Making Connections:

2014-19 Halifax Active Transportation Priorities Plan

halifax.ca/activetransportation

HALIFAX

This document was prepared by staff of the Halifax Regional Municipality.

Principle Authors
Hanita Koblents, Active Transportation Coordinator
David MacIsaac, Transportation Demand Management Program Supervisor

Contributors/ Reviewers
Jane Fraser, Director of Planning and Infrastructure
David McCusker, P.Eng, Strategic Transportation Planning Manager
Emily Macdonald, Strategic Transportation Planner Summer Student
Mary McInnes, Strategic Transportation Planner Summer Student
Darren Talbot, GIS Technician/Cartographer
Peter Miles, GIS Technician
Paul Euloth, Regional Trails Coordinator
Jessie Debaie, Assistant Trails Coordinator
Dawn Neil, Trails Specialist - Eastern
Maria Jacobs, Regional Planner
David Lane, Regional Planner
Anne Sherwood, P.Eng, Design Engineer
Jeff Spares, P.Eng, Senior Design Engineer
Roddy MacIntyre, P.Eng, Traffic Services Supervisor
Patrick Doyle, Senior Traffic Analyst
Samantha Trask, Traffic Analyst
Ashley Blisset, P.Eng, Development Engineer
Andrew Bone, Community Planner
Patricia Hughes, Supervisor, Service Design & Projects, Metro Transit
Peter Bigelow, Public Lands Planning Manager
Jan Skora, Coordinator, Public Lands Planning
Robert Jahncke, Landscape Architect, Public Lands Planning
Peter Duncan, Manager, Asset and Transportation Planning
Gord Hayward, Superintendent Winter Operations
Margaret Soley, Acting Coordinator - Parks
Scott Penton, Active Living Coordinator
Richard MacLellan, Manager, Energy & Environment
Andre MacNeil, Sr. Financial Consultant, Budget & Financial Analysis

This document was guided and reviewed by members of Halifax's Active Transportation Advisory Committee:

Janet Barlow, Ecology Action Centre
Elizabeth Pugh, Nova Scotia Department of Transportation and Infrastructure Renewal
Walter Regan, Halifax Regional Trails Association
Clive MacGregor, Halifax Cycling Coalition

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1. EXECUTIVE SUMMARY

This Active Transportation Priorities Plan provides a review and update to HRM's 2006 Active Transportation Functional Plan and proposes priority initiatives for the next five years. The purpose of this plan is to identify the means by which the municipality will work to double the number of residents who chose to walk or bicycle for trips to work, school, shopping, and services. This objective is tied to overarching objectives in the Regional Municipal Planning Strategy to increase the number of walking and cycling trips and to develop complete communities.

The objective to provide facilities and programs to encourage more walking and cycling in the municipality is shared by jurisdictions in Nova Scotia, Canada and around the world. Starting in Europe in the 1970's and in North America in the 1990's, jurisdictions have increasingly incorporated facilities, education and promotion for walking and cycling into their standard practices and operations. As with other jurisdictions, our progress has been steady, but there remains much to accomplish. Retrofitting existing roadways and changing established mobility patterns takes time.

This Active Transportation (AT) Priorities Plan had three objectives. They were to:

1. Engage stakeholders and the public to find out what is working and also where they feel the gaps are;
2. Review progress since the 2006 plan was approved; and,
3. Set priorities for the next five years.

1.1 Objective #1 - Engagement

The engagement process to develop this priorities plan involved meetings with internal and external stakeholders, public open houses and an online survey. The results of this consultation are detailed in Section 3 of this review. While many agreed that there has been progress since 2006, much remains to be done if we are to meet AT modal share objectives. A key comment was on the need to *connect* active transportation facilities. Another widespread comment was on the importance of attracting the widest range of residents to walking and cycling, regardless of age or ability. Finally, the public and stakeholders provided feedback on potential projects and programs and their input was among the key considerations in establishing the priorities described in this plan.

1.2 Objective #2 – Progress Review

In reviewing activities since 2006 it is clear that there has been progress in developing the active transportation network. Progress is described at the beginning of Sections 5, 6, 7 & 8. Highlights include:

- Gaps in the sidewalk network have been closed and amenities such as accessible curb ramps at intersections and modern pedestrian signals (e.g. with countdown timers and audible cues) are gradually being added to the inventory where appropriate.
- The off-road greenway network has grown from 68km to 135 km.
- The number of kilometres of on-road bike lanes has grown from 15 km to 108 km.
- There have been new initiatives to foster pedestrian and crosswalk safety.
- Safety promotion and skills training is expanding.

1.3 Objective #3 – Set Future Priorities

The priorities established in this plan represent the key next steps to attaining the municipality's active transportation objectives. They are described in Sections 5, 6, 7 & 8 and a vision for what the region could look like if they are achieved is described in Section 9. All of the actions are summarized in the implementation section of this plan (Section 10) where specific projects are identified and budgets proposed.

The priorities focus on connecting existing infrastructure, developing complete active transportation networks, and making active transportation accessible to the greatest number of residents. This plan recognizes that approaches and priorities differ across various types of communities (i.e. the Regional Centre, urban areas outside the centre but within the urban service boundary, and rural communities).

The plan also recognizes that increasing walking and cycling requires investments in larger-scale infrastructure (e.g. bridges), smaller-scale infrastructure (e.g. bike parking), and education and promotion.

There are important factors that influence active transportation modal share that are beyond the scope of this plan. Probably the most important factor is population density and the proximity of destinations. This is particularly evident on the Halifax peninsula where between 25% and 50% of residents walk to work and up to 5% cycle (compared to about 10% and 1% respectively across the municipality). Other important factors include traffic safety measures for pedestrians, provincial laws and regulations, and connections with other transportation modes (e.g. transit). This plan references those factors and identifies some of the ways in which efforts could be co-ordinated within the municipality as well as with outside agencies.

Finally, this AT Priorities Plan recognizes that planning and implementing active transportation infrastructure and programs cannot be done in isolation from other priorities and needs. For example, implementing new on-road bike facilities must incorporate public engagement and consider the needs of residents and businesses. It also recognizes that the public right-of-way is shared with motor vehicles, trucks, buses and on-street parking. Balancing all of these uses while ensuring safe and connected active transportation facilities is possible, but will require effective planning and design, communications with all those affected, campaigns for education and awareness, and a clear and transparent decision-making processes.

The theme of "making connections" is central to the municipality's active transportation objectives. A fundamental goal of the plan is to make the connections between where people live and where they work, shop, access transit, access services and attend school as easy and direct as possible by foot or by bicycle. The theme is further re-enforced in this plan's goal of connecting the sometimes disparate segments of active transportation infrastructure; this includes bike lanes, transit stops that are separated from the sidewalk network, and bridges to connect active transportation greenways. It is about connecting and coordinating factors such as density and land use, municipal operations, and recreation programs across Municipal activities to ensure that walking and cycling is encouraged in a variety of ways.

2. INTRODUCTION

2.1 Background and Objectives of 2006 AT Plan

The Halifax Regional Municipality's 2006 Active Transportation Functional Plan (AT Plan) is one of five functional plans that together constitute the municipality's Transportation Master Plan. It was approved by Regional Council in November 2006 and aims to support the outcomes of the Regional Municipal Planning Strategy. The benefits of supporting AT are extensively documented in Appendix 'A' of the original AT Plan, but in brief they include:

1. **Quality of Life** – AT facilities are often perceived to enhance personal well-being, and overall quality of life in communities. For example, *MoneySense* magazine includes being able to 'walk or bike to work' as one of the factors in their annual review of *Canada's Best Places to Live*.
2. **Mobility** – every trip shifted to AT modes represents fewer vehicles on the roads, which benefits all road users, including those who must still drive. Having a number of mobility *options* allows people to choose the most efficient travel mode to meet their needs.
3. **Health** – physical activity can be accomplished during commuting time – a timesaver for busy people. A growing number of advocates for AT improvements come from the public health sector as many of the chronic diseases of our time are related to physical *inactivity*.
4. **Economic** –benefits have been documented in numerous studies and include: increased home values near AT facilities; improved productivity of employees commuting actively; reduced individual costs of commuting, and a healthier population reducing strain on public health care.
5. **Environment** – AT is a non-polluting way to travel.
6. **Recreation** – AT infrastructure components (bike lanes, greenways, etc.) can do double duty as recreational amenities.

The 2006 AT Plan attempted to bring all aspects of AT into one document with the goal of creating an integrated network. Prior to the 2006 plan, sidewalks, trails, and bicycle lanes all happened in relative isolation and the need for a coordinated approach was evident. The AT Plan had the following vision:

"Develop a region-wide, visible and connected Active Transportation network of on-road and off-road facilities that are convenient, accommodate the needs of existing and future users and promote an increase in non-motorized vehicle travel, particularly for short distance trips. This network will be supported by various programs, policies and strategies that will help and encourage Active Transportation year-round, and improve the quality of life for both residents and visitors to the area and make HRM one of the most desirable municipalities in which to live, work and visit in North America."

The major (25 year) goals of the plan, which remain relevant today, were to:

1. Establish a complete, integrated and readily accessible region-wide AT network serving urban, suburban and rural areas;
2. Double the number of person-trips using AT modes by 2026; and,
3. Make conditions for AT modes safer through the development of appropriate facilities in combination with promotion and safety education.

An evaluation of how far we have come in achieving these goals will be carried out at the beginning of each of Sections 5, 6, 7, & 8.

2.2 Regional Plan Review

Concurrent with this review of the AT Plan, the 25 year Regional Plan has also been under review. At the writing of this document, the fourth draft confirmed the continued relevance of active transportation in achieving the overall transportation objectives of the Region (see inset).

Transportation Objectives
(From Regional Plan - revision draft 4)

*1. Implement a sustainable transportation strategy by providing a choice of integrated travel modes emphasizing public transit, **active transportation,** carpooling and other viable alternatives to the single occupant vehicle;*

2. Promote land settlement patterns and urban design approaches that support fiscally and environmentally sustainable transportation modes;

3. Forecast HRM's need for mobility and provide service and infrastructure to meet this demand while influencing choices towards transportation sustainability; and

*4. Design **complete streets** for all ages, abilities, and modes of travel.*

2.3 Purpose of the AT Plan Review

The 2006 AT Plan made it clear that increasing the use of active transportation in a region as large and diverse as this required a multi-facetted approach with improvements in infrastructure, safety, and education, all happening against a backdrop of increasingly compact and mixed land use development. While written as a 20 year plan, reviewing it at this time will allow the municipality to reflect on its success and challenges, readjust the approach as required, and chart the course for the next phase of its implementation.

The three main objectives of this review were to:

1. Engage stakeholders and the public to find out what seems to be working and also where they feel the gaps are;
2. Review progress since the 2006 plan was approved; and,
3. Set priorities for the next five years.

3. STAKEHOLDER AND PUBLIC PERSPECTIVES

3.1 Stakeholder Consultation

AT projects and programs are implemented by multiple business units within the municipality and agencies outside of it also play important roles in achieving AT objectives. For these reasons, the first phase of consultation included meetings with internal and external stakeholder groups. Internal groups included other business units involved in AT development and external groups included other government agencies, non-profit organizations and other groups with an interest in active transportation. A complete list of stakeholder departments and groups is included in Appendix A. The groups were asked how their day to day work intersected with the AT program; how they thought AT objectives could be further advanced; and where further opportunities for collaboration could be found.

3.1.1 Internal

Key themes emerging from the internal consultation with other municipal business units included:

Collaboration While many internal silos are beginning to come down, there is still room for more collaboration. One way to make this happen is to ensure that all AT routes and projects identified in the plan be available to all staff via the internal GIS system. Also, AT routes could be considered for adoption into the Municipal Planning Strategies or Land Use Bylaws where it makes sense to do so. Consistent standards also may be needed for fencing, bridges, signs, gates, widths, and maintenance. These steps should make it easier to integrate AT opportunities when private development or other infrastructure projects are happening.

Clarity The AT plan should have clear recommendations for Council to consider; identify clear routes which are priorities for AT including the type of infrastructure which may be considered along each route; and clearly identify the key projects for which budget will be needed. The AT Plan as it stands is too complex and needs to be simplified and made more accessible so that everyone can read it and understand the opportunities it holds for residents. The priorities must be established through a broader public consultation process.

Connection AT infrastructure in the municipality is disjointed. Bike lanes, sidewalks, and trails often begin and end in seemingly random places. For the infrastructure to be useful for transportation purposes, a priority must be placed on connectivity and the development of a network. A wayfinding system is needed to help make the connections for people until the infrastructure gaps can be filled.

Communities Community design factors hugely into whether or not active travel is likely. For example, if there are many different land uses that are relatively close together, AT is more likely (i.e. mixed-use, compact development form). If land-uses are separate and far from each other, AT is less likely. Zoning changes which facilitate mixed use, compact development, already supported by the Regional Plan, may be one of the keys to increasing the number of people who use active transportation.

3.1.2 External – Provincial Government Agencies

There are a number of provincial initiatives which support active transportation initiatives. *Thrive!* (the strategy to address childhood obesity) and *Choose How You Move* (the provincial sustainable transportation strategy) are both supportive of AT. At a staff level, there is willingness to collaborate, share data, and work jointly with municipal staff on efforts aimed at communication, education and outreach related to AT. There are also open lines of communication across the levels of government -- Municipal staff representatives sit on the Union of Nova Scotia Municipalities (UNSM) Active

Transportation Committee with various provincial agency representatives, and a representative of the Nova Scotia Department of Transportation and Infrastructure Renewal is an active member of the Halifax Active Transportation Advisory Committee.

3.1.3 External

Five different meetings were held with various NGO's, agencies and businesses, each with its own theme: walking, cycling, businesses, public health, and outreach & education. These stakeholders were asked to identify what appears to be working well in the municipality, and what should be done in the next five years.

What has worked well?

There is a sense from these groups that the municipality is making progress on active transportation, but that there is still a great deal that needs to be done. They feel the term *Active Transportation* is more widely understood than it was five years ago and that most people seem to understand the link between mental/ physical health and active transportation. Greenways (multi-use AT trails), many of which have been built in association with volunteer community groups, are seen as very successful, as are initiatives to promote them like the *Get Out - Check it Out* pamphlets and the *Bicycle Routes & Greenways* map.

Summary of Stakeholders' Recommendations for next 5 years:

Infrastructure

- AT infrastructure must be connected to attract more users.
- Fix the small things: curb ramps, access to bus stops, etc.
- AT routes should be accessible for 8 to 80 year olds, i.e. children and seniors should feel comfortable on them.
- A route identification and wayfinding system should be developed.
- AT infrastructure can be expensive and more budget needs to be allocated to build a network.
- The public must assist in prioritizing routes and projects (they must also understand the costs).
- Develop trail standards (e.g. surface material, width, fencing, etc.) and introduce more development regulations to ensure pedestrian and cycling-friendly communities.
- There needs to be a focus on making it convenient for people to choose AT for at least part of their trip e.g. bike or walk to the terminal, then take a bus.
- Improve clarity around sidewalk construction and maintenance. Make sidewalk connection a priority e.g. new sidewalks should link facilities, high density uses, and transit.
- Take advantage of utility corridors (water, sewer, gas, etc.) for off road infrastructure.

Education, Promotion, Safety

- More education is necessary to improve safety for AT users, e.g. share the road education for motorists, cyclist skill building workshops, and more education about trail etiquette.
- Need to better promote AT advantages for health, economy, and recreation.
- Support initiatives like SWITCH, Jane's Walks, etc. and help make them easier to implement.
- Work to make it more appealing and convenient for students to travel to school via AT.
- Continue to consider CPTED (Crime Prevention through Environmental Design) in facility location, and consider emergency response on trails.

Evaluation

- More data collection is needed e.g. bike counts, demographics, modal share.

3.2 Public Consultation

A key objective of the AT Plan review was to consult with residents on their priorities for active transportation over the next five years. This section summarizes what we heard from residents.

3.2.1 Open Houses & Online Survey

Two public workshops were held in the fall of 2012 to inform a bicycle network plan for peninsular Halifax[1]. This plan was translated into a draft version of Map 2C of this report, which along with all of the other draft AT maps, were shared with the public for review the following spring at six open houses held in March and April of 2013 (4:30 – 8:30 pm) in the communities of Cole Harbour, Dartmouth, Halifax, Fairview, Bedford, and Sackville (Appendix B). There were two staff presentations each evening followed by presentations from local trails groups. Municipal staff members responsible for pedestrian infrastructure, trails, bikeways, traffic control and engineering were on hand to respond to questions and concerns. Pens, sticky notes, and a 'dotmocracy' exercise (described in more detail below) were available to encourage feedback. A series of panels describing the draft AT Plan were also available for review (www.halifax.ca/activetransportation/ATPlanReview.php) and approximately 200 residents attended the six sessions.

To facilitate participation, an online survey was also administered. 586 surveys were filled out with an 85% completion rate. The large response suggests that many residents care about AT and those who care seem to care a lot judging by the high completion rate for this relatively long survey.

The open houses and online survey were advertised in newspapers (Community Herald, Coast, Metro); through PSA's, social media, direct email to interested parties, and 75 posters at municipal facilities.

Dotmocracy in Dartmouth

[1] www.halifax.ca/cycling/documents/CEU_PeninsulaNetwork_HRM_Report_24April_sm_.pdf

3.2.3 What Did People Say?

More than 2000 comments were received and all were summarized, categorized, and posted online (www.halifax.ca/activetransportation/engagementreport.php). There were many common themes ranging from safety and enforcement to programs and infrastructure. The comments have been considered by active transportation planning staff and, where appropriate, forwarded to other departments to address any particular concerns more directly.

Harvesting Comments at the Open House

The most important issue relating to **walkability** appeared to be crosswalk visibility, followed by snow clearance of pedestrian routes. Many concerns were also raised about pedestrian-activated signals at intersections. [2] Many people wanted more **greenways**; and better connections between existing greenways. There were a number of requests and suggestions for improving on-road **bicycle infrastructure**. The most common requests were for more bike lanes, including protected bike lanes; creating continuous routes through urban areas; improving bike lane maintenance; and better bike infrastructure at intersections.

There appeared to be considerable demand for stronger **enforcement** of road laws, particularly regarding crosswalks, aggressive driving and for road rules in general for drivers and cyclists. Some participants suggested measures to reduce **traffic** volumes and speeds and to create pedestrian-only streets either permanently or occasionally for events. A number of participants requested improvements to **transit** services and facilities. These comments have been forwarded to Metro Transit.

Comments about the **Harbour Bridges** showed that there is significant interest in improving access to the Macdonald Bridge bikeway, especially from the Halifax side. There were also concerns regarding the removal of AT lanes during the Macdonald Bridge re-decking project scheduled for 2015-16.

The greatest need for **programs** was seen in the areas of safe cycling as well as education and awareness for drivers regarding pedestrians and cyclists. Some residents suggested that Halifax should **promote** the benefits of active transportation more and work on creating more positive perceptions of cyclists. There were suggestions for more **events**; "SWITCH: Open Streets" was a particularly popular request. Helpful suggestions regarding **materials and resources** included online trip-planning, regular route updates and more comprehensive trail guides.

> *"My children thought Switch would be every week and kept asking me when the road would be free of cars next! What an impression on the young mind." -- HRM Resident*

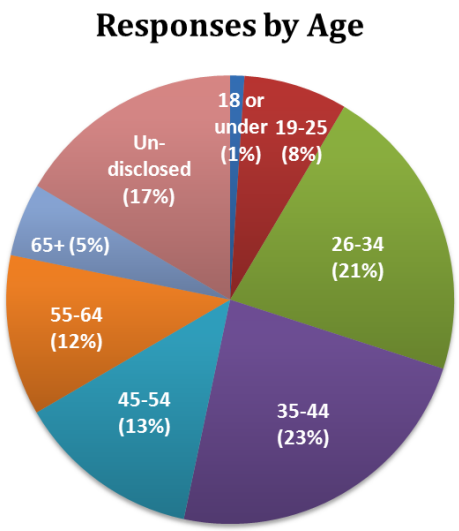
Many of the comments referred to **specific sites** and areas. These have been reviewed by active transportation staff for consideration in developing the final plan, and/or forwarded to other relevant departments.

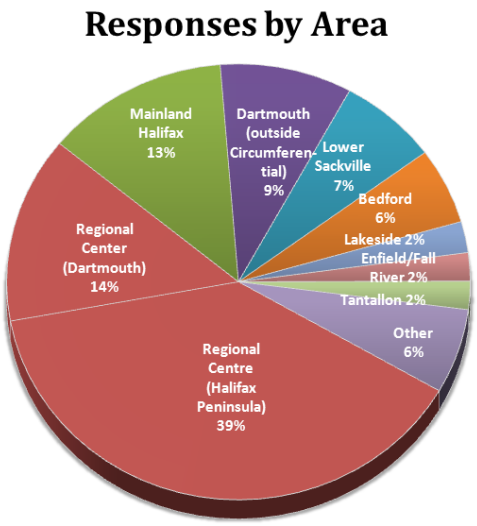
[2] This issue was addressed in a detailed report to the Active Transportation Advisory Committee in 2012: www.halifax.ca/boardscom/documents/120216atacI1.pdf

3.2.4 On-line Survey

A/ Who Participated

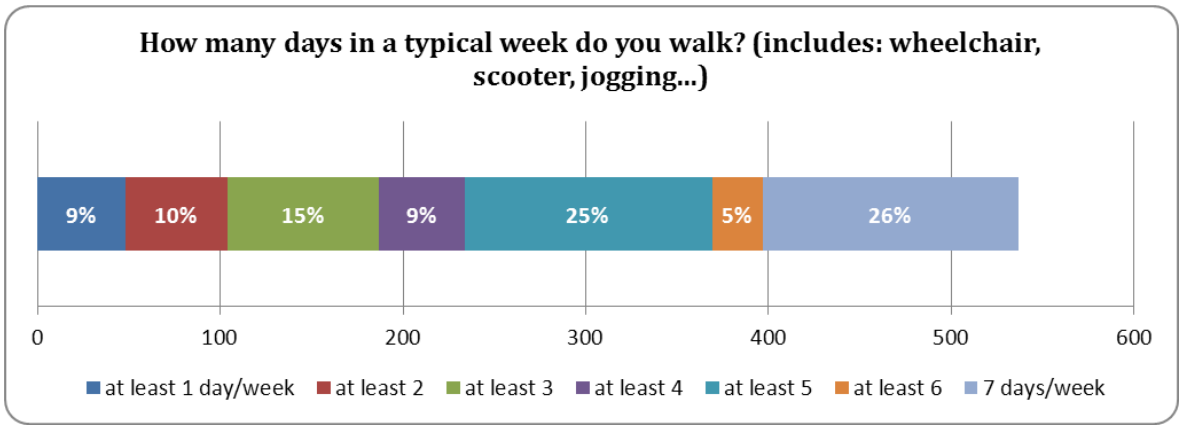
As expected, responses came largely from people already interested in active transportation, particularly walking or cycling. Some used other forms of AT like skateboards and inline skates. The largest portion of responses came from people in the 35-44 age range and the fewest came from those aged 18 and under. There was fairly even gender representation. Just over half of the respondents lived in the Regional Center (Halifax peninsula & Dartmouth within Hwy 111), suggesting a particularly strong interest in AT in this area.

