Work with local businesses to facilitate the installation of bike racks at key destinations in the area.		-	$150-800 per rack, Staff/Volunteer Time	2	HRM, Businesses
5B	Work with Metro Transit to facilitate the installation of bike storage lockers at the Porters Lake MetroX terminal.		-	~$1000 per locker, Staff Time	3	Metro Transit
5C	SATA and HRM should encourage employers to provide shower and/or changing facilities for staff to encourage commuting by AT.		-	Staff/Volunteer Time	3	HRM, Businesses
5D	Provision of benches should be considered as part of recommended infrastructure upgrades. [8]		-	~$600/per bench	2	HRM
5E	Consider installating a basic bicycle repair station at a public place in the Study Area (Shopping Centre or the Lake & Shore Recreation Centre)		-	$250 - $1000	3	HRM
	Recommendation #6: Increase AT Awareness in the Study Area					
6A	Add AT wayfinding signage on key routes.		-	$ Varies, Staff/Volunteer Time	1	HRM, SATA
6B	Develop Study Area AT Map		-	$ Varies, Staff/Volunteer Time	1	HRM, SATA
6C	Contribute AT-related content in local publications including community newsletters and websites.		-	Staff/Volunteer Time	1	HRM, SATA
6D	Utilize social media websites to promote AT issues in the community.		-	Volunteer Time	1	HRM, SATA
6E	Continue to carry out existing AT-oriented events on annual basis.		-	Staff/Volunteer Time	1	HRM, SATA
6F	Explore opportunities for the initiation of a duathlon / triathlon race or similar competitive event in Porters Lake.		-	Volunteer Time	2	HRM, SATA
6G	Work with local schools to encourage participation in "Walk to School" initiatives.		-	Staff/Volunteer Time	2	HRM, SATA
6H	Consider hosting educational programs in the community including CAN-BIKE courses "Making Tracks".		-	Varies	2	HRM, SATA
6I	Consider implementing occasional "Cooperative Bike Repair Days"		-	Volunteer Time	2	HRM, SATA
6J	Promote SATA in the community in an ongoing effort to increase membership and interest in AT issues.		-	Volunteer Time	1	SATA
6K	Establish connections with appropriate stakeholders and funding sources to advocate for implementation of the plan.		-		1	HRM, SATA

Notes:

1. Order of magnitude construction cost estimates are preliminary and for planning purposes only. Costs for land acquisition, functional planning, and design are not included. Staff/volunteer time and marketing costs are also not considered.
2. Estimated cost of $180,000/km to upgrade former rail corridor, approximated based on construction costs for Chain of Lakes Trail.
3. Preliminary cost estimate provided by NSTIR.
4. Estimated cost of $400,000/km, based on rail corridor upgrade cost (see Note 2.) but increased to account for additional grading and curbwork.
5. The cost to add paved shoulders can vary considerably based on a variety of physical factors (i.e. existing road/ROW width, pavement type/condition, ditch configuration, etc.). The cost is highly dependent on whether or not the work is incorporated into an overall resurfacing project or is a specific shoulder widening project. Unit cost (per km) estimates obtained from both NSTIR and HRM have indicated a range between $75,000 and $300,000 per km. A more detailed assessment will be required to identify more exact costs for the specific road segments identified in this Plan.
6. Estimated cost of $350,000/km, based on rail corridor upgrade cost (see Note 2.) but increased to account for additional earthwork. Upgrades to Highway 107 water crossing bridges may be required.
7. Based on preliminary cost estimate completed as part of Seven Lakes Development, increased to account for upgrade from crusher dust to asphalt.
8. Cost estimate from *Chezzetcook-Musquodoboit Trail Concept Plan* (Ekistics, 2007).
9. Price list provided by "Bike Fixtation". Prices range from $250 (basic bicycle tire pump) to $1000 (outdoor repair stand).

