

# ACTIVE AVON

An Active Transportation Plan for the Avon Region

## Acknowledgments

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# Executive Summary

## Objectives

“Active Avon” is an active transportation plan designed to improve options for safe and convenient non-motorized transportation across the Avon Region over the next eight years. The collaboration between the region’s three municipalities - the Municipality of West Hants, the Town of Windsor, and the Town of Hantsport - sets a unique precedent for a regional approach to active transportation. It is the first time that both urban and rural Nova Scotian municipalities have come together to forge an active transportation strategy spanning beyond the boundaries of individual municipalities.

Active transportation in broad terms refers to all forms of human powered or non-motorized transportation. It is typically associated with walking and cycling, but also includes rollerblading, skateboarding, wheelchair use, etc. It can also include seasonal activities such as canoeing, kayaking and cross-country skiing.

This plan addresses both tangible infrastructure improvements and ushering in a cultural shift towards an increased awareness and acceptance for active transportation as a practical alternative to using personal automobiles.

Active transportation has steadily been gaining popularity because of the substantial health, social, environmental, economic and tourism benefits. There is clear evidence of the advantages associated with designing cycling and pedestrian friendly communities.

Encouraging greater participation in active transportation is one of the best ways to increase physical activity, which often results in increased overall health and wellbeing by decreasing obesity rates and improving mental health. Active transportation also provides an efficient, affordable and flexible travel option, particularly for those who would prefer to not drive and for residents without access to a vehicle.

Bicycle tourism has been a growing tourism product over the past few decades, both in Europe and North America. Returns on the initial investment in active transportation tourism infrastructure are often significant and can generate sizable local economic benefits, particularly for scenic destinations such as the Avon Region.

Last but not least, reducing the usage of cars translates into cost savings for both private households and public budgets.

## Opportunities

The Avon Region can capitalize on a number of promising opportunities that can accelerate the creation of a comprehensive region-wide active transportation network. The promotion of cycling tourism has gained previously unseen momentum through a serious efforts by the Province and Bicycle Nova Scotia to establish the Blue Route, a province-wide recreational cycling network. Current Blue Route draft corridors traverse the Avon Region and could be integrated with the Regional Active Transportation Network.

Closely linked to the Blue Route are other provincial efforts to improve active transportation facilities through coordination by the Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR). New provincial policies enable improvements for walking and cycling and define the mechanisms under which municipalities can enter into a dialogue with the Province to request widened shoulders and determine time frames for active transportation improvements on provincial roads.

The currently inactive rail lines owned by the Windsor to Hantsport Rail Company present another major opportunity to establish key connections within a region-wide active transportation net-

work. The owners of the rail line recognize the community benefits associated with rails-with-trails and have expressed their openness to negotiate lease agreements for trails within the rail line right-of-ways.

## Consultation

Community input was critical to understanding the current state of active transportation in the Avon Region and to ascertain the key issues and opportunities. A variety of public engagement events were held to provide multiple methods through which the community enriched this plan with their experience and expertise.

These events included an online survey, a public meeting, three focus group sessions, a community bike ride and a public walking tour. Information on all the community engagement opportunities were well publicized, which resulted in a positive participation rate.

## Proposed Routes

The diversity of land uses, development patterns, population densities and infrastructure in the Avon Region stipulates an approach to active transportation investment that clearly defines network hierarchies. From the analysis of the distribution of travel origins and destinations, a clear picture emerged: the

## Benefits

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Municipality of West Hants,

Town of Windsor and Town of Hantsport

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need for utilitarian active transportation connections within the Windsor area, Hantsport and Brooklyn, and the need for regional connections between these areas and beyond.

The proposed Active Avon network contains the following three route types: regional routes, a series of local routes and a number of trail facilities.

Regional routes form the “spine” of the network by connecting communities to each other and to neighboring municipalities. These routes extend over long distances and will help encourage recreational cycling and promote tourism development opportunities emerging from initiatives such as the Blue Route.

Local active transportation routes are primarily intended for utilitarian and destination oriented travel within the denser communities of Hantsport, Falmouth, Windsor, Three Mile Plains and Brooklyn.

Recreational trails are also integrated, where ever possible, into the regional active transportation network.

### **Wayfinding**

The need for signage and wayfinding was repeatedly identified as a measure to improve navigability and the sense of safety. This plan includes a proposed wayfinding system to make navigating and locating facilities/amenities easier and more convenient for active transportation users, particularly for those who are not familiar with the area or aware of existing facilities.

The wayfinding plan proposes the use of the “Active Avon” brand - a simple, succinct theme and description for the network. The purpose of incorporating the brand into signage and promotional material is to build on and improve region-wide recognition amongst active transportation users.

### **Implementation**

A plan is only as successful as its implementation. In order for these goals to be realized, the three municipalities, NSTIR, as well as other stakeholders and the region’s residents must use the plan as a consistent point of reference and guide to long, medium and short term decision-making.

As a general approach, the plan contains a road map that describes the steps that should be taken to successfully implement its recommendations.

The proposed phasing of new active transportation infrastructure is divided into a 1-4 year, a 5-8 year and an “opportunity” phase. Not all elements of the future network have equal weight. In particular the more remote portions of the regional routes, called “opportunity routes”, should only be elevated to active transportation standards when the NSTIR capital paving program designates funding to repaving work.

Good policy directs good planning and design of communities. For the future, it is vital that planning guidelines for infill and new development make walkable and bikeable communities a priority. The plan contains a draft Active Transportation policy that could be implemented at the municipal level for each of the three municipalities in the Avon Region. This policy would constitute an overall framework for implementing active transportation in the region.

Education and awareness is also vital. Initiatives that focus on changing the culture around mobility and establishing positive perceptions is essential to the success of the plan. Therefore, recommendations on initiatives such as a communication strategy, partnerships, events, campaigns, education, workshops and ceremonies are included in the plan.

Monitoring and evaluating the impact of capital and programming initiatives is a critical component of the eight-year plan. The Active Avon Plan includes a tool that lets each of the three municipalities assess the effectiveness of active transportation investments as well as their commitment to advancing active transportation in the region.

### **Summary**

The Active Avon Plan represents a tremendous opportunity for the three Avon Region municipalities and the Province of Nova Scotia. Now is the time to act, to collaborate and to take on some of the risks associated with embarking on a culture shift and investing into a vital contributor to a healthy community future.

# 1 Introduction



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## 1.1 What is Active Transportation?

Active transportation (AT) is a broad term, that refers to all forms of human powered or non-motorized transportation. It typically refers to walking and cycling, but also rollerblading, skateboarding, wheelchair use, etc. There are also many seasonal activities such as canoeing, kayaking and cross-country skiing that can be defined as active transportation.

Active transportation is commonly broken down into two different categories:

- **Utilitarian active transportation** includes active destination oriented trips (e.g.: commuting to work or school) and active workplace travel (e.g.: delivering materials or attending meetings).

- **Recreational active transportation** includes leisure, recreational pursuits, and fitness (e.g.: dog walking, hiking, paddling, etc.) and often takes place in off-road locations. In some cases, both utilitarian and recreational active transportation can occur at the same time.

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## 1.2 Why Active Transportation?

Active transportation has steadily been gaining popularity across the continent because of the health, social, environmental, economic and tourism benefits. There is clear evidence of the advantages associated with designing cycling and pedestrian friendly communities which enable and encourage residents to be more active by walking and biking for recreation and utilitarian purposes.

The Municipality of West Hants, Town of Hantsport, and Town of Windsor, collectively known as the Avon Region, have

recognized the importance of providing residents with improved options for safe and enjoyable self-propelled transportation and have individually begun to promote better infrastructure through policies and plans.

The latest round of Municipal Planning Strategies, Integrated Community Sustainability Plans, Active Living Strategies, Trail Plans and Transportation Studies all encourage better walking and biking infrastructure for each respective community. In recent

years, pathways have been inventoried and trails have been planned and built. While some of these initiatives have already made cross-municipal recommendations, this new Regional Active Transportation Plan is a critical project for the Avon Region and for Nova Scotia. It will define how conversations beyond municipal boundaries offer unique opportunities to build collaborative active transportation capacity for an entire region.



### 1.3 Impacts and Benefits

Municipalities across Canada and North America are realizing the multifaceted benefits of promoting active transportation and are undertaking such initiatives. The following paragraphs outline some of the high-level benefits that can be realized by implementing active transportation initiatives at a regional level.

#### Health Benefits

Encouraging greater participation in active transportation is one of the best ways to increase physical activity, which often results in increased overall health and wellbeing by decreasing obesity rates and improving mental health. Research suggests that increasing physical activity rates is one of the most effective ways to create a culture of healthy living (Department of Health and Wellness, 2012). The economic benefit of reducing physical inactivity is estimated at \$0.52 per kilometer for cycling

and \$1.07 per kilometre for walking (Institute of Sensible Transport, 2011).

Although recent figures indicate a reduction in serious car accidents on Canadian roads, driving is a relatively dangerous mode of transportation. In 2011, there were 2,006 deaths, 10,443 serious injuries and 30,463 total injuries related to car accidents (Statistics Canada, 2011).

Active transportation can also facilitate more socially cohesive communities as residents have more opportunities to interact with one another when they are outside of their cars. Greater physical activity rates have been proven to reduce mental issues such as stress, anxiety and depression while contributing to an improved quality of life and overall happiness.

#### Better Mobility Options

Active Transportation provides an efficient, affordable and flexible travel option, particularly for those who would prefer to not drive and for residents without access to a vehicle. Furthermore, an aging population will result in a larger proportion of the population that can no longer operate a vehicle.

#### Less Pollution

Active transportation use and its associated infrastructure have a low environmental impact, particularly when compared to driving a vehicle. Automobile use contributes to air pollution through emission of harmful greenhouse gases such as nitrous oxide, carbon dioxide and low level ozone.



The impacts of vehicle infrastructure also have negative environmental implications. Road and parking maintenance such as resurfacing and winter snow removal have negative environmental impacts on soil contamination and water quality. Impermeable road surfaces increase the degree of runoff during heavy precipitation and cause oil and salt to contaminate neighbouring ecosystems. On the other hand, active transportation infrastructure such as trails, bike lanes, and bike racks have substantially less negative environmental impacts. Trails and bike paths have narrower right-of-ways and are often permeable with less detrimental effects on adjacent ecosystems.

### Tourism

Bicycle tourism has been growing steadily over the past few decades, initiated by successful experiences

in Northern Europe and the UK. This growing trend stems from the shifting inclination of tourists to healthier, more experiential and contemplative methods of travel. In the Netherlands, an investment over a 20 year period of approximately \$150/km/year resulted in a return of investment of over \$75,000/km/yr (Netherlands Cycling Platform, 2010). In the US, several states have significantly invested in AT infrastructure with positive results. The North Carolina Department of Transport (2004) reported an annual return of 9 times the initial investment in active transportation infrastructure.

In Canada, the province of Quebec is at the forefront of the bicycle tourism industry, where a regional 4,000 km AT network called the “Route Verte” has been in development since the 1980s, and is supported by a growing suite of

education and awareness materials and organization tools. It is estimated that the route generates revenues of \$85 million per year.

In Nova Scotia, Bicycle Nova Scotia is working with the province to implement a similar project called the Blue Route, which proposes a provincial bicycle network that supports local community-based active transportation initiatives.

### Economic Benefits

According to a recent national poll owning and operating a car is the second largest expense for Canadian families (CAA, 2013). The average annual costs for a small compact car is \$9,500 or \$0.528 per kilometer. In comparison, the costs of walking and cycling are negligible.

An additional economic benefit is the reduced costs associated with a reduction in car use as outlined in a number of recent studies:

- reduced the costs associated with road construction, repair and maintenance in certain areas;
- reduced healthcare costs;
- reduced fuel, repair and maintenance costs for the user; and
- increased property values along quieter streets and trail networks

Reducing or centralizing parking also has significant economic benefit. Parking has significant costs associated with it including land, construction, maintenance and operational costs. Parking costs are significantly lower for bicycles and non-existent for most other forms of active transportation.



## 1.4 Challenges in the Avon Region

There are several challenges to understand and overcome when promoting active transportation in rural areas like the Avon Region.

### Size and Density

A key challenge for the Avon Region is its large area and a dispersed population, typically resulting in greater travel distances than in dense, urban areas. Furthermore, the majority of residents living in the Avon Region work outside of the region in Halifax or the Annapolis Valley. With such considerable travel distances, it is unreasonable to expect a large amount of utilitarian active transportation to occur, particularly in rural areas.

### Car Culture

North Americans have become reliant on their cars, which can be a challenge

when promoting active transportation. Using the automobile for all trips has been a default choice for most people throughout their entire lives. Although automobile use is necessary for many trips in rural areas, there may be some shorter trips that could be made using active modes of transportation. However, the prevalence of car culture has resulted in most people not even thinking about the possibility of using active modes of transportation.

### Rural Road Design

Most Canadian rural roads have been designed for efficient automobile use without much consideration for pedestrian and cyclist safety. Although this conventional approach to road design is changing, many existing roads are straight, two-lane right-of-ways that en-

courage high traffic volumes and high speeds and do not incorporate paved shoulders. This results in transportation corridors that favour fast automobile traffic, without offering any safe corridors for slower and more vulnerable road users.

### Climate

Climate can have an impact on the use and enjoyment of active transportation. Nova Scotia features a North Atlantic climate that is mild during summer months, but harsh and unpredictable during winter months. Cold temperatures, strong winds and heavy precipitation can make AT challenging between December and April. Varying temperatures and the freeze-thaw cycle increases the amount of road maintenance required for roads and pathways.



## 1.5 Opportunities in the Avon Region

Although planning for active transportation in rural areas comes with many challenges, there are also several opportunities that can be taken advantage of, particularly for the Avon Region.

### **Beauty**

The Avon Region boasts a wonderfully scenic rural setting that unites meandering river valleys, tidal flats, rolling farmlands and Acadian forests with a handful of quaint villages and hamlets. This scenic quality has attracted people from all over the world to visit or live in the Avon Region.

### **Topography**

Compared to other areas in Nova Scotia, the general topography of the Avon

Region is relatively flat and conducive to active transportation.

### **Strategic Location**

The Avon Region is strategically located between Halifax Regional Municipality and Kings County, the two largest population (and tourism) centres in Nova Scotia. As a result, the Region is well positioned to benefit from any potential future active transportation corridors linking the two destinations.

### **Community Capacity**

An enthusiastic group of volunteers, staff and elected officials exists in the Avon Region, all of whom are excited and eager to improve active transportation. Similarly, the Region benefits from tight

knit social networks, flexible decision makers and staffers, and the lack of lengthy bureaucratic processes that may be a challenge in more urban areas.

### **A Compact Regional Core**

There are opportunities for utilitarian active transportation within the regional urban core of the Avon Region between Three Mile Plains and Hantsport, where a dense concentration of homes, shops, services, and other destinations exist.