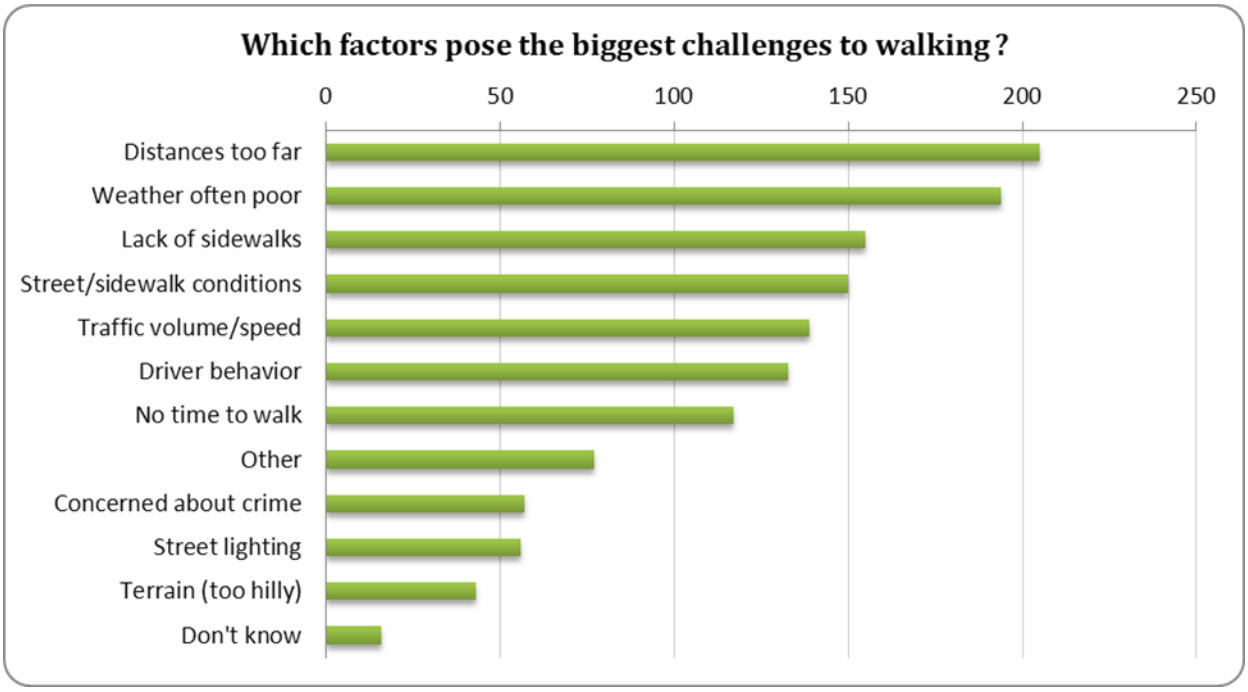




B/ Walking

Out of the 586 surveys submitted, most respondents said they walk at least once per week and nearly one quarter said they walk to work or school five days per week. When asked to identify the most significant factors that deter walking, the top reasons were **long travel distances, poor weather, and lack of sidewalk**. When considering only responses from older participants (55 + years), traffic volume and speed became more significant issues, as did street/sidewalk conditions.



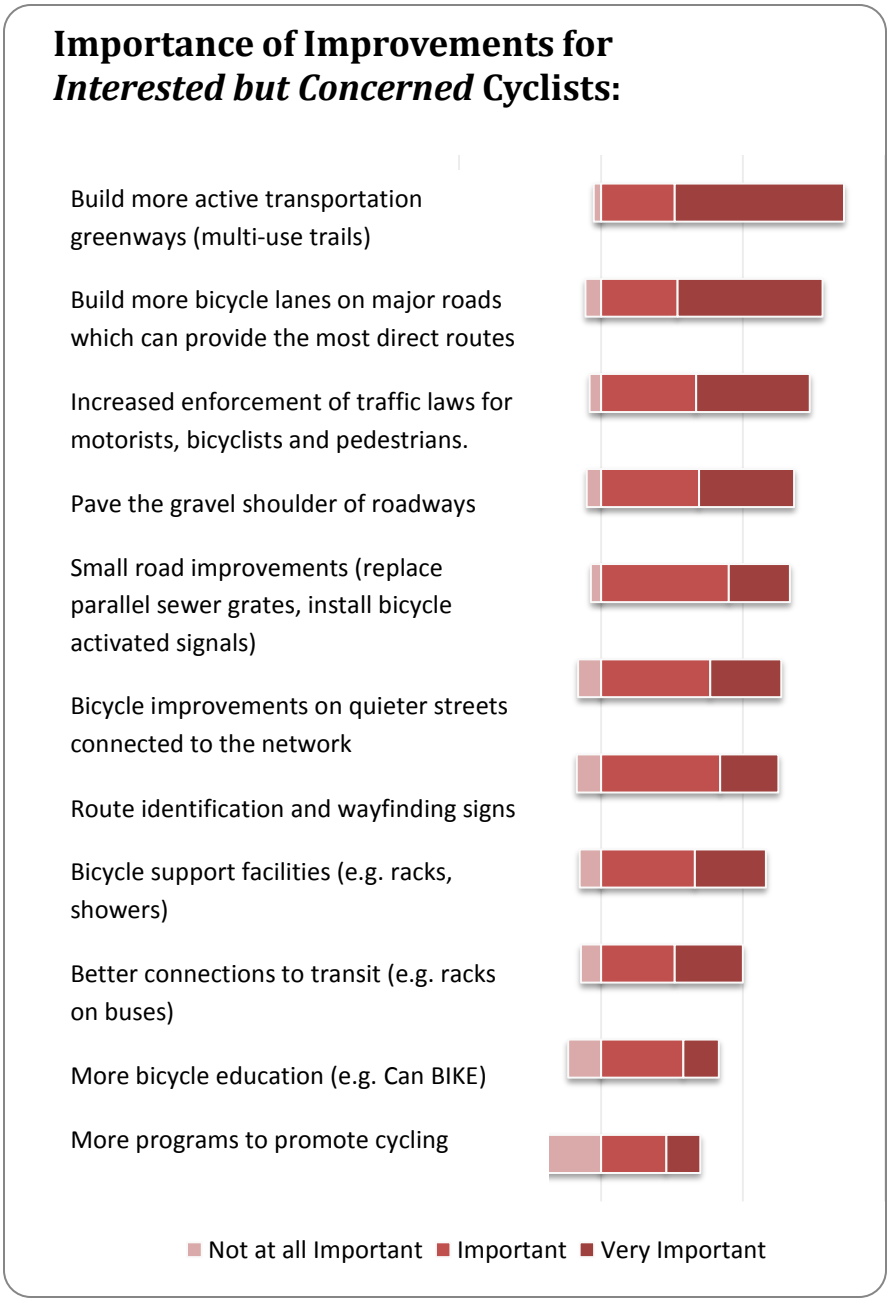

Which factors pose the biggest challenges to walking ?
0
50
100
150
200
250
Distances too far
Weather often poor
Lack of sidewalks
Street/sidewalk conditions
Traffic volume/speed
Driver behavior
No time to walk
Other
Concerned about crime
Street lighting
Terrain (too hilly)
Don't know

C/ Cycling

Online survey respondents were asked to identify their skill level as cyclists and then rate the importance of various general infrastructure projects and programs.

Those who described themselves as 'interested in cycling, but concerned about their safety' appeared to show a slight prefence in their responses for off road infrastructure such as greenways, over on road infrastructure such as bike lanes. Addressing the needs of people who put themselves in this category is seen as particularly important if the goal of the plan is to increase the mode share of cycling. This group of people are probably not cycling very much now, but are interested in cycling more.

Infrastructure improvements seemed to rank higher in priority than support facilities or programs, though respondents considered all types of improvements important to some degree.



3.2.5 What's the Big Idea?

Residents at the public sessions were invited to participate in a "dotmocracy" exercise called "*What's the Big Idea?"* where they could 'vote' on their top five AT projects out of a long list of potential projects across the region which had been previously identified by municipal staff. While this list was not available to the online survey respondents, many residents mentioned these projects through their own responses to open ended questions on the survey. The number of times the 'Big Ideas' received indepentent mentions in the online survey were added to the tally from the open houses to produce the table below.

The Big Ideas	Votes from public sessions	Independent mentions in survey	Total votes & mentions
Build an on-road bicycle network in the Regional Center consisting of bike lanes, local street bikeways, and (preferably) some protected bike lanes.	186	32	**218**
Improve the Halifax connection to the Macdonald Bridge Bikeway.	99	50	**149**
Connect the Dartmouth Waterfront Greenway from Alderney Gate to the Macdonald Bridge; and from the Woodside Ferry Terminal to the Shearwater Flyer Trail.	111	13	**124**
Build the Halifax Urban Greenway along the top of the Halifax rail cut from Point Pleasant Park to Bayers Road.	96	9	**105**
Acquire the Windsor Hantsport railway line for a future greenway corridor and make connections to existing and planned trails.	66	6	**72**
Build a greenway parallel to Rocky Lake Drive, Glendale Ave and Cobequid Road from the Bedford Highway to Fultz House on Sackville Drive, with connections to the Bedford/Sackville Greenway.	37	28	**65**
Complete the Burnside Greenway from Commodore to Rocky Lake.	60	5	**65**
Build the Sackville Greenway, from the end of the Bedford –Sackville Connector Greenway to Feely Lake, along the Little Sackville River.	48	4	**52**
Connect the Mainland Linear Parkway to the Chain of Lakes trail and the Old Sambro Road in Spryfield.	47	5	**52**
Improve the Dartmouth side access to the Macdonald Bridge bikeway.	35	11	**46**
Connect the Waverley Road bike lanes through the Hwy 111 to the Canal Greenway, and complete the Canal Greenway from Sullivan's Pond to the Dartmouth Waterfront.	33	10	**43**
Build the Chezzetcook Connector - A greenway from Musquodoboit Harbour to Porters Lake.	39	4	**43**
Build a bridge over the CN rail cut connecting the high-density residential area at the north end of Romans Avenue to shopping and services at the Joseph Howe Superstore/Bayers Village area.	39	4	**43**
Pave shoulders on the Hammonds Plains Road from exit #3 on Highway 102 to exit #5 on Highway 103.	32	4	**36**
Build a Fall River active transportation greenway corridor.	26	3	**29**
Upgrade the main spine of the Forest Hills trail system to the standard of and active transportation greenway.	15	2	**17**
Build an active transportation bridge to Dartmouth Crossing from the Lancaster Ridge subdivision.	13	2	**15**

Public Open House & Online Survey Outcomes for exercise "What's the Big Idea"

4. ACTIVE TRANSPORTATION OVERVIEW

4.1 The Big Picture

4.1.1 Focus Areas of the Plan

There are many forms of active travel: walking, cycling, in-line skating, skateboarding, kayaking, canoeing, and more. While Section 7 (Multi Use Facilities) includes some discussion of other modes, the focus of AT Plan implementation in the municipality has been primarily on facilitating an increased rate of **walking** and **cycling** for utilitarian purposes.

Active Transportation on the Chain of Lakes Trail

4.1.2 Organization of this Plan

The following sections stem from these focus areas, dealing in turn with facilities for pedestrians, cyclists, and then multi-use facilities that support both modes. Section 8 then deals with programs and events that encourage participation and improve safety.

Each section begins with an evaluation of the progress made so far against the 25 year goals of the 2006 AT plan (Section 2). This is followed by a description of how infrastructure and programs supportive of AT are delivered now, including an analysis of the successes and limitations with the current approaches.

Stemming from this analysis, each section proposes priority recommendations for Regional Council and staff to consider in the delivery of AT infrastructure and programs. A vision for what the region could look like if they are achieved is described in Section 9. Section 10 goes on to tie all of the recommendations into a five year implementation plan, and describes a series of projects which should be considered if we are to ultimately achieve the vision. Section 11 describes a framework for monitoring and evaluation of the actions stemming from the plan.

4.1.3 Role of Municipal Business Units

Responsibility for the development and much of the implementation of this Priorities Plan rests with the municipality's *Planning and Infrastructure* Business Unit. However, many parts of the municipal government are engaged in facilitating walking and cycling. The objectives identified in this plan can only be attained if its implementation is co-ordinated among these various groups. The following highlights examples of how the activities of different Business Units support active transportation.

Transportation and Public Works
Functions of this group related to active transportation include:

- *Traffic and Right-of-Way* regulates pedestrian crossings, signals, use of sidewalk space, bicycle lanes and other AT facilities with-in the right-of-way. They ensure that such facilities correspond to national guidelines, provincial law, and municipal by-laws and design guidelines.
- *Municipal Operations* are responsible for functions such as snow clearing, sweeping and other maintenance to ensure that AT facilities are accessible.
- *Design and Construction* provides engineering design services for roadway rehabilitation projects and administers and budgets for the construction of new sidewalks. They also provide engineering design services to other business units when required.

Community and Recreation Services
Functions of this group related to active transportation include:

- Ensuring that AT is integrated into the development approval process.
- Programming support for walking clubs at recreation facilities near trails, bike safety education at some recreation centres and support for Halifax Bike Week.

Metro Transit
Most trips on Metro Transit begin and end with an active transportation trip (usually walking). To support multi-modal sustainable transportation trips, Metro Transit:

- Ensures that transit terminals are easily accessible for pedestrians;
- Provides amenities at bus stops like shelters, landing pads, litter bins, etc.;
- Provides bike parking facilities at terminals and park and ride facilities;
- Installs bike racks on buses.

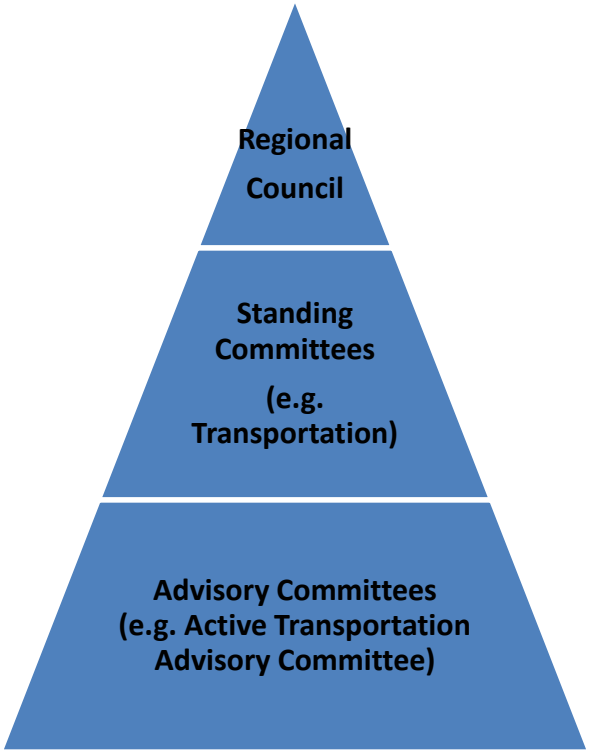
Halifax Regional Police
Halifax Regional Police enforce laws as they relate to pedestrian and cycling and promote safe walking and cycling through roadside checks, community events, and educational campaigns.

Planning & Infrastructure
In addition to responsibility for the development of this plan, Planning and Infrastructure:

- Implements the regional trails program which works with community groups to build and maintain new active transportation greenways;
- Conducts planning activities (e.g. Regional and Community planning strategies) that aim to integrate AT and help foster land uses that are supportive of AT;
- Develops open space plans and undertakes special projects (e.g. Cogswell Interchange redevelopment) that integrate AT facilities; support the property acquisition function that is sometimes necessary to build AT facilities.

4.1.4 Role of Council and Advisory Committees

Halifax Regional Council sets priorities, and then sets budgets every year to achieve those priorities. This document is intended to guide Council decision making, but does not bind it to its recommendations. Priorities for active transportation must be considered along with priorities in all other areas of municipal service delivery (e.g. transit, recreation, etc.) and Regional Council works to balance these priorities every year through its budget process.



There are also six *Standing Committees* that align generally with Council's focus areas and governance responsibilities and are made up entirely of Regional Councillors. These committees improve efficiency of Council decision making by providing opportunities for increased discussion on strategic issues prior to coming to Regional Council. The Standing Committees are: Appeals, Executive, Audit & Finance, Community Planning & Economic Development, Environment & Sustainability, and Transportation. Active transportation matters are dealt with by the latter.

In addition, Council has appointed various committees made up of a combination of councillors, representatives of various interest groups, as well as citizens at large. Concerning AT, there is the Active Transportation Advisory Committee, the Crosswalk Safety Committee and the Accessibility Advisory Committee. These committees meet monthly and make specific recommendations to Council through the Transportation Standing Committee.

5. WALKING

Walking[3] is the most basic form of mobility and every journey, whether by car, bus, bicycle or skateboard, begins and ends with one's feet. Walking is free, requires no special equipment and doesn't pollute. Walking is a fundamental activity for physical and mental health, and is also a social and recreational activity. Creating sustainable, walkable communities is one of the key goals of the municipality's Regional Plan. Environments that are conducive to walking are conducive to people. Continuous sidewalks and safe crossings are the basic building blocks for pedestrian safety, comfort and convenience, especially essential for the most vulnerable populations: children, seniors, and persons with disabilities.

"Researchers have discovered a **wonder drug** for many of today's most common medical problems. It's been proven to help treat or prevent diabetes, depression, breast and colon cancer, high blood pressure, cardiovascular disease, obesity, anxiety and osteoporosis. The drug is called **walking**. Its generic name is physical activity. Recommended dosage is 30 minutes a day, five days a week, but children should double that. Side effects may include weight loss, improved mood, improved sleep and bowel habits, stronger muscles and bones as well as looking and feeling better..." Dr. Bob Sallis, California www.bettercities.net/news-opinion/blogs/jay-walljasper/20873/wonder-drug-walking

This section describes how such elements have traditionally been considered and identifies recommendations for the next stage of implementing the active transportation plan, for *pedestrians*.

Little pedestrians out on a stroll

5.1 Goal #1: Connected Pedestrian Network

The first goal of the AT Plan was to establish a complete, integrated and readily accessible region-wide AT network serving urban, suburban and rural areas. The main type of pedestrian infrastructure we have is the **sidewalk**. Map 1 illustrates the density of the municipality's sidewalk network. There were **878Km** of sidewalks up to the end of 2013. Halifax has built 33 km of sidewalk since 2006 (about 4 km per year). Developers of new subdivisions have also added to the inventory. Areas with well-connected sidewalk networks include peninsular Halifax and central Dartmouth. There are incomplete sidewalk networks in Fairview, Spryfield, Dartmouth outside of the core, Sackville and the Business Parks. The rural areas typically lack sidewalks. Map 1 also illustrates the location of multi-use facilities such as greenways.

Sidewalk Highlights Since 2006

Chain Lake Drive (2.5 Km)
Portland Street (800 m)
Beaverbank Road (1.1 Km)
Trunk #3/ Bay Road(1.6 Km)

[3] Walking includes using any mobility aids or devices such as wheelchairs, service animals, crutches, strollers.

5.2 Goal #2: Double Pedestrian Mode Share by 2026

To evaluate this goal, the 2006 plan was relying on the "Journey to Work/ School" question from the mandatory Long Form Census. However, in 2011 Statistics Canada switched to the voluntary National Household Survey (NHS) and the data may not be comparable[4]. In the absence of anything else, it has been used here, and it is possible that future data sets may be comparable with 2011 if the same methodology continues to be used. This data is also limited in that it only counts journeys to work and school, and not trips to other destinations.

From the data, it is clear that the number of people using active transportation can vary greatly across a region. "Distance too far" was the biggest barrier to walking cited in the online survey (Section 3.2) and is reflected in the adjacent table: low density and single use areas have especially low walking rates and, mixed-use, denser areas have higher walking rates. Peninsula Halifax has the highest walking rates, and the census tracts containing central Dartmouth have the second highest. More people actually walk to work or school in the census tract of Halifax Citadel than drive or take the bus.

In 2011 the overall average mode share for walking across the municipality was 8.5%, which is down from 10% in 2006. Unfortunately given the potential comparability issues between 2011 and previous years, it is impossible to say whether or not this is the start of a worrying trend in AT rates, or just the result of differing study methodologies.

Community	1996	2001	2006	2011
Armdale-Northwest Arm	3.9	6.3	5.6	3.3
Beaver Bank	3.4	1.2	1.5	0
Bedford	3.8	4.4	4.9	2.6
Chezzetcook	2.3	1.8	1.2	1.1
Clayton Park	4.7	5.1	4.6	2.2
Cole Harbour	3.1	3	2.4	0.6
Dartmouth East	4.5	4.2	4	0.7
Dartmouth North	9.7	10.2	8.9	7.6
Dartmouth South	9.2	9.8	9.6	5.9
Eastern Passage	3.8	3.6	3.6	1
Fairview	8.5	8.6	9.1	6.3
Fall River	1	2	1.3	1.4
Hacketts Cove	1	2.2	1.1	0
Halifax Chebucto	25.8	27.2	30.4	26.4
Halifax Citadel	49.6	52.4	54.6	48.5
Halifax Needham	30.3	34.4	33.5	26.9
Hammonds Plains	1.8	1.4	1.1	0
Hatchet Lake	2.5	3.7	1.2	0.5
Herring Cove	0.8	0	2.3	0
Hubbards	1.3	2.9	4.1	0
Jeddore	4.9	4.2	4.4	4.9
Lake Echo	2	1.2	1.7	0
Lawrencetown	0.9	1.9	1.3	1
Lower Sackville	2.8	4	4.7	3
Middle Musquodoboit	2.9	2.5	3.6	5.4
Middle Sackville	3.3	2	1.7	0
Moser River	0	0	11.5	0
Musquodoboit Harbour	4.2	2.2	4.3	0
Peggys Cove	1.3	0	1.9	0
Porters Lake	1.9	1.4	1.9	0
Preston	6.2	1.3	3	1.7
Prospect	2.2	1.2	0.9	0.8
Sambro	0.6	0.6	3	0
Sheet Harbour	9.1	6	4.1	0
Ship Harbour	4	1.9	4.2	0
Spryfield	4.4	8.1	4.9	1.2
St. Margarets Bay	3.9	2.6	2.6	0
Tantallon	1.4	2	1.7	0
Terence Bay	0.4	2.6	0	0
Timberlea	1.9	1.7	2.6	1.8
Upper Musquodoboit	3.2	8.2	1.1	1.7
Upper Sackville	2.5	1.1	0.4	0
Waverley	1.9	0.7	1.3	0

Percent Walked by Census Tract

[4] NHS User Guide http://www12.statcan.gc.ca/nhs-enm/2011/ref/nhs-enm_guide/99-001-x2011001-eng.pdf

5.3 Pedestrian Facilities – Now and Going Forward

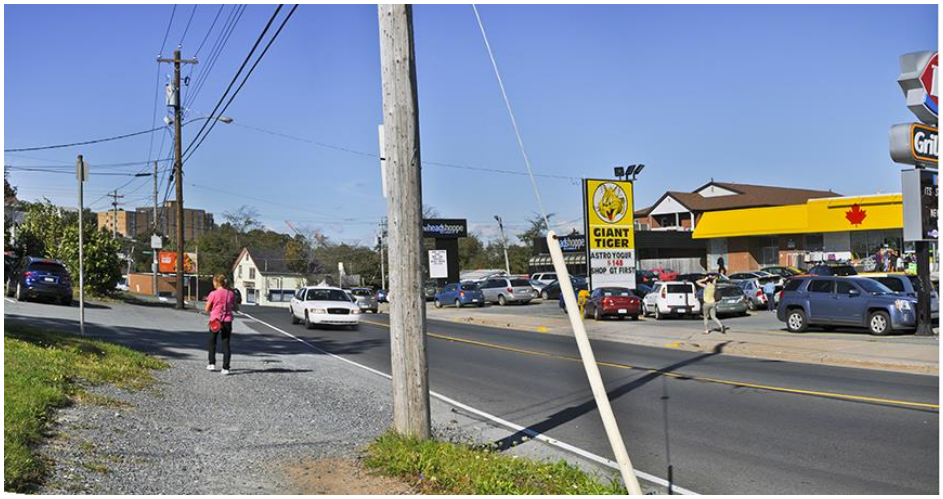
On April 6, 2010, Regional Council endorsed the International Charter for Walking, a symbolic demonstration of the municipality's work to date on Active Transportation, Physical Activity, Community Planning and Environmental Sustainability[5]. This section will set the stage going forward on various types of pedestrian facilities, in various contexts within the municipality.