Abbreviations

HRM	Halifax Regional Municipality	**DHW**	Nova Scotia Department of Health & Wellness	**TCT**	Trans Canada Trail
SATA	Shore Active Transportation Association	**DNR**	Nova Scotia Department of Natural Resources	**MRATV**	Marine Riders ATV Club
NSTIR	Nova Scotia Department of Transportation & Infrastructure Renewal	**DOE**	Nova Scotia Department of Environment	**PLSC**	Porters Lake Shopping Centre

Table 5-2: Proposed Plan Implementation Phasing

	Recommendation	Priority (1-3)	Stakeholders
	Phase 1 (0-5 Years)		
1A	Develop an AT greenway link on the former rail bed between Inspiration Drive and Stella Drive (incl. connections to Keating Dr. and Shopping Centre).[2]	1	MRATV,DNR,DHW,HRM, TCT, SATA
2D	Intersection improvements on Trunk 7 at James Roy Drive and Stella Drive.	1	NSTIR
6A	Add AT wayfinding signage on key routes.	1	HRM, SATA
6B	Develop Study Area AT Map	1	HRM, SATA
6C	Contribute AT-related content in local publications including community newsletters and websites.	1	HRM, SATA
6D	Utilize social media websites to promote AT issues in the community.	1	HRM, SATA
6E	Continue to carry out existing AT-oriented events on annual basis.	1	HRM, SATA
6J	Promote SATA in the community in an ongoing effort to increase membership and interest in AT issues.	1	SATA
6K	Establish connections with appropriate stakeholders and funding sources to advocate for implementation of the plan.	1	HRM, SATA
3N	Liaise with the NSTIR during implementation of the Blue Route to pursue any potential infrastructure upgrades that may become part of the route.	2	NSTIR
4A	Develop AT greenway link on the south side of Highway 107 between Route 207 and East Chezzetcook Road[6]	2	NSTIR, DOE,TCT
5A	Work with local businesses to facilitate the installation of bike racks at key destinations in the area.	2	HRM, Businesses
5D	Provision of benches should be considered as part of recommended infrastructure upgrades.[8]	2	HRM
6F	Explore opportunities for the initiation of a duathlon / triathlon race or similar competitive event in Porters Lake.	2	HRM, SATA
6G	Work with local schools to encourage participation in “Walk to School” initiatives.	2	HRM, SATA
6H	Consider hosting educational programs in the community including CAN-BIKE courses “Making Tracks”.	2	HRM, SATA
6I	Consider implementing occasional “Cooperative Bike Repair Days”	2	HRM, SATA
5B	Work with Metro Transit to facilitate the installation of bike storage lockers at the Porters Lake MetroX terminal.	3	Metro Transit
5C	SATA and HRM should encourage employers to provide shower and/or changing facilities for staff to encourage commuting by AT.	3	HRM, Businesses
5E	Consider installating a basic bicycle repair station at a public place in the Study Area (Shopping Centre or the Lake & Shore Recreation Centre)	3	HRM
	Phase 2 (5-10 Years)		
2A	Develop an AT greenway link on the south side of Trunk 7 between the William Porter Connector and Stella Drive.[4]	1	NSTIR,HRM,PLSC
3A	Add paved shoulders: Trunk 7 (O’Connell Drive to William Porter Connector)	1	NSTIR
2B	Add a paved shoulder to the north side of Trunk 7 between William Porter Connector and Stella Drive.	2	NSTIR, Property owners
1B	Develop an AT greenway link between Inspiration Drive and the William Porter Connector Highway 107 overpass (incl. add sidewalk to overpass).[3]	2	HRM,NSTIR,TCT
2C	Consider installation of a marked and signed crosswalk to accommodate traffic crossing Trunk 7 in the core area.	2	NSTIR
2E	Monitor / consider speed limit reduction when warranted on Trunk 7 between O’Connell Dr and W. Porter Connector, possibly from 70km/h to 60km/h.	2	NSTIR
3B	Add paved shoulders: Trunk 7 (Lake Echo to O'Connell Drive)	2	NSTIR
3C	Add paved shoulders: Trunk 7 (Stella Drive to East Chezzetcook Road)	2	NSTIR
4C	Develop the Chezzetcook-Musquodoboit Trail, a proposed AT greenway between East Chezzetcook Road and Musquodoboit Harbour[8]	2	HRM, DNR,DHW,TCT
1C	Develop an AT greenway link on the former rail bed between the William Porter Connector Highway 107 overpass and Les Collins Avenue.[2]	3	MRATV,DNR,DHW,HRM, TCT, SATA
	Phase 3 (10-20 Years)		
3D	Add paved shoulders: West Porters Lake Road (Trunk 7 to Bellefontaine Road)	2	NSTIR
3E	Add paved shoulders: Route 207 (Trunk 7 to Bellefontaine Road)	2	NSTIR
4B	Develop AT greenway link as part of the Seven Lakes residential development.[7]	2	HRM, Seven Lakes
3F	Add paved shoulders: William Porter Connector (Highway 107 to Trunk 7)	3	NSTIR
3G	Add paved shoulders: West Porters Lake Road (Bellefontaine Road to Crowell Road)	3	NSTIR
3H	Add paved shoulders: Crowell Road (Marjorie Drive to Route 207)	3	NSTIR
3I	Add paved shoulders: Route 207 (Bellefontaine Road to Seaforth)	3	NSTIR
3J	Add paved shoulders: Bellefontaine Road (West Porters Lake Road to Route 207)	3	NSTIR
3K	Add paved shoulders: Myra Road (Trunk 7 to Deepwood Drive)	3	NSTIR
3L	Add paved shoulders: Alps Road (Trunk 7 to Heideberg Lane)	3	NSTIR
3M	Add paved shoulders: Conrod Settlement Road (Trunk 7 to Seven Lakes Development)	3	NSTIR
3N	Add paved shoulders: East Chezzetcook Road (Trunk 7 to Highway 107)	3	NSTIR