# 2 Background / Analysis



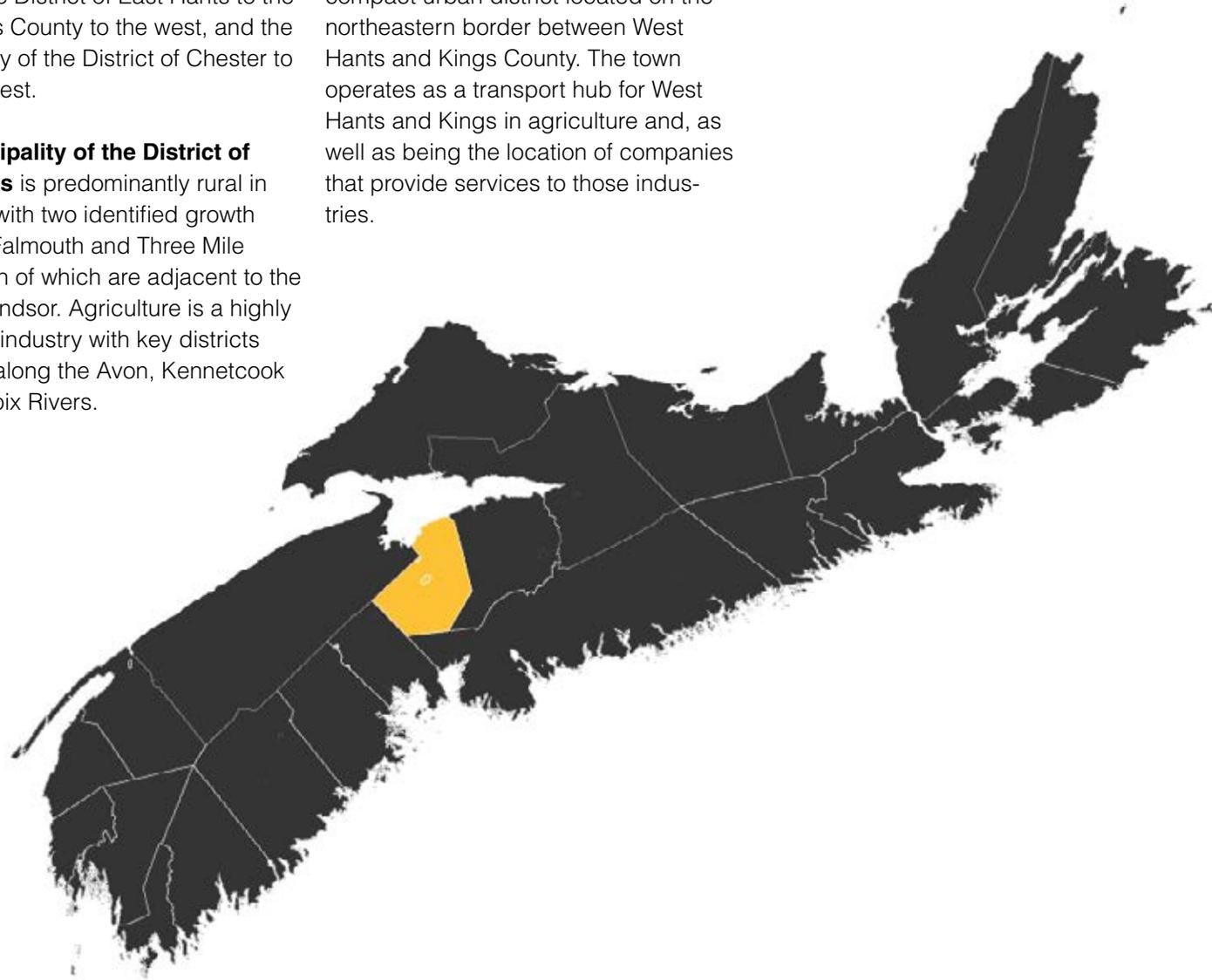
## 2.1 About the Avon Region

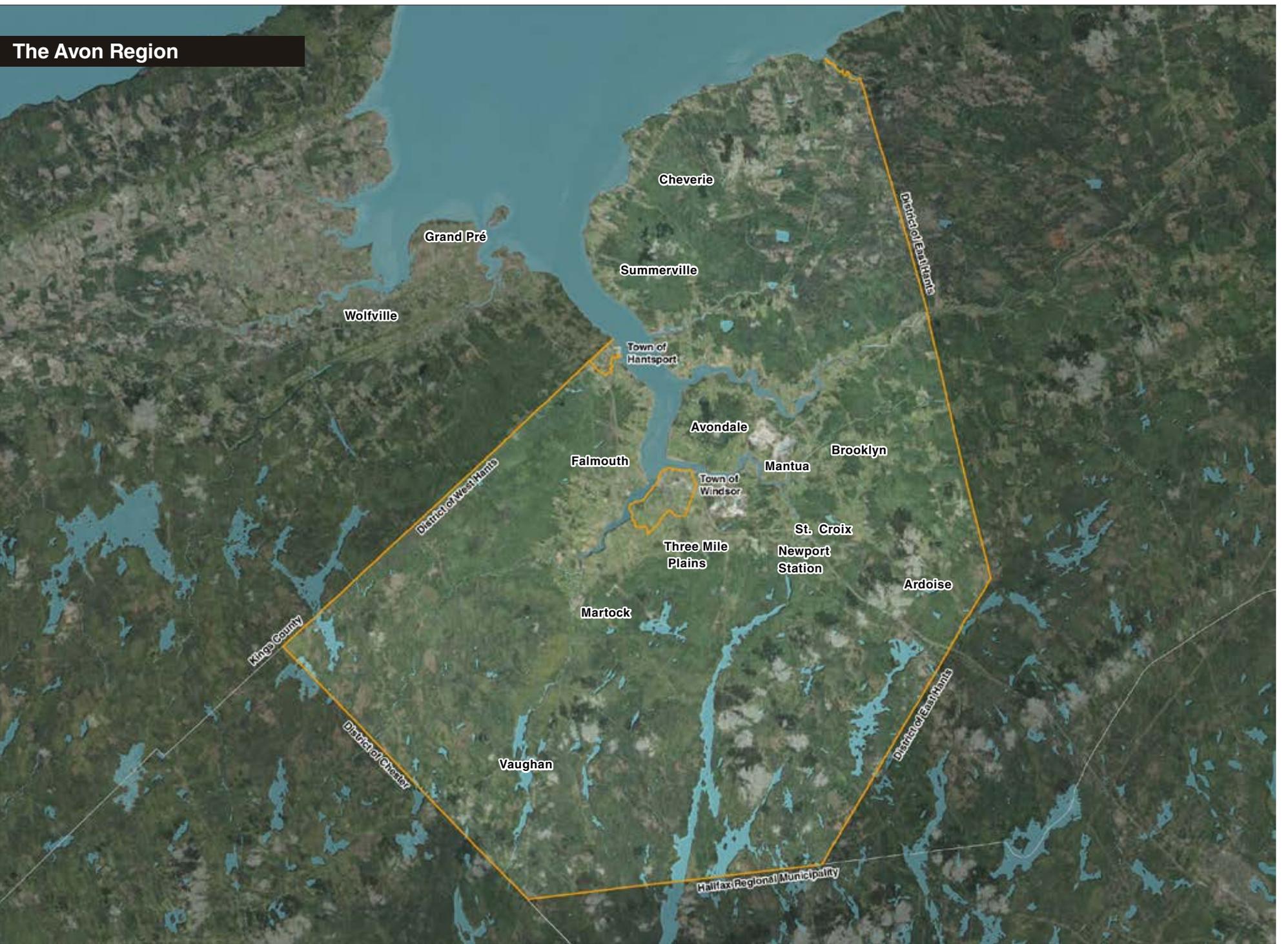
The Avon Region consists of the Municipality of the District of West Hants, the Town of Windsor, and the Town of Hantsport. It is situated in central Nova Scotia along the shores of the Minas Basin. It borders the Halifax Regional Municipality to the south, the Municipality of the District of East Hants to the east, Kings County to the west, and the Municipality of the District of Chester to the southwest.

The **Municipality of the District of West Hants** is predominantly rural in character with two identified growth centres – Falmouth and Three Mile Plains, both of which are adjacent to the Town of Windsor. Agriculture is a highly significant industry with key districts occurring along the Avon, Kennetcook and St. Croix Rivers.

The **Town of Windsor** has an urban core comprised of mixed commercial and residential land uses and a small rural fringe which extends into the municipality of West Hants.

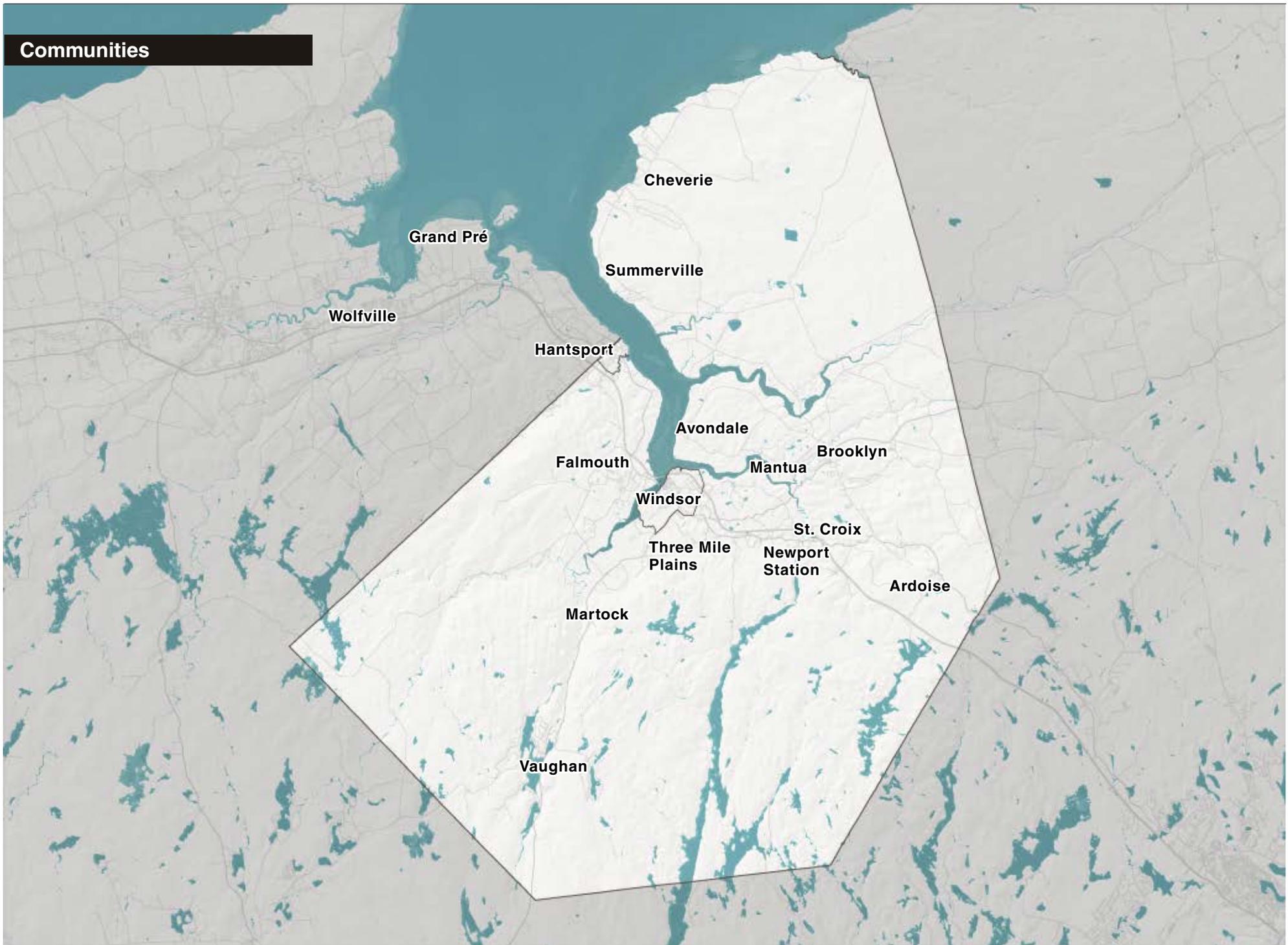
The **Town of Hantsport** is a small and compact urban district located on the northeastern border between West Hants and Kings County. The town operates as a transport hub for West Hants and Kings in agriculture and, as well as being the location of companies that provide services to those industries.





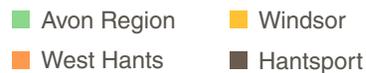
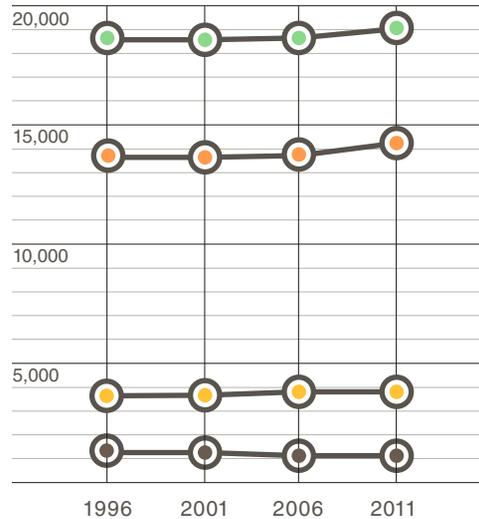
# The Avon Region

**Communities**



## 2.2 Socioeconomic Profile

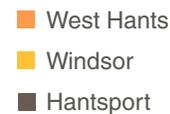
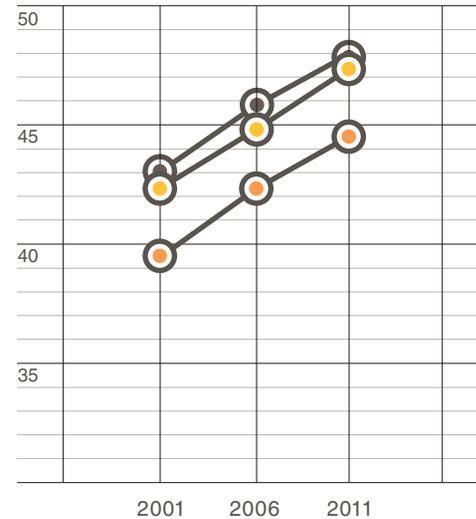
### Population Growth



Population growth by year (Statistics Canada, 2011)

The population of the entire Avon Region in 2011 was 19,106. Since 1996, the Region has experienced modest growth. Over the past twenty years, Windsor has had a steady population of around 3,700 people, while the population of Hantsport has been moderately declining since 1996. The District of West Hants, on the other hand, has experienced population growth since 2001 due to recent development in Falmouth and Three Mile Plains. West Hants is one of the few rural Nova Scotian municipalities to experience growth in the past decade.

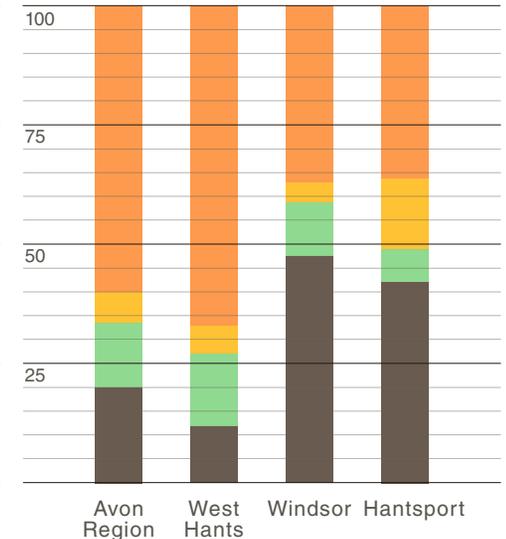
### Age



Median age by year (Statistics Canada, 2011)

As is being experienced throughout Canada, the Avon Region has an aging population. For example, the median age for residents living in the Region was estimated to be 40.3 in 2001. Ten years later, the median age rose to approximately 45.3. Interestingly, residents living in the District of West Hants have been on average three years younger than their counterparts living in Windsor and Hantsport.

### Place of Work



Destination of workplace, by proportion (Statistics Canada, 2006)

Travel behaviour for getting to work and back is strongly influenced by commute distance. In 2006, approximately 60% of the total labour force in the Avon Region worked in a different municipality than the one they lived in (note: this type of data was not recorded in the 2011 Census). Only 20% lived and worked in the same municipality, making it difficult to promote utilitarian active transportation as a viable mode of transportation, particularly in the large District of West Hants. In Hantsport and Windsor, however, 43% and 47% of employees lived and worked within each town respectively.

## Commute Time



10.4 min  
**Windsor**



12.4 min  
**Hantsport**



25.4 min  
**West Hants**

Median commute duration (Statistics Canada, 2011)

## Mode of Transportation



Mode of transportation to work (Statistics Canada, 2011)

■ Car (driver) ■ Car (passenger) ■ Transit ■ Walk ■ Other

Because the majority of commuters in West Hants are travelling outside of their municipality to get to work, commute times are much longer than for residents in Windsor and Hantsport. In 2011, the median travel time for commuters in West Hants was 25.4 minutes each way. This is well over ten minutes longer than those experienced for commuters in Hantsport and Windsor, where the median travel times were 12.4 and 10.4 minutes respectively.

The vast majority of residents in the Avon Region used their car to travel to work and back in 2011. In West Hants, 96% of residents used a car as their primary mode of transportation for getting to work and back. In Hantsport and Windsor, car use was less dominant at 87% and 84% respectively.

Walking is much more common in the towns of Hantsport and Windsor, where approximately 13% and 14% respectively, walk to work.

In 2011, cycling was not identified as the primary mode of transportation for anyone in the Avon Region.

## 2.3 Health and Wellness

The rise of physical inactivity and obesity rates throughout North America is so prevalent that it is often referred to as an epidemic (Velo Quebec, 2010; Mapes J, 2009). Similar issues are of concern in the Avon Region, where physical activity rates are low and overweight/obesity rates are high, as revealed in a Community Health Survey in 2009.

Although the Avon Region recorded higher physical activity rates than the rest of Nova Scotia, and indeed the country, almost half of the population is physically inactive with less than 15 minutes of exercise per day. Furthermore, the West Hants Active Living Strategy (2013) states that:

- Less than a third of all residents perform the recommended amount of moderate to vigorous activity

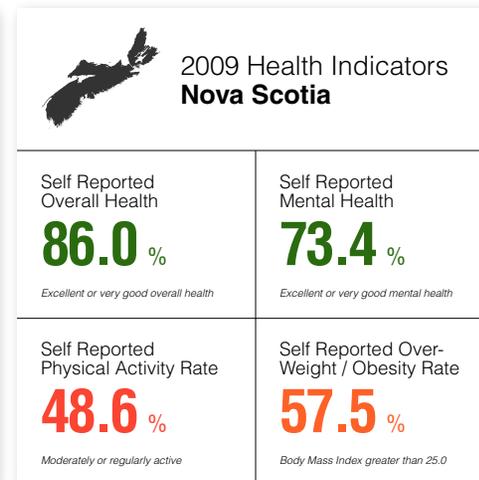
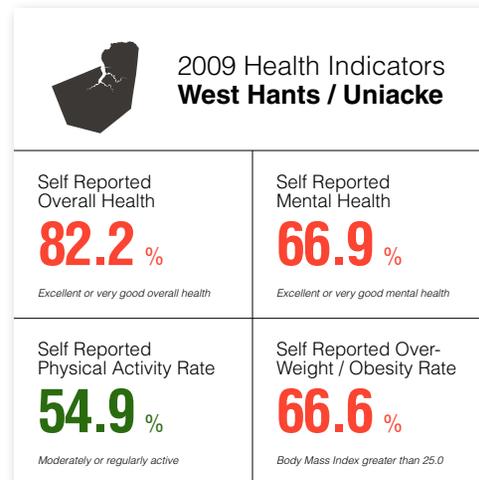
each week, with the most popular activity cited as walking.

- Approximately a third of youth and children regularly play actively (60 minutes of daily activity, six days a week), and
- Only 17% of children walk or run regularly and even less cycle (5%).

Decreased physical activity rates have been linked to the rapid increase of obesity rates within Canadian communities; so too has the increase in risk for a variety of chronic diseases including cardiovascular disease, diabetes, osteoarthritis and some forms of cancer (Velo Quebec, 2010). In 2009, two-thirds of persons in the Avon Region were overweight or obese (ie, body mass index greater than 25.0), which is much greater than in the rest of the country (which is at about 50%).