5.3.1 Sidewalks in Urban Areas

5.3.1.1 History of Urban Sidewalks

In newly built communities within the Urban Settlement designation of the Regional Plan (see Map 2 of RP+5), sidewalks are required on one or both sides of urban roads depending on the road classification, and pathways are required to connect longer cul-de-sacs according to the Municipal Service System Standards for HRM[6] ("The Red Book"). Under the Subdivision By-law, developers must pay for all the sidewalks (and other infrastructure) in new subdivisions.

Prior to amalgamation, the former municipal units in the region all differed in their approach to sidewalk development. While some areas were built with sidewalks, many others, including residential areas, major roadways, and commercial areas were built without. Some traditional roads like the Bedford Highway and St. Margaret's Bay Road that were once in areas considered rural, were never upgraded to include AT infrastructure as urban development evolved alongside them. Business parks were developed without sidewalks as they were intended to serve automobile-oriented industrial uses but their ultimate build-out included large retail and office components which have generated demand for transit and pedestrian connectivity, particularly between bus stops and workplaces. There are many gaps in the urban sidewalk network as a result of these historical development patterns.



Walking on Dutch Village Road

[5] http://www.halifax.ca/council/agendasc/100406rcAgenda.php

[6] http://www.halifax.ca/designcon/design/munservices.php

5.3.1.2 How New Sidewalks Get Built in Urban Areas

A/ Ranking the Requests

The construction of new sidewalks in established communities is funded through the urban general tax rate (http://www.halifax.ca/taxes/taxbill/Rates.php). *Design and Construction Services* is the department that evaluates and ranks all requests for new sidewalks according to a number of criteria (Appendix C). The ranking helps categorize the requests according to the need for a sidewalk, e.g. on a busy street with bus service near a daycare and senior's centre, versus a low traffic street in a residential neighbourhood. Requested sidewalks classified by their rank (low, medium, high) are illustrated on Maps 1A, B & C, however the rank may not necessarily translate into priorities for construction. Which sidewalk is built first usually depends on:

- Project collaboration (e.g. a moderately ranked sidewalk gets built at the same time as construction of another municipal project resulting in major cost savings);
- Constructability/budget issues (i.e. a highly ranked project cannot get built because there are major challenges and budget is not available to deal with them. (e.g. land purchase, retaining wall, or piped ditch required).

B/ Budgeting for New Sidewalks

The ranking process has generated a significant list of locations where sidewalks have been requested, but it does not include *all* the areas without sidewalks. New concrete sidewalks cost between $300 and $2000 per metre, and there are currently over 300 requests representing 129 km of new sidewalks requested (Map 1). At the rate of current construction (about 4 km per year), it would take **32 years** at current budget levels to build all the sidewalks that have been requested by residents, provided that no new requests are made.

Sidewalk Rank	Length Requested
Low	31 km
Medium	57 km
High	41 km
Total	**129 km**

Sidewalk Requests up to 2014

Given the backlog of requests and the fiscal challenges faced in addressing them, sidewalk requests that rank low are generally not built to preserve budget for the most needed areas. Removing all the low ranked requests improves this timeline somewhat, leaving 98 km of requested sidewalk which would take about 25 years to build with current budget levels. Capital budgets for construction of new sidewalks and renewal of existing sidewalks since 2007 have remained relatively steady.

Year	New Sidewalks	Sidewalk Renewal
07/08	$2,400,000	$2,294,000
08/09	$2,725,000	$2,424,000
09/10	$2,260,000	$2,250,000
10/11	$1,750,000	$1,495,000
11/12	$1,596,000	$1,900,000
12/13	$2,500,000	$2,000,000

Sidewalk Budgets since 2007

5.3.1.3 Strategies for Addressing Gaps in the Pedestrian Network

A/ Address Sidewalk Gaps on Major Roadways

Many urban arterial roads like the Bedford Highway, Cobequid Road, St. Margaret's Bay Road and others, have been traditionally rural in character (i.e. ditch both sides, no curb and gutter) but over the years, urban services like, water, sewer, and transit have allowed denser forms of development along these corridors creating demand for sidewalks. The presence of commercial destinations on such roads, coupled with their higher traffic speed and volume makes the absence of sidewalks into a major barrier for active transportation, especially in winter. Since most transit trips begin and end with walking trips, and buses run on major roads, a lack of sidewalks affects transit too. In some cases sidewalk construction has been achieved on at least one side of such roads, but this remains less than ideal as there may be destinations and transit service on both sides of the road. That pedestrian demand exists on such roads is evidenced by the worn paths created by walkers on the sides of such roadways.

Adding sidewalks to urbanizing rural roads has proven a challenge for the municipality. Many sidewalk requests on these roads fall into the category of projects that rate highly but do not get built due to 'constructability issues'. The municipality needs to develop a strategy for retrofitting existing major roadways which lack pedestrian facilities. This may consist of shifting existing budgets within the sidewalk program, or preferably developing a new program to address these gaps. A new budget would allow such projects to happen without impacting the ability to tap cost savings due to project collaboration which the existing sidewalk program is based on.

Walking on the Bedford Highway

Recommendation #1: Halifax should develop a comprehensive strategy to address the gaps in the pedestrian network, especially on major roadways (collectors and arterials) served by transit in the urban areas. To achieve this, consideration should be given to creating a new strategic pedestrian budget to address gaps on major roads.

Recommendation #2: Where a sidewalk is needed on a busy road in the urban areas, and a bike route is also desired according to Maps 2A, B & C, consideration should be given to building an AT greenway beside the road to serve both modes.

B/ Development Contributions

One of the challenges to addressing the gaps in the sidewalk network has been that new developments can trigger pedestrian demand on existing roads and make the list of requested sidewalks longer. For example, a new subdivision may create demand for sidewalks that did not previously exist because the youth from that subdivision now need to walk to a school that is outside of it.

Section 17 of the Subdivision Bylaw[7] enables the municipality to ask for contributions to off-site capital works from developers but the municipality only uses this clause for the provision of primary services outside of the limits of the development that are considered inadequate and for which established criteria exist. Based on these criteria, it is relatively easy to do a study and determine whether or not a pipe or traffic signal will need to be upgraded as a result of a new development. To get subdivision approval, the developer must carry out or fund the improvements before the project proceeds.

This process of assessment is not carried out for services currently considered as 'secondary' (including sidewalks). If this were to change, the municipality would have to develop reasonable criteria for when off-site contributions would be required for sidewalks and to what degree, as there may be existing pedestrian demand that needs to be taken into consideration

Many Canadian communities also levy "development charges" to help pay for the off-site capital costs associated with new development, including pedestrian infrastructure. Halifax is studying the matter of development charges and should Council proceed in this direction, funding of new sidewalks through this mechanism should be considered.

Recommendation #3: Halifax should undertake a study to determine if and how new gaps in the pedestrian network can be avoided by requiring developer contributions to off-site pedestrian infrastructure through the subdivision process, in the Urban Areas.

C/ Development Control

'As of Right' developments and those permitted by development agreement (DA) have also triggered sidewalk requests in the past. Because no subdivision of lands is involved, these types of development are not subject to the provisions in the subdivision by-law described above. For example, a daycare or senior's home may be permitted under current zoning on a busy road without a sidewalk. Because there is little pedestrian demand now, the road may rank low for pedestrian facilities, but it won't after the new uses are established. Having pedestrian facilities separate from the roadway is critical for these types of uses - groups of small children and seniors with mobility issues find it especially challenging to share the road with motor vehicles. Employees of such facilities often rely on transit but have trouble accessing their destination without sidewalks, particularly in winter.

In fact, all of the uses listed in Appendix "C" have the potential to trigger sidewalk requests because they all generate pedestrian demand. This may be a non-issue if the road has very low traffic volumes, but when current Land Use Bylaws (LUB) and supporting Municipal Planning Strategies (MPS) permit such uses on busy roads without sidewalks in the urban area, it becomes the municipality's responsibility to add the sidewalks if they are necessary.

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[7] 17(3) Regional Subdivision Bylaw: "If, in the opinion of the Engineer, the existing services are not adequate to accommodate the needs of the proposed subdivision, it shall be the responsibility of the subdivider to install, upgrade or reconstruct the existing services to accommodate the proposed subdivision."

One way to avoid or minimize this responsibility may be to limit certain types of development in certain areas. The Halifax Charter appears to permit such restrictions in the MPS where "the cost of maintaining municipal streets would be prohibitive"[8]. Given that some urban streets are not maintained at a level which meets the needs of pedestrians, certain properties may be prematurely zoned based on existing street characteristics. It may be timely to undertake a planning review to determine if certain classes of development should be prohibited in certain areas, at least until pedestrian infrastructure is in place.

Recommendation #4: Halifax should undertake a planning review within the Urban Areas to determine if there are areas where the costs of maintaining municipal streets to address the needs of pedestrians would be prohibitive and whether zoning amendments should be considered in those areas.

5.3.2 Sidewalks in Rural Areas

5.3.2.1 History of Rural Sidewalks in the Municipality

In the rural areas of the municipality, most of the roads are owned and operated by the Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR) who do not typically provide pedestrian infrastructure. While some rural roads have such low volumes of traffic that no AT infrastructure of any kind is required, some may need more. At present, providing sidewalks and crosswalks in rural areas is typically the responsibility of the municipality, though approval from NSTIR is required. General tax rates for rural areas do not currently provide for the inclusion of sidewalks[9] so where they have been built in the past, they have been funded through a local area rate, or with other sources of funding (e.g. federal programs), or a combination of both. For example the combination of local area rates along with funding from three levels of government enabled the development of 2.6 km of sidewalks in Sheet Harbour in 2009/10.

Local area rates (also called local improvement charges or LIC's when pertaining to infrastructure costs) are special annual levies charged to properties within an area deemed to benefit from the sidewalk. In rural areas, sidewalks may be very costly and since population densities are low, the additional tax burden on local residents often precludes sidewalk development.

5.3.2.2 Other Types of Rural Pedestrian Infrastructure

HRM and NSTIR are occasionally requested by residents to pave the shoulder of rural highways to accommodate pedestrians. Although this might seem like a cost effective alternative to building sidewalks, it can be less than ideal depending on the speed and volume of traffic on the road, as well as the number of pedestrians. While paved shoulders may make walking more convenient, it is not clear that they make walking any safer. Neither level of government has a program to pave shoulders expressly to support pedestrians and more research may be needed before paved shoulders can be considered as pedestrian facilities.

The province recently released a Sustainable Transportation Strategy identifying the need for a Provincial AT Plan to "include a process for the province and municipalities to work together on priorities, design, planning, and funding for active transportation infrastructure."

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[8] Halifax Regional Municipality Charter, Section 235(5(n)(iii)

[9] http://www.halifax.ca/taxes/taxbill/Rates.php

The provision of AT infrastructure in rural areas has been mainly limited to the development of Greenway trails by local trails groups (refer to Section 7). These groups also look after ongoing trail maintenance.

5.3.2.3 Improving Conditions for Walking in Rural Areas

There are standard details in the Red Book for various types of sidewalks or multi-use paths on rural roads, however there are no design guidelines for when rural pedestrian facilities should be provided. In addition, there is no discussion of when, if ever, paved shoulders can be considered a pedestrian facility.

Given that active transportation walking trips tend to be short, and that rural sidewalks can be costly, and those costs are currently borne entirely by local residents, a strategic approach to pedestrian infrastructure in rural areas should be developed so that AT walking opportunities can be developed in key rural locations where they are most needed (i.e. traditional village centres or main streets), and the most cost effective type of infrastructure to meet the need can be provided. A funding mechanism may also need to be developed.

The 2006 AT Plan identified the need for more consultation with individual rural communities to get a more detailed assessment of their AT patterns and needs. In 2013, the municipality engaged consultants to begin this process with the community of Porters Lake, and the final report will be available in spring 2014. It is hoped that a strategy for how to implement walking infrastructure in rural areas may be developed through the implementation of this plan, one that can be repeated in other rural communities.

Recommendation #5: Halifax needs to develop a comprehensive approach to the delivery of rural active transportation facilities, including criteria for determining the most appropriate AT facility type, and consideration of the financial implications (capital and operating) of doing so.

Walking in Porter's Lake

5.3.3 Pedestrian Traffic Control

The next section provides an overview of elements that help pedestrians where the sidewalk ends, and they need to get across the road. Under the **Nova Scotia Motor Vehicle Act**, crosswalks exist at all intersections whether marked or not and pedestrians always have the right of way at a crosswalk. A number of treatments may be added to improve the visibility of crosswalks. *Traffic and Right of Way Services* is the department responsible for all traffic control, including pedestrian crossings.

5.3.3.1 Overview and Inventory of Basic Crossing Treatments used in Halifax

A/ Basic Marked Crosswalk

A marked crosswalk consists of two painted parallel lines across the roadway and four crosswalk signs, two facing each direction of traffic. It may also consist of an alternating series of 600 mm wide white lines and 600 mm spaces placed across a road and parallel to the travel lanes ("zebra crossing")[10]. The decision to mark a crosswalk is made by the Traffic Authority and is based primarily on the need to create gaps in traffic. At locations with low traffic volume, pedestrians can usually cross a street without difficulty, but when there is more traffic, they may have to wait too long for a gap. Marked crosswalks can provide notice to drivers that pedestrian crossings are likely. Traffic engineers evaluate crosswalk requests based on national criteria to ensure they are installed based on warrants provided by the Transportation Association of Canada (TAC). A marked uncontrolled crosswalk is one not associated with another traffic control device (e.g. stop sign or traffic signals).

There are approximately 500 marked, uncontrolled crosswalks in the municipality.

B/ RA-5

The basic marked crosswalk described above may be supplemented by an overhead illuminated sign known as the RA-5. The RA-5 provides down-lighting over the crosswalk area helping to indicate the location of the crosswalk at night. RA-5's may also be considered when vehicular approach speeds are high, lighting is poor, and/or there is a history of pedestrian related collisions. Push button activated, flashing amber lights may also be added (typically only on multi-lane or high speed roadways). Since every crosswalk request is unique, the most appropriate treatment is determined on a case by case basis.

There are 152 RA-5's in the municipality with flashers and 32 RA-5's without.

[10] In February 2014, Regional Council approved plans to paint zebra crossings at all crosswalks that do not have flashing lights or are not part of major intersections.

C/ Pedestrian Signals

At signalized intersections, the parallel crosswalk markings on the pavement may be supplemented by pedestrian signals with familiar 'walk' and 'don't walk' icons. When the walk icon changes to a flashing 'don't walk', this means that there is enough time to complete a crossing but not enough time to start a new one. On wider roadways, countdown timers showing how many seconds remain may supplement the flashing 'don't walk' icon. Pedestrian signals are automatic at some intersections, while in areas with low pedestrian volumes and long crossings, push buttons allow pedestrians to let the signal know they are there to give them enough time to cross, while minimizing unnecessary delay for drivers and pedestrians.

There are approximately 265 pedestrian signals in the municipality.

D/ Accessible Pedestrian Signals (APS)

APS provide audible cues for visually impaired pedestrians. New traffic signals include APS in areas where it is anticipated they will be needed (i.e. near transit terminals, senior's residences, commercial areas, etc.) in consultation with groups like the CNIB. The *Traffic and ROW* department maintains a list of locations where APS have been requested and depending on budgets, may upgrade about five signals per year (APS retrofits cost around $10,000 each). Addition of APS may be complicated by poor pole location (i.e. pole cannot be easily located by a visually impaired person) and also neighbours' concerns about noise (APS noise complaints are common).

There are 42 APS in the municipality.

5.3.3.2 Moving Forward with Pedestrian Traffic Control

Regional Council recently adopted the **2014/15 Pedestrian Safety Action Plan**[11]. The Plan outlines programs focused on improving pedestrian and crosswalk safety through the application of the three E's (engineering/education/ enforcement) along with evaluation and engagement. It includes a summary of activities that took place in 2013 and describes those proposed for the upcoming year such as the installation of zebra markings (500 locations), signal timing adjustments to increase crossing time for pedestrians, two six week education campaigns, proactive enforcement/education by Police, and much more. The plan is intended to be updated annually and vetted through the Transportation Standing Committee.

Council also formed a Crosswalk Safety Advisory Committee in May 2013. The mandate of the committee is to advise Council on matters related to crosswalks with the objective of improving the safety of pedestrians using crosswalks. Since being formed the committee commissioned a report to examine matters of crosswalk safety including education, enforcement, traffic control, and standards and consistency.

Recommendation #6: The municipality should consider the recommendations of the 2014 Crosswalk Safety Advisory Committee Report in future updates of the Pedestrian Safety Action Plan.

[11] Approved on March 18, 2014 www.halifax.ca/council/agendasc/documents/140318ca11110.pdf

5.3.4 Accessibility

Accessibility in active transportation refers to efforts aimed at removing barriers in the pedestrian realm for people with disabilities. The municipality has an Accessibility Advisory Committee whose mandate is to advise Halifax Regional Council, through the Transportation Standing Committee, on the impact of municipal policies, programs and services on persons with disabilities. In addition to the accessible pedestrian signals discussed above, a few other matters which impact accessibility in the pedestrian realm are discussed below.

5.3.4.1 Accessibility and AT, Today and Moving Forward

A/ Pedestrian Clear Zone

The pedestrian clear zone is an area intended for pedestrian travel which is free of temporary or permanent obstructions. A barrier free environment is critical to maintaining accessibility, but in denser commercial areas, there are many demands placed on the sidewalk area which could compromise accessibility (trees, utility poles, newsstands, bike racks, benches, litter bins, sandwich boards, sidewalk cafes, etc.). These are important elements of the urban environment, but care must be taken to ensure they don't compromise the pedestrian environment and create obstacles for people with mobility challenges. The municipality's Capital District Design Guidelines (developed for the Downtown areas) recommend a 2.1m minimum pedestrian clear zone, but these are not absolute requirements and encroachments into this zone are often requested of Council under the Encroachment By-law (E-200).

B/ Curb Ramps

Curb ramps are required at all intersections to provide barrier free road crossing for wheelchairs, scooters, strollers, etc. The Red Book requires two ramps, aligned with each crosswalk (or one broad ramp if the radius of the corner is too small). Ramps help alert visually impaired pedestrians of intersection location and orientation. It is not currently a standard local practice to add tactile surface indicators to the concrete to assist pedestrians with visual impairments. Municipal departments have been working with groups such as the CNIB to explore best practices suitable for this region, but a standard approach has not yet been determined.

Recommendation #7: Halifax should consider amending the Encroachment By-law (E-200) to provide stronger protections for a minimum pedestrian clear zone of 2.1m in dense commercial areas.

Recommendation #8: Halifax should consider making it a standard practice to add tactile surface indicators in concrete curb ramps to assist pedestrians with visual impairments.

5.3.5 Pedestrian Friendly Streets and Communities

Sidewalks, crosswalks, signals, and curb ramps are the building blocks of the pedestrian network. But how street networks are laid out in the first place, and how communities are designed, are also major factors in determining whether people chose to walk for transportation. The last part of this section will 'zoom out' and discuss the factors that influence walkability from the perspective of first, the design of streets, and then, the design of communities before concluding with suggested direction for the municipality to consider in these areas, moving forward.

5.3.5.1 Pedestrian Friendly Streets

The design of our street network influences whether or not people will walk for transportation. For example, streets with long blocks and few crossings will increase travel distances and discourage walking, while streets with short blocks and frequent pedestrian connections encourage it. Street

design is guided locally by the *Municipal Service System Guidelines* (The Red Book) which is intended to ensure consistency in the design and construction of streets for developers, consultants and contractors across the municipality. The 2014 Regional Plan identifies the need to explore a "Complete Streets" policy. *Complete Streets* policies are intended to direct planners and engineers to design and operate the entire roadway with all users in mind – including pedestrians of all ages and abilities, bicyclists, public transportation vehicles and riders. Elements described below can help support pedestrian friendly street design and should be considered in upcoming Red Book reviews and in the development of a *Complete Streets* Policy.[12]

- Interconnected streets and sidewalks reduce travel distance for pedestrians. Providing pedestrians with the most direct routes and with a choice of routes encourages walking.
- Pedestrian median refuges allow for crossing only one direction of traffic at a time.
- Reduced crossing distances minimize the amount of time pedestrians are exposed to vehicle traffic when crossing a street. Use the smallest practical curb radii to shorten crosswalk length.
- Small block sizes of 100 meters or so are best to support walking. Where block sizes are large, retrofitting with pedestrian paths and crossings can improve walkability.
- Pedestrian over- and underpasses force walkers to change levels, and do not generally encourage walking, but may be needed in some cases for safety reasons.
- A constant sidewalk level improves comfort for all walkers, especially persons with disabilities.
- Dedicated AT paths connecting dead-end streets provide access even where cars cannot pass.
- Mid-block vehicular driveways and curb cuts on streets with heavy foot traffic interrupt pedestrian continuity. Vehicular driveways and ramps should be designed to minimize contact between cars and pedestrians.
- Consider removing right turn channel lanes in urban settings with high pedestrian volumes and low right turn vehicle volumes.

Walking can also be encouraged by improving the walking environment (e.g. streetscaping). The specific characteristics of the built environment that improve walkability include:

- A buffer of landscaping and/ or parked cars between pedestrians on the sidewalk and the street;
- An improved sidewalk environment with more trees and amenities, better lighting, and special pavements.
- Façade transparency: i.e. larger windows at ground level versus solid walls or fences;
- Appropriate scale: walkability increases when there is a good ratio between building height and street width (i.e. neither a 'canyon' nor a ' prairie');
- Active street frontages: Certain types of commercial uses at street level help create walkable environments (e.g. retail, restaurants versus industrial or automotive uses)[13]

Walkable Spring Garden Road

[12] An ITE Recommended Practice - Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities. Institute of Transportation Engineers, 2010.

[13] Park, Sungjin, Defining, Measuring, and Evaluating Path Walkability, and Testing Its Impacts on Transit Users' Mode Choice and Walking Distance to the Station. University of California, Berkeley. Spring 2008

Recommendation #9: Halifax should consider incorporating pedestrian friendly street design guidelines during any review of the Red Book and in the development of a Complete Streets Policy.