Abbreviations

HRM	Halifax Regional Municipality	**DHW**	Nova Scotia Department of Health & Wellness	**TCT**	Trans Canada Trail
SATA	Shore Active Transportation Association	**DNR**	Nova Scotia Department of Natural Resources	**MRATV**	Marine Riders ATV Club
NSTIR	Nova Scotia Department of Transportation & Infrastructure Renewal	**DOE**	Nova Scotia Department of Environment	**PLSC**	Porters Lake Shopping Centre

5.3 Funding Mechanisms

There are several potential sources of funding that should be considered as a means of implementing the AT improvements recommended in this plan. The following sections outline a number of existing funding mechanisms administered by government departments and independent organizations that offer funding mechanisms for AT projects.

5.3.1 HRM Planning & Infrastructure

- HRM Facility Development: The HRM Facility Development Section provides funding each year to member groups of the Halifax Regional Trails Association (HRTA) that supports the development and maintenance of AT greenways in the region. Members can apply for funding for both capital costs and operating costs. The amount of funding typically changes each year, however, as an example the 2014 budgeted amounts for capital and operating costs are $50,000 and $25,000, respectively. These funds have been instrumental in the success of nearby trail groups including the Atlantic View Trail Association and the Musquodoboit Trailway Association. It is important to consider that the HRTA funding supports only non-motorized facilities.
- HRM Transportation Planning (AT Plan Implementation Budget): The HRM Transportation Planning Section administers an annual budget of approximately $1-million that is allocated to projects throughout the region in support of the implementation of HRM's AT Plan. These funds are also intended to support non-motorized facilities.

5.3.2 Nova Scotia Health & Wellness

The Nova Scotia Department of Health & Wellness has established multiple grant programs that support the planning, development, and maintenance of AT initiatives.

- Recreational Facility Development (RCD) Fund: Provides support to *"community groups, municipalities and other 'not for profit' organizations to develop facilities in order to increase public participation in sport and physical recreation"*. The fund can provide up to 1/3 of the cost for the development of recreational facilities, up to a maximum of $150,000. It is important to note that in order to receive a grant from the RCD Fund for a trail development project, the facility must accommodate all users (including motorized uses) unless otherwise decided through a formal community consultation process, and the proponent must hold a long-term lease (Letter of Authority from DNR).
- Trail Maintenance Program: Provides funding to community groups to assist with the costs of trail maintenance. The program provides a 50% contribution (up to $1,000) for a trail maintenance project. For longer trails, the contribution can be increased to approximately $100 per km.
- Planning Assistance Program: Provides funding support to assist *"community organizations and municipalities in obtaining professional assistance in planning, designing and researching proposed and existing sport and physical recreation facilities".* The program can provide up to 50% of the cost (up to $10,000) for projects that support the planning of recreational facilities including facility planning studies, schematic design, building audits, and research programs.
- Community Trails Leadership Fund: Provides funding for members of the trail development community to obtain training related to leadership, organizational development, and capacity development. The fund can also be used to acquire expertise needed for specific aspects of trail projects. Up to 50% of the required funds can be provided over a maximum time period of three years (subject to annual renewal approval).