The Nova Scotian Department of Health and Wellness has identified that the decline in activity and subsequent rise in obesity is not simply the result of individuals making poor choices. The 2012 Thrive report identifies that the majority of Nova Scotians live within an 'obesogenic' environment.

Residents within the Avon Region indicate that significant barriers to increasing regular physical activity rates include a lack of time, access to paths, trails and open spaces and costs associated with recreational activity. Replacing short car trips with more active modes of transport is an affordable, achievable and effective strategy to increase daily activity for these residents (West Hants Active Living Strategy, 2013; Mapes, J 2009).



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## 2.4 Road Network

The Avon Region is served by a network of provincial roads and highways that provide connections with neighbouring municipalities. These roads are maintained by the Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR).

The principal route into the Avon Region is via **Highway 101**, an east-west highway that connects Bedford to Yarmouth via the Avon Region and the Annapolis Valley. The 100-series highway is a two or four-lane, controlled access highway featuring high traffic volumes.

The modern expressway has replaced **Trunk 1**, another east-west corridor that is one of the oldest major roads in Nova Scotia. It was once called the Great Western Road and is now commonly referred to as “the old number one”. It runs more or less parallel to Highway 101 and features lower traffic volumes, although it lacks a paved shoulder along most of the route. The trunk route hosts the Evangeline Trail scenic roadway along its entire length, as well as the Glooscap Trail scenic travelway between Windsor and Wolfville.

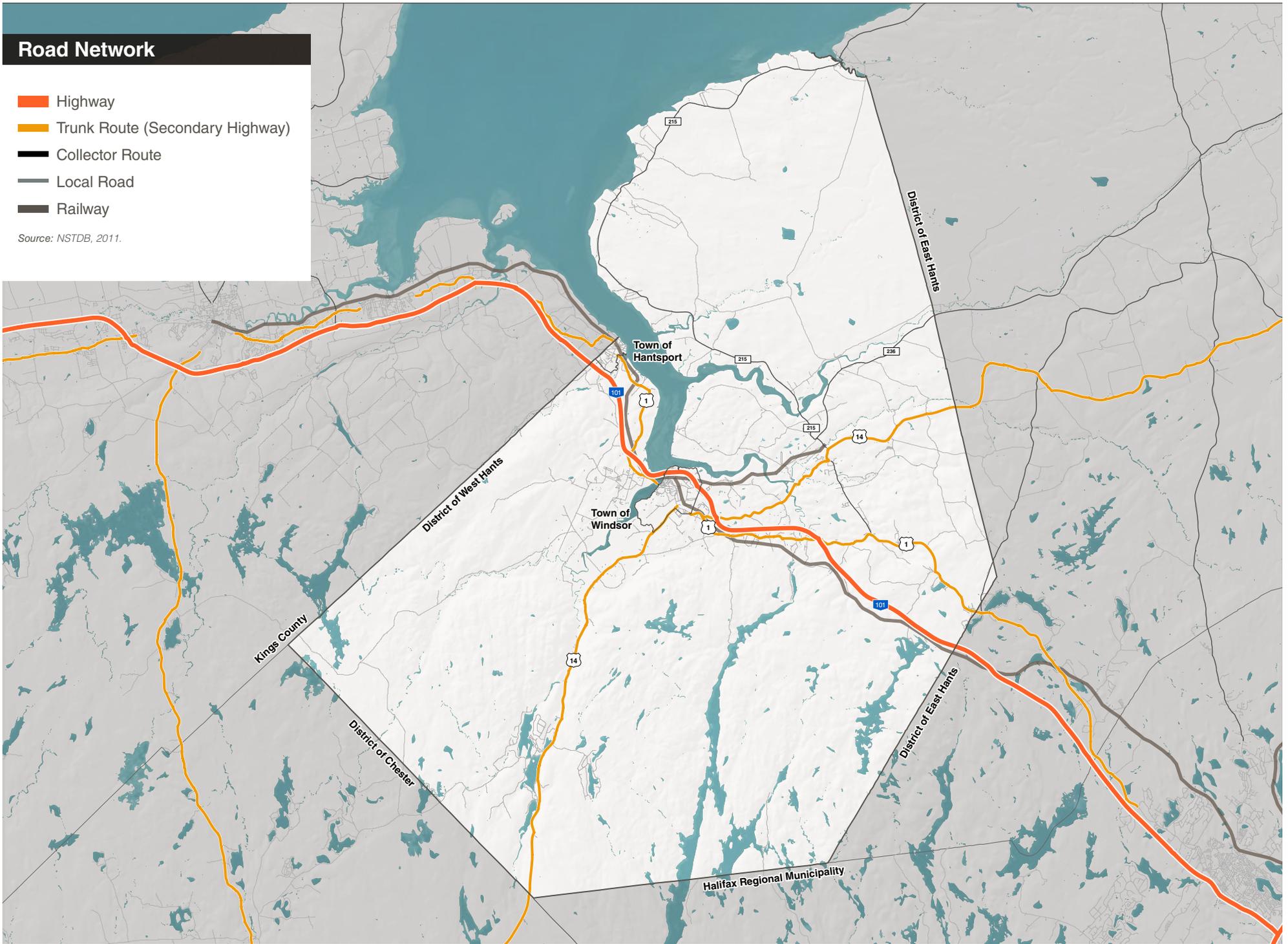
**Trunk 14** connects Chester from the southwest of the Avon Region up in to Windsor before continuing east on to Milford. It is a common truck route, with moderate traffic volumes, no paved shoulders and a relatively straight alignment that encourages travel speeds above the posted limits.

**Route 215** is a scenic collector road connecting the village of Shubenacadie at Trunk 2 to the east of the Avon Region with Newport Corner. Parts of the road are included in the Glooscap Trail and also the Fundy Shore Ecotour. It also does not include a paved shoulder but has very low traffic volumes and follows closely along the shores of the Minas Basin.

# Road Network

- Highway
- Trunk Route (Secondary Highway)
- Collector Route
- Local Road
- Railway

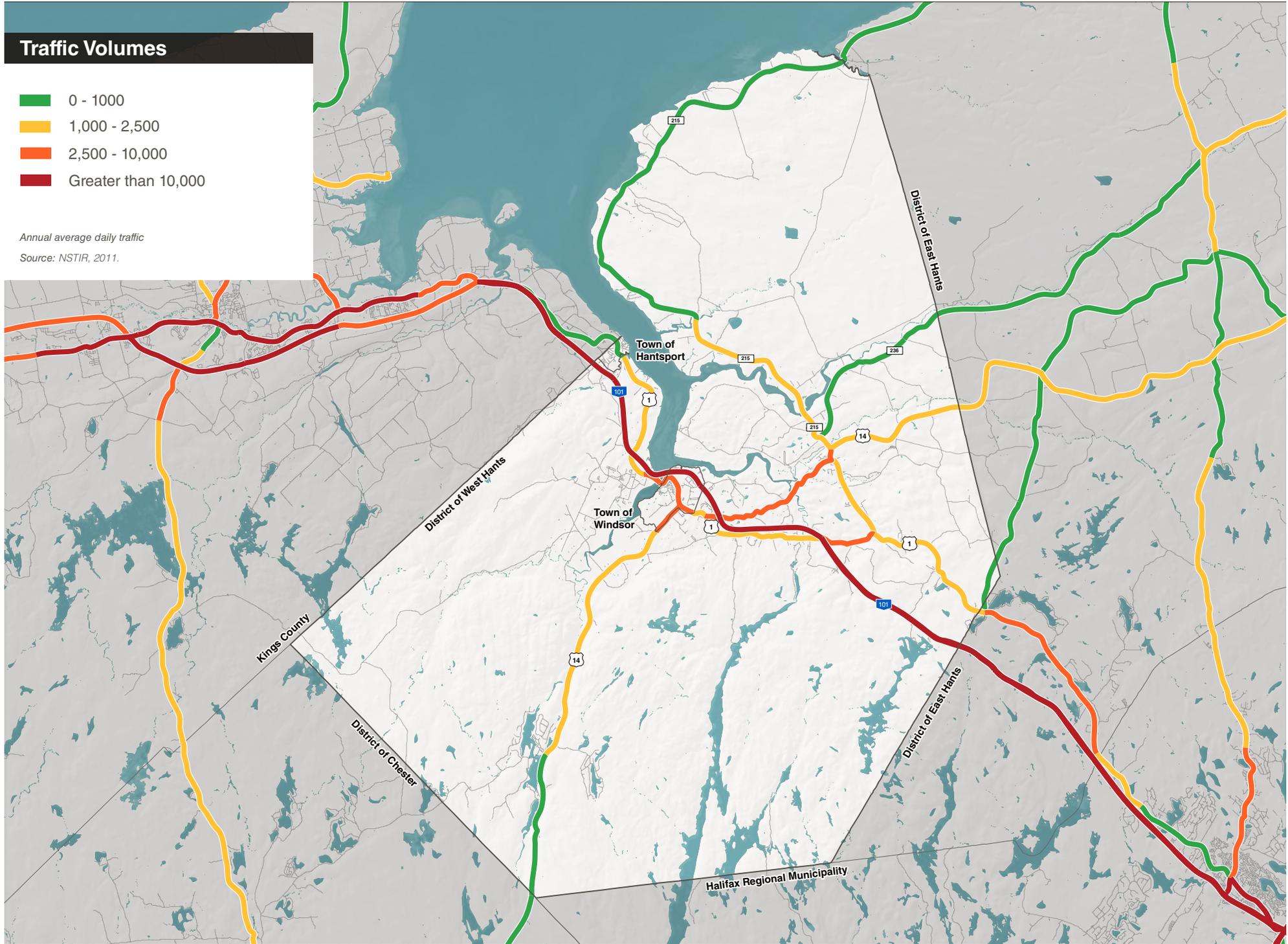
Source: NSTDB, 2011.



# Traffic Volumes

- 0 - 1000
- 1,000 - 2,500
- 2,500 - 10,000
- Greater than 10,000

Annual average daily traffic  
Source: NSTIR, 2011.

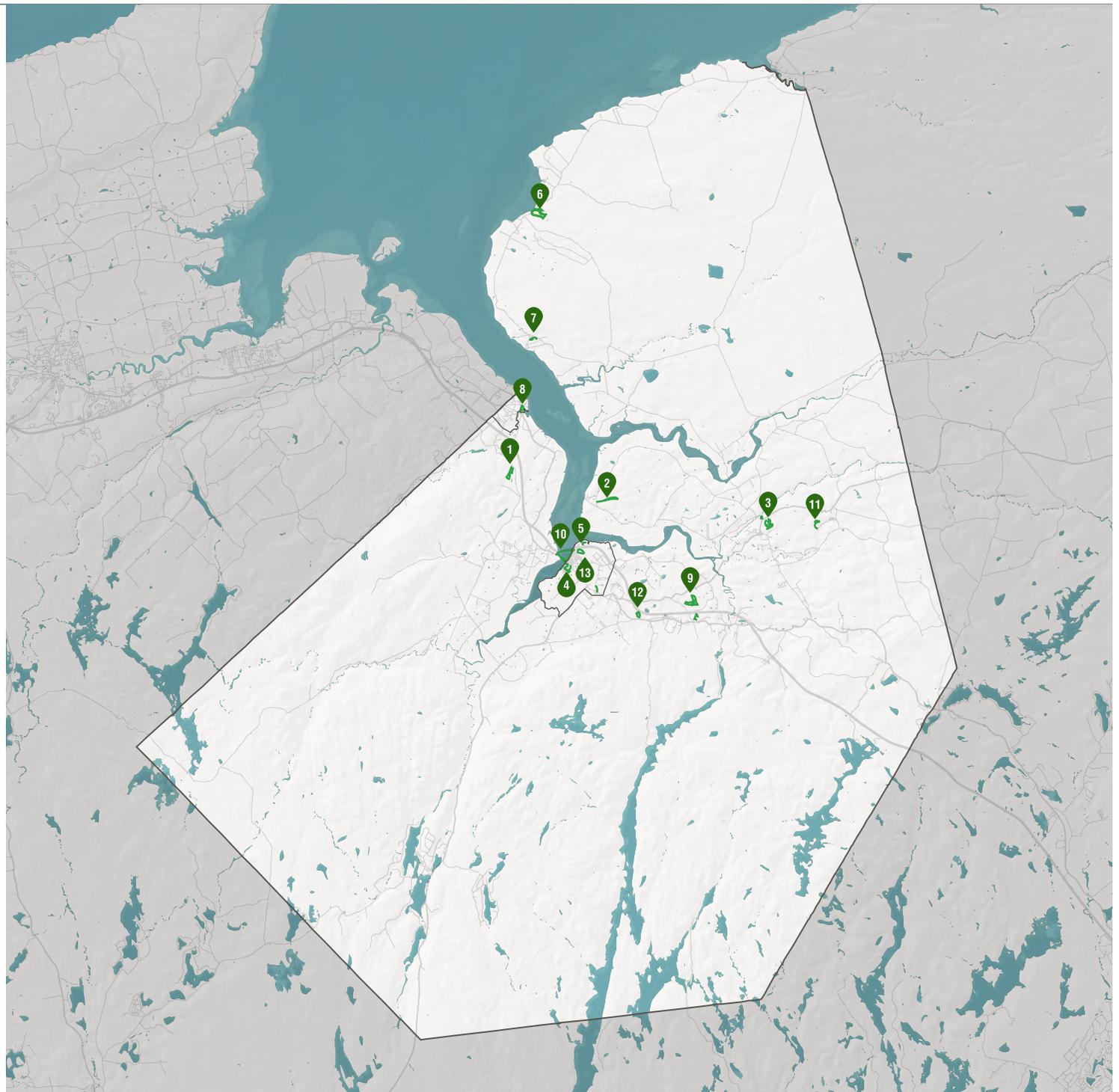


## 2.5 Existing Trail Inventory

The following is a list of recognized trails that exist in the Avon Region. There are a handful of additional informal trails that are occasionally used by cyclists and pedestrians as well, such as the Windsor to Hantsport rail line, and extensions of the Castle Frederick to Moses Mountain and Eldridge Road trails.

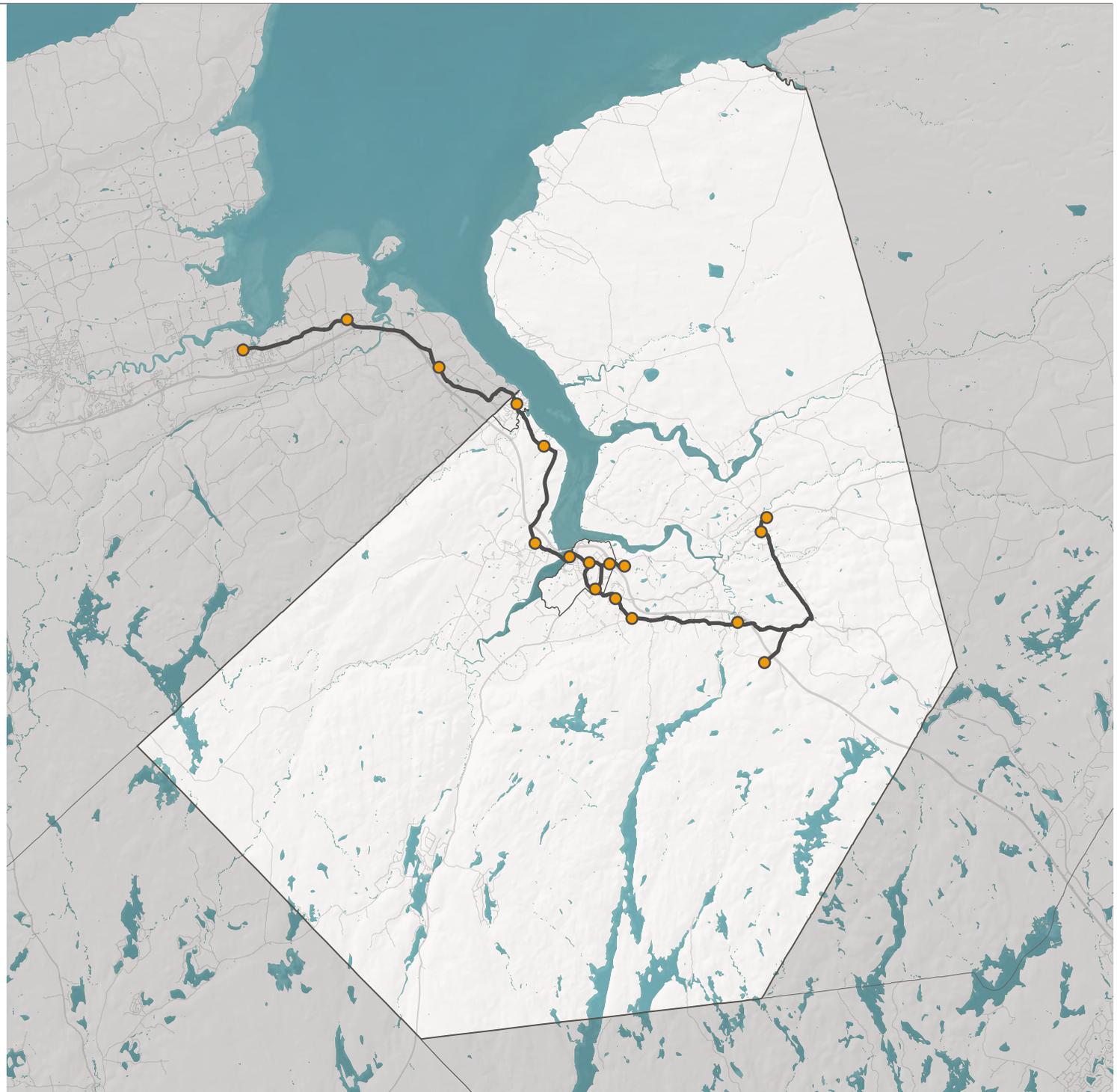
### Trail Inventory:

- 1 Aikins Marsh Trail / Laurie Saulnier Memorial Trail
- 2 Avondale Trail
- 3 Brooklyn Elementary School Trail
- 4 Haliburton Trail
- 5 Shell Environmental Park
- 6 Cheverie Salt Marsh Restoration Trail
- 7 Dr. Arthur Hines Elementary School Trails
- 8 Hantsport Walking Trail
- 9 Irishman's Road Recreation Site
- 10 Lake Pisiqid Trail
- 11 Smiley's Provincial Park Trail
- 12 Three Mile Plains Elementary School
- 13 Fort Edward Trail Loop



## 2.6 Transit

Kings Transit currently operates a number of bus routes in the Annapolis Valley, extending from Brooklyn to Weymouth. The Avon Region is served by the Wolfville to Brooklyn line, which makes stops at Sweets Corner, Ellershous, Three Mile Plains, Garlands Crossing, Windsor, Falmouth, Mount Denson and Hantsport before linking into Wolfville.