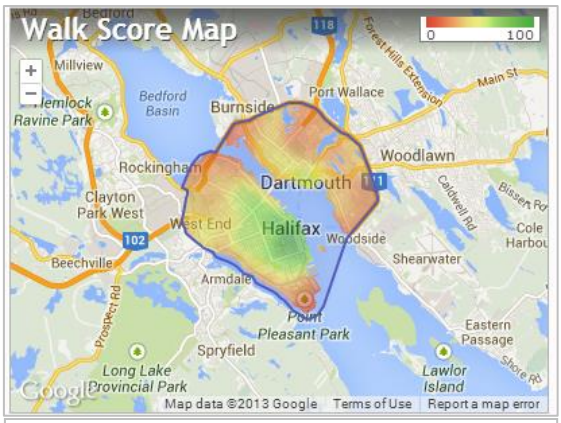
Recommendation #10: Halifax should consider a pilot program to implement walkability improvements in the street network.

5.3.5.2 Pedestrian Friendly Communities

A/ Community Design

Community design is the most important factor in whether or not people will walk for transportation. An extensive recent study using local data[14] found that AT walking trips rarely exceed 600m (5 minute walk). The researchers also found that most AT walking trips did **not** begin at home. These findings suggest that communities must be designed with a dense mix of uses within a relatively small area if AT walking is desired, and that new sidewalk construction in primarily residential areas is not likely to increase AT walking trips.

According to Walk Score®, a web application that helps people choose walkable places to live, *the number of nearby amenities is the leading predictor of whether people will walk*[15]. The Regional Plan already includes a goal to create compact, mixed use centres, and to add density to the Regional Centre. Adding residential and employment density to the core is a good idea from a walkability perspective: a Walk Score® 'heatmap' of the Regional Centre identifies it as being **very walkable** (70/100), meaning "most errands can be accomplished on foot". The census also confirmed that more people walk to work than use any other transportation mode on the Halifax Peninsula.



Walk Score® Rankings
90–100: Daily errands do not require a car.
70–89: Most errands can be done on foot.
50–69: Some amenities within walking distance.
25–49: A few amenities within walking distance.
0–24: Almost all errands require a car.

Source: www.walkscore.com

Recommendation #11: To encourage AT walking, new communities in the municipality should be designed to be compact and mixed use, offering a wide range of live/work/shop/play opportunities within walking distance of each other.

Recommendation #12: Halifax should consider MPS and LUB amendments that support the retrofitting of existing communities to create walkable characteristics (i.e. mixed land use) where they did not previously exist.

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[14] Millward, H., Spinney, J., & Scott, D. (2013). Active-transport walking behavior: Destinations, durations, distances. Journal of Transport Geography, 28, 101-110.

[15] www.walkscore.com

B/ Location of Government Facilities

Where possible, when locating its own facilities, the municipality can lead by example and ensure that facilities such as recreation centres, libraries, offices, etc. are located in walkable, mixed-use areas, well served by transit. This can also be accomplished in rural areas by locating in traditional village cores, (identified as 'centres' in the Regional Plan) instead of car-oriented locations at highway interchanges.

Recommendation #13: Consideration should be given when locating new municipal facilities (e.g. recreation centres, libraries, office buildings, etc.) that they be located in walkable areas. The municipality should also encourage other levels of government to consider walkability when locating their facilities.

C/ Location of Schools

The municipal government does not determine where schools are located as these decisions are made by the Halifax Regional School Board. However, the location of a school will strongly affect whether or not children walk or bike to school. Schools are ideally located in the middle of residential areas to maximize walking to and from school from all directions. The presence of built or natural barriers (railroad tracks, high speed roadways, or rivers/streams) will limit the ability of children to walk or bike to school. Schools should not be sited adjacent to such barriers and ideally be located away from areas where the traffic mix will consist of high proportions of large vehicles (e.g. industrial areas). Schools which are not accessible by existing sidewalk network also generate a great deal of demand for new sidewalks, exacerbating challenges faced by the municipal sidewalk program.

Recommendation #14: The municipality should engage with the Halifax Regional School Board to encourage the siting of schools in a manner that will encourage active travel to school.

D/ Pedestrian Connections in Commercial Establishments.

Most new commercial developments have parking lots between the building entrance and the public right of way. This may be fine for industrial uses, but for retail, office, and institutional uses this makes it very convenient to drive to commercial centres and challenging for customers arriving on foot. Pedestrians must walk further to reach their destination, and mix with motor vehicle traffic in the parking lot. Sidewalks or paths from the public right of way, through the parking lot, directly to the building entrance can help improve the pedestrian experience in auto-oriented commercial establishments. An even more pedestrian friendly solution would be to have parking in the side or rear yard and the building entrances close to the public sidewalk or street. Such measures would prioritize pedestrian connections over vehicle access, and create more pedestrian friendly communities.

According to the Halifax Regional Municipality Charter, a Land Use Bylaw (LUB) may regulate the location of a structure on a lot and where provided by a Municipal Planning Strategy (MPS), they may also "regulate, require or prohibit fences, **walks**, outdoor lighting and landscaping."

Recommendation #15: Halifax should consider MPS and LUB amendments in the urban areas to require street–oriented commercial buildings and/ or direct, separated, pedestrian connection(s) from the right of way to the main entrance of all office, retail, and institutional buildings, whether there is an existing sidewalk in the right of way or not.

Pedestrian Access in Bayers Lake

6. BICYCLING

It's Like Riding a Bike

Riding a bicycle[16] is something that many people learn to do as a child and it continues to offer mobility options throughout one's lifetime. In addition to enhanced mobility, riding a bicycle is healthy, non-polluting and significantly less costly to an individual than owning and operating a motor vehicle. For municipalities, increasing opportunities for cycling may help reduce demand for roadway expansion and support goals to reduce congestion. This may be especially true for trips between three and five kilometers, and at traffic bottlenecks. Bicycle infrastructure built for transportation purposes can also be used for recreation, supporting overall quality of life objectives in any region.

The municipality's first bicycle plan (*Blueprint for a Bicycle Friendly HRM)* was approved in principal by Regional Council in 2002. At this time, bicycle improvements were limited to a bicycle lane on Brunswick Street from Sackville to Cogswell Streets(2001); a two-way bike path on the Macdonald Bridge (1999); and a few bicycle racks in downtown Halifax. The Blueprint identified the key barriers to increased cycling, listed some projects and programs to consider, and identified streets important to cycling in the municipality.

The 2006 Active Transportation Plan superceded the Bike Plan with an aim of ensuring that bicycle improvements were considered along with those for other AT users. It identified streets as *Candidate Routes for On Road Infrastructure* which would be evaluated prior to other capital works (e.g. repaving) or as time and resources allowed, for the establishment of bicycle facilities.

After Council approved these plans, it also created a capital budget line item specifically to implement them, which had not existed before 2002. Other changes since adoption of these plans included amendments to the Red Book specifications for major collector and arterial roadways, which now require either bicycle lanes or a parallel multi-use trail when they are newly built.

6.1 Goal #1: Connected Bicycle Network

Since 2006, 95 Km of painted bicycle lanes have been installed (Maps 2A, B, and C) and there are currently almost 108km of bicycle lanes in the municipality. Most of these have been established by taking advantage of project integration opportunities arising when streets identified as bike routes were subject to other capital projects. This opportunistic approach generated cost savings because the bicycle project was folded into the larger project. The downside of this approach is that it has resulted in a fragmented bicycle network.

Bike Lane Highlights Since 2006

Purcell's Cove Road (5 Km)
Bedford Highway (5.5 Km)
Waverley Road (5.7 Km)
Main Street (4.9 Km)

In some cases, it was considered cost prohibitive to add bike infrastructure if, for example, ditches needed to be moved or piped, curbs moved, retaining walls built, or property acquired (e.g. Waverly Rd. north of Hwy #107, Purcell's Cove Rd. south of Keefe, Quinpool Rd. west of Vernon). In such cases, this plan has either "delisted" them as candidate routes, or identified them as 'signed only routes' on Maps 2A, B, and C.

[16] Bicycle for the purposes of this plan, includes riding a unicycle, tricycle, scoot bike, or using training wheels.

6.2 Goal #2: Double Bicycle Mode Share by 2026

To evaluate this goal, the 2006 plan was also relying on the "Journey to Work/ School" question from the mandatory Long Form Census, however, the 2011 change to the voluntary National Household Survey (NHS) means the data may not be comparable[17]. In the absence of anything else, it is shown here, and it is possible that future data sets may be comparable with 2011 if the same methodology continues to be used.

Besides the comparability issues, the data is also limited in that it does not include journeys other than the trip to work, and many census tracts are showing zero, especially in 2011, because if fewer than a specified number of responses were received, the data was not recorded at all.

However, the data does show that the number of people riding a bicycle varies greatly across the region. This is understandable given the diversity of community form in the municipality from very urban to very rural. The highest modal share of cycling was observed in the census tracts of Halifax Needham (4%) and Halifax Chebucto (4.1%), which are actually quite high given that the average bicycle mode share across Canada is around 1%.

Given the data limitations and the comparability issues, additional means of evaluating the AT Plan's goals related to bicycling mode share may be required.

Community	1996	2001	2006	2011
Armdale-Northwest Arm	1.6	0.4	0.5	0
Beaver Bank	0.2	0	0	0
Bedford	0	0.3	0.4	0.2
Chezzetcook	0.7	0	1.1	0
Clayton Park	0.3	0.3	0.2	0
Cole Harbour	0.4	0.1	0.4	0
Dartmouth East	1	0.9	0.8	0
Dartmouth North	1.2	1.2	1	0.8
Dartmouth South	1	1.7	0.9	0.2
Eastern Passage	0.9	1.3	0.4	0
Fairview	0.4	0.9	0.9	0
Fall River	0.7	0.2	0.4	0
Hacketts Cove	1.2	0	1.5	0
Halifax Chebucto	3.4	3.8	3.2	4.1
Halifax Citadel	3.1	2.5	2	0.7
Halifax Needham	3.1	2.8	4.6	4
Hammonds Plains	0.4	0	0	0
Hatchet Lake	0	2.1	1.1	0
Herring Cove	0	0	0.7	0
Hubbards	1.2	0	0.7	0
Jeddore	0	0	1.1	0
Lake Echo	0	0	0	0
Lawrencetown	0	0.3	0	0
Lower Sackville	0.1	0	0.1	0
Middle Musquodoboit	0	0	0	0
Middle Sackville	0	0	0.3	0
Moser River	3.7	0	0	0
Musquodoboit Harbour	0	0	0	0
Peggys Cove	0	0	0.3	0
Porters Lake	0	0	0	0
Preston	0	0.2	0	0
Prospect	0	0.7	0.8	0
Sambro	0	0	0	0
Sheet Harbour	2.1	0	1.8	0
Ship Harbour	1.4	0	0.2	0
Spryfield	1.1	0	0.9	0
St. Margarets Bay	0	0	0.3	0
Tantallon	0.1	0	0	0
Terence Bay	0	0	0	0
Timberlea	0.7	0.2	0.2	0
Upper Musquodoboit	0	0	0	0
Upper Sackville	0	0	0	0
Waverley	0	0	0	0

Percent Bicycled to Work/ School (by Census Tract)

[17] NHS User Guide http://www12.statcan.gc.ca/nhs-enm/2011/ref/nhs-enm_guide/99-001-x2011001-eng.pdf

6.3 Bicycle Facilities – Now and Going Forward

6.3.1 Bicycle Infrastructure Types

Bicycle facilities include a range of on and off road measures implemented to improve conditions for bicycle travel. Off road facilities such as AT Greenways are the subject of the next section, so the focus of this discussion will be on-road infrastructure and bicycle support facilities.

6.3.1.1 Bicycle Lanes & Paved Shoulders

The focus of the municipality's AT program for bicycling has been the development of bicycle lanes on curbed roads, and paved shoulders on roads without curbs. Bicycle lanes are typically 1.5m wide and are designated by signage regulated under the Nova Scotia Motor Vehicle Act. This regulatory signage restricts parking and controls vehicle use of the lane. In Nova Scotia, other vehicles may enter the bike lane to execute a turn or avoid an obstacle (provided they yield to cyclists in the lane) or to access the curb for drop off or loading. Paved shoulder bike facilities exist on roads without curbs, and depending on the nature of the roadway, may be marked with regulatory signage, or simply with green information signs denoting the shoulder as a 'bike route'.

Reserved Bicycle Lane Sign

Bicycle Route Marker Sign

Maps 2A, B, & C show the existing and proposed bikeway network. While there has been significant progress (95 km of bike lanes since 2006) the network remains fragmented. Many bicycle lanes and paved shoulders start and end in seemingly random places, because most were built along the limits of paving projects, rather than with the aim of linking origins and destinations. A key focus of the AT Plan's bicycle program for the next five years should be connecting the fragments of on-road bicycle infrastructure, and linking them to the off road AT greenway network (Section 7).

One way to provide more focus for implementation may be to create a more achievable plan. One of the challenges in implementing the 2006 AT Plan has been that there were so many streets identified as candidate bike routes (almost all collector and arterial roads), that at current rates of implementation, it is highly unlikely that bike lanes would ever have been achieved on all of them. Maps 2A, B and C of this plan are proposing a more streamlined, yet still ambitious, bicycle network. If there is desire to re-introduce any of these streets, Council may consider amending the maps, and all the routes will be re-evaluated at the time of the next plan review. Roads have been removed as candidate bike routes (Appendix D) for one or more of the following reasons:

1. Potential for Use -- the origins/ destinations served were too sparse to realistically attract enough users to make an investment worthwhile;
2. Parallel Facility Available -- a parallel multi-use trail or local street bikeway is being recommended instead of an on-road bicycle lane.
3. Cost Prohibitive -- the road, or section thereof, was evaluated and would require costly relocation of curb and/ or ditch deemed to exceed the benefit that could be achieved with a bike lane or paved shoulder.

Recommendation #16: Focus the AT Plan bicycle program on making connections to create a network.

6.3.1.2 Protected Bicycle Lanes

Also known as "cycle tracks", these exclusive bicycle facilities are physically separated from motor vehicle traffic, and distinct from the sidewalk. Methods of separation may include curbs, bollards, planters, rows of parked vehicles, or any other type of physical barrier. The field of bikeway design is rapidly evolving, and while there is little standardized design guidance for these types of facilities, studies from other areas have credited the introduction of protected bike lanes with increasing the share of bicycling for transportation[18], and documented their safety benefits.[19] The increase in mode share is normally attributed to the attractiveness of these types of facilities to people who would otherwise be uncomfortable riding a bicycle on the road.

In the fall of 2013, the "*Mayor's Conversation on a Healthy Liveable Community*" resulted in a report approved by Regional Council (January 28, 2014) with the recommendation to "liaise with other municipalities in Canada that have implemented protected bicycle lanes with the goal of including protected bicycle lanes as a part of HRM's revised Active Transportation Strategy."

While candidate locations for protected bicycle lanes have not been identified on Maps 2A, B, or C, it is proposed that the above recommendation be carried forward by considering protected bicycle lanes wherever there are candidate bike routes on these maps. The determination of the best facility type for any given street often requires more detailed review than has been carried out in preparing this plan.

Factors to consider in locating protected bike lanes include: sufficient width (they're wider than painted bike lanes), the frequency of driveways and side streets (the need to consistently interrupt can deter from the benefits), and the function of the street (more value on busier streets with high potential cycling volumes than on quieter streets). While protected bicycle lanes are not suitable or physically possible on every street, there are an increasing number of Canadian cities with examples of existing or planned networks including, Montreal, Toronto, Ottawa, Calgary, and Vancouver.

Recommendation #17: The municipality should consider protected bicycle lanes where ever there are candidate bicycle routes on Maps 2A, B, & C, and aim to implement at least one protected bicycle lane pilot project in the next five years.

Two-way Cycle Track, New York City

One-way Cycle Track, Toronto

[18] Winters, M., *et.al.* Motivators and deterrents of bicycling: comparing influences on decisions to ride. Transportation, January 2011, Volume 38, Issue 1, pp 153-168

[19] Lusk, A. *et.al*. Risk of injury for bicycling on cycle tracks vs in the street. Injury Prevention, 2011, 17#2, p131-5

6.3.1.3 Local Street Bikeways

Local Street Bikeways provide designated routes for cyclists that are optimized for convenience, comfort, and connectivity for the broadest range of cycling abilities and ages. Motor vehicles and bicycles share the right-of-way on Local Street Bikeways. The lower motor vehicle speeds and volumes on local streets facilitate the safe sharing of the road and, depending on the characteristics of the route, traffic control features may be added to facilitate increased safety and convenience (e.g. traffic calming features such as speed humps, curb extensions or refuge medians).

The ultimate design of each Local Street Bikeway depends on the characteristics of each route. However, each facility should have the shared characteristics of:

- low motor vehicle speeds and volumes;
- connectivity to the broader bike route network;
- convenient access to destinations;
- minimized bicyclist delay; and,
- measures to facilitate crossings at intersections, particularly with higher order streets.

As they are sometimes less direct than main streets, wayfinding signs are useful along Local Street Bikeways to guide users through jogs and turns along the route. Wayfinding signs can inform users of the direction and distance to key destinations, including neighborhoods, commercial districts, transit hubs, schools and universities, and connecting bikeways. Such signs can also help to brand the network and integrate it with the system of Greenway trails in the region.

Signs and pavement markings designate the route and convenient bicycle crossings of busier streets are provided when required. While they are a cost effective route type preferred by new users, they have not been used locally because their implementation sometimes involves the use of traffic calming measures which are only carried out in Halifax under Council's *Neighbourhood Shortcutting Policy*. While a broader policy enabling traffic calming to reduce the impacts of through traffic, speeding and/or noise on local streets, would be desirable, the Transportation Standing Committee requested the development of a policy to support the use of the Local Street Bikeways[20] and this work has largely been completed.

Recommendation #18: The municipality should consider the adoption of a policy to enable the implementation of Local Street Bikeways where shown on Maps 2 A, B, and C, including consistent signage to identify this type of facility.

6.3.1.4 Macdonald Bridge Bikeway

A two-way protected bicycle lane on the north side of the Macdonald Bridge made a critical link in the bikeway network in 1999. Before that, cyclists had to walk over the bridge on a narrow sidewalk shared with pedestrians. However, poor connections back to the roadway, especially at the Halifax end of the bridge, have been of concern to users because of the steep grades involved and lack of directness. "Improving the Halifax connection to the Macdonald Bridge Bikeway" remains one of the top priorities of the public who were engaged for the development of this plan (Section 3).

[20] July 3, 2013, Item 5.1

On January 28th, 2014, Regional Council approved a recommendation to "champion the development of a solution to the cycling connectivity challenges at the Halifax end of the Macdonald Bridge Bikeway." [21] Halifax Harbour Bridges, the agency responsible for the bridge, plans to carry out a major re-decking project in 2015 which will require the closure of the Bridge's AT facilities for 18 months. The improved connection for the bikeway should aim to coincide with the re-opening of the bridge bikeway in 2017.

Recommendation #19: The municipality should continue to explore solutions to improving connections of the Macdonald Bridge Bikeway on both sides of the bridge, and aim to implement a solution on the Halifax side concurrent with the end of the re-decking project.

6.3.1.5 Bike Share

Municipal Bicycle Sharing in large cities around the world (e.g. *Bixi* in Montreal, Toronto, and London) have become increasingly popular and have been successful in getting more people riding bicycles. This plan does not recommend that the municipality pursue a municipal bike share program yet. A fundamental precursor to a successful bike share program is a connected bikeway network. Until a greater number of residents feel comfortable using bicycles on the streets, the success of any bike sharing scheme will be limited. Another factor to consider is Nova Scotia's mandatory helmet law. Systems to make helmets available at bikeshare locations are being piloted in other jurisdictions. It may be helpful to learn from these examples before launching such a system in Halifax.

6.3.2 Bicycle Infrastructure Considerations

6.3.2.1 Choosing the Infrastructure

The central goal of the 2006 AT plan was to double the municipality's number of people using AT by 2026. Achieving this requires a strategic focus on new users. A study from Portland Oregon [22] has been used elsewhere to attract new cyclists based on four categories of how people view cycling (see inset). The study found that the majority of people are interested in cycling but concerned about safety and concluded that the best way to increase the number of cycling trips is to design the bikeway network for the people we need to attract, **not** for those who are already cycling.

Strong and Fearless *(1% of residents): Young & predominantly male: this group cycles no matter what the conditions and requires no special cycling infrastructure.*

Enthused and Confident *(8%): People who are comfortable sharing the road with cars, but prefer some facilities; easily attracted to cycling with basic infrastructure like bike lanes and wide outside lanes.*

No Way No How *(About 30%): People who will never cycle, no matter what infrastructure is available; may be due to physical limitations, or a complete lack of interest; no point trying to convince this group.*

Interested but Concerned *(60%): Interested in cycling, but concerned about safety; prefer to cycle on quiet streets (Local Street Bikeways) or protected facilities (e.g. multi-use trails or protected bike lanes).*

Four Types of Cyclists (in Portland, OR)

[21] This was an outcome of the "*Mayor's Conversation on a Healthy Liveable Community*" held in fall, 2013.

[22] Geller, Roger http://www.portlandoregon.gov/transportation/article/237507

Protected bike lanes, local street bikeways, and AT Greenways are the principal types of infrastructure that have been shown elsewhere to attract new cyclists. Painted bike lanes on two lane roadways have been shown to have some potential to attract people to cycling, but one of their challenges has been at intersections, where introduced turn lanes often leave no space for bike lanes and require cyclists to merge with vehicular traffic. Without guidance at intersections, bike lanes will be less likely to attract new cyclists who are uncomfortable riding in mixed traffic.

Maps 2A, B and C include a strong emphasis on the use of Local Street Bikeways and Greenways to build the bicycle network. However, some bicycle lanes will still be required to provide a few direct routes and lend the network the coverage it requires to be accessible to area residents.

Recommendation #20: To achieve the goal of doubling of AT mode share, the municipality needs to focus AT plan implementation for cycling on the types of infrastructure preferred by new bicyclists.

Recommendation #21: Where a bike route is desired (Maps 2A, B & C) and pedestrian facilities are also needed, consideration should be given to building an AT Greenway beside the road to serve both modes.

Active Transportation on Baker Dr., Dartmouth

6.3.2.2 Locating the Infrastructure

A/ Regional Centre

Most bicycle lanes in the municipality have been built outside the Regional Centre (Maps 2A, B & C). This is because adding bicycle lanes on existing streets in the Regional Centre, where there are many competing demands for space, can be challenging. A recent 2.5 year process to establish one designated north-south bicycle route (Windsor Street bike lane and Vernon Seymour Local Street Bikeway) demonstrated the challenges associated with change on public streets. However, the Regional Centre offers the best chance of getting people to shift to AT modes due to the dense mix of uses within reasonable active travel distance of one another and the existing higher rate of residents who cycle.

The Regional Plan aims to further intensify uses within the Regional Centre, lending even more support to increasing AT opportunities in this area. Added bicycle infrastructure will translate directly into mobility options for residents and will mitigate growth in personal car use as the population increases.