5.3.3 Nova Scotia Moves

Nova Scotia Moves is a grant program administered by the Nova Scotia Department of Energy that provides funding support for *"promising plans and initiatives, engagement, and innovation at the local level, and to support regional or even provincial initiatives that enhance and help align local efforts"* aimed at making transportation more sustainable. The program provides grants of up to 50% of eligible costs, up to a maximum of $200,000, for projects that enhance the sustainability of transportation in Nova Scotia through, for example, improvements to active transportation, transit, community engagement, and transportation efficiency. In terms of active transportation, the Nova Scotia Moves grants are intended to support utilitarian-based AT infrastructure and programs. Since 2012, a total of approximately $2.2-million has been awarded to projects throughout the province.

5.3.4 Trans Canada Trail

The Trans Canada Trail (TCT) is a network of trails that is intended to ultimately provide a linked facility across Canada. A non-profit charitable organization, The TCT distributes funding to trail groups across the country for planning and construction of trail sections that contribute to the ultimate vision for the trail. The organization has established a goal of connecting the Trail by 2017 (Canada's 150th birthday), and has committed to a push to meet this deadline. In January 2014, announced a funding commitment of $25-million to meet the 2017 trail connection deadline.

TCT has established the following funding guidelines to meet this goal:

- Up to 50% funding may be provided for:
  - Construction costs for trail segments identified in the 2017 TCT Connection Plan
  - Gaps in the trail that were caused by natural disasters
  - Opening events for trail segments (up to $2500)

- Up to 100% funding may be provided for:
  - Trail Planning (Feasibility studies and assessments, concept plans, etc.)
  - Trail signage (wayfinding and safety)

The TCT is committed to funding only non-motorized trail facilities[10].

[10] *Greenways: Vision and Core Principles* (Trans Canada Trail, 2009)

6.0 Conclusion

The Porters Lake area, which has been designated as a "Rural Growth District" in HRM's 5-year Regional Plan Review (RP+5), is undergoing an exciting period of growth. Recently approved residential developments in the area are expected to add several hundred residential units over the next 10-20 years, which should translate to a significant growth in population. The recent expansion of transit service to Porters Lake, in addition to the initiation of this AT planning process, reaffirms the commitment that HRM has made to the area as a growth centre.

The intent of this planning process has been to develop an AT Plan that supports an increase in active transport options in Porters Lake and the surrounding communities. This AT Plan provides a guiding document that will help facilitate AT investments and activities over the next several years. Incorporating background research, review of existing conditions, technical review, and consultation with stakeholders and the general public, the recommendations included in the Plan will improve the functionality and connectivity of the AT network and increase awareness of AT issues in the community.

Implementation of the recommendations included in this plan will require considerable time and investment. With an anticipated 20-year build out, steady incremental progress will be necessary. Ongoing support from HRM and its funding partners, along with the active community groups that have been instrumental in initiating the development of this plan, will be critical to its successful implementation.

7.0 References

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3. *Chezzetcook Musquodoboit Trail Concept Plan.* Ekistics. 2007.

4. 5-Year Highway Improvement Plan: 2013-12 Edition. Nova Scotia Transportation & Infrastructure Renewal. 2013.

5. *Reasons for Highway Shoulders* (Oregon Department of Transportation)

6. *Paved Shoulder Width for Active Transportation (Detail).* Nova Scotia Transportation & Infrastructure Renewal. 2011.

7. *Reasons for Highway Shoulders.* Oregon Department of Transportation. 2010.

8. *State Best Practice Policy for Shoulders and Walkways.* Federal Highway Administration. 2011.

9. *The Impact of All Terrain Vehicle Access on the Demand for a Proposed Trail*. Janmaat, J. B. vanBlarcom (University of British Columbia – Okanagan). 2007.

10. *Mount Blue ATV Trail Impact Study:* Report to the Maine Department of Conservation Bureau of Parks and Recreation.1991.

11. *Report on Policy for Off Road Vehicle Use in Massachusetts Forests and Parks.* Massachusetts Executive Office of Environmental Affairs. 1995.

12. *Procedures for Community-Based Trail Planning and Development on Abandoned Railway Corridors.* Department of Natural Resources / Heath Promotion and Protection, Sport and Recreation.2005.