## 2.7 Form & Development

The density of existing settlements plays a major role in determining the suitability of future active transportation infrastructure. Higher rates of density provide a higher probability of success for any active transportation investment, including infrastructure development. As can be seen in the population density map (see next page), there are a number of key areas in the Region that have medium to high density (greater than 5 persons per acre). The highest densities occur within the Windsor and Hantsport town centres, which feature densities up to 20 persons per acre in some areas. The areas surrounding the Windsor town centre, along with sections in Falmouth and Three Mile Plains have areas between 1 and 5 persons per acre. Throughout the rest of the Avon Region, most areas feature densities less than one person per acre.

Higher densities help accommodate successful utilitarian active transportation. The Town of Windsor is considering increasing the permitted volume of multi-unit development in areas where a moderate to high degree density is

already present. By identifying growth centres, the Municipality of West Hants seeks to concentrate residential and commercial development in areas of the Municipality close to the Town of Windsor. The Town of Hantsport seeks to develop greater density by reducing lot sizes in new and existing residential areas and allowing a greater mix of housing types.

### Future Development

West Hants has a clearly defined community development hierarchy. The majority of development within the Municipality is expected to occur within two identified growth centres, located in the communities of Three Mile Plains and Falmouth. The Village of Brooklyn has been identified as being a focal point for the surrounding countryside. The other eleven hamlets in the Municipality exist as small rural communities where limited development is possible, providing a rural atmosphere is maintained. In addition there are residential subdivisions planned by Development Agreement outside these areas.

The Three Mile Plains growth centre is fully serviced with municipal water and sewerage and has capacity to accommodate a considerable amount of new commercial and residential development. Falmouth has developed as a mainly residential area, where a significant amount of serviced land is still available for future development.

Limited residential and commercial development is permitted outside these growth centres yet municipal water and sewer services are not intended to be provided in these areas.

There are plans currently being proposed for a new resort-style residential development in the community of Ardoise (located near the eastern periphery of West Hants). The Forest Lakes Country Club Master Plan calls for up to 2,700 homes, a golf course, and a village centre featuring convenience stores, cafes, hotels, restaurants and a Spa & Wellness Centre. The project is planned to be built in phases over the next 15 to 20 years.

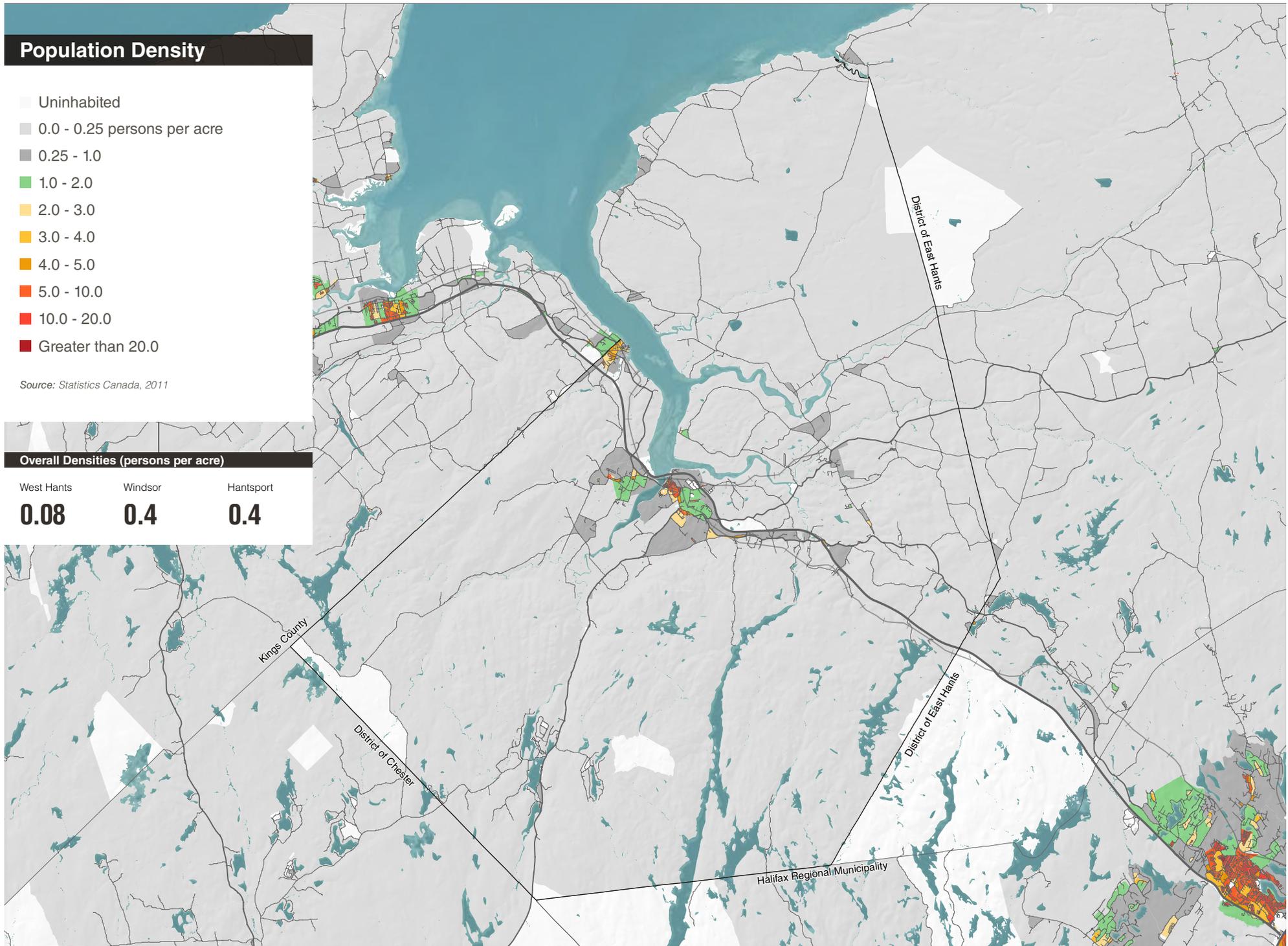
# Population Density



Source: Statistics Canada, 2011

## Overall Densities (persons per acre)

West Hants	Windsor	Hantsport
<b>0.08</b>	<b>0.4</b>	<b>0.4</b>



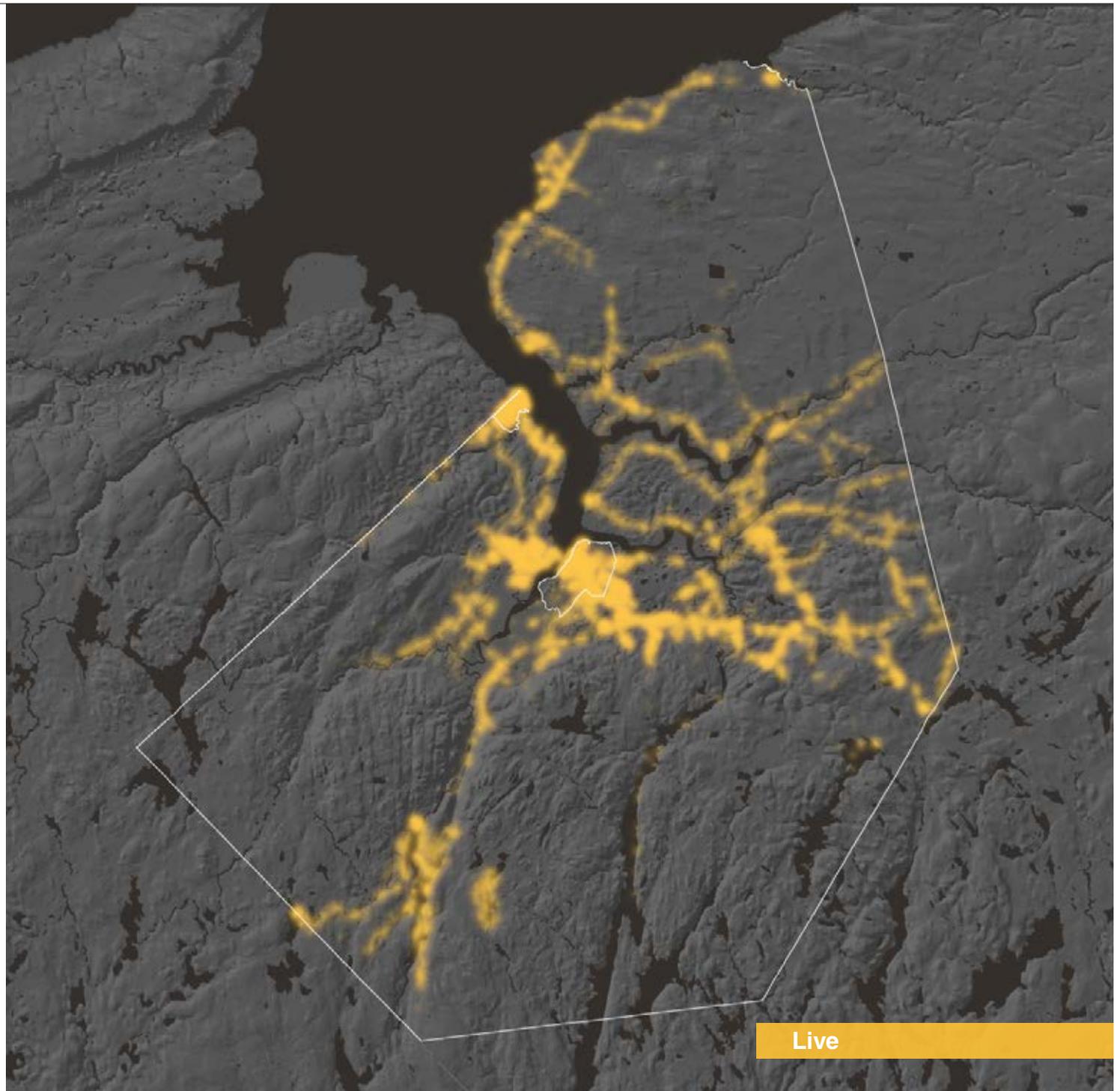
## 2.8 Trip Origins and Destinations

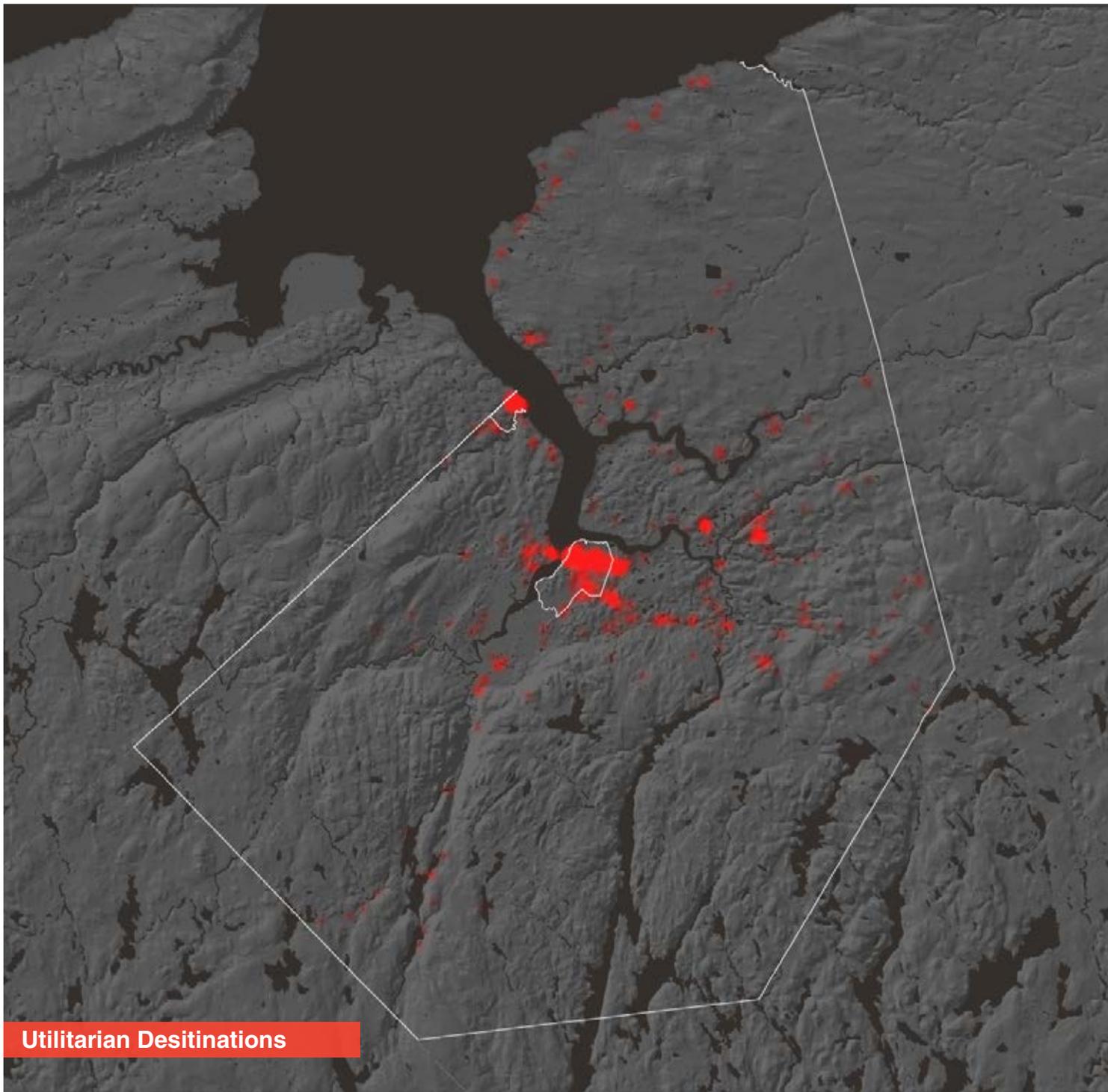
Origins and destinations refer to the starting and end points of any trip. Identifying concentrations of origins and destinations throughout the Avon Region will help determine where active transportation infrastructure should be located.

The Nova Scotia Civic Address File (NSCAF) data includes land use classifications for every civic address point in the province. Trip origins and destinations can be visualized by categorizing these civic address points into general land use categories and mapping them.

### Origins

Assuming the majority of trips begin (or end) at home, all residential civic address points in the Avon Region have been mapped and displayed to illustrate concentrations and clusters. As to be expected, the communities of Windsor, Hantsport, Falmouth and Three Mile Plains form a regional core of residential origins. Throughout the District of West Hants, residential development follows closely along rural highways extending outward from the regional core.