During public engagement for this plan, the 'big idea" to build an "*on-road bicycle network in the Regional Center*" received the most popular support at public meetings and also a high number of independent mentions in the online survey (Section 3). Support for a Regional Centre bicycle network has also been heard from several major institutions; Capital Health, Dalhousie, IWK, and Saint Mary's University, worked together on the *Institutional District Bikeway Plan*[23] which encourages the municipality to enhance bicycle transportation options to these major destinations where many people work, visit and study. Groundwork for the AT Plan review included the engagement of consultants to undertake a more detailed analysis of what a peninsula bike network could look like[24], and this formed the basis of the route suggestions on Map 2C.

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[23] www.dal.ca/content/dam/dalhousie/pdf/sustainability/BikewaysPlan_20July2012.pdf

[24] www.halifax.ca/cycling/documents/CEU_PeninsulaNetwork_HRM_Report_24April_sm_.pdf

Recommendation #22: To achieve the goal of doubling of AT mode share, the municipality should put particular emphasis on the Regional Centre for the cycling component of implementing the AT Plan.

Proposed painted (or protected) bicycle lanes on Maps 2B and 2C (Regional Centre) will be an important part of this network, but the candidate routes first need to be assessed in more detail to determine what type of bicycle facility is possible and/ or appropriate on these streets. A list of suggested criteria for evaluating bicycle facilities is put forward in Appendix E.

In the Regional Centre, adding bicycle facilities to existing streets may also involve trade-offs such as the reduction of vehicle travel or turn lanes, the removal of on-street parking, or the reduction of boulevard green space. As the street right-of-way is a public resource, Regional Council is best positioned to decide how to allocate this resource among the various users.

So in addition to a technical review, this plan is proposing that the process for establishing bicycle lanes in the Regional Centre include public engagement followed by Regional Council approval. The Active Transportation Advisory and Transportation Standing Committees should be used to assist with such decision making. Because proposed bicycle lanes are typically on higher order collector or arterial streets, the decision-making framework proposed is regional, and not local, in nature (i.e. not Community Council).

Windsor Street Bicycle Lane

Recommendation #23: Maps 2B & C identify streets that Council has confirmed as candidate routes for bicycle lanes in the <u>Regional Centre</u>. Prior to establishing these painted (or protected) bicycle lanes there should be:

1. ***More detailed review of each corridor under criteria listed in Appendix E;***
2. ***Public engagement; and***
3. ***Regional Council approval.***

Significant redevelopment of private properties in the Regional Centre can be expected if the Regional Plan succeeds with objectives of intensifying the Centre. For this reason, Land Use Bylaw amendments could help mitigate some of the potential conflicts in advance, by ensuring that private property redevelopments do not rely heavily on on-street parking or loading along candidate bicycle routes.

Recommendation #24: Along streets identified as candidate routes for bicycle lanes on Maps 2B and 2C, new developments should reduce reliance on on-street parking by providing sufficient off-street parking for their own uses, including visitor parking. New and existing developments may also be required to consider loading from alternate streets, or time-limited periods for loading. Land Use Bylaw amendments should be considered to ensure these matters are considered by property owners.

B/ Urban Areas outside the Regional Centre

In the suburban areas of the municipality (i.e. outside the Regional Centre but within areas served by water/ sewer) the priorities for bicycle facility development, as well as the process to implement it should be different. There is generally low demand for on street parking in these areas since most households and businesses have off-street parking. Bicycle lanes may reduce on-street visitor parking but loading/ unloading and passenger pick-up/drop-off are unaffected unless 'no stopping' signs are also installed. Several long segments of bicycle lanes have been completed in the suburban areas since 2006 with minimal impact on abutting property owners (e.g. Waverley Road, Bedford Highway, Purcell's Cove Road). The municipality should continue to stripe bicycle lanes on roadways identified on Maps 2A, B, and C outside the Regional Centre.

Dunbrack Street Bicycle Lane

In the these areas, the journey to work often exceeds the 5-8Km maximum most people will ride for transportation, and it often involves stretches of arterial roadways which are hard to avoid. That is why several of these routes have been removed from the list of candidate bike routes (unless no reasonable alternative routes were available). With a few exceptions, the focus of bicycle facility development in suburban areas should be on building off-street paths and local street bikeways to shift short trips in neighborhoods to AT.

Recommendation #25: Bicycle facility development in urban areas outside the regional centre should focus on:

1. ***Improved connections to local destinations, such as schools, recreation centres, libraries, retail centres and transit hubs.***
2. ***Completion of the greenway network as per Section 7 of this plan***
3. ***New bicycle lanes and local street bikeways where identified on Maps 2A, B, and C.***

C/ Rural Areas

In rural areas on-site septic and well requirements create large lot sizes and distances between origins and destinations can be even greater. These factors mean that cycling is even less likely to be a real option for most people's journey to work and other travel needs. However, mobility options may still be valuable for local destinations and opportunities for long distance touring can be a contributor to rural quality of life.

Most rural roads are owned by the Province. The Provincial Sustainable Transportation Strategy (2013) recognizes that active transportation supports many other provincial goals and initiatives (e.g. the childhood obesity strategy - *Thrive*) and also identifies support for the development of a provincial active transportation and tourism network inspired by Quebec's '*Route Verte'* and promoted by Bicycle Nova Scotia (BNS) as the *Blue Route*. The Strategy included a three year funding commitment to support sustainable transportation initiatives, as well as identifed the need for a provincial AT Plan that will include a process for the province and municipalities to work together on AT priorities.

D/ The "Blue Route"

In fall 2013, the Nova Scotia Department of Transportation and Infrastructure Renewal announced that it would take the lead in coordinating the implementation of a provincial bicycle network. *Scoping the Blue Route,* a 2009 report prepared by Bicycle Nova Scotia laid the groundwork for this project and identified six principles that the Route should adhere to (Mobility, Continuity, Homogeneity, Efficiency, Safety, and Charm). The report suggests that determination of the final route should be carried out at the municipal or county level and should ensure that connections can be made with the adjacent municipality or county.

Recommendation #26: The municipality should work with rural communities and the Province to identify good candidate routes for paved shoulders that provide AT connections to local destinations. Halifax should also work with the Province and Bicycle Nova Scotia to identify preferred routes through the municipality to be followed by the Nova Scotia Blue Route. Council should consider amendments to Maps 2A, B, and C as needed, resulting from this process.

6.3.2.3 Maintaining the Infrastructure

A/ Bicycle Lane Maintenance Motor vehicle traffic continually sweeps debris off the travelled portion of the roadway towards the sides of the road. Bicycle lanes do not benefit from this natural sweeping and instead become repositories of road debris, hazardous to cyclists. The problem can be worse on roads connected to gravel driveways. *Municipal Operations* has been responsive to complaints arising from these situations and has special equipment and a biweekly service standard for sweeping roads with bike lanes between April and October of every year. The sweeping program does not operate in winter as the equipment uses water which can freeze and make conditions more hazardous.

Residents can report potholes by calling #311 and these are regularly patched. A service standard for bicycle lanes does not yet exist, and the existing standard which only prioritizes potholes 8cm or deeper, may not be suitable for bike lanes where substantially shallower potholes could pose a hazard.

Recommendation #27: The municipality needs to review maintenance service standards for bicycle lanes and routes, and should consider adopting special standards, especially on the busiest bike routes.

B/ Catchbasin Covers In 2003, a large number of bicycle-unfriendly catch basin covers (sewer grates with bars parallel to the street) were replaced and about a dozen more requests are received per year via #311 to replace additional grates. The number of requests should diminish as the stock of covers is replaced by bike friendly ones.

6.3.3 Support Facilities for Cycling

6.3.3.1 Bicycle Parking

Since 2002, the municipality has installed bicycle racks at most municipal facilities and has initiated a 'request a rack' program to install racks primarily in business districts between the curb and the sidewalk[25]. Since 2006, 338 racks have been installed representing 800 bicycle parking spaces. In 2006 Land Use Bylaws were amended to require short and long term bicycle parking with most new buildings (except in rural areas), but this did not apply retroactively to existing buildings. The municipality also purchased special racks to provide bicycle parking for events and in 2011 the *Clean Foundation* partnered with the municipality to make these available on a cost recovery basis at events like Nocturne, Switch, Bike Week, the Halifax Pop Explosion, Jazz Fest and others.

Request a Rack Program at Work

Bike Valet at Work

[25] http://www.halifax.ca/cycling/documents/ProcesstoRequestPublicBikeRack.pdf

6.3.3.2 Bicycle Repair Stands

Bicycle repair stands are equipped with an air pump and a suite of tools and support cycling by providing 'en route' options for minor repairs. With councillor district funding, the Dalhousie Student Union recently purchased a stand that was installed on South Park Street, south of Spring Garden Road. Halifax will be installing more stands at all three ferry terminals in 2014, Dalhousie has four stands on its campuses, and Halifax Harbour Bridges has one near the Macdonald Bridge bike lane.

Recommendation #28: Council should continue to support cycling through the supply and installation of bicycle racks and repair stands and should consider a pilot program to support the installation of more bicycle parking at commercial locations and schools which predated the 2006 Land Use Bylaw bicycle parking requirements.

6.3.3.3 Bicycle Traffic Control

A/ Pavement Markings, Signage, and Signals

The Transportation Association of Canada (TAC) publishes guidelines intended to be national standards for traffic control across Canada, including for bikeways. The 2012 *Bikeway Traffic Control Guidelines* identifies a suite of signs and pavement markings that may be installed in accordance with prudent engineering judgement to provide guidance to bicyclists on public roads. Preliminary review of several of TAC's recommended pavement markings appear to conflict with sections of Nova Scotia's Motor Vehicle Act. Guidance from TAC on bicycle traffic signals is also expected soon, and these are not currently a permitted traffic control device in Nova Scotia.

In 2013 the Provincial Legislature passed the *Innovative Transportation Act* making it possible to carry out two year trials for research purposes of devices that may otherwise be in contravention of the Motor Vehicle Act. While TAC guidelines are national standards based on established research (i.e. they are not necessarily 'innovations') there may be some rationale to carrying out local studies of certain applications, or trying out measures not currently listed in the TAC manual, under the provisions of the ITA, to make improvements for active transportation.

Recommendation #29: The municipality should work with the province to enable bicycle traffic control signage, signals and pavement markings approved for use by the Transportation Association of Canada to be used under the Nova Scotia Motor Vehicle Act and Regulations, and should consider testing innovations in active transportation facilities under the Innovative Transportation Act.

B/ Detection of Bicycles at Signalized Intersections

Typical inductive loops buried in the pavement which activate traffic signals are not sensitive enough to detect bicycles. At intersections controlled by loops, cyclists may experience significant delay waiting for a vehicle or pedestrian to activate the signal. Recognising this problem, municipal staff is experimenting with wireless technologies capable of cyclist detection. In the meantime, a list of intersections where cyclists have difficulty activating the signals is maintained. Once an acceptable technology is confirmed, it is expected that replacement of loops with wireless technologies would happen during other intersection projects, unless a specific budget is allocated.

Recommendation #30: The municipality should work towards improved detection of bicycles at signalized intersections and undertake to replace existing detection technologies with ones sensitive to bicycles when intersections or signals are upgraded. Consideration should also be given to marking the pavement with a stencil to advise cyclists of correct positioning on the roadway to activate the signal.

7. MULTI-USE FACILITIES

The two previous sections dealt independently with facilities for pedestrians and bicyclists. This section discusses facilities intended to serve both modes at once, like trails, bridges, signs, and facilities associated with the transit network.

7.1 Goal #1: Connected Greenway Network

The first goal of the 2006 Active Transportation Plan was to "establish a complete, integrated and readily accessible region-wide AT network serving urban, suburban and rural areas". In keeping with the format developed in the two previous sections, this section begins by describing on how far the municipality has come in achieving this goal with respect to the main type of multi-use facility for the network: the Active Transportation Greenway.

7.1.1 Active Transportation Greenways

There are many different kinds of trails in the municipality including hiking paths in wilderness areas, looped pathways in parks, paved fenced corridors connecting dead-end streets, and wide, paved (or crusher dust) multi-use trails that connect people and destinations. The term 'greenway' is being introduced in this plan as a way of differentiating the latter from all the other types of local trails:

Greenways are 3-4m wide paved or crusher dust trails that form part of a network intended for walking, cycling, and other active modes[26].

Lake Banook AT Greenway

Other types of paths may feed the network, or form interim connections for it, but may not always be suitable to all modes of active travel. The term 'greenway' is intended to convey the natural setting in which these trails are typically set (the 'greenway corridor', while alluding to their support of "green" (environmentally friendly) transportation.

Greenways provide opportunities for the broadest range of AT in a multi-use environment where all users must share the space. In addition to walking and cycling, people using these trails may be jogging, in-line skating, or skateboarding; using wheelchairs, pushing strollers, or walking their dogs. They may be on the greenway to get somewhere, or they might just be out for fresh air and exercise.

To serve this broad range of users, greenways should be at least 3m wide and surfaced with asphalt (if winter maintenance is desired) or crusher dust (where no winter maintenance is required). Where not prohibitively costly to build due to existing terrain, they should also be wheelchair accessible (maximum grade of 5% or up to 8% if appropriately designed rest areas are provided). Potential user conflicts should be adequately managed with a combination of good design (proper width for user volumes, intersection treatments, good sightlines etc.) and the promotion of good trail etiquette (signs, pavement markings, warden programs etc.).

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[26] Depending on the management agreement between the Nova Scotia Department of Natural Resources and the local trail group, some trails may allow motorized uses such as ATV's as well.

To serve transportation needs, users need to be able to get to and from the greenway on the regular street network and the transition between the two should be safe, obvious and convenient. The greenways should link to the on-road component of the AT system, which includes the pedestrian and cycling infrastructure in the road right-of-way (e.g. sidewalks, bike lanes, local street bikeways, etc.).

In addition to their transportation function, greenway corridors provide many valuable benefits and serve variously as recreation areas, habitat corridors, economic development attractors and outdoor fitness centers. This section describes the evolution of the Regional Trails Program in the municipality and identifies recommendations for moving it forward.

7.1.2 Status of AT Greenway Network

Map 3 shows the location of the 146 km of the existing greenways in the municipality. The pedestrian and bicycle network maps (Maps 1 and 2A/B/C) also illustrate the greenway network as it serves both modes. Since the adoption of the Active Transportation Plan in 2006, **67** km of greenways have been built, almost 10 km per year.

AT Greenway Highlights Since 2006

Chain of Lakes Trail (7.3 Km)
Second Lake Trail (4.6 Km)
First Lake Trail (3.3 Km)
Dartmouth Waterfront (3.9 Km)

The greenway network has been very successful at transforming abandoned railway corridors into lengthy corridors for active transportation and recreation, connecting communities especially to the east and west of the Regional Centre (e.g. Chain of Lakes Trail, BLT, and St. Margaret's Bay Trail to the west; Shearwater Flyer, Salt Marsh Trail, and Musquodoboit Trailway in the east). Limited success has also been achieved in using utility and natural corridors for greenway development (e.g. water, power & gas lines, watercourses). The Shubie Canal corridor, Mainland Linear Trail, and Dartmouth Waterfront Greenway are a few examples of these.

The greenway network has also been very successful in harnessing community energies to develop and maintain the network – the Halifax Regional Trails Association has been involved in the development of most of the trails in the network (described in more detail in 7.2.1.2). Greenway projects have also successfully leveraged municipal funds: about $12.1 million has been spent on greenways since 2007/08, with about $8.8 million from municipal government, and $3.3 million from outside agencies (primarily from the provincial and federal governments).

The challenges for completing the greenway network will be connecting the parts of the network for which easily accessible corridors (like abandoned railways) are not available, and finishing the greenway connections into and through the regional centre.

7.1.3 Status of Other Multi-Use Facilities

The status of AT facilities associated with Metro Transit, as well as of AT Bridges and signs, are discussed later in this section.

7.2 Multi Use Facilities – Now and Going Forward

7.2.1 Active Transportation Greenways

7.2.1.1 AT Greenway Network Vision

Map 3 illustrates the municipal greenway network consisting of **existing greenways** (solid green line); **proposed greenways** (dashed green lines) and the **envisioned greenway network** (broad, pale green line). While proposed greenways have had some kind of routing study completed, the intent of the 'greenway network vision' is to paint a broader picture of the future of the network and serve as general guide to help inform future routing studies. Where the trail eventually ends up on the ground may not be directly within the 'broad-brush' line shown as the greenway vision, but it should not be too far off either, and it should serve to complete the connections implied by that line.

Greenway	Length (km)
Existing greenway	146
Proposed greenway	38
Envisioned greenway	136
Total	**320**

The Regional AT Greenway Network Vision (Map 3) includes four primary corridors connected to each other in the regional center: the abandoned rail corridors coming from the east (Musquodoboit Harbour) and west (Hubbards) combined with the Sackville to Herring Cove and Shubenacadie Canal corridors running north and south. These major spines and their offshoots are proposed to form the main off-road component of Halifax's active transportation network. Depending on where they, they may fall into one of two categories:

> **Long Distance Greenways** as their name implies, cross long distances between origins and destinations, often connecting small rural communities using existing corridors such as abandoned railroads, riparian corridors, or utility easements. They typically have low user volumes and a granular trail surface no more than 3m wide. Winter maintenance is rarely recommended or necessary on such facilities because of low user volumes, and a possible desire to use them for winter activities. Depending on the community, motorized users (e.g. ATV's, snowmobiles) may be present.
>
> **Urban Greenways** include those multi use trails generally within the urban service boundary, where denser forms of development mean that higher volumes of users can be expected. These greenways should normally be paved, up to 4m wide (or more, if volumes justify it), and should be considered for snow removal in winter.

Dartmouth Waterfront Greenway

Given that there are 174km remaining to achieve the vision, and based on current costs and levels of funding ($180,000 per km based on $12.1 million to build 67 km since 2007/08) an additional $31.3 million dollars is required to achieve the vision. To do this by 2026 (the remaining time span of the original AT Plan) about $2.8million per year would be required. At current levels of funding, the vision would not be achieved until 2032.

Given that the easier components of the greenway network have been mostly built, the remaining sections may end up with higher unit costs than achieved in the past. As noted in 7.1.2 of this plan, the challenges will be to connect the sections that lack pre-existing linear corridors, and to complete the greenway connections into and through the regional centre.

Improving community connections to existing greenways is also important as the linear corridors they've been built upon can be poorly connected to neighbouring streets and destinations. Where the railway would once have purposefully minimized these connections, they now need to be maximized to improve access for AT users. Building community connections will also be required in addition to completing the network itself.

Recommendation #31: The municipality should focus on making <u>connections</u> in the greenway network in general, and specifically tackling those <u>connections</u> into and through the regional centre. Halifax should also continue to improve <u>connections</u> between existing communities and nearby greenways.

7.2.1.2 The Community Development Model for Greenway Development

Community at Work in North Preston

Most of the new AT greenways developed in the municipality over the last fifteen years have been implemented under the Community Development Model in which municipal staff work with community groups belonging to the Halifax Regional Trails Association (HRTA) towards the planning, construction and maintenance of greenway corridors. This model of service delivery originated in 1998 with the Halifax County Regional Development Agency (RDA) which worked to improve economic opportunities in rural areas prior to amalgamation. The RDA worked with community groups to build wilderness hiking paths and also to convert abandoned rail lines to AT corridors. The approach of working with community groups proved cost effective, as groups could harness volunteer energy and in-kind contributions from their members while leveraging funds from various levels of government and other granting organizations like the Trans Canada Trail Foundation. The result was the start of an AT system in rural parts of the municipality.

In 2007, the municipality took over the Regional Trails Program and the model expanded to include urban areas. Staff in the business unit *Planning and Infrastructure* currently work with 21 community trails groups belonging to HRTA (Map 3). Once a group is a HRTA member in good standing, they can apply for funding from the Regional Trails Program to plan, build, and maintain greenways. Applications are reviewed annually by a committee of HRTA members and municipal staff and funding may be

provided if certain criteria are met. A summary of their accomplishments can be found on Map 3. The majority of the community trail groups continue to be engaged in the maintenance and operation of their trails under a formal maintenance agreement with, and financial assistance from, the municipality.

Recommendation #32: The municipality should continue to support the Community Development Model for the development of greenways. This may be especially critical for the development of long distance greenways where community oversight may be essential to long term sustainability. Due to the increased complexities of urban greenway development the Community Development Model may not always be used, or may only be employed during the public engagement and planning stages.

7.2.1.3 Direct Delivery of Greenways

Some greenways (e.g. Barrington Greenway, Burnside Greenway) have been built directly by the municipality through the Active Transportation Capital Program without the involvement of community groups. These trails represented good linkages in the network in areas where community groups weren't active.

7.2.1.4 Funding Greenway Development

A/ Leveraging Funds

Since 2007/08 approximately $12.1 million has been spent on developing the greenway network. $3.3 million of these funds have been leveraged from outside of the municipality, primarily from provincial and federal government programs. The Nova Scotia Department of Health and Wellness's *Recreational Facility Development Program* has cost shared efforts with community trails groups every year since 07/08. The provincial sustainable transportation strategy (NS Moves) has also contributed. Federal funds have come through numerous programs including the Municipal Rural Infrastructure Fund, the Recreation Infrastructure Fund, and stimulus funding following the 2009 recession. The Trans Canada Trail Foundation[27] has also been a funding partner in a few cases, and Heritage Gas provided in-kind contributions through the preparation of sub-base for the Barrington Greenway after they installed a gas line under it.

Recommendation #33: The municipality should continue to seek opportunities to leverage funding from other sources to build the greenway network.

B/ Directing Funds

The 2006 AT Plan's definition of *Active Transportation* included:

- Active Commuting - journeys to/ from work/ school;
- Active Workplace Travel - trips during work hours;
- Active Destination Oriented Trips -to/ from shops, visiting friends, etc., and;
- Active Recreation - using an AT mode for fitness only.

Because of this definition, there continues to be pressure to use the AT and Regional Trails capital programs to fund purely recreational trails (e.g. loop trails, wilderness hiking trails). If AT funds are used

[27] In January 2014, the Federal Government announced up to $25 million to support the Trans Canada Trail Foundation, but this can only be used on non-motorized trails that are designated as part of the Trail.

for trails that have recreation as a primary focus, it will dilute the ability of these programs to achieve their goals of a connected AT Network. The municipality has other plans, policies, and programs in place to serve residents' recreational needs and funding priority for the Regional Trails and active transportation capital programs should be assigned to projects that fill gaps in the regional AT network. This strategic approach is necessary in light of limited funding available, and the desire to achieve the vision within the remaining time frame of the Regional Plan. This approach supports the definition of active transportation put forward in the original AT Plan, since all AT trails will have recreational value, while all recreational trails may not necessarily have transportation value.

Recommendation #34: At least for the next five years of AT Plan implementation, consideration should be given to prioritizing funds from the Active Transportation and Regional Trails budgets towards greenways with a transportation focus (i.e. those that support walking and bicycling and connect origins with destinations).