13. *Trail Construction / Maintenance and Trail Crossings.* Nova Scotia Transportation & Infrastructure Renewal. 2012.

14. *Bikeway Design Guidelines for Canada.* Transportation Association of Canada. 2012.

15. *Urban Bikeway Design Guide.* National Association of City Transportation Officials. 2013.

16. *Bicycle End*-of-Trip Facilities: A Guide for Canadian municipalities and employers. End of Trip Facilities. Transport Canada. 2010.

17. *Greenways: Vision and Core Principles.* Trans Canada Trail. 2009.

Appendix A
Community Survey Results

Summary Report For Porters Lake Survey

Question		Answered	Skipped
1. Where do you live (street, roadway, community)?		31	5
2. Please tell us your age:		35	1
18 under	0.0% (0)		
19-25	8.6% (3)		
26-34	8.6% (3)		
35 – 44	37.1% (13)		
45 – 54	17.1% (6)		
55 – 64	17.1% (6)		
65+	11.4% (4)		
3. Does your household have children between the ages of 0-18?		36	0
Yes	47.2% (17)		
No	52.8% (19)		
4. If yes, how many?		17	19
5. Do you think there is value in improving active transportation routes in your community, making it easier for children and adults of all ages to walk and cycle?		34	2
Yes	97.1% (33)		
No	2.9% (1)		
6. Do you, or does any member of your household, use any mobility devices? Check all that apply.		9	27
Stroller	66.7% (6)		
Scooter	11.1% (1)		
Wheelchair	0.0% (0)		
Walker	22.2% (2)		
Other	33.3% (3)		
7. Please specify:		2	34
8. Do you enjoy walking?		35	1
Yes	91.4% (32)		
No	8.6% (3)		
9. If no, why?		6	30
I do not have time to walk	16.7% (1)		
I am physically unable to walk	16.7% (1)		
There are no safe facilities for walking	66.7% (4)		
Other (please specify)	50.0% (3)		
10. If you answered other, please specify		3	33
11. Where do you walk to:		32	4
Work/school	9.4% (3)		
Shopping	15.6% (5)		
Public transit	12.5% (4)		
Recreational/fitness	75.0% (24)		
Other	28.1% (9)		
12. Other:		7	29
13. How long does it take you to walk to work/school? (mins)		12	24
14. How long does it take you to walk to go shopping?		17	19
15. How long does it take you to walk to public transit?		18	18
16. How long does it take you to walk to recreational/fitness opportunities?		22	14

17. How long does it take you to walk to the other location you specified?		8	28
18. Do you enjoy cycling?		34	2
Yes	73.5% (25)		
No	26.5% (9)		
19. If you chose no, why?		8	28
I do not have time to cycle	12.5% (1)		
I do not own a bike	50.0% (4)		
I am physically unable to cycle	25.0% (2)		
It is unsafe to cycle.	50.0% (4)		
Other (please specify)	12.5% (1)		
20. If you chose other, please specify		1	35
21. Where do you cycle to:		20	16
Work/school	20.0% (4)		
Shopping	45.0% (9)		
Public Transit	20.0% (4)		
Recreational/fitness	85.0% (17)		
Other	20.0% (4)		
22. Other, specify:		3	33
23. How long does it take you to cycle to work/school? (mins)		8	28
24. How long does it take you to cycle to go shopping?		14	22
25. How long does it take you to cycle to public transit?		12	24
26. How long does it take you to cycle to recreational/fitness opportunities?		17	19
27. How long does it take you to cycle to the other location you specified?		5	31
28. How many members of your household cycle on a regular basis (three or more times per week)?		22	14
29. Do you use public transit?		34	2
Yes	35.3% (12)		
No	64.7% (22)		
30. How frequently do you use public transit?		10	26
31. Do you use MusGo Rider?		32	4
Yes	15.6% (5)		
No	84.4% (27)		
32. How frequently do you use MusGo Rider?		5	31
33. Are you interested in using the forthcoming MetroX service into Dartmouth and Halifax?		33	3
Yes	84.8% (28)		
No	15.2% (5)		