**Utilitarian Desitinations**

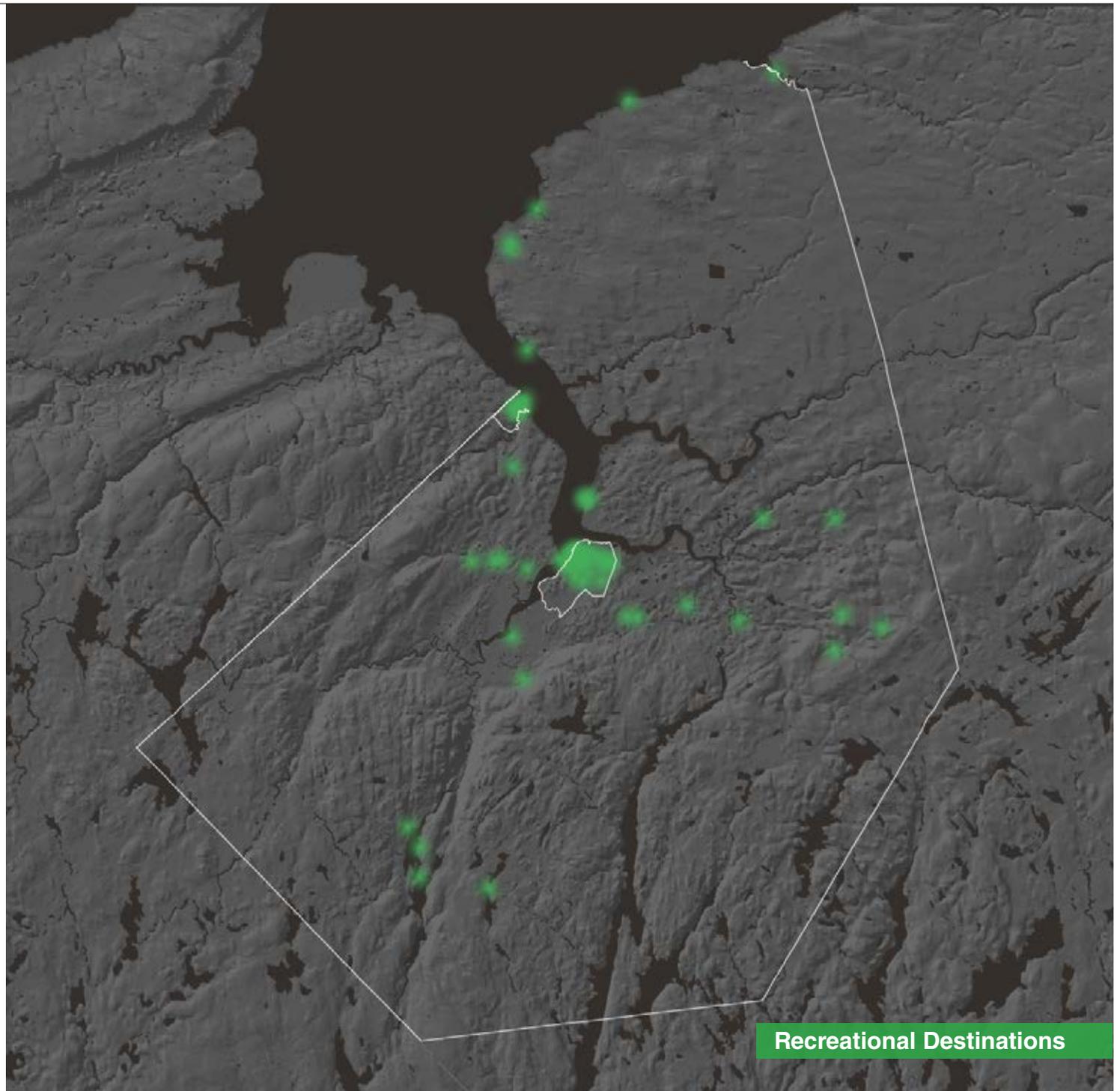
**Utilitarian Destinations**

Utilitarian trips are trips made to achieve a functional purpose, such as getting groceries for the week, commuting to the workplace, mailing a letter at the post office, etc. The “Utilitarian Destinations” map illustrates civic address points that are identified as a business, restaurant, shop or store, industrial facility, office, etc.

Once again, there is a concentration of utilitarian destinations in the regional core around Windsor and within Hantsport. Pockets of such destinations are also concentrated around Brooklyn and Summerville. Notably, there are noticeably fewer utilitarian destinations in Falmouth and Three Mile Plains than there are residential origins.

## Recreational Destinations

Trips can also be made for pleasure or recreational-based purposes. Such recreational trips involve visiting a local park, trail loop, beach, etc.





## 2.9 Community Input

Input from the community is critical in order to understand the current state of active transportation in the Avon Region and to ascertain the key issues and opportunities. Recognizing this, a variety of public engagement events were held to provide multiple methods through which the community could enrich the Active Transportation Plan with their input and expertise.

These events included an online survey, an evening public meeting, three focus group sessions, a community bike ride and a public walking tour. All events were held in various locations throughout the Avon Region and at different times of day in order to acquire a diverse representation from all age groups and communities. Information on all the community engagement opportunities were well publicized, which resulted in a positive participation rate.

### Public Meeting

The public meeting was held in the evening on Wednesday, October 15th at the King's-Edgehill School in Windsor, which was well attended by a diverse range of interested community members. Participants were informed of the project goals, objectives and timelines and provided valuable feedback through a series of interactive panels and two facilitated workshops.

### Focus Groups

Three focus group sessions were held on Thursday, October 16th to provide an opportunity for key informant groups to offer more specific input and expertise. Each focus group had a specific theme, including:

- Schools and Institutions (to discuss how AT could be further encouraged or supported in the schools and institutions of the Avon Region);
- Councillors and Municipal Staff (to determine what AT initiatives are underway and understand the key issues and opportunities at the municipal level); and
- Local Business Owners and Tourist Operators (to discuss the economic and tourism benefits of AT and determine potential partnerships with the private sector).



### Community Bike Ride

On Sunday, October 19th, a community bike ride was held to determine the key issues and opportunities for cycling in the Avon Region. The ride began at the Three Mile Plains Community Centre, went along Trunk 1 to downtown Windsor, then across the causeway to Falmouth and back. This route characterized many of the difficult cycling conditions that were reported during other engagement events.

### Walking Tour

A public walking tour was also held on Sunday, October 19 which looped around the Town of Hantsport. A group of local residents and Municipal staff participated in the tour.

### Online Survey

An online survey was created to allow local residents, business owners and other stakeholders to provide their perspectives on local conditions. The survey was distributed on September 18 and closed on November 14, 2014. It featured a handful of concise multiple choice questions and asked open ended questions regarding the benefits and barriers related to active transportation. Just over 100 completed surveys were received.

Participation was dispersed across the three municipalities. The vast majority (97%) of respondents indicated that they regularly engage in recreational and/or utilitarian AT use.

When asked about the benefits of active transportation, many respondents cited fresh air, exercise and social interac-

tion as a key motivator to use AT. Many added that AT helped reduce stress and anxiety levels. Many respondents appreciated the natural beauty of the region and acknowledged that intimate connections to the landscape are made when traveling outside of a vehicle. A number of respondents also indicated that many roads 'are relatively quiet..', which results in a peaceful experience.

When asked about the barriers to active transportation, many respondents cited distance as the key issue to using AT for utilitarian purposes. After distance, the most cited barriers were safety issues caused from a lack of infrastructure, poor maintenance of existing infrastructure and/or a lack of driver awareness. A lack of crosswalks, confusing intersections or current snow removal procedures are all contributing factors to the perceived safety issues. Finally respon-

dents indicated a lack of awareness with regards to areas where it would be safe to use AT.

Many suggested that if present concerns were resolved they would be more inclined to use AT. Big picture suggestions included prioritizing AT in all future development proposals and increasing connectivity between communities. Designating and promoting a route that includes bike lanes, trails and roads was also a reoccurring suggestion. Most respondents felt an increase in the number of sidewalks and trails throughout the region is needed. Particular importance was cited in the corridor between the communities of Falmouth, Windsor and Three Mile Plains.

Additional comments and suggestions from the survey can be found in the Appendix.



### What We Heard: Issues

Several recurring issues and opportunities emerged throughout all consultation events. Safety and education were the two key topics that were raised during the consultation events as particularly important issues that need to be addressed or overcome.

Community members cited the lack of dedicated space for cyclists and pedestrians and poor road conditions as key barriers to using AT more often in the Avon Region. For cyclists, dangerous and inconvenient conditions exist on arterial thoroughfares such as hidden driveways, blind crests and inconsistent edge conditions. For pedestrians, sidewalks do not exist in most areas, so narrow road shoulders and washed-out road edges often force pedestrians onto the roadway, putting them in conflict with motorists. The

majority of roads in the region do not feature streetlights, making walking or cycling at night particularly dangerous.

Community members identified several intersections within the region that are particularly dangerous for active transportation users (and also motorists), including the intersection at:

- Trunk 14 and Route 215;
- O'Brien St, Wiley Ave and King St;
- O'Brien St and King St; and
- Trunk 14 and Trunk 1 near the Irving gas station.

Cluttered signage and unclear road markings at these locations result in confusion. In these locations, collisions and near misses occasionally occur. Many communities in the region do not have crosswalks or crossing guards for students.

Infrastructure maintenance has also been an issue, particularly in the winter when snow clearing practices result in unusable sidewalks or shoulders which are used as snow storage areas. During the summer, ATV use occasionally results in trail erosion and damage, however, it was noted that ATV users contribute to overall trail maintenance and creation.

Active transportation education and awareness was a key issue identified by the community. It was recognized that a pervasive car culture exists, where active transportation is generally considered as a recreational activity rather than an utilitarian activity. It was identified that all road users need to be better educated to share the road, and that drivers need to be aware of the needs and space requirements of AT users. Furthermore, much active trans-

portation infrastructure that does exist is underutilized due to the lack of signage or promotional materials.

Another dominant issue that emerged was the absence or disconnectedness of active transportation infrastructure in key areas throughout the Avon Region. As a result, many residents are forced to use informal or ad-hoc trails to circumvent longer distances caused by a poorly connected road network featuring dead ends and cul-de-sacs. A good example of this issue is the Avon View High School, where the lack of multiple connections has resulted in significantly longer trips that can only be achieved by car. By adding a few trail connections that link into adjacent neighbourhoods, students and staff may more likely to use active transportation. There are several examples of "missing links" that could be filled in to improve the overall connectivity of AT infrastructure in the Avon Region.



### **What We Heard: Opportunities**

Despite these challenges, participants recognized that there are many local assets and opportunities which can foster an increase in active transportation rates. Cycling, walking, skating and cross-country skiing are recreational activities already popular throughout the Avon Region. Participants recognized the region's scenic attributes, with its abundant natural amenities and strategic location between the Halifax Regional Municipality and Kings County.

Many tourism opportunities were also identified. Developing old highways into regional cycling routes would direct traffic into communities which have been bypassed by Highway 101. Fostering out-of-region connections like the Blue Route would also draw tourists to the region.

Another opportunity that was repeatedly identified by the community was the potential to convert or build a trail alongside the private rail corridor that links Windsor and Hantsport to the Annapolis Valley in the north and Halifax in the south. Coincidentally, Kings County has recently completed a leasing agreement with owner of the Windsor-Hantsport Rail Company, which will allow them to build a trailbed next to the rail line. It is understood that the Rail Company is very interested in similar agreements along other portions of the rail line, which is a significant opportunity for the Region.

## 2.10 Vision Statement

The following vision statement establishes a shared vision of the Active Transportation Plan amongst residents, business owners, municipal staff, elected officials and other stakeholders. A strong vision statement is one that is exciting and inspiring to inspire action,

yet simple and practical enough to ensure achievable change. The following vision has been composed to succinctly summarize the visions heard during the various meeting, focus groups and community meetings:

***“To trigger a culture shift in the Avon Region where active transportation is a safe, convenient and celebrated mode of transportation for all residents”***

## 2.11 Guiding Principles

The following guiding principles have emerged from the background work completed to date, public consultation outcomes, and discussions with the Avon Region Active Transportation Plan Committee. These action-oriented principles offer practical ways to achieve the overall community vision during the eight year timespan of the project.

### **Education and Awareness is Vital.**

Efforts to improve education and awareness amongst all road users about the benefits of active transportation and the needs of its users can help improve actual and perceived safety. It will also cultivate a culture that embraces AT by sharing the road with a positive attitude.

### **Make it Safe.**

In order for active transportation to become more widely accepted, its users must feel safe. While education and awareness programs will contribute to improving perceived safety, on-the-ground infrastructure and improved maintenance are also vital to making active transportation a safe option.

### **Provide Connections.**

Reducing travel times is a crucial component to making active transportation a feasible mode of transportation. There are several opportunities to make simple connections in the existing network that would significantly improve travel times for AT users.

### **Focus the Right Interventions in the Right Places.**

A one-size-fits-all approach is not appropriate for a diverse area like the Avon Region. Different contexts require different interventions. Utilitarian-based infrastructure should be focused in the regional core, whereas rural areas should feature more recreational and regional tourism-based improvements.

### **Make it Fun and Attractive.**

Using active modes of transportation is inherently fun, especially within the beautiful setting of the Avon Region! These assets should be promoted through fun and engaging materials or events that celebrate the sheer enjoyment that active transportation has to offer for locals and tourists alike.

### **Be Strategic and Opportunistic.**

An incremental approach that prioritizes achievable, short-term projects over more ambitious projects will generate positive publicity and public support. Efforts should also be concentrated on interventions that will have the best return-on-investment, while also taking advantage of opportunities as they present themselves.

### **Work Together.**

Within the Avon Region, all stakeholders must work together to focus on regional benefits, rather than their own individual jurisdictions. Externally, there are opportunities to form strategic partnerships with adjacent municipalities, provincial departments and non-profit organizations who are working towards similar active transportation goals.

# 3 Network



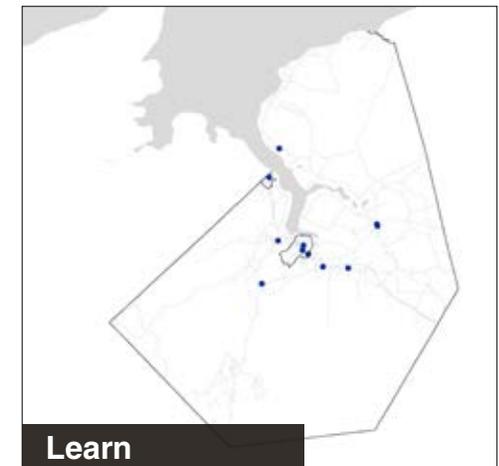
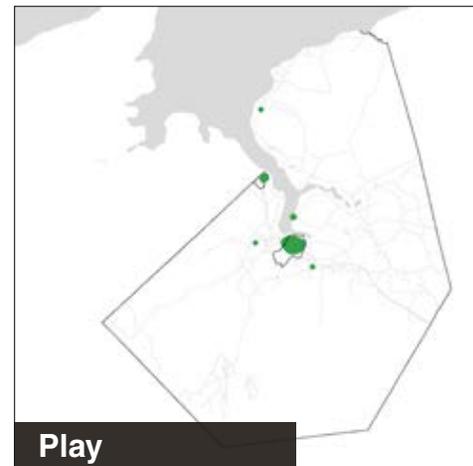
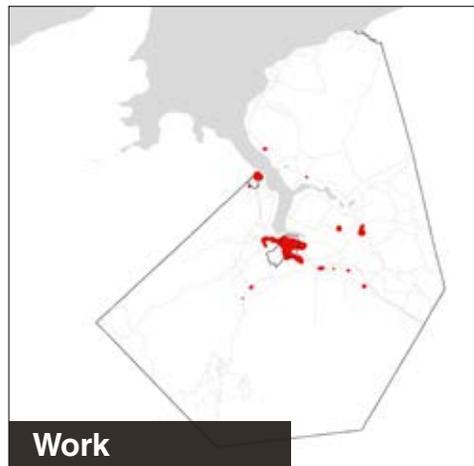
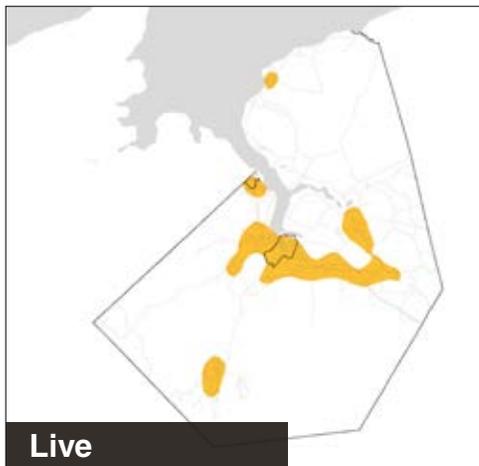
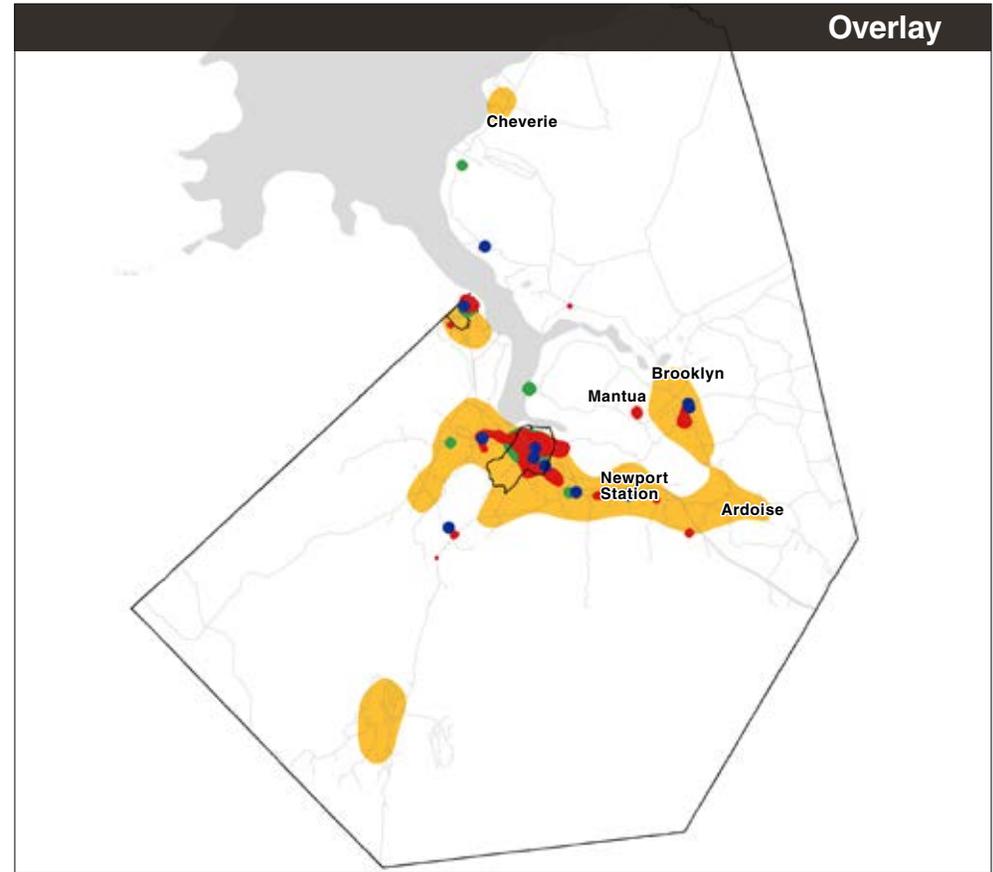
### 3.1 Network Approach

The diversity of land uses, development patterns and infrastructure in the Avon Region stipulates an approach to active transportation investment that clearly defines network hierarchies. The spatial pattern of origins and destinations which are conducive to recreational and utilitarian active transportation within the region must be defined. Destinations with cross-regional tourism potential must be utilized.