Transportation and Recreation

7.2.1.5 Greenways and New Development

The envisioned greenway network in the municipality (Map 3) travels through developed and undeveloped land. In undeveloped areas efforts need to be made to protect future greenway corridors through the relevant Municipal Planning Strategies and Land Use Bylaws. The municipality could also explore ways of requiring developers to construct the envisioned greenway corridors at the time of land development. MPS amendments may be required, but ways of doing this may include:

- Accepting developed greenways under parkland dedication requirements in the Subdivision Bylaw;
- Requiring greenway development as components of negotiated development agreements;
- Requiring greenways in lieu of sidewalks and accepting them in the road right-of-way.

Also, greenway corridors need to be connected to the communities they serve. The municipality should explore ways of ensuring there are public connections to existing greenways when new development takes place adjacent to them. More design guidance for greenways and connector trails may also be

needed. There have been some drainage issues with some recently built connector trails, and the municipality has received complaints of inconsistent surface standards & widths of newly built trails. While the "Red Book" contains a typical cross section for what an AT greenway (off-road multi-use path) should look like, it does not supply any guidance on where this cross section should be used, or provide any standards and guidelines for subordinate trails needed to connect to the main greenway spine.

When the envisioned greenway corridor travels through lands that are already developed, off road linear corridors may not be available. In such cases, ways of making the greenway connection using on-road AT connections (e.g. with signage combined with sidewalks and bicycle lanes or local street bikeways) should be explored.

Recommendation #35: Consider MPS, LUB, and Red Book amendments to protect the continuity of the greenway network, facilitate the construction of new greenways along with land development, and ensure new communities are connected to existing greenways.

Recommendation #36: When carrying out any capital works, reviewing new subdivisions, or negotiating development agreements, municipal staff should give consideration to this AT Priorities Plan and seek to fill gaps in the envisioned greenway network (through means available to them) and also provide good connections to it from adjacent communities.

7.2.2 Active Transportation Signage

Since many of the greenways have been built or overseen by individual community groups, signage along each is unique, making it hard to recognize that these trails are actually part of an emerging regional network. A consistent way of signing the greenways will help all residents recognize that each section is a part of a future region-wide network with enormous potential for sustainable transportation and recreation. Until all connections in the network are made, signage can also help greenway users make links between trail segments as well as to common destinations off the trail.

However, each community groups' efforts should continue to be acknowledged, and sections of greenway designated as 'Trans Canada Trail' or 'Blue Route' (see 6.3.2.2) may also need to be identified. To this end, any greenway signage which is developed should allow for co-branding with other groups and initiatives. The greenway signage should also be integrated in terms of look and feel with the signage recommended for development in support of Local Street Bikeways (see 6.3.1.3).

Just like the distance from the last exit sign can help emergency responders find people on Highways, consideration should be given to how a consistent region-wide signage approach on greenways can help emergency crews locate people on them.

Recommendation #37: The municipality should consider the development of a consistent and uniform AT wayfinding and route identification system for greenways which is integrated with the signage proposed for Local Street Bikeways.

7.2.3 AT Bridges

Highways, rail corridors and natural features like watercourses create major barriers for active transportation. In many Halifax communities, development patterns have made active travel even tougher by separating land uses on opposite sides of physical barriers – in many places high density residential development is on the opposite side of a barrier from major commercial destination which are otherwise well within walking/ cycling distance. Several projects have been completed since 2006 that helped overcome such barriers:

- Highway 111 AT Bridge (improved connections to Burnside from Highfield Park);
- Washmill Lake Road Underpass (included sidewalks and bicycle lanes);
- Moirs Mill Pedestrian Bridge (Bedford Highway);
- Bissett Lake Trail Bridge.

Washmill Lake Road Underpass

AT Bridge over Hwy 111 at Burnside Dr.

Some AT bridges can be incredibly impactful. Since the addition of bicycle and pedestrian facilities in 1999, the Macdonald Bridge has become a critical link in the AT network carrying over 1000 trips per day in the fair seasons over its 1.6 km span. The MacKay Bridge lacks AT facilities entirely and should it be subject to any major capital undertaking, AT facilities should be considered by its managing authority, the Halifax Harbour Bridges. The Northwest Arm is another barrier that if spanned, could make the William's Lake area less than a 30 minute walk from Dalhousie, Saint Mary's and several hospitals. That being said, projects of this magnitude were considered beyond the scope of recommendations contemplated by this five year priorities plan.

However, there will be opportunities for the municipality to bridge some smaller barriers and gaps in the AT network as a result of the major re-decking project of the Macdonald bridge. Salvaged panels from this project will be available for use by the municipality in 2015 and may create opportunities to cost effectively span local AT barriers.

Recommendation #38: Halifax should consider building AT Bridges or crossings to overcome barriers in the AT network particularly between high density residential areas and business/ commercial areas. Areas where such connections are absent include, but are not limited to:

1. ***Between Olivet Street apartments and West End Mall (needs at-grade railway crossing);***
2. ***Between Chisholm Ave. apartments and Bayers Centre (AT bridge over the CN rail cut);***
3. ***Over CN rail cut at Saint Mary's University (a link in the Halifax Urban Greenway);***
4. ***At least one more pedestrian/ bicycle crossing of a 100 series highway.***

7.2.4 Considerations for Pedestrians and Cyclists on Metro Transit

Tactile Markings at the Bridge Terminal

Section 5.3.1.3 identifies the need to focus sidewalk development on busy streets as one of the key strategies for addressing gaps in the pedestrian network. This focus is necessary to support transit as well, as most transit trips begin and end as walking trips, and buses typically follow collector/ arterial corridors. Bus stops are located on both sides of the street, and to the greatest extent possible, sidewalks are needed on both sides of urban transit routes to improve rider experience of accessing transit. Recommendations associated with this challenge are already included earlier in this document. To improve accessibility of bus stops serving accessible transit routes, concrete landing pads were installed at 90 stops under Metro Transit's *bus stop improvement program.* The pads provide an area free of obstructions to ease boarding and disembarking for all users and they facilitate snow removal. Wheelchair users in particular have less difficulty getting on and off the bus when there is a stable, level and unobstructed landing pad to operate the wheelchair lift and ramp.

The Metro Transit Bridge Terminal opened in 2012. A key part of the terminal design was the pedestrian connections to the site, including tactile pavements for the visually impaired and a pedestrian bridge to the roof of the terminal to allow safe and accessible flow between the terminal and the community to the east.

Metro Transit has also made strides in the area of facilitating bike to bus connections. In addition to accommodating bicycles on all three ferries and having bicycle racks at all terminals, approximately 77% of Metro Transit's bus fleet has bike racks, and 44 routes are bike rack guaranteed. Provided current budget levels are maintained, Metro Transit expects a completely bike-rack equipped fleet by 2019. Bicycle repair stands containing basic tools and tire pumps will be installed at all three ferry terminals in 2014.

Bike Racks on Buses

Recommendation #39: The municipality should continue to improve pedestrian and bicycle connections to its transit service.

8. AT SAFETY AND PROMOTION

The third goal of the 2006 Active Transportation Plan was to:

- Make conditions for AT modes safer through the development of appropriate facilities in combination with promotion and safety education.

The last three sections described what the municipality and others were doing, and could be doing 'on the ground' to improve infrastructure for active transportation. All of these 'on the ground' initiatives need to be supported and promoted to ensure they are helping the municipality achieve its goals for mode share and improved safety for AT users. This section includes an overview of actions the municipality and other groups have taken in the areas of safety, education, promotion and events and includes recommendations to consider implementing during the next five years of plan implementation.

8.1 Safety

8.1.1 Safety Promotion

A/ Offered by the Municipality

Since 2006, *Traffic Services, Regional Police* and *Corporate Communications* have carried out a variety of campaigns directed at pedestrians, cyclists, and motorists:

- TV ads about pedestrian/ bicycle safety produced and aired on Global in 2006, 2007, 2008, and 2009 (now on Halifax's YouTube Channel - www.youtube.com/HRMNovaScotia).
- Radio ads aired on all Metro Radio Group radio stations in 2007. New Radio ads in partnership with Province (NSTIR) in 2009 and 2010.
- Partnered with NSTIR on a safety campaign that included production and airing of Eastlink TV Guide ads, newspaper ads and bus posters (inside and out) plus bus shelter ads (2011).
- Crosswalk safety booklet (www.halifax.ca/traffic/documents/crosswalkFINAL.pdf) and social media campaign on HRM website, Facebook, Twitter and *HRM Parent* blog (2012).
- "Distractions Kill" media campaign in 2013 (http://distractionskill.ca/).

The municipality commissioned a before and after study to assess the awareness, recall, and effectiveness of the 2013 campaign. While a high number of residents recalled the ads, the study also found that there was a high level of awareness of pedestrian safety issues *before* it ran. Also, most residents held a favourable opinion of the campaign and were supportive of the municipality continuing such campaigns in the future.

B/ Offered by Non-Government Organizations (*Thumbs Up!* Share the Road Campaign)

This community-based awareness campaign initiated by the Dalhousie Transportation Co-laboratory (DalTRAC) intends to promote positive behavioural change and safer sharing of the roads for all road users - pedestrians, cyclists, and motorists. The campaign is the product of extensive research and community consultation throughout Nova Scotia and can be adopted by any municipality (www.dal.ca/sites/share-the-road.html).

Recommendation #40: The municipality should continue to promote traffic safety for all users and continue to collaborate with other organizations or levels of government to get the message out.

8.2 Education, Promotion, & Events

8.2.1 Municipal Programs

Bicycle Camps and Courses – The municipality offers formal Can-Bike Training for youth and adults in the summer through the Emera Oval and the Chocolate Lake Recreation Centre. Various bicycling community sessions are also offered in other locations including the Mobile Bike Unit, the Making Tracks program, bike & hike programs, and mountain biking programs. HRM could further explore the demand for a diverse range of bicycling programs for all ages to be offered in more parts of the municipality.

Bicycle Safety Rodeos – Offered by *Halifax Regional Police*, these events are great opportunities to educate parents and children about the safety aspects of riding a bicycle on streets and roads. The goal is to empower young cyclists with a basic set of skills for on-road riding.

SmartCycle – As part of the municipal SmartTrip commuter options program, the SmartCycle module is a condensed bicycle proficiency course suitable for workplace lunch & learn formats. SmartTrip has hosted 40 sessions for various workplaces and groups up to fall 2013. SmartCycle is also being offered as part of SmartTrip community-based outreach (www.halifax.ca/SmartTrip/).

Bike Week – is coordinated by staff and members of the Active Transportation Advisory Committee, but it is made up of individual community events. The aim is to support and grow bicycle culture in the region. It has been held since the mid 1990's but annual funding and staff support since 2006 ($5,000 from *Community Recreation*) has ensured its position as a regular feature of the summer event landscape. The number of events, their regional distribution, and overall participation has increased each year culminating in 2013 with over 6000 participants attending 60 events region-wide. Corporate sponsorship has helped the event reach more residents and raise more awareness (www.halifax.ca/bikeweek).

Celebrating Bike Week on the Dartmouth Waterfront

Bicycle & Greenways Map - This guide map for cycling was first published in 2005. Multi-use trails were added during an update in 2009. It was made more user friendly with a fresh new look in 2012. This map is available free to the public at all municipal facilities and by calling 311.

Get Out Check It Out – Walk Hike Bike HRM - This pocket sized guidebook to local AT greenways was published through the Recreation department's *Active Living* initiative with funding from the NS Department of Health and Wellness. For each featured trail, there is information on accessibility, facilities (washrooms, parking, etc.), designated uses, surface material, transit access, and more. First published in 2007 and reprinted in 2010, over 15,000 copies have been distributed to residents. The initiative has also supported trail tours, and an annual *October Trail Challenge*. The guide is currently out of print as focus has shifted to easily printed pages from the website: www.halifax.ca/trails.

8.2.2 Offered by Non-Government Organizations

CAN-BIKE is a defensive bicycling program developed by the Canadian Cycling Association to instruct people of all ages and abilities to ride on urban and rural roads with more confidence. Courses vary from 2 to 18 hours depending on the needs of the bicyclists. For more information about Can-Bike visit: http://canbikens.ca/index.html.

Active and Safe Routes to Schools (ASRTS) is part of a national program working locally to increase the use of active transportation by children and youth in order to reduce air pollution, increase physical activity, and improve traffic safety. Hosted by the Ecology Action Centre, ASRTS (www.saferoutesns.ca/) offers programs such as:

> **Making Tracks** offers experiential workshops in school and community settings to train youth and children in safety skills for walking, cycling, in-line skating and skateboarding.
>
> **School Travel Planning** offers in-depth assessments of individual schools to identify the specific barriers to AT at their location and then develops customized active transportation plans to overcome barriers. The program assists with plan implementation, evaluation, and monitoring.

IWALK (International Walk to School Month) Every October, in over 40 countries, IWALK celebrates the physical, safety and environmental benefits of walking, cycling and other forms of active transport. The event is coordinated locally by the Ecology Action Centre in partnership with the Province of Nova Scotia. One third of a total of around 100 participating schools are located within the municipality. IWALK, draws a lot of media attention and brings together many community interests to support safe and active travel for children and youth.

International Trails Day is coordinated locally by the Nova Scotia Trails Federation. This annual celebration aims to promote trail development, encourage the use of trails, and raise awareness of the healthy lifestyles they support. It is celebrated globally on the first Saturday in June and usually coincides with Halifax Bike Week.

SWITCH - opens streets to people and was piloted in the municipality in September 2012. Organized by the *Planning and Design Centre* the event attracted between two and three thousand people to walk or wheel along a 2Km route from South Park & Spring Garden to North & Agricola streets. In 2013, this route was repeated two more times, and a very successful Dartmouth route was added. Municipal charges related to traffic control (barricades and police at intersections) form the bulk of the event expenses and requests to host this event more frequently and in other locations are pending a review of Halifax's approach to street closures requested by Council in 2013.

***Switch* on Prince Albert Road (photo: PDC Angie McLellan)**

Heart &Stroke Walkabout - aims to help all Nova Scotians discover the benefits of walking. Their vision is to create and sustain a revitalized culture of walking with a comprehensive program including a media campaign, contests, access to pedometers, support for walking groups, and an interactive website (www.walkaboutns.ca).

Jane's Walks - honours the legacy of urban activist and writer Jane Jacobs who championed the interests of local residents and pedestrians over a car-centered approach to planning. These walks are led by anyone who has an interest in the neighbourhoods where they live, work or hang out and registers their walk at www.janeswalk.net . Nine walks were held in the region in 2012 and six in 2013.

Recommendation #41: The municipality should evaluate the current approach to AT safety promotion and skills training and continue to supply education, promotion, and events related to active transportation. Halifax should continue to collaborate with and support such initiatives which are implemented by outside groups.

9. VISION FOR ACTIVE TRANSPORTATION 2026

The Active Transportation Plan aims to create more opportunities for mobility that promote physical activity and healthy lifestyles for all ages. Having said that, this is a large municipality with a broad range of settlement types, so depending on where one is located, the vision for active transportation may look different from place to place. In accordance with the draft Regional Plan, the three broad settlement categories are:

1. **Regional Centre**: Halifax Peninsula and Dartmouth within Highway #111, and as defined on Map 1 of the Regional Plan: *Settlement and Transportation*.
2. **Urban Settlement**: those areas where development is, or will be serviced with municipal water and wastewater according to the Regional Plan (refer to the Regional Plan, Map 2).
3. **Rural**: all lands outside the Urban Settlement and Urban Reserve Designations on Map 2 in the Regional Plan.

If we are able to implement this plan, here is how the municipality may look in 2026:

Regional Centre

In 2026 it is clear that the Regional Municipal Planning Strategy has been successful in attracting more homes and workplaces to the Regional Centre. As a result, this area has a dense mix of housing, employment and shopping, so nobody here lives too far from a large number of amenities. Most people who both live and work (or go to school) in this area have the most enviable commutes in the nation: they enjoy a 30 minute walk for commutes less than 3km or ride bicycles for longer commutes of 3 to 6 km (12 – 30 minute ride). Walking and cycling for other daily activities like shopping, errands and appointments is common too (it's actually more convenient than driving most of the time). And because fewer people are driving, there is less congestion out there for those who still need their cars. On weekends, you often see people enjoying the AT network just for fun; they go on family walks or rides, easily accessing the world class network of greenways beyond the Centre for long distance adventures. They feel comfortable doing all of this because there are *continuous* and *convenient* facilities for walking and cycling available to them and people feel safe using them. The pedestrian facilities include sidewalks on both sides of every major road, safe road crossings, useful pedestrian short cuts, and some nicely streetscaped corridors. The bicycle facilities include some bicycle lanes on major streets combined with well signed, traffic calmed routes on residential side streets. There are also some greenways (multi-use trails) and protected bike lanes, offering complete separation from motor vehicle traffic. Winter maintenance is also improving, so active commuting continues year round: after all this is Canada, and we know how to dress to stay warm and dry in bad weather.

Urban Communities (outside of the Regional Centre)

Baker Drive Shared Pathway

Outside of the Regional Centre, where urban development was traditionally based on greater separation between different land uses, the focus of AT has been less on the journey to work, (because of greater distances), and more on making connections to local destinations. From 2014 to 2026 most improvements have been directed to improving pedestrian and bicycle connections to transit hubs, local schools and community centres (including shopping). A strategy has been developed to add pedestrian facilities to busy multi-lane arterial roads which had originally been built without any sidewalks. Many of these roads now have pedestrian accommodation so people can get safely to buses, schools, and shopping centres. The focus of bicycle facility development since 2014 has been on local streets and greenways and these are now connected to each other and to the Regional Centre and form a greenway network which is one of the best in the world. On weekends they are full of joggers, cyclists, and walkers enjoying nature and the great outdoors. Tourists love to visit because of this network and residents cite it continually as one of the reasons they love living here.

Rural Areas

Tantallon Rails to Trails

In the rural areas, the regional greenway network forms the backbone for active transportation. Through the efforts of the municipality in partnership with various community groups, abandoned rail corridors have been transformed into low maintenance long distance greenways which connect rural communities to each other and to the Regional Centre. The rural greenway trails have not been paved (to save money so we can build more of them) and they are not winter maintained (so they are available for snow based active transportation). Residents from the Centre and Suburban areas benefit from this network too -- they love using these trails for active recreation. The municipality has also worked with the province to identify some key on-road routes where paved shoulders make rural cycling more comfortable and has been cooperating with the province to designate parts of the Blue Route in the municipality, a province–wide cycling network. Combined with the trail system, this has created many new opportunities for rural AT (as well as a small tourist boost for local economies). Finally, in some rural villages and hamlets, with outside funding support, the municipality is helping to create walkable Rural Centres. Most people still drive to get to these places, but once they have parked their car, they can walk from one destination to another. Even though the distances people have to travel to work, school, and shopping are often too great to reasonably expect active transportation to be used, in this vision many more people are walking and cycling in rural areas than ever before.

10. FIVE YEAR IMPLEMENTATION PLAN 2014 – 2019

There are many opportunities to increase the number of residents who travel actively in the next five years. This document has described the context and the many interrelated factors that influence the number of residents who use active transportation modes and has recommended future directions.

This section provides details on how this plan will be carried out. It details specific projects, budget estimates and recommendations that are proposed for execution between 2014 and 2019.

It is anticipated that in this period the implementation of cycling and walking infrastructure will be more deliberate and strategic than in the past. In past, most new facilities were implemented as part of larger road "state of good repair" projects. This approach has had significant cost benefits and has resulted in a significant increase in new infrastructure. Capitalizing on such opportunities should continue. However, this approach has also resulted in a disconnected network. For many of the projects identified below, the need for active transportation facilities will be the primary rationale for the project.

This implementation plan is divided into the following sections:

1. Pedestrian Infrastructure;
2. Cycling Infrastructure;
3. Multi-use Facilities (for all AT users), and;
4. Active Transportation Education and Promotion.

Implementation of projects and activities in this plan will depend on a number of factors. These include:

- *Funding*. Funding decisions are made by Council as part of the annual budget cycle and are evaluated against the municipality's many competing needs. Funding may also be accessed from other levels of government and foundations (e.g. Trans Canada Trail Foundation).

- *Regional Council and Community Council approval of particular projects*. Many of the projects in this plan, particularly on-road bicycle facilities, will be subject to planning and community engagement processes and final approvals from Regional Council and/or Community Councils.

- *Staff and community capacity*. Planning, designing and co-ordinating project construction and programs requires professional resources. Achieving the expanded scope in this plan may necessitate increased reliance on consultants or temporary staff and will continue to require resources from a range of municipal business units.

- *Property acquisition/easements.* Some of the projects identified in this plan require permissions or acquisition of property from other landowners.

- *Co-ordination with other capital projects.* The timing of an AT capital project may be adjusted to align with other municipal projects or projects initiated by other proponents (e.g. provincial government, private developer, utility, etc.). An example is the greenway proposed to connect Burnside with Bedford which is being planned in conjunction with the Province`s proposed extension of Highway 107.

10.1 Pedestrian Infrastructure

Creating sustainable, walkable communities is one of the key goals of the Regional Plan. Environments that are conducive to walking are conducive to people. Continuous sidewalks and safe crossings are the basic building blocks for pedestrian safety, comfort and convenience, especially essential for the most vulnerable populations: children, seniors, and persons with disabilities.

If approved, these initiatives would roughly double the amount that the municipality dedicates to addressing gaps or barriers in the sidewalk network. The existing new sidewalk program is typically allocating $2.1 million dollars annually to develop new sidewalks. The initiatives proposed below would increase that amount to about $4.6 million annually starting in 2017, for a total of about $19 million invested in walking from 2014 to 2019.

Most of these projects will take place outside of the Regional Centre where there are significant gaps in the pedestrian network.

Outputs:

- Add 20 km of new sidewalk as part of the existing sidewalk program;
- Develop an arterial/collector sidewalk program that would add 3 km;
- Develop a rural pedestrian program to address key gaps, particularly in designated growth areas;
- Implement three “walkability” improvement pilot projects; and,
- Improve accessibility at up to 10 intersections through curb cut changes, tactile markings and audible pedestrian signals.

10.1.1 Summary of Proposed Projects to Support Walking

Description	Details and Targets	Estimated Total Five Year Budget[28]
Continue Existing Sidewalk Program The existing sidewalk program continues to expand the sidewalk network as per the current annual planning and prioritization process.	Approximately 20 km of new sidewalk (4000 m per year at $500/m).	**$12,500,000** ($2,500,000/ year This is an existing budget) .
Arterial/Collector Walking Retrofits This initiative would expand the sidewalk network specifically on arterial and collector roads with transit services that have been too challenging or costly to address in the existing sidewalk program ($1500/m average).	Evaluation criteria developed and 3000m of new sidewalk built (at about $1500/m).	**$4,500,000** (Starting in 2017 and requires a new budget of $1.5 million/ year).
Rural Pedestrian Program This program would facilitate investment in pedestrian facilities in more rural areas, particularly rural growth centres identified in the Municipal Planning Strategy.	Specific projects to be identified following the development of a program for rural pedestrian infrastructure as per 5.3.2.3.	**$1,500,000** (Starting in 2017 and requires a new budget of $500,000/ year).
Walkability Improvements (pilot projects). This initiative would support smaller-scale capital projects that help to overcome barriers to increased walking. Projects may include reducing crossing distance, creating new connections/ short cuts, and accessibility upgrades at key locations.	A total of three projects to be implemented as a pilot program. Would target areas with high pedestrian traffic that are not subject to improvements as part of the regular roadway capital program. A process to identify and prioritize projects would be developed.	**$300,000** (Starting in 2017 and requires new budget of $100,000/ year).
APS Continue adding accessible pedestrian signals.	Continue to add 4-5 intersections per year.	**$200,000** ($40,000/ year) This would be about $30,000 more per year than currently.
Accessibility Add tactile warning strips to more intersections.	10 intersections per year.	**$50,000** ($10,000/ year and requires a new budget).