34. Please rate your concerns about walking/cycling in your neighborhood?

Speeding cars/unsafe driving	Answered	Skipped
Response **Not a concern**	(1)	(35)
Response **Somewhat of a concern**	(7)	(29)
Response **A concern**	(10)	(26)
Response **Major concern**	(17)	(19)
Response **Personal safety**	(0)	(36)
Response **Personal safety**	(0)	(36)
Response **Lack of places to walk or cycle**	(0)	(36)
Response **Lack of places to walk or cycle**	(0)	(36)
Response **Lack of connections to public transit**	(0)	(36)
Response **Lack of connections to public transit**	(0)	(36)
Response **Other, please specify**	(0)	(36)
Response **Other, please specify**	(0)	(36)

Missing/inadequate crossings	Answered	Skipped
Response **Not a concern**	(4)	(32)
Response **Somewhat of a concern**	(10)	(26)
Response **A concern**	(4)	(32)
Response **Major concern**	(17)	(19)
Response **Personal safety**	(0)	(36)
Response **Personal safety**	(0)	(36)
Response **Lack of places to walk or cycle**	(0)	(36)
Response **Lack of places to walk or cycle**	(0)	(36)
Response **Lack of connections to public transit**	(0)	(36)
Response **Lack of connections to public transit**	(0)	(36)
Response **Other, please specify**	(0)	(36)
Response **Other, please specify**	(0)	(36)

Inadequate sidewalk availability	Answered	Skipped
Response **Not a concern**	(5)	(31)
Response **Somewhat of a concern**	(2)	(34)
Response **A concern**	(6)	(30)
Response **Major concern**	(23)	(13)
Response **Personal safety**	(0)	(36)
Response **Personal safety**	(0)	(36)
Response **Lack of places to walk or cycle**	(0)	(36)
Response **Lack of places to walk or cycle**	(0)	(36)
Response **Lack of connections to public transit**	(0)	(36)
Response **Lack of connections to public transit**	(0)	(36)
Response **Other, please specify**	(0)	(36)
Response **Other, please specify**	(0)	(36)

Personal safety	Answered	Skipped
Response **Not a concern**	(4)	(32)
Response **Somewhat of a concern**	(8)	(28)
Response **A concern**	(9)	(27)
Response **Major concern**	(15)	(21)
Response **Personal safety**	(0)	(36)
Response **Personal safety**	(0)	(36)
Response **Lack of places to walk or cycle**	(0)	(36)
Response **Lack of places to walk or cycle**	(0)	(36)
Response **Lack of connections to public transit**	(0)	(36)
Response **Lack of connections to public transit**	(0)	(36)
Response **Other, please specify**	(0)	(36)
Response **Other, please specify**	(0)	(36)

Other, please specify	Answered	Skipped
Response **Not a concern**	(0)	(36)
Response **Somewhat of a concern**	(0)	(36)
Response **A concern**	(0)	(36)
Response **Major concern**	(0)	(36)
Response **Personal safety**	(0)	(36)
Response **Personal safety**	(0)	(36)
Response **Lack of places to walk or cycle**	(0)	(36)
Response **Lack of places to walk or cycle**	(0)	(36)
Response **Lack of connections to public transit**	(0)	(36)
Response **Lack of connections to public transit**	(0)	(36)
Response **Other, please specify**	(0)	(36)
Response **Other, please specify**	(0)	(36)

Lack of places to walk or cycle	Answered	Skipped
Response **Not a concern**	(5)	(31)
Response **Somewhat of a concern**	(9)	(27)
Response **A concern**	(8)	(28)
Response **Major concern**	(13)	(23)
Response **Personal safety**	(0)	(36)
Response **Personal safety**	(0)	(36)
Response **Lack of places to walk or cycle**	(0)	(36)
Response **Lack of places to walk or cycle**	(0)	(36)
Response **Lack of connections to public transit**	(0)	(36)
Response **Lack of connections to public transit**	(0)	(36)
Response **Other, please specify**	(0)	(36)
Response **Other, please specify**	(0)	(36)

Lack of connections to public transit	Answered	Skipped
Response **Not a concern**	(10)	(26)
Response **Somewhat of a concern**	(3)	(33)
Response **A concern**	(7)	(29)
Response **Major concern**	(16)	(20)
Response **Personal safety**	(0)	(36)
Response **Personal safety**	(0)	(36)
Response **Lack of places to walk or cycle**	(0)	(36)
Response **Lack of places to walk or cycle**	(0)	(36)
Response **Lack of connections to public transit**	(0)	(36)
Response **Lack of connections to public transit**	(0)	(36)
Response **Other, please specify**	(0)	(36)
Response **Other, please specify**	(0)	(36)