The majority of residential origins (**Live**) are concentrated within the Falmouth-Windsor-Three Mile Plains corridor. The other significant concentration of residences can be found in the Town of Hantsport. The Village of Brooklyn is a focal point for the surrounding countryside, albeit at much lower residential densities. Future growth is expected to occur within the growth centers of Three Mile Plains and Falmouth.

Utilitarian destinations (**Work**) are concentrated in Windsor and Hantsport and in smaller pockets around Brooklyn and Summerville. Recreational destinations (**Play**) are dispersed throughout the region with a noticeable concentration in the Town of Windsor. Perhaps the biggest opportunity for leaving a long-lasting impact in influencing attitudes towards active transportation, lays in the provision of safe cycling and walking routes around schools. School locations (**Learn**) need to be integrated into adjacent active transportation networks or should be provided with their own local school catchment area facilities.

An **Overlay** of origin and destination patterns creates a clear picture: a need for utilitarian active transportation connections within the Windsor area, Hantsport and Brooklyn, and a need for regional connections between these areas and beyond.



## 3.2 Network Opportunities

The Avon Region can capitalize on a number of opportunities that can accelerate the creation of a comprehensive region-wide Active Transportation Network.

The promotion of cycling tourism has gained previously unseen momentum through a serious efforts by the Province of Nova Scotia to establish the **Blue Route**, a province-wide recreational cycling network. Current Blue Route draft corridors traverse the Avon Region and should be integrated with the Regional Active Transportation Network.

Closely linked to the Blue Route are other provincial efforts to improve active transportation facilities through coordination by the Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR). Policies like the *Trail Policy* and *Paved Shoulder Width for Active Transportation Policy* enable improvements for walking and cycling. A particularly important opportunity is the **Nova Scotia 5-Year Highway Improvement Plan**, which should be monitored and utilized by the three Avon Region municipalities to request the addition of paved shoulders to provincial roads when road repaving is underway.

The currently inactive rail lines owned by the Windsor to Hantsport Rail Company present another major opportunity to establish key connections within a region-wide Active Transportation

Network. **Rails-with-Trails** are remarkable facilities for both utilitarian and recreational active transportation and should be strategically integrated into the network in areas where road conditions are either inconvenient or unsafe. The owners of the rail line recognize the community benefits associated with rails-with-trails and have expressed their openness to negotiate lease agreements for trails within the rail line right-of-ways.

**Existing trails** are another important asset on which the Active Transportation Network should be built. Not all of these trails are suitable for integration into the network, however they should be considered valuable existing resources and should, where ever possible, become part of the regional network.

### 3.3 Network Hierarchy

A clear network hierarchy can differentiate individual routes by their purpose. A hierarchy is not meant to prioritize one trail over another, rather a route hierarchy can create a clear structure with individual route types designed for their respective function within the network. The Avon Region Active Transportation Network contains the following three route types: a regional network, a series of local networks and a number of recreational trails.

#### Regional Routes

Regional routes provide the overarching hierarchy for active transportation infrastructure in the Avon Region. They form the “spine” of the Avon Region Active Transportation Network and consist of cycling routes that connect communities to each other and to neighbouring municipalities. Regional routes extend over long distances and will encourage recreational cycling and promote tourism development opportunities emerging from initiatives such as the Blue Route.

When fully developed, the regional routes will become the “100-Series highways” of cycling. In the meantime, defining these routes will enable focused investment in strategic locations that will ultimately connect and tie together an entire region-spanning active transportation network. Shortcomings in cycling facilities in the mid-term will not deter experienced cyclists and long-distance bike riders from using the regional spines, as long as they are clearly marked and promoted.

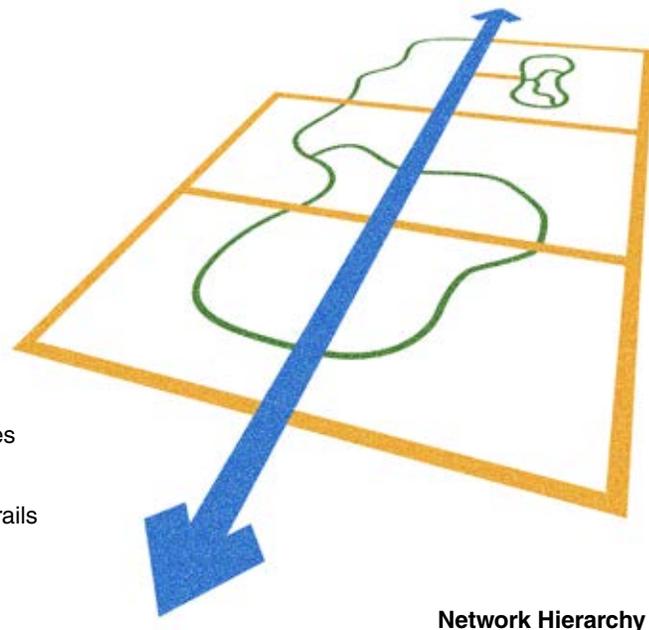
Regional routes consist of both on-road and off-road facilities (see Design chapter for more information). Each route connects through the commercial centers of communities along the route, thus facilitating local economic development opportunities arising from increased recreational visitation.

#### Local Routes

Local active transportation routes are primarily intended for utilitarian and destination oriented self-propelled travel within a few denser communities. In some instances, these local networks utilize existing recreational trails and integrate them into the overall network in a way that makes them also function as convenient choices for walking or cycling between utilitarian destinations.

#### Recreational Trails

A series of recreational trails can be found dispersed throughout the Avon Region. Building on the foundation laid by the West Hants Trails Inventory (Cobequid Trails Consulting, 2013), the proposed Regional Active Transportation Network integrates, wherever possible, existing trails and those being developed by community groups.



### 3.4 Route Descriptions

#### Proposed Regional Routes

The **Windsor - Halifax** route travels from downtown Windsor via Gerrish Street and links onto a new trail next to the Windsor-Hantsport Railroad beginning at Wentworth Road. At Garlands Crossing, the route leaves the rail bed and follows Trunk 1 through Three Mile Plains, St. Croix, Newport Corner and Ardoise to the border with East Hants. Alternatively, the route could follow the rail bed if leasing the entire trail right-of-way is financially feasible.

The **Windsor - Wolfville** route travels from downtown Windsor via the existing causeway trail by Lake Pisiquid and continues along a new trail next to the Windsor-Hantsport Railroad before reaching an intersection at Trunk 1 north of Falmouth. From there, the route follows Trunk 1 to another rail crossing near Apple Tree Road. The new trail would provide a scenic and safe route into downtown Hantsport. The route jumps onto Main Street in Hantsport before relinking with the new rail trail

that would connect into Wolfville via Avonport along the coast. Alternatively, the route could provide a connection into Wolfville via Trunk 1 and Gaspereau River Road.

Bog Road is shown as an alternative route between Windsor and Wolfville, which could be used until the Rail Trail is built.

Similar to the Windsor - Halifax route, the **Windsor - Chester** route travels from downtown Windsor via Gerrish Street to a new railway trail beginning at Wentworth Road. At Windsor Elementary School, the route leaves the rail bed and connects via a short distance along Trunk 1 with Trunk 14. Passing through Martock, Smiths Corner and Vaughan, the route leaves the District of West Hants and connects into the District of Chester.

A new **Windsor - Brooklyn** route provides a more direct connection between the two communities by taking

advantage of the existing rail bed that runs along the southern bank of the St. Croix River. This route would provide a safe and highly scenic route between Windsor and Brooklyn (and also to the Avon Peninsula).

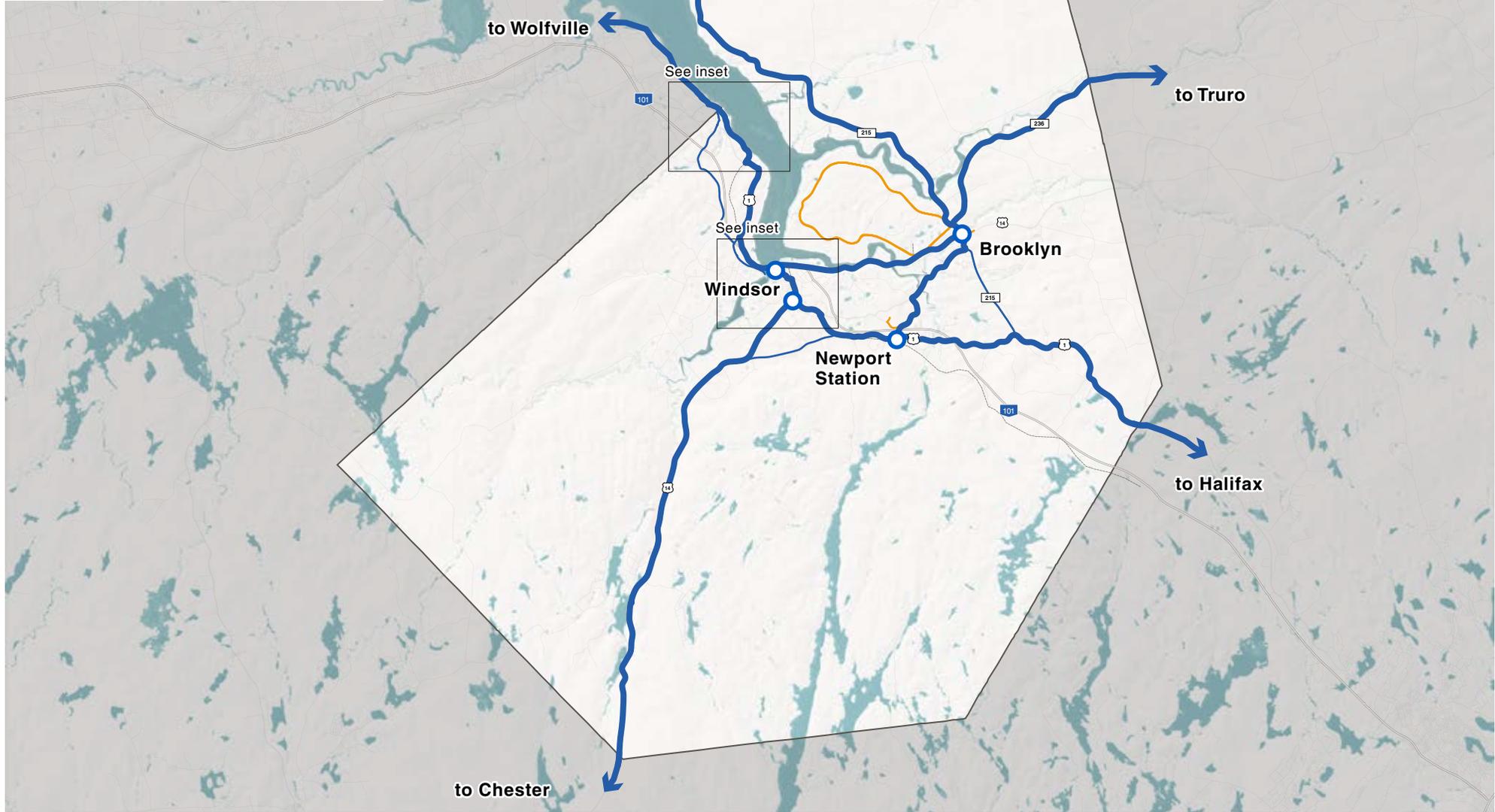
The **Brooklyn - Truro** route leaves Brooklyn along Trunk 14 before connecting onto Route 236. The route provides relatively low traffic volume for safer riding into East Hants and Truro.

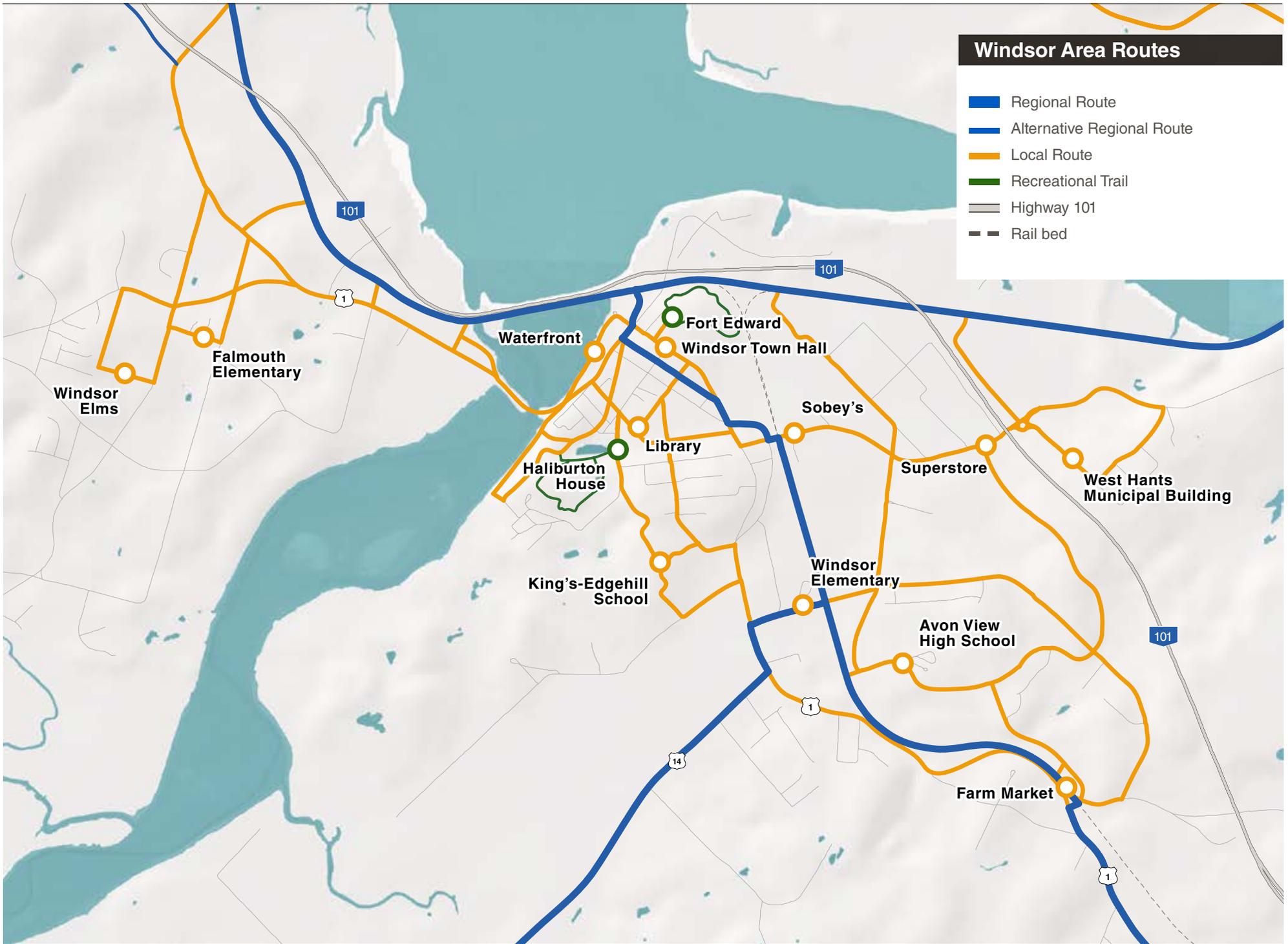
The **Brooklyn - Truro via Cobequid Bay** route is a more scenic route to Truro. The route runs along the Kennetcook River along Route 215, also known as Glooscap Trail, and follows the shoreline through the communities of Summerville and Cheverie into East Hants.

The **Brooklyn - Newport Station** connector is currently known as the safest existing route between Brooklyn and Windsor. It connects Brooklyn via Trunk 14 and Wentworth Road with Trunk 1 at Newport Station.

## Regional Routes

- █ Regional Route
- ▬ Alternative Regional Route
- █ Local Route
- ▬ Highway 101
- ▬ Rail bed





### Proposed Routes in the Windsor Area

The active transportation network in the Windsor area revolves around the central spine of the regional route along the rail bed. This route, when complete, will provide direct and safe connections within and beyond the Windsor area.

Surrounding these regional routes is a network of local routes that provide further connections to central business district and creates new connections where already existing trails can benefit from a better integration. These routes also enable safe walking and cycling between downtown Windsor, the commercial areas along Wentworth Road, the West Hants Education Centre, the hospital and Garlands Crossing. King's-Edgehill School and Windsor Elementary School are also connected to the network as are the Fort Edward National Historic Site, the Haliburton House Museum, the Windsor Community Centre and the Windsor Regional Library.

In Falmouth, local routes integrate Falmouth Elementary School, the Windsor Elms Village care home and a convenience store and formalizes some already existing informal trails.

At Garlands Crossing, local routes are closely aligned with the recommendations of the Garlands Crossing Transportation Study (Griffin, 2013). The primary objective of these routes are to

provide safe and enjoyable cycling and walking infrastructure that connects new residential development, with retail and commercial areas and the Avon View High School. A number of local routes connect into regional routes to allow for quick and easy access to Windsor.