[28]All estimates are "class D" and not based on detailed or preliminary design.

10.1.2 Compilation of Recommendations Related to Walking.

Recommendation #1: Halifax should develop a comprehensive strategy to address the gaps in the pedestrian network, especially on major roadways (collectors and arterials) served by transit in the urban areas. To achieve this, consideration should be given to creating a new strategic pedestrian budget to address gaps on major roads.

Recommendation #2: Where a sidewalk is needed on a busy road in the urban areas, and a bike route is also desired according to Maps 2A, B & C, consideration should be given to building an AT greenway beside the road to serve both modes.

Recommendation #3: Halifax should undertake a study to determine if and how new gaps in the pedestrian network can be avoided by requiring developer contributions to off-site pedestrian infrastructure through the subdivision process, in the Urban Areas.

Recommendation #4: Halifax should undertake a planning review within the Urban Areas to determine if there are areas where the costs of maintaining municipal streets to address the needs of pedestrians would be prohibitive and whether zoning amendments should be considered in those areas.

Recommendation #5: Halifax needs to develop a comprehensive approach to the delivery of rural active transportation facilities, including criteria for determining the most appropriate AT facility type, and consideration of the financial implications (capital and operating) of doing so.

Recommendation #6: The municipality should consider the recommendations of the 2014 Crosswalk Safety Advisory Committee Report in future updates of the Pedestrian Safety Action Plan.

Recommendation #7: Halifax should consider amending the Encroachment By-law (E-200) to provide stronger protections for a minimum pedestrian clear zone of 2.1m in dense commercial areas.

Recommendation #8: Halifax should consider making it a standard practice to add tactile surface indicators in concrete curb ramps to assist pedestrians with visual impairments.

Recommendation #9: Halifax should consider incorporating pedestrian friendly street design guidelines during any review of the Red Book and in the development of a Complete Streets Policy.

Recommendation #10: Halifax should consider a pilot program to implement walkability improvements in the street network.

Recommendation #11: To encourage AT walking, new communities in the municipality should be designed to be compact and mixed use, offering a wide range of live/work/shop/play opportunities within walking distance of each other.

Recommendation #12: Halifax should consider MPS and LUB amendments that support the retrofitting of existing communities to create walkable characteristics (i.e. mixed land use) where they did not previously exist.

Recommendation #13: Consideration should be given when locating new municipal facilities (e.g. recreation centres, libraries, office buildings, etc.) that they be located in walkable areas. The municipality should also encourage other levels of government to consider walkability when locating their facilities.

Recommendation #14: The municipality should engage with the Halifax Regional School Board to encourage the siting of schools in a manner that will encourage active travel to school.

Recommendation #15: Halifax should consider MPS and LUB amendments in the urban areas to require street–oriented commercial buildings and/ or direct, separated, pedestrian connection(s) from the right of way to the main entrance of all office, retail, and institutional buildings, whether there is an existing sidewalk in the right of way or not.

10.2 Cycling Infrastructure

Cycling infrastructure includes local street bikeways, painted bike lanes and paved or wider shoulders. This plan also proposes that the municipality start to implement protected bike lanes. Smaller infrastructure supports include bike parking, bicycle detection at intersections and bicycle-friendly catch basins.

This plan identifies costs of approximately $6,500,000 over five years. The most costly projects are improving access to the Macdonald Bridge (about $2,000,000) and paving the shoulder of Hammonds Plains Road (at least $1,500,000). It is difficult to compare this to spending for on-road bicycle infrastructure from 2006 - 2013 because in many cases bike lanes were installed as part of other road recapitalization projects and the costs were absorbed by non-AT capital budgets. As this plan proposes a more proactive approach to introducing cycling facilities (i.e. not necessarily tied to regular road projects) there may be fewer opportunities to "piggy back" on other projects.

Outputs to 2019

- 15 km of Local Street Bikeways in the Regional Centre;
- 5 km of bicycle lanes in the Regional Centre;
- 2 km of greenways in the Regional Centre;
- One pilot project of a protected bicycle lane;
- Improved connections to the Macdonald Bridge Bikeway on both sides;
- 10 km of Local Street Bikeways outside Regional Centre;
- 12 km of bike lanes and/ or paved shoulders outside the Regional Centre.

10.2.1 Summary of Proposed Projects to Support Bicycling

Description	Details and Targets	Estimated Total Five Year Budget[29]
Within the Regional Centre		
A target of 30% or 5 km of candidate bicycle lanes are planned and implemented on streets identified on Maps 2B & C in the Regional Centre[30]. At least one of these should be a protected bicycle lane.	Candidate Routes Dartmouth: Windmill, Wyse, Albro, Ochterloney and others as per Map 2B; Candidate Routes Halifax: North, Devonshire, Almon, Agricola, Cornwallis, Cogswell, Brunswick, Hollis, Morris, University, South Park Streets and others as per Map 2C.	**$2.5 million** ($500,000/ year). Some of these may be carried out in conjunction with other major projects (e.g. Cogswell Interchange Redevelopment).
A target of 70% or 15 km of candidate Local Street Bikeways are planned and implemented on streets identified on Maps 2B and 2C in the Regional Centre .	**Candidate Routes Dartmouth**: Slayter, Maple, Dahlia, Lyle, Shore, Farrell, Catherine, Leaman, Pinecrest, True North, and others as per Map 2B. **Candidate Routes Halifax**: Isleville, Northwood, Fuller, Creighton, Maynard, Conolly, Beech, George Dauphinee, Peter Lowe, William Hunt, Liverpool, St. Andrews, Romans, Armview, Norwood, Shirley, Allan, Charles, Vernon, Seymour, Young, Francklyn and others as per Map 2C.	
Improve cycling connections to the Halifax side of the Macdonald Bridge Bikeway. Improve cycling connections to the Dartmouth side of the Macdonald Bridge Bikeway.	Past exercises exploring solutions to this problem to be used as a basis of moving forward. Explore opportunity to integrate project with Macdonald Bridge redecking project planned for 2015 – 2017. Connections to street network.	**$2,000,000** **$50,000**
Outside the Regional Centre		
Continue to widen and pave the shoulder of Hammonds Plains Road.	Add 1.5m paved shoulders in association with microsurfacing project between Pockwock and Lucasville Roads (2014 - 2.8Km). Add 1.5m paved shoulders from Lucasville to Kingswood Drive (2.0Km). Add 1.5m paved shoulders from Northwood Ave. to Pockwock Rd. (3.0 Km). Add 1.5m paved shoulders from Farmers Lane to Giles/Bluewater (very challenging section).	**$200,000** **$525,000** **$780,000** **Cost TBD.**
Larry Uteck Dr. Bicycle Lanes	Paint from Bedford Highway to Hwy #102 (2.5 km).	**$15,000**
Complete paved shoulders on Kearney Lake Road.	In association with Halifax Water projects from Bluewater to Hammonds Plains Road.	**$220,000**

[29] All estimates are "class D" and not based on detailed or preliminary design.

Local Street Bikeway Routes - Cole Harbour, Portland Hills & Bedford as per on Maps 2A & B.	Improve bicycle connections to local destinations such as transit terminals, libraries, recreation centres, schools and local shopping centres.	**$200,000**
Waverley Road to Lake Banook Greenway	A functional plan is developed to connect the southern end of the Waverley Road bike lanes to the greenway along Lake Banook	**$20,000** (design only)
Lakecrest Connection, Dartmouth	Lakecrest Drive (Dartmouth) is evaluated for bike lanes or a local street bikeway and a design is completed to make the connection between it and the Waverley Road bike lanes.	**$20,000** (design only)
Continue to coordinate implementation on other road projects on Candidate Bike Routes	Cost savings can be attained when paved shoulders or restriping are carried out in conjunction with other projects.	*From existing Streets and Roads Budget*
Rural, on road bicycle routes	Projects to upgrade rural roads (e.g. paved shoulders) aside from Hammonds Plains Road may be pursued, subject to considerations such as: - Jurisdiction: the provincial government owns most rural roads and would have to be the lead on these projects; - Blue Route designation: if the Provincial Blue Route includes on-road facilities, those within Halifax should be co-ordinated; and, - Cost: the costs for such facilities can range from about $70,000 to $300,000 per kilometre. Given this cost and the lower potential to encourage utilitarian cycling in rural areas, such investments would need to be well planned.	**Cost TBD**
Bicycling Support Facilities		
Enhance conditions for cycling by carrying out smaller improvements on roads throughout the municipality.	**Existing Programs** Continue existing "Request a Rack Program" (about 50 racks per year) and possibly additional repair stands. Replace bicycle unfriendly catch basins (15 – 25 /year). Bicycle Racks on remaining Transit Buses. ***New Programs*** Add bicycle detection at intersections (1 intersection per year). Pilot a cost shared program to encourage existing schools, commercial & multi-unit residential properties to install bike racks on their own properties (50 racks per year).	**$50,000** **$25,000** **Metro Transit** **$50,000** **$50,000**

10.2.2 Compilation of Recommendations Related to Cycling.

Recommendation #16: Focus the AT Plan bicycle program on making connections to create a network.

Recommendation #17: The municipality should consider protected bicycle lanes where ever there are candidate bicycle routes on Maps 2A, B, & C, and aim to implement at least one protected bicycle lane pilot project in the next five years.

Recommendation #18: The municipality should consider the adoption of a policy to enable the implementation of Local Street Bikeways where shown on Maps 2 A, B, and C, including consistent signage to identify this type of facility.

Recommendation #19: The municipality should continue to explore solutions to improving connections of the Macdonald Bridge Bikeway on both sides of the bridge, and aim to implement a solution on the Halifax side concurrent with the end of the re-decking project.

Recommendation #20: To achieve the goal of doubling of AT mode share, the municipality needs to focus AT plan implementation for cycling on the types of infrastructure preferred by new bicyclists.

Recommendation #21: Where a bike route is desired (Maps 2A, B & C) and pedestrian facilities are also needed, consideration should be given to building an AT Greenway beside the road to serve both modes.

Recommendation #22: To achieve the goal of doubling of AT mode share, the municipality should put particular emphasis on the Regional Centre for the cycling component of implementing the AT Plan.

Recommendation #23: Maps 2B & C identify streets that Council has confirmed as candidate routes for bicycle lanes in the Regional Centre. Prior to establishing these painted (or protected) bicycle lanes there should be:

- *More detailed review of each corridor under criteria listed in Appendix E;*
- *Public engagement; and*
- *Regional Council approval.*

Recommendation #24: Along streets identified as candidate routes for bicycle lanes on Maps 2B and 2C, new developments should reduce reliance on on-street parking by providing sufficient off-street parking for their own uses, including visitor parking. New and existing developments may also be required to consider loading from alternate streets, or time-limited periods for loading. Land Use Bylaw amendments should be considered to ensure these matters are considered by property owners.

Recommendation #25: Bicycle facility development in urban areas outside the regional centre should focus on:

- *Improved connections to local destinations, such as schools, recreation centres, libraries, retail centres and transit hubs.*
- *Completion of the greenway network as per Section 7 of this plan*
- *New* ***bicycle lanes and local street bikeways where identified on Maps 2A, B, and C.***

Recommendation #26: The municipality should work with rural communities and the Province to identify good candidate routes for paved shoulders that provide AT connections to local destinations. Halifax should also work with the Province and Bicycle Nova Scotia to identify preferred routes through the municipality to be followed by the Nova Scotia Blue Route. Council should consider amendments to Maps 2A, B, and C as needed, resulting from this process.

Recommendation #27: The municipality needs to review maintenance service standards for bicycle lanes and routes, and should consider adopting special standards, especially on the busiest bike routes.

Recommendation #28: Council should continue to support cycling through the supply and installation of bicycle racks and repair stands and should consider a pilot program to support the installation of more bicycle parking at commercial locations and schools which predated the 2006 Land Use Bylaw bicycle parking requirements.

Recommendation #29: The municipality should work with the province to enable bicycle traffic control signage, signals and pavement markings approved for use by the Transportation Association of Canada to be used under the Nova Scotia Motor Vehicle Act and Regulations, and should consider testing innovations in active transportation facilities under the Innovative Transportation Act.

Recommendation #30: The municipality should work towards improved detection of bicycles at signalized intersections and undertake to replace existing detection technologies with ones sensitive to bicycles when intersections or signals are upgraded. Consideration should also be given to marking the pavement with a stencil to advise cyclists of correct positioning on the roadway to activate the signal.

10.3 Multi-Use Facilities

Multi-Use facilities accommodate both pedestrians and bicycles and usually other active modes such as in-line skating, skateboarding and scooters. Such facilities are separated from motor vehicles. Some of these facilities are in the road right-of-way (or cross it) and others are located in parks or in various linear corridors (utilities, abandoned rail lines, etc.). These facilities include greenways, bridges, signs, and facilities associated with the transit network.

Outputs to 2019

- 15 new km of new greenways (multi-use trails);
- 13 km of existing greenways upgraded (widened and/ or paved);
- Five new pedestrian/ bicycle bridges (or at grade crossings of AT barriers like railway tracks);
- Five functional design plans to inform future projects.

The proposed total budget for these projects is approximately $17 million over five years, but this does not include land costs which will need to be considered in order to make some of these connections. Between 2006 and 2012, approximately $12.1 million was spent on AT greenways (approximately $3.3 million was contributed from other orders of government).

10.3.1 Summary of Proposed Multi-Use Facility Projects

Description	Details and Targets	Estimated Total Five Year Budget[31]
Continued Support for the Community Development Model of Trail Development.	Support for groups belonging to the Halifax Regional Trails Association to carry out work related to the planning and/ or construction of greenways identified on Map 3, incl. improved links to existing greenways.	**$4.25 million** ($850,000/ year)
Comprehensive AT signage and wayfinding.	A comprehensive AT signage and wayfinding program is developed and rolled out in the field.	**$100,000**
Dartmouth Waterfront AT Greenway extension.	Land rights secured and greenway extended from Alderney Gate to Shore Drive (400m).	**$500,000** (Plus land costs)
Sullivan's Pond to the Dartmouth Waterfront.	Lake Banook/ Sullivan's Pond Greenway is connected to the Dartmouth Waterfront Greenway (400m).	N/A[32]
Mount Hope Greenway Extension.	Baker Drive/ Mount Hope Greenway extended from Orion to Acadia Street (375m).	**$100,000**
Existing greenways through parks upgraded to Urban AT Greenway standard (at least 3m wide and paved)[33].	Jason McCullough (350m) Dartmouth Common (750m) Halifax North Common (200m) Forest Hills main spine (3 Km) Mainland Linear Trail (5 Km) Shubie Park main spine (4 Km)	**$100,000** **$225,000** **$60,000** **$450,000** **$750,000** **$600,000**

[31] All estimates are "class D" and not based on detailed or preliminary design.

[32] This greenway is part of a larger civic project known as the *Canal Greenway*, with already approved budgets.

[33] No allowance for trail lighting has been made.

Greenway from Dartmouth Common to Macdonald Bridge.	Greenway connection through Sportsplex property with connections to Transit Terminal and Macdonald Bridge (in conjunction with Sportsplex renovation). (approx. 500m)	**$100,000**
Halifax Urban Greenway.	Land Rights secured.	Appraisal required
Connections from Chain of Lakes Trail to Halifax peninsula and St. Margaret's Bay Rd.	Greenway connection from Joseph Howe Drive at Highway #102 to Vaughn Avenue Candidate Local Street Bikeway (500m). Connect Chain of Lakes to St. Margaret's Road Bike Lane.	**$170,000**
Barrington Greenway Extension.	Explore design options for extending the Barrington Greenway from North St. to Devonshire Ave (630m).	**$35,000** (design only)
Extend Burnside Greenway.	Greenway parallel to Burnside Drive is extended from Commodore to Akerley. Connections to bike facilities on Commodore, Ilsely and Wright are included. (approx.. 2km)	**$1.5 million**
Bedford to Burnside Greenway.	A greenway is built in conjunction with the provincial Highway #107 extension from Akerley Blvd in Burnside to Duke Street in Bedford. (Approx. 6 Km).	**$1.4 million** (assumes cost efficiencies from project integration)
Dartmouth Waterfront AT Greenway.	Routing study and functional plans completed for the extension of the greenway from the Woodside Ferry Terminal to Shearwater Flyer.	**$25,000** (design only)
Sackville Greenway.	Section B, Downsview Park Link is built (from intersection of Sackville Cross Road and Old Sackville Road to intersection of Beaverbank and Glendale Road). (approx. 2km)	**$2.2 million**
Porters Lake Core Greenway	Core projects identified in the plan built. (approx. 2km). Other greenway elements would be built under the Community Development Model and as part of road shoulder upgrades.	**$400,000**
Lacewood Drive Greenway.	Functional plan developed for conversion of one of the Lacewood sidewalks to a greenway trail, including consideration of connections to local destinations.	**$15,000** (design only)
Planning for Mainland Linear Parkway Extension/connections.	Functional plan developed to connect the Mainland Linear Parkway southwards to the Chain of Lakes Trail and northwards to Bedford South and Larry Uteck Greenway.	**$40,000** (design only)
Windsor Hantsport Railway.	Land rights secured for future greenway (if this property becomes available for acquisition).	Appraisal required.
Implementation of AT bridges using deck panels salvaged from the Macdonald Bridge bike and pedways in 2015. Design is currently underway.	Railway crossing from Saint Mary's University to Pine Hill Drive (55m span). Allowance for AT connections to bridge (500m). Allowance for easements and/ or property acquisition.	**$750,000** **$150,000** **TBD**
	Railway crossing between Scott and Chisholm Streets (40m span). Allowance for trail connections to bridge (300m). Allowance for easements and/ or property acquisition.	**$550,000** **$90,000** **TBD**
	Sackville River crossing (20m span), Downsview Park (Part of proposed Sackville Greenway).	**$300,000**

One more AT crossing of 100 series Highway.	There are a number of areas where an AT crossing of a 100 series highway are envisioned. These included crossings of highway 111 near Albro Lake and near Portland St. and of the 102 near Dunbrack St./Northwest Arm Dr.	**$1,000,000**
Olivet Street CN Crossing.	Railway crossing to improve connections between high density residential area and shopping & transit centre.	**$220,000**

10.3.2 Compilation of Recommendations for Multi-Use Facilities

Recommendation #31: The municipality should focus on making connections in the greenway network in general, and specifically tackling those connections into and through the regional centre. Halifax should also continue to improve connections between existing communities and nearby greenways.

Recommendation #32: The municipality should continue to support the Community Development Model for the development of greenways. This may be especially critical for the development of long distance greenways where community oversight may be essential to long term sustainability. Due to the increased complexities of urban greenway development the Community Development Model may not always be used, or may only be employed during the public engagement and planning stages.

Recommendation #33: The municipality should continue to seek opportunities to leverage funding from other sources to build the greenway network.

Recommendation #34: At least for the next five years of AT Plan implementation, consideration should be given to prioritizing funds from the Active Transportation and Regional Trails budgets towards greenways with a transportation focus (i.e. those that support walking and bicycling and connect origins with destinations).

Recommendation #35: Consider MPS, LUB, and Red Book amendments to protect the continuity of the greenway network, facilitate the construction of new greenways along with land development, and ensure new communities are connected to existing greenways.

Recommendation #36: When carrying out any capital works, reviewing new subdivisions, or negotiating development agreements, municipal staff should give consideration to this AT Priorities Plan and seek to fill gaps in the envisioned greenway network (through means available to them) and also provide good connections to it from adjacent communities.

Recommendation #37: The municipality should consider the development of a consistent and uniform AT wayfinding and route identification system for greenways which is integrated with the signage proposed for Local Street Bikeways.

Recommendation #38: Halifax should consider building AT Bridges or crossings to overcome barriers in the AT network particularly between high density residential areas and business/ commercial areas. Areas where such connections are absent include, but are not limited to:

- *Between Olivet Street apartments and West End Mall (needs at-grade railway crossing);*
- *Between Chisholm Ave. apartments and Bayers Centre (AT bridge over the CN rail cut);*
- *Over CN rail cut at Saint Mary's University (a link in the Halifax Urban Greenway);*
- *At least one more pedestrian/ bicycle crossing of a 100 series highway.*

Recommendation #39: The municipality should continue to improve pedestrian and bicycle connections to its transit service.

10.4 Maintenance of New Infrastructure

Sections 10.1, 10.2, and 10.3 detailed the proposed total capital spending for infrastructure to improve conditions for walking and cycling. A total of $42.5 million is proposed for investments into active transportation over the next five years.

Infrastructure Type	Capital 2014 - 2019
Walking	$19 million
Cycling	$6.5 million
Multi-Use	$17 million
Total	**$42.5 million**

Proposed AT Capital 2014-2019

To ensure proper upkeep of these facilities, a reasonable allowance of 5% of capital[34] should be factored into the budget of Municipal Operations as the infrastructure gets developed. If all of the facilities proposed by this plan are constructed by 2019, an operating budget increase of approximately $2,000,000 should also be considered.

10.5 AT Programs and Events

A key consideration for increasing the modal share of walking and cycling will be the implementation of educational and promotional initiatives. Such activities help make the public aware of options for walking and cycling, provide safety and skills training for AT users, and support overall road safety. Such activities are essential complements to the physical infrastructure described above.

In the next five years a continuation of existing activities is proposed. As well, a review of these activities to consider their impact and consider options for enhanced approaches is also proposed.

10.4.1 Summary of Proposed AT Programs and Events

Category	Description	Details and Targets	Estimated Total Five Year Budget
Active Transportation Public Information/ Education.	Tools and resources which support bicycling and walking.	***Existing Programs*** Continue to improve and publish Bike Routes and Greenways Map.	**$5,000**
		New Programs Improve and publish Greenway Guide "Get Out Check It Out."	**$5,000**
Safety Promotion	AT Safety Campaigns.	Media campaigns to raise awareness of traffic, pedestrian, and bicycle safety issues.	*Halifax Regional Police & Corporate Communications*
Recreation Programs.	The municipality can teach walking and cycling safety through a variety of recreation programs.	***Existing Programs*** Continue to offer Can-Bike courses, Making Tracks Programs, and Walk-Hike-Bike Summer Camps through the Recreation department.	*Community Recreation Services*

		New Programs Consider expanding the number of locations where such AT Programs are delivered. Explore the development of an introductory cycling program suitable for delivery at any municipal recreation facility.	N/A
Safety & Skills Education	Programs which provide direct training regarding safe walking and cycling.	***Existing Programs*** Bicycle Rodeos - Police teach young children about basic bicycle safety. Smart Cycle - continue to offer these "Lunch and Learn" sessions through the Transportation Demand Management initiative *SmartTrip*. ***New Programs*** Provide direct and media based safety and AT promotion education to residents.	*Regional Police* *TDM Program* **$60,000**
Special Events	Special events encourage people to get out and try bicycling and walking.	**Existing Programs** Halifax Bike Week – celebrates and aims to grow a local culture of cycling. TDM Funding Support assists non-profit organizations, schools and charities in developing and organizing events and programs that contribute to the objectives of the municipal TDM Functional Plan. ***New Programs*** Consider expanding efforts to support other special events which encourage walking and bicycling (e.g. International Trails Day, Switch).	**$25,000**[35] *TDM Program* **$20,000**
Active Transportation Webpages	Website is enhanced to provide more detailed and user friendly information.	Up to date information about AT facilities planned and under construction. Route assistance information. Information about programs and services for pedestrians and cyclists.	*Ongoing*
AT Safety Education/Promotion Review	To ensure that AT Safety objectives are fully realized, this project will review the current approach to AT safety education and promotion. Recommendations for the future to be identified.	Tasks include: • Baseline current activities and results. • Engage broad range of stakeholders (e.g. Police, Province, CanBike, Business Units, Organizations, public). • Study approaches in other jurisdictions. • Recommend future approach/ activities.	**$10,000**

[35] This is the existing annual budget of *Community Recreation Services* to host Bike Week

10.4.2 Compilation of Recommendations for Programs & Events

Recommendation #40: The municipality should continue to promote traffic safety for all users and continue to collaborate with other organizations or levels of government to get the message out.