35. Would you like to walk or cycle more? 35 1

Yes	100.0% (35)	
No	0.0% (0)	

36. What would encourage you to walk or cycle more?

Better street lighting	Answered	Skipped
Response **No**	(13)	(23)
Response **Mild incentive**	(8)	(28)
Response **Somewhat motivating**	(8)	(28)
Response **Yes**	(7)	(29)

Slower vehicle traffic	Answered	Skipped
Response **No**	(8)	(28)
Response **Mild incentive**	(9)	(27)
Response **Somewhat motivating**	(9)	(27)
Response **Yes**	(10)	(26)

Paved shoulders on the roads	Answered	Skipped
Response **No**	(0)	(36)
Response **Mild incentive**	(1)	(35)
Response **Somewhat motivating**	(6)	(30)
Response **Yes**	(28)	(8)

Better public transit	Answered	Skipped
Response **No**	(9)	(27)
Response **Mild incentive**	(6)	(30)

Response **Somewhat motivating**	(3)	(33)
Response **Yes**	(17)	(19)

Maps/signs for routes	Answered	Skipped
Response **No**	(8)	(28)
Response **Mild incentive**	(5)	(31)
Response **Somewhat motivating**	(10)	(26)
Response **Yes**	(12)	(24)

Improved street crossings	Answered	Skipped
Response **No**	(4)	(32)
Response **Mild incentive**	(12)	(24)
Response **Somewhat motivating**	(4)	(32)
Response **Yes**	(15)	(21)

Sidewalks	Answered	Skipped
Response **No**	(5)	(31)
Response **Mild incentive**	(3)	(33)
Response **Somewhat motivating**	(6)	(30)
Response **Yes**	(21)	(15)

Improved security (neighborhood watch, police presence)	Answered	Skipped
Response **No**	(10)	(26)
Response **Mild incentive**	(13)	(23)
Response **Somewhat motivating**	(9)	(27)
Response **Yes**	(4)	(32)

More walkable village centre (Superstore/mall area)	Answered	Skipped
Response **No**	(1)	(35)
Response **Mild incentive**	(5)	(31)
Response **Somewhat motivating**	(11)	(25)
Response **Yes**	(18)	(18)

Upgrade off-road trail systems for walking and cycling (e.g. rails to trails)	Answered	Skipped
Response **No**	(0)	(36)
Response **Mild incentive**	(3)	(33)
Response **Somewhat motivating**	(5)	(31)
Response **Yes**	(25)	(11)

37. What influences you to choose a route to walk or cycle?			33	3
The fastest and most direct route	12.1% (4)			
The calmest streets with the least traffic	63.6% (21)			
Existing bike lanes	39.4% (13)			
Views and scenery	69.7% (23)			
Off-road trails (e.g.rails to trails)	72.7% (24)			
Other (please specify)	9.1% (3)			

38. Other:	2	34

39. What motivates you to walk or cycle? (check all that apply)			34	2
Good weather	82.4% (28)			
Bike parking	29.4% (10)			
Items to carry	29.4% (10)			
Energy level	55.9% (19)			
Other (please specify)	32.4% (11)			

40. Other:		14	22
41. A walking/cycle network should consider: (check all that apply)		35	1
Increased connections (reduce gaps in the bike lane/path network along your route)	77.1% (27)		
Signage directing walkers/cyclists to destinations	48.6% (17)		
Improved pavement conditions and/or sidewalks	80.0% (28)		
More off-road trails for walking and cycling	62.9% (22)		
Not interested in an improved AT network	11.4% (4)		
Other?	22.9% (8)		
42. Other:		10	26
43. Which single change would do the most to make Porters Lake and surrounding communities a better place for walking and/or cycling?		34	2
More routes	29.4% (10)		
Better connections	29.4% (10)		
Better bike parking	2.9% (1)		
Safer road conditions	58.8% (20)		
Better access to community amenities (schools, stores, etc.)	20.6% (7)		
Other?	14.7% (5)		
44. Other:		4	32
45. If only one route was built from your house to a destination, what destination would that be?		21	15