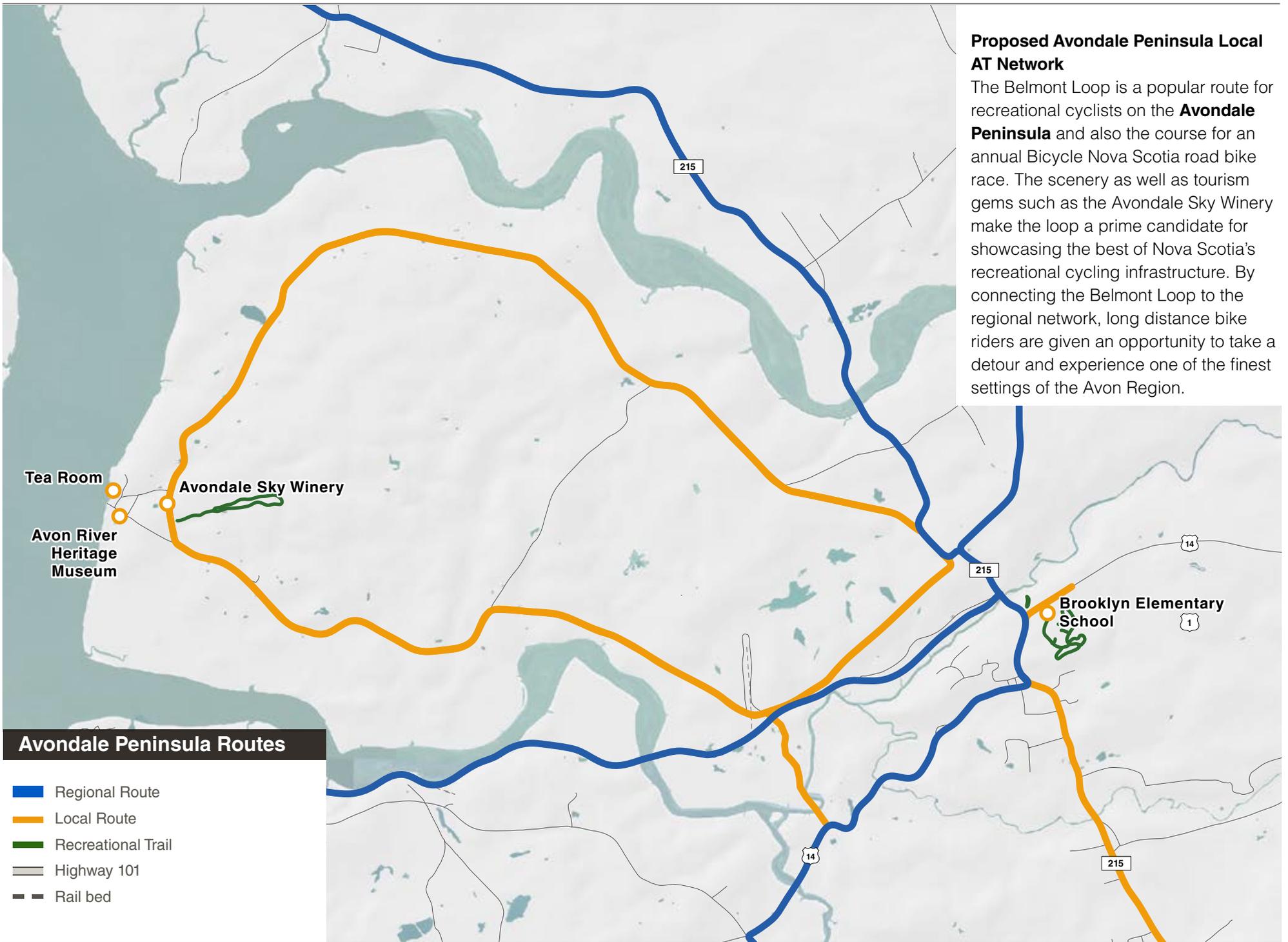
### Proposed Routes in Hantsport

In the Town of Hantsport, the local network expands on a trails initiative by the Town, which uses painted footprints to mark and promote a walking route through the Town. A recently developed trail connects the Tourist Bureau at Willow Street with the sports fields at the Hantsport Memorial Community Centre (HMCC) and continues onto Porters Avenue, Prince Street, Foundry Road, via Fundy Centennial Park and Avon Street. The proposed local network would complete the walking loop via Tannery Road and Main Street and connect Hantsport School to the active transportation system.



### Proposed Avondale Peninsula Local AT Network

The Belmont Loop is a popular route for recreational cyclists on the **Avondale Peninsula** and also the course for an annual Bicycle Nova Scotia road bike race. The scenery as well as tourism gems such as the Avondale Sky Winery make the loop a prime candidate for showcasing the best of Nova Scotia's recreational cycling infrastructure. By connecting the Belmont Loop to the regional network, long distance bike riders are given an opportunity to take a detour and experience one of the finest settings of the Avon Region.



### Avondale Peninsula Routes

- Regional Route
- Local Route
- Recreational Trail
- Highway 101
- Rail bed

## Integration of Recreational Trails

Recreational trails are dispersed throughout the Avon Region and are integrated, where ever possible, into the AT Network. The vast majority of trail are linked directly to the active transportation network, with the exception of trail at Smiley's Provincial Park.

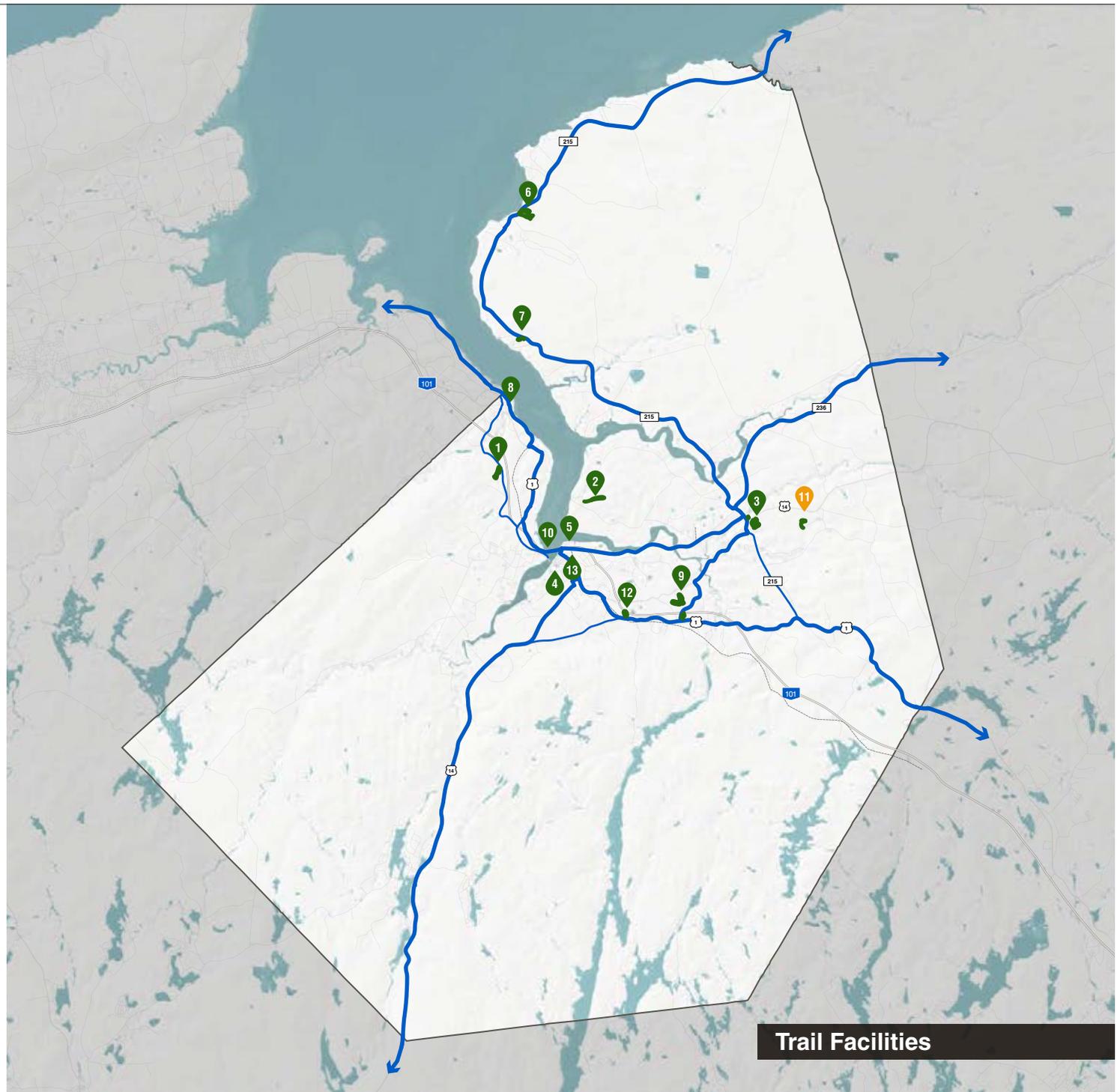
Trail development and maintenance of unconnected trails should nevertheless become part of the overall regional active transportation strategy. Work is underway to add more trails to the network throughout the region. For more information on these potential trails, read the West Hants Trail Inventory report.

### Directly Connected Trails:

- 1 Aikins Marsh Trail / Laurie Saulnier Memorial Trail
- 2 Avondale Trail
- 3 Brooklyn Elementary School Trail
- 4 Haliburton Trail
- 5 Shell Environmental Park
- 6 Cheverie Salt Marsh Restoration Trail
- 7 Dr. Arthur Hines Elementary School Trails
- 8 Hantsport Walking Trail
- 9 Irishman's Road Recreation Site
- 10 Lake Pisiquid Trail
- 12 Three Mile Plains Elementary School
- 13 Fort Edward Trail Loop

### Indirectly Connected Trails:

- 11 Smiley's Provincial Park Trail



# 4 Design



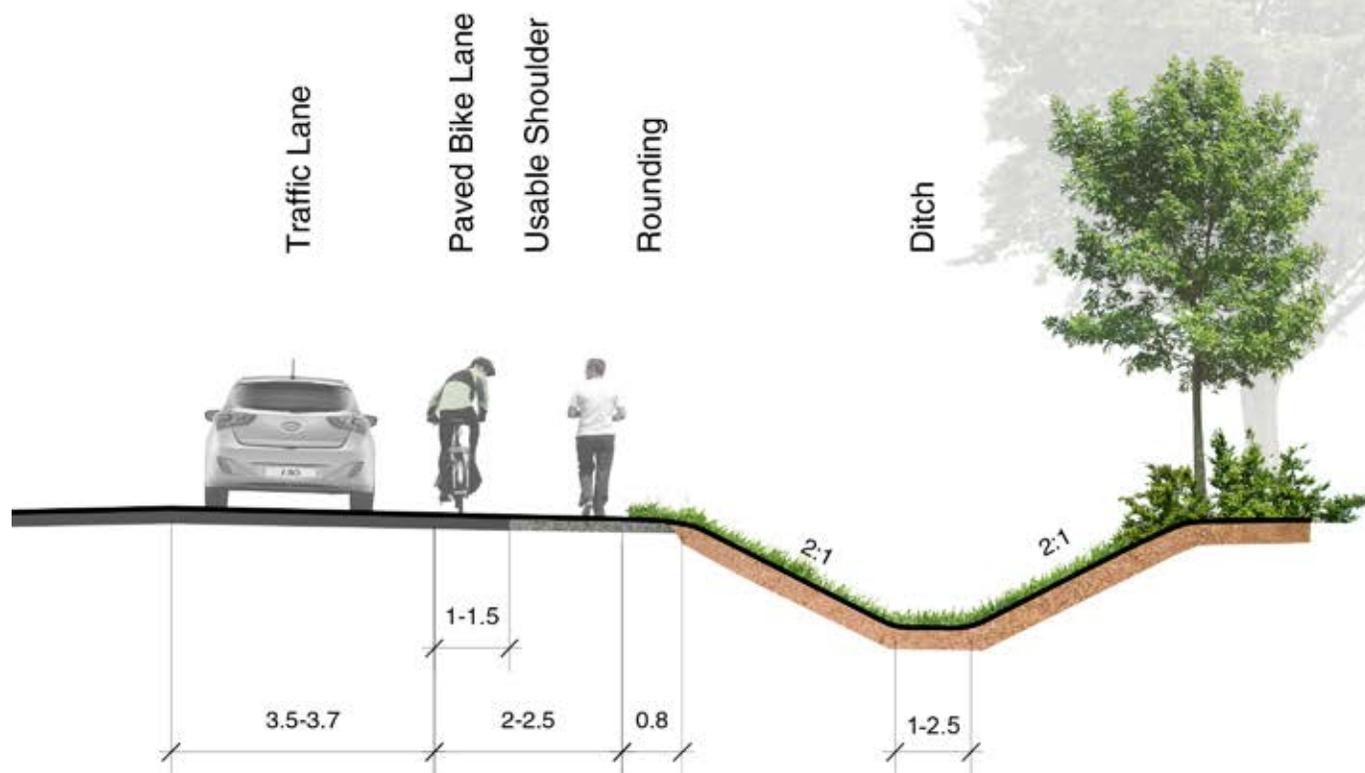
## 4.1 Cross Sections

The Avon Region features a wide variety of urban and rural road types. The following section provides technical design standards for all active transportation routes proposed in the network plan. Maps identifying which cross section applies to what route can be found at the end of this section.

The technical design standards are based on guidelines from the Nova Scotia Department of Infrastructure Renewal and the Velo Quebec Technical Guide for Pedestrian and Cycling Planning.

POSTED SPEED (km/h)	AADT <1000	PAVED SHOULDER WIDTH (m)			
		AADT 1000-2000		AADT >2000	
		NEW CONSTRUCTION/RECONSTRUCTION <sup>1</sup>	REPAVING <sup>2</sup>	NEW CONSTRUCTION/RECONSTRUCTION	REPAVING
50	NA	1.2	1.0	1.2	1.0
60-70	NA	1.2	1.0	1.5	1.0
80	NA	1.5	1.0	1.75	1.5 <sup>3</sup>

*Paved Shoulder Width for Active Transportation (Source: NSTIR, 2011)*



### Rural Arterial with Paved Shoulder

Paved shoulders on provincial Routes and Trunks should be the primary measure to improve cyclists' and pedestrians' safety in the Avon Region. These shoulders create a lane adjacent to automobiles in which cyclists travel in the same direction. Shoulders should be paved on both sides to avoid cyclists traveling against the flow of traffic. No parking signage should be installed to prevent parked cars from blocking the bike lane.

Usually provincial roads in Nova Scotia are ineligible for shoulder paving when the Annual Average Daily Traffic (AADT) is less than 1000 vehicles per day (vpd). However, provincial roads where the AADT is not greater than 1000 vpd maybe considered for paved shoulders where the section of a road is a known cycling route or part of an approved AT Plan. (Paved Shoulder Widths for Active Transportation Policy, NSTIR).

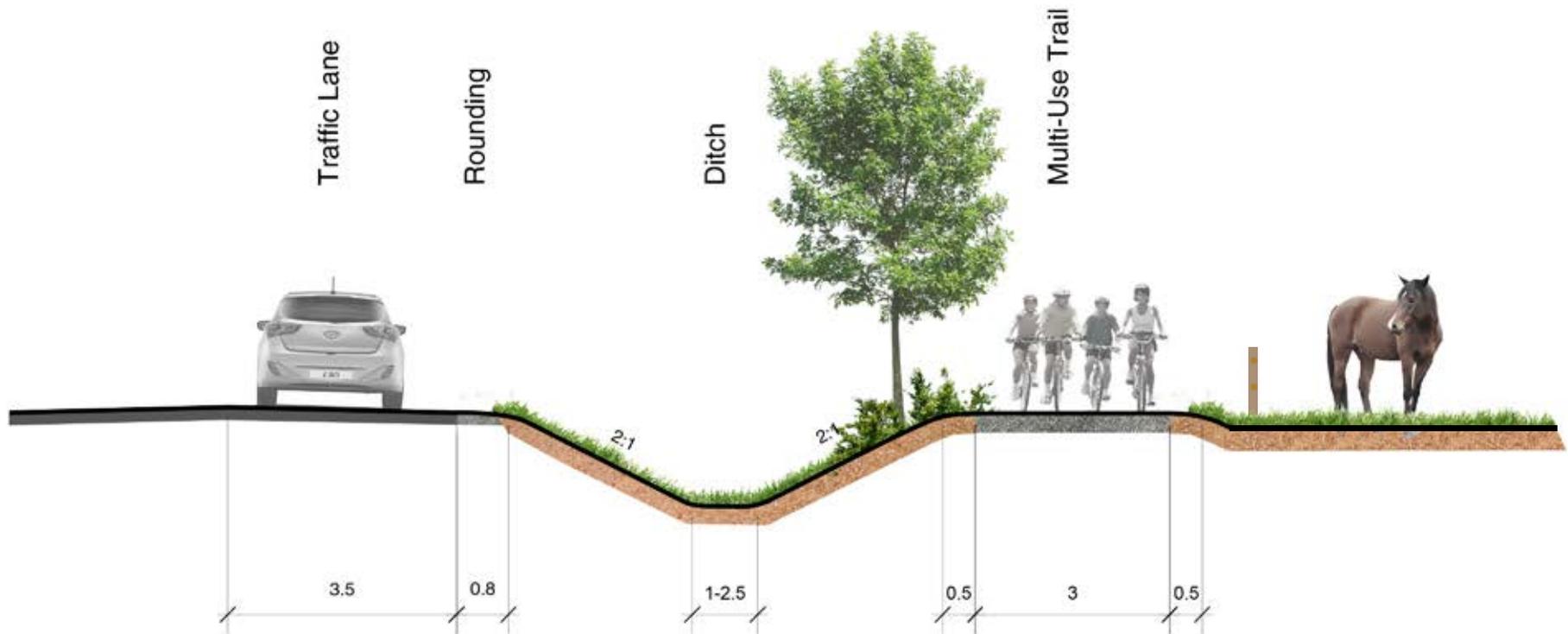
**Rural Arterial with Off-Road Multi-Use Trail**

Rural Arterials with Off-Road Multi-Use Trails are a longer term option for the provision of safe cycling infrastructure along rural roads. As often seen in countries with advanced cycling networks, these trails, which are offset from the roadbed, replace on-road cycling lanes and function as attractive tourism

cycling routes. Because these trails are typically outside the public road right-of-way, their implementation requires either property acquisitions or easements on private property.