Recommendation #41: The municipality should evaluate the current approach to AT safety promotion and skills training and continue to supply education, promotion, and events related to active transportation. Halifax should continue to collaborate with and support such initiatives which are implemented by outside groups.

11. Monitoring and Evaluation

This section describes the approach the municipality should implement to better assess the extent to which the three objectives of the Active Transportation Plan are being achieved. The three objectives of the plan are:

1. Establish a complete, integrated and readily accessible region-wide AT network serving urban, suburban and rural areas;
2. Double the number of person-trips using AT modes by 2026; and,
3. Make conditions for AT modes safer through the development of appropriate facilities in combination with promotion and safety education.

11.1 Establishing the Network

Sections 5, 6, & 7 of this report and the maps attached describe the amount and location of AT infrastructure completed so far. The preceding sections have also identified the priorities for AT network development going forward. The table below summarizes those targets.

Targets for Objective #1 (Develop AT Network) 2014-2019	**Monitoring Approach**
• 20 km of new sidewalk as part of the regular sidewalk program; • 3 km new sidewalk from new arterial/collector sidewalk program; • Develop a rural pedestrian program to address key gaps, particularly in designated growth areas; • Implement three "walkability" improvement projects; • Improve accessibility at up to 10 intersections through curb cut changes, tactile markings and accessible pedestrian signals; • 15 km of greenway built; • 10 km of existing greenway upgraded; • Five new AT bridges or at-grade crossings of AT barriers; • Five planning processes to inform future projects; • 15 km of Local Street Bikeway installed in Regional Centre; • 5 km of bike lanes installed in Regional Centre (at least one of which is a protected bicycle lane); • Improved connections to the Macdonald Bridge Bikeway; • 10 km of Local Street Bikeway outside Regional Centre; • 12 km of bike lanes and other on-road bike facilities (e.g. paved shoulder) outside the Regional Centre; Support facilities: • 250 bike racks; • Up to 100 catch basins replaced; • 10 intersections have bike detection added; • 250 bike racks added in co-operation with private land-owners; Facility Connection Maximization[36].	Annual roll-up of completed capital projects.

[36] This indicator will attempt to quantify the extent to which new facilities form connections with existing facilities and further extend the AT network.

11.2 Mode Share

Monitoring use of active transportation infrastructure is an important way of ensuring its effectiveness in attracting users. Reliance on the outcome of the question on 'Journey to Work' from the Census (now the *National Household Survey*) would have been the main way for the municipality to monitor success against the second goal of the plan, but unfortunately the 2011 data was not comparable with 2006. Because it is possible that the 2016 survey will be comparable with 2011 or that Statistics Canada will return to the former way of administering the survey to provide comparability with 2006, HRM should continue to monitor the Census/ National Household Survey outcomes.

However, the Census question was also limited by the fact that it did not count non-commuting trips and it would have under-estimated AT trips used to access transit (i.e. a walk/ bus journey would only be counted as a transit journey in this survey). For these reasons, it is anticipated that the primary measure of active transportation modal share would be from the proposed Municipal Origin and Destination survey. This survey will help to develop a baseline in 2016. A follow-up survey will take place as part of the next plan review process.

Site specific monitoring of AT mode share should also take place in the following ways:

- Regional Centre Screenline Count (biannual). This counts every person entering and leaving the Regional Centre (peninsular Halifax and Dartmouth within the Circumferential Highway) by mode of transportation at 13 locations.

- Penninsula Screenline Bicycle Count (biannual). Recognizing that the Regional Centre Screenline Count was completely missing bicycle trips made within the Regional Centre, and large numbers of cycling trips were made within the peninsula, this count was initiated in 2010 to fill this gap in data. The count captures AM and PM peak bicycle trips crossing an imaginary line which bisects the peninsula along Quinpool and Cogswell Streets. It is not intended to capture every trip, but rather to help monitor trends in bicycle use for commuting. Pedestrian flows within the peninsula are not captured in this count and likely could be.

- Other pedestrian/ bicycle counts are carried out in connection with the installation of new facilities. This will involve baseline measurements before facility implementation, followed by regular monitoring in subsequent years to determine modal share impact.

- There should be at least one pilot project of real-time monitoring of cycling volumes.

- From time to time, as required, counts. For example as part of the assessment for a new crosswalk, pedestrian signal, bike lane, or intersection upgrade. These have traditionally been carried out manually and would be taken as 'snapshots' (i.e. peak hour only, or one day only) due to the resources required. The municipality has recently acquired new video based counting equipment which will allow for easier collection of AT user volumes over longer time periods, when required, and when budgets allow.

- Trail Counts. User counts have been carried out on some local greenways, and the Halifax Regional Trails Association (HRTA) has recently initiated a trail monitoring program. The program was piloted in the summer of 2013 with the intent of being set up to regularly monitor use of AT greenways by pedestrians and cyclists.

AT Monitoring Activity by other Groups and Agencies

- Halifax Harbour Bridges used to carry out a biannual count of pedestrians and bicyclists crossing the Macdonald Bridge and has recently installed video counting technology to allow permanent counting of AT users.

Targets for Objective # 2 (Increase AT Mode Share) 2014-2019:	**Monitoring Approach**
Overall base line established as part of comprehensive Regional Origin and Destination study.	Region-wide origin and destination survey in 2016.
25% increase in AT modal share overall from baseline survey to 2019 survey.	Region-wide origin and destination survey in 2019.
10% increase in number of pedestrians at new sidewalks and other pedestrian Facilities.	Pre-implementation baseline on all new facilities followed by annual counts to assess impact.
25% increase in number of residents cycling (over three years) on new on-road facilities.	Pre-implementation baseline on all new facilities followed by annual counts to assess impact.
25% in number of cyclists at strategic screenline locations.	Annual screenline counts at: Quinpool/Cogswell; Macdonald Bridge Other locations TBD.
20% increase in number of cyclists at electronic monitoring locations.	Realtime monitoring equipment will be installed at least one location.
15% increase in use of existing active transportation greenways.	Baseline developed in 2012 and 2013 counts. Repeat counts in 2019.
15% increase in use of new active transportation greenways.	Establish baseline shortly after construction complete. Repeat count after three years.

11.3 Programs & Events

Municipal initiatives in these areas (described in Section 8) are continually monitored, evaluated, and improved upon. For example, the Bike and Greenways map is reviewed and updated every two years or so and is deemed useful because demand for the map remains strong. Attendance numbers at Bike Week are monitored, and because they continue to grow, it is deemed a success. Safety promotion campaigns have been evaluated (Section 8) and recommendations gleaned for future campaigns.

11.3.1 AT Collisions

What people fundamentally want when they talk about active transportation safety is to feel that they are not taking undue risks by choosing to walk or bike. Pedestrian and bicycle collisions should be preventable, yet an apparent rash of pedestrian collisions in 2013 has made road safety a growing concern in the municipality.

The Dalhousie Transportation Co-laboratory (*DalTRAC*) is in the process of completing a detailed review of all provincial collision data between 2007 and 2011 based on police records obtained for this period. Preliminary analysis of this data does not point to any trends in terms of collision location, but suggests that times of day (usually the afternoon peak traffic hour) and times of year (late fall/ winter) do see increased collision rates. Extra vigilance by all road users at these times may help avoid collisions.

Without good estimates of AT user volumes, collision data on its own should not be used to make conclusions about the how "safe" any area is relative to any other. For example, an area with a very low number of pedestrian collisions may simply have a very low number of pedestrians period. Improved AT user volume estimates (Section 7B above) should be used alongside collision data to gain an understanding of collision rates.

As of March 2014, the municipality has established a Pedestrian Safety Action Plan[37]

Targets for Objective #3 (Make conditions for AT modes safer through the development of appropriate facilities in combination with promotion and safety education) 2014-2019:	**Monitoring Approach**
Develop 2014 baseline of collisions, injuries and fatalities involving active transportation users. The targeted reduction in of collisions, injuries and fatalities involving cyclists will be developed. Any targets for reduction in of collisions, injuries and fatalities involving pedestrians will be part of the Pedestrian Safety Action Plan. 7,000 residents annually participate in municipally organized/sponsored outreach or education activities. 1,500 printed materials (e.g. maps, safety brochures) distributed. 50% of the AT network has wayfinding signage installed.	Pedestrian safety indicators are part of the municipality's Pedestrian Safety Action Plan. Cycling: develop baseline and monitoring approach in 2014. Project records Project records

[37] ("2014/2015 Pedestrian Safety Action Plan", Halifax Regional Municipality, February 2014)

12. DEFINITIONS

As-of-Right Development: An as-of-right development is one that complies with all applicable zoning regulations and does not require any discretionary action by Regional Council.

AT Greenway: A multi-use trail suitable for the broadest range of AT users (walkers, cyclists, skateboarders, inline skaters, etc.). They are typically 3.0m wide, or more where higher user volumes are expected. The surface may be paved or crusher dust, but a paved surface is required if winter maintenance is expected. These trails form the primary spine of the regional, off-road, AT network.

Accessible Pedestrian Signal (APS): A device that communicates information about the WALK and DON'T WALK intervals at signalized intersections in non-visual formats to pedestrians who are blind or have low vision.

Bicycle Lane: A designated lane on the roadway for bicycles marked with a white painted line and associated regulatory signage, typically 1.5m wide.

Complete Streets: An approach to planning, design, operations and maintenance of roadways to enable safe, convenient and comfortable travel and access for users of all ages and abilities regardless of their mode of transportation.

Community Development Model: A model of service delivery where municipal staff works very closely with community groups towards the planning, construction and maintenance of infrastructure.

Crosswalk: A place where pedestrians have the right of way when crossing the road. The NS Motor Vehicle Act indicates that there is a legal crosswalk at every intersection, regardless of whether it is marked with paint or signs.

Cycle-Track: See "protected bike lane"

Development Agreement: Is a contract between the municipality and a developer containing the development regulations for specific parcel(s) of land as per section 242 (1) of the Halifax Regional Municipality Charter.

Halifax/HRM: Halifax Regional Municipality is the legal name of this entity; however a recent branding exercise has resulted in the decision to move forward in referring to the region simply as 'Halifax'. The term HRM is still used occasionally in this document for various reasons.

HRM Red Book: Also known as the Municipal Service System Guideline, these engineering design guidelines for municipal infrastructure (http://www.halifax.ca/designcon/design/munservices.php) were developed to provide consistency in design and construction issues among developers, consultants and contractors across the municipality.

Local Street Bikeways: are low speed, low volume streets that have been optimized for bicycle through traffic. They typically include a mix of traffic calming and bicycle priority measures to minimize traffic volumes and speeds and create a comfortable cycling environment suited to a wide range of users. Signs and pavement markings designate the route and convenient bicycle crossings of busier streets are provided if possible.

Motor Vehicle Act (MVA): This is the provincial legislation that governs road safety in Nova Scotia (http://nslegislature.ca/legc/statutes/motor%20vehicle.pdf).

On Road/ Off Road AT Facilities: On road facilities for AT include facilities which are typically located inside the road right of way (i.e. sidewalks for pedestrians; bicycle lanes, wide outside lanes, and paved shoulders for bicyclists). Off road facilities include those which are typically outside a road right of way such as AT greenways and other types of trails, paths, and connections.

Paved Shoulder: On roads with a rural cross section (i.e. ditch instead of curb & gutter), a paved area outside the edge line of the main travelled portion of the roadway.

Pedestrian Clear Zone: An area intended for pedestrian travel which is free of temporary or permanent obstructions

Protected Bike Lane: This is an exclusive bicycle facility that is physically separated from motor traffic and also distinct from the sidewalk. Methods of separation vary and may include curbs, bollards, planters, rows of parked vehicles, or any other type of physical barrier. These are also known as "cycle tracks" or "separated bike lanes" in other places.

RA-5: Overhead illuminated pedestrian crosswalk signs used in certain circumstances to supplement the basic marked crosswalk installation.

Regional Centre: This is an area defined in the Regional Municipal Planning Strategy as peninsular Halifax and Dartmouth within the Circumferencial Highway.

Right Of Way (HRM): The HRM right-of-way refers to the strip of land on which roadways are built. Sidewalks and bike lanes are typically located within the right of way too.

Rural Areas: Areas outside those designated "Urban Settlement" and "Urban Reserve" in the Regional Plan (refer to May #2 of RP+5).

Shared Lane Markings or "**sharrows**," are 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. Sharrows are not really a facility type, but they are pavement markings with a variety of uses to support a complete bikeway network.

Sidewalk: A space typically alongside a roadway improved for use by pedestrians. Local sidewalks are typically made from concrete and separated from the roadway by a curb and/ or grassed boulevard.

Traffic Authority: An individual appointed by Council under Section 86(6) of the Motor Vehicle Act who is responsible for the regulation and control of traffic within their jurisdiction.

Urban Areas/ Urban Settlement Designation defines those areas where serviced (central water and wastewater) urban forms of development will occur over the 25-year span of the Regional Plan. This designation includes the current Urban Service Area, lands intended to be serviced in future, the Regional Centre, and Halifax Harbour sub-Designations (refer to Map #2 of RP+5).

Wide Outside Lane: A wider outside (or curbside) lane allows a motorist to safely pass a cyclist while remaining in the same lane and can significantly improve the comfort of cyclists, especially more experienced riders. Current standard travel lanes in the municipality are 3.5m and lanes 4.0m to 4.5m are considered wide.

Zebra Crossing: A crosswalk marking consisting of an alternating series of 600 mm wide white lines and 600 mm spaces placed across a road and aligned parallel to the travel lanes.

13. MAPS

Map 1	**Existing and Requested Sidewalks**
Map 2A	**Candidate Bicycle Routes and Greenway Network: Sackville/Bedford Area**
Map 2B	**Candidate Bicycle Routes and Greenway Network: Dartmouth and Area**
Map 2C	**Candidate Bicycle Routes and Greenway Network: Halifax and Area**
Map 3	**Vision for a Regional Greenway and Bicycle Network**

14. APPENDICES

Appendix A List of Stakeholders Engaged at Start of Review (2011/12)

Internal (Municipal) Stakeholders
Richard Harvey (Planning)
Marcus Garnet (Planning)
Paul Morgan (Planning)
Leticia Smillie (Cultural Planner)
Andrew Bone (Planning Applications)
Brandon Silver (Urban Design)
Bill Plaskett (Heritage Planner)
Jan Skora (Real Property Planning)
Kasia Tota (Community Developer)
Holly Richardson (Real Property Policy)
David McCusker (Strategic Transportation Planning)
Patricia Hughes (Metro Transit)
David Mitchell (Metro Transit)
Gabrielle Riley (Community & Recreation Services)
Kathy MacKinnon (Community & Recreation Services)
Sarah MacKeigan (Stepping Up)
Jeff Spares (Design & Construction)
Anne Sherwood (Design & Construction)
Ann Reid (Design & Construction)
Paul Euloth (Regional Trails)
Jessie Debaie (Regional Trails)
Roddy MacIntyre (Traffic and Right of Way)
Alan Taylor (Traffic and Right of Way)
Jane Nauss (Halifax Regional Police)
Paul Leadbetter (Playgrounds and Sports fields)
Andre MacNeil (Finance)
Laughlin Rutt (Human Resources)

External Stakeholders

Nova Scotia Government and Agencies
Amy Schwartz, Mike Arthur, Carol Davis - Jamieson (NS Health & Wellness)
Elizabeth Pugh (Transportation and Infrastructure Renewal)
Jessica McDonald (Service NS & Municipal Relations)
Heather Yule (NS Tourism)
Jonah S Bernstein (Department of Energy)
Gaynor Watson Creed (Capital Health)
Monique Robert-Mullins (Community Health Board)

Non-Government, Business
Jen McGowen (Ecology Action Centre)
Catherine Droesbeck (Heart and Stroke Foundation)
Clive McGregor (Halifax Cycling Coalition)
Andrea MacDonald (Clean Nova Scotia)
Wendy MacDonald (Halifax North West Trails Assn.)
John Hawkins (Halifax Regional Trails Association)
Andrew Feenstra (Cycle Smith)
Christine Krochak (Mountain Equipment Coop)
Marc Ricard (Bike Pedaler)
Bob White (NS Ramblers, CANBike)
Jennifer Russell (Child Safety Link)

Halifax Regional Trails Association
Atlantic View Trail Association
Beechville Lakeside Timberlea Trail Association
Chain of Lakes Trail Association
Chezzetcook Musquodoboit Trail Association
Cole Harbour Parks & Trails Association
Friends of First Lake Society
Friends of McNabs Island
Halifax North West Trails Association
Halifax Urban Greenway
McIntosh Run Watershed Association
Penhorn Lake Trail Association
Sackville Rivers Association
Second Lake Regional Parks Association
Woodens River Watershed Environmental Association

Appendix B Public Service Announcement for AT Plan Open House

HRM hosting public sessions as part of Active Transportation Plan review

Monday, March 18, 2013 (Halifax, NS) – HRM is inviting citizens to participate in its review of the Active Transportation Plan, to help develop priorities for the next five years on how to encourage more walking, cycling and other active transportation modes around the city.

Open house sessions will be held from 4:30 to 8:30 p.m., with staff presentations and workshops at 5:15 p.m. and 7:15 p.m. at the following locations and dates:

March 20	Cole Harbour Place, 51 Forest Hills Parkway, Cole Harbour
March 21	Olympic Community Centre, 2304 Hunter Street, Halifax
March 25	Dartmouth Sportsplex, 110 Wyse Rd., Dartmouth
April 2	LeBrun Centre, 36 Holland Ave., Bedford
April 4	Trinity Anglican Church Hall, 321 Main Avenue, Halifax
April 10	Lions Den, 101 Old Beaver Bank Road, Lower Sackville

Citizens that are unable to attend a session in person are encouraged to fill out an online survey at www.halifax.ca/surveys.

Learn more about HRM's Active Transportation Plan review at www.halifax.ca/ActiveTransportation/ATPlanReview.html.

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Media contact:
Tiffany Chase
HRM Communications
490-5057

Appendix C Evaluation Criteria for New Sidewalks

Existing or Potential School Route:
Within 1km of an Elementary, Junior High School or Private School
Within 1km of a Senior High School

Existing or Potential Pedestrian Route:
Within 500m of a licensed daycare facility
Transit stop within limits/ accessible route
Within 500m of a transit terminal
Within 500m of a large employment facility/institution
Within 500m of a major park
Within 200m of a playground or other recreation facility
Within 200m of shopping / commercial areas
Within 200m of a senior citizens facility
Within 200m of high density residential area

Functional Classification of Adjacent Roadway:
Arterial
Major Collector
Minor Collector
Local/Industrial
Local

Existing Pedestrian Facilities (select one only):
Curb and no existing sidewalk
No curb with shoulders less than 2m wide and no existing sidewalk
No curb with shoulders greater than 2m wide and no existing sidewalk
Existing sidewalk located on other side of road for Major Collector & Arterial
Existing sidewalk located on other side of road for Local, Industrial, & Minor Collectors

Other Factors:
Safety issues (I.e. poor sight distance, narrow right of way, etc.)
Local road with notably high vehicle traffic due to short cutting, etc.
Connection to existing sidewalk
Connection to existing Trail
Cul-de-sac (considered due to connecting pathway or other significant pedestrian destination, etc.)

Appendix D Roads Removed from "Candidate On-Road Bike Routes"

The following streets were listed as 'Candidate On-Road Bike Routes' in the 2006 Active Transportation Plan. They were removed from this listing in the 2014 AT Plan Review for a number of reasons.

1/ Low Density of Origins/ Destinations

- Ross Road
- Cole Harbour Road
- Leiblin Drive
- Prospect Road
- Windsor Junction Road
- Windgate Road
- Gaston Road
- Oland Court
- Thornhill Drive

2/ Parallel AT Greenway or Local Street Bikeway recommended instead of bike lane

- Lake Major Road
- Pleasant Street
- Prince Albert Drive
- Burnside Drive
- Caldwell Rd (Cole Hbr Rd. to Delta Dr.)
- Lacewood Drive
- Northwest Arm Drive

3/ Not Feasible to Move Curb or Ditch

- Portland Street
- Alderney Drive
- Victoria Road (Dartmouth)
- MicMac Blvd (Dartmouth)
- Quinpool Road (Vernon to Armdale)
- Chebucto Road
- Mumford Road
- Barrington Street
- Joseph Howe Drive
- Chain Lake Dr. (Susie Lake to Hwy #102)
- Old Sackville Road

4/ Removal Determined after Detailed Investigation

- Connaught Avenue
- Novalea Drive/ Gottingen

5/ Determined Not to be a Priority for Evaluation in the Next Five Years

- Main Avenue
- Glenforest Drive
- Bayview Road
- Kempt Road
- Leeds Street
- Young Street
- Inglis Street
- Sackville Street
- Point Pleasant Drive
- Tower Road
- Southwood Drive
- Pepperell Street
- Dublin Street
- Willow Street
- Clifton Street
- Chebucto Lane
- Pryor Street
- Jubilee Road
- Dingle Drive
- Parkhill Road
- Boland Road
- Highfield Park Drive
- Woodland Avenue
- Lancaster Drive
- Eileen Stubbs Avenue
- Thistle Street

Appendix E Evaluation Criteria for New Bicycle Facilities

Potential for Use/ Connectivity

High density of existing/ planned origins and destinations

- Residences
- Workplaces
- Shops
- Community Facilities
- Schools
- Other destinations
- Other AT infrastructure (bike lanes, local street bikeways, AT greenways)

Street Characteristics

- Favourable grades (preferably 6% or less)
- Low volume of motor vehicle traffic
- Low volume of large vehicles
- High volume of existing cyclists
- Speed of traffic
- Few complex intersections
- Safety issues
- Impact on traffic (i.e. of reducing vehicle travel or turn lanes to add a bike facility).
- Impact on green space
- Impact on commercial or residential parking
- The ability to mitigate losses to on-street parking

Alternative Route Analysis

- Consideration of the suitability of adjacent corridors (if applicable) which could be alternatives to the proposed route. Alternatives would be subject to the same criteria.

Public and Stakeholder Feedback

- Public support for the facility
- Stakeholder support for the facility
- Internal (HRM) review of the facility