Even though this Plan does not prescribe routes for Rural Arterials with

Off-Road Multi-Use Trails, this route type should be considered as an option for the mid to long term future, as it provides a superior cycling experience (and tourism marketing feature) regardless of traffic volumes.



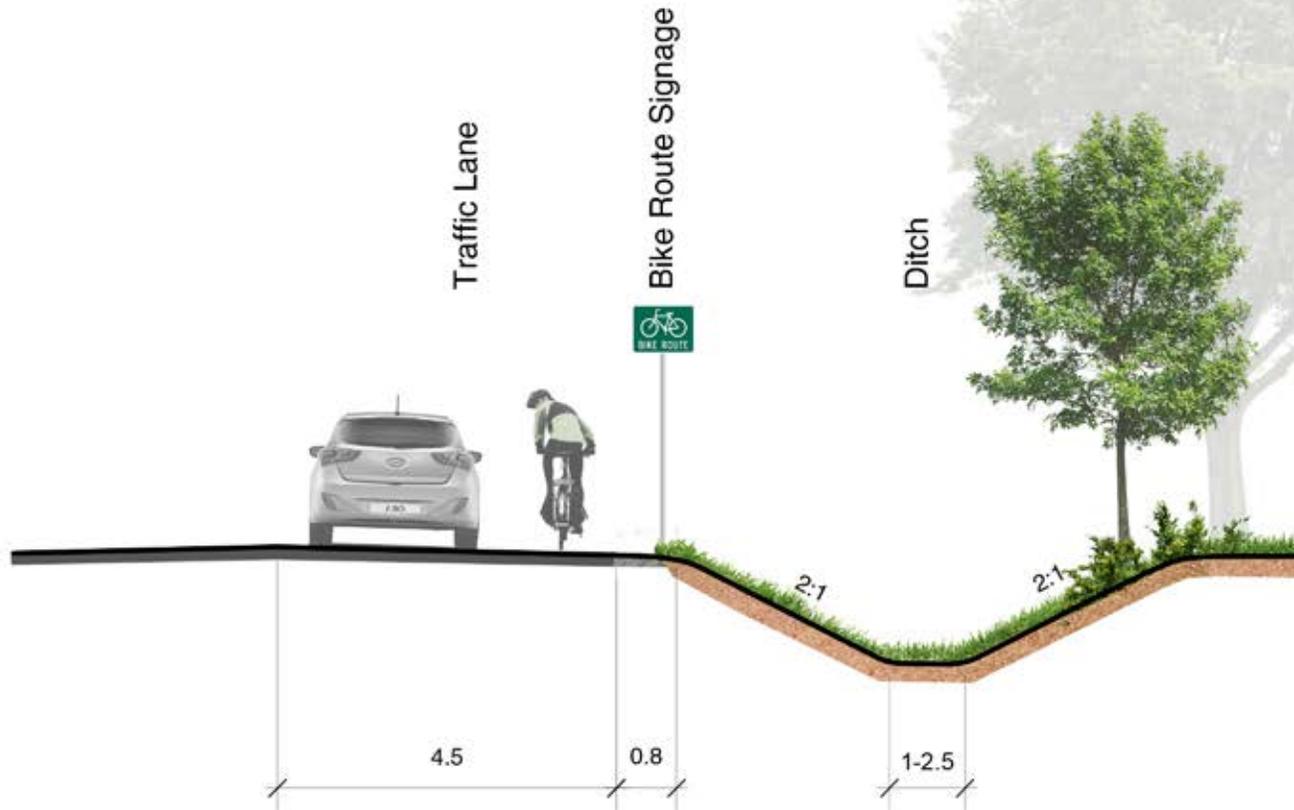
**Rural Connector with Signed Bike Route**

A number of rural roads connecting communities in the Avon Region have relatively low vehicular traffic and are therefore popular with local cyclists (e.g. Bog Road). These Rural Connector roads should be designated as signed

bike routes. Signed Routes are shared roadways suitable for roads with light automobile traffic of up to 1000 vehicles per day in rural areas. Share the Road signage should be installed.



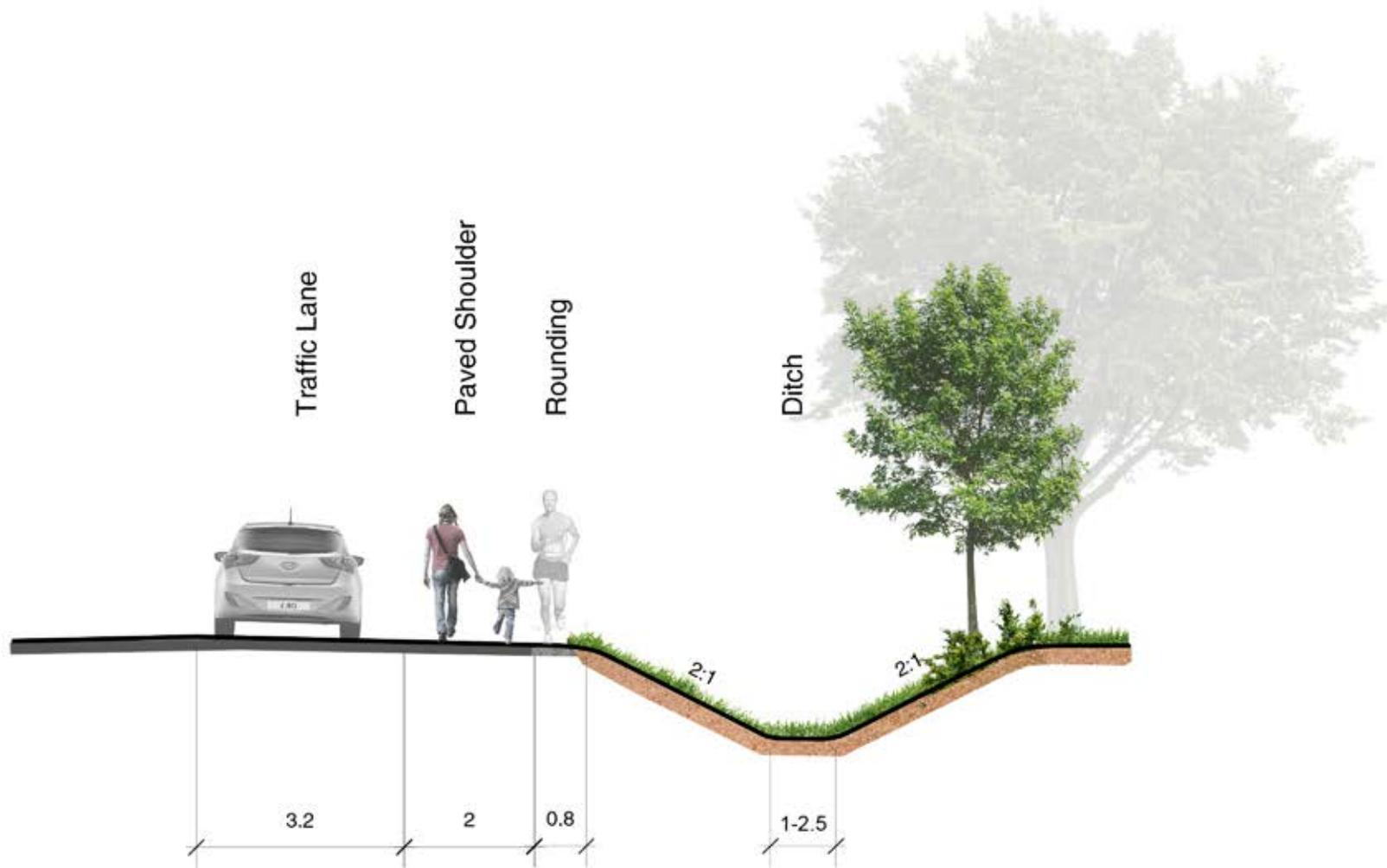
Signed Route Pavement Marking



## Rural Local with Paved Shoulder

Similar to Rural Arterials, local roads in rural areas should have a paved shoulder in areas with proven or foreseeable demand for active transportation usage. Unlike shoulders on Rural Arterials,

shoulders on Rural Local roads are paved across the entire shoulder width to allow an informal sharing between cyclists, runners, pedestrians and other active transportation user groups.

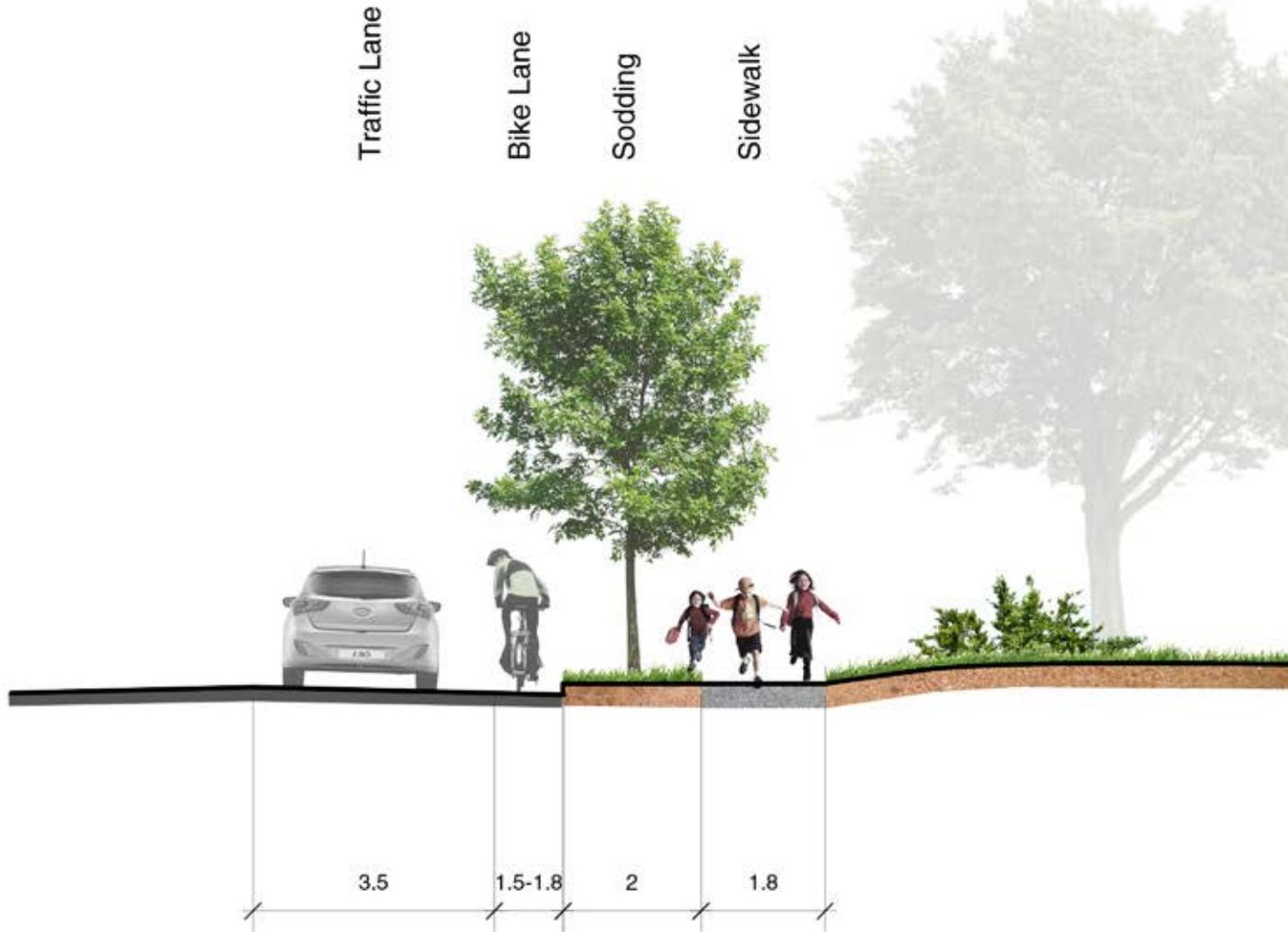


**Urban Collector with Bike Lane,  
Curb and Sidewalk**

Collector roads in the urban areas of the Town of Windsor which are identified in the active transportation route plan, should be equipped with a bike lane. Bike lanes are reserved parts of the road bed to the right of vehicular traffic.

Preferably, the speed limit on these collector roads should be 50 km/h but can be greater when the bike lane width is increased to 1.8 meters. Bike lanes should never be bi-directional unless they are separated by barriers from

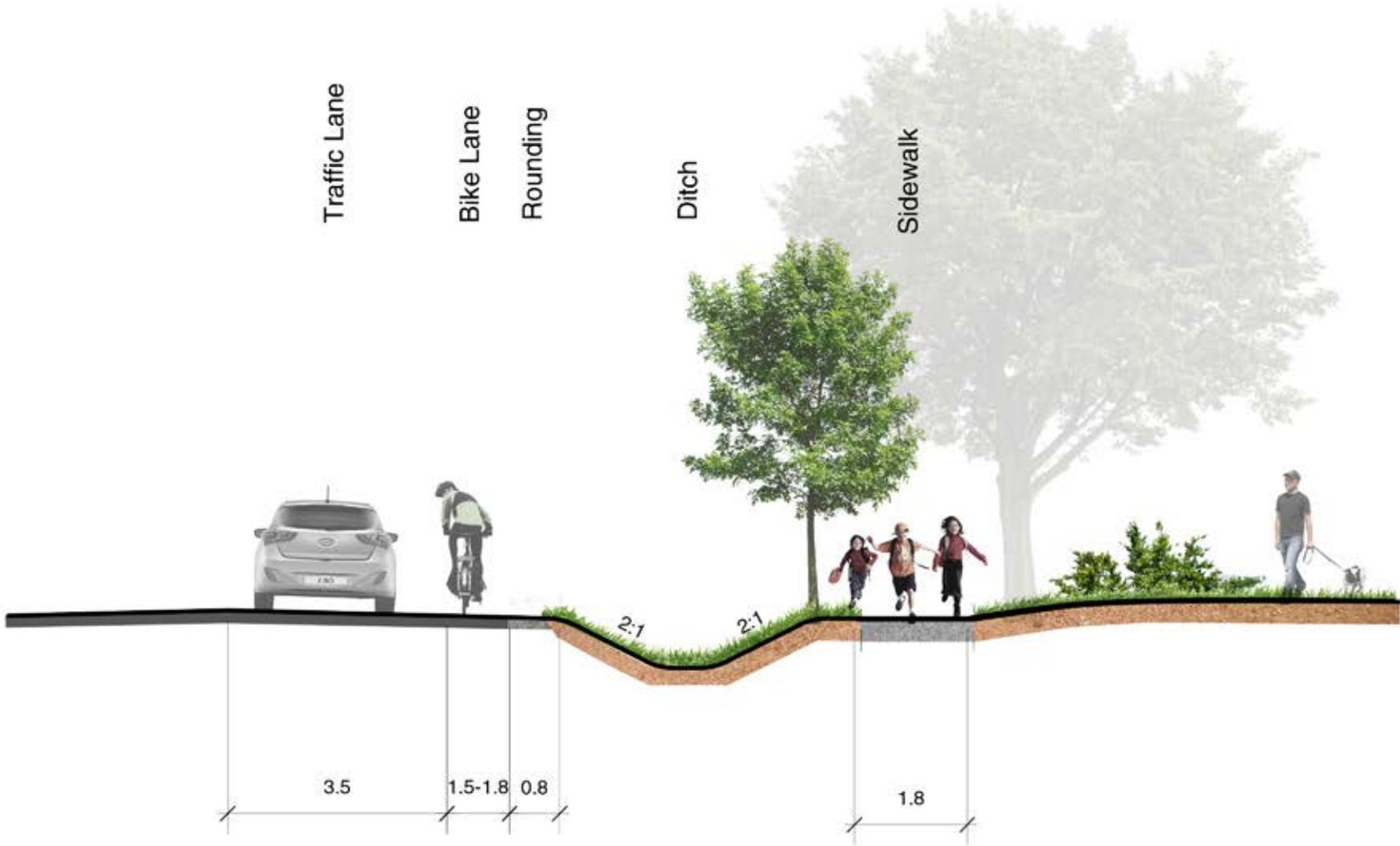
automobile travel lanes. Bike lanes can be either marked by a lane line or by colored pavement surface. On Urban Collectors with bike lanes, on-street parking should not be permitted.



**Urban Collector with Bike Lane,  
Ditch and Sidewalk**

Some Urban Collectors in the Town of Windsor are not curbed. Stormwater runoff is collected in a ditch between the roadbed and the sidewalk. In order to improve cycling safety along these roads, paved shoulders should be added when repaving occurs.

New Urban Collector roads planned for Garlands Crossing and other growth areas should be designed with bike lanes and sidewalks.



**Urban Local with Curb, Sidewalk and Signed Bike Route**

Signed routes are shared roadways suitable for roads with light automobile traffic of up to 3000 vehicles per day in urban areas and 1000 vehicles per

day in rural areas . Maximum allowable speeds should be 50 km/h. Share the Road signage should be installed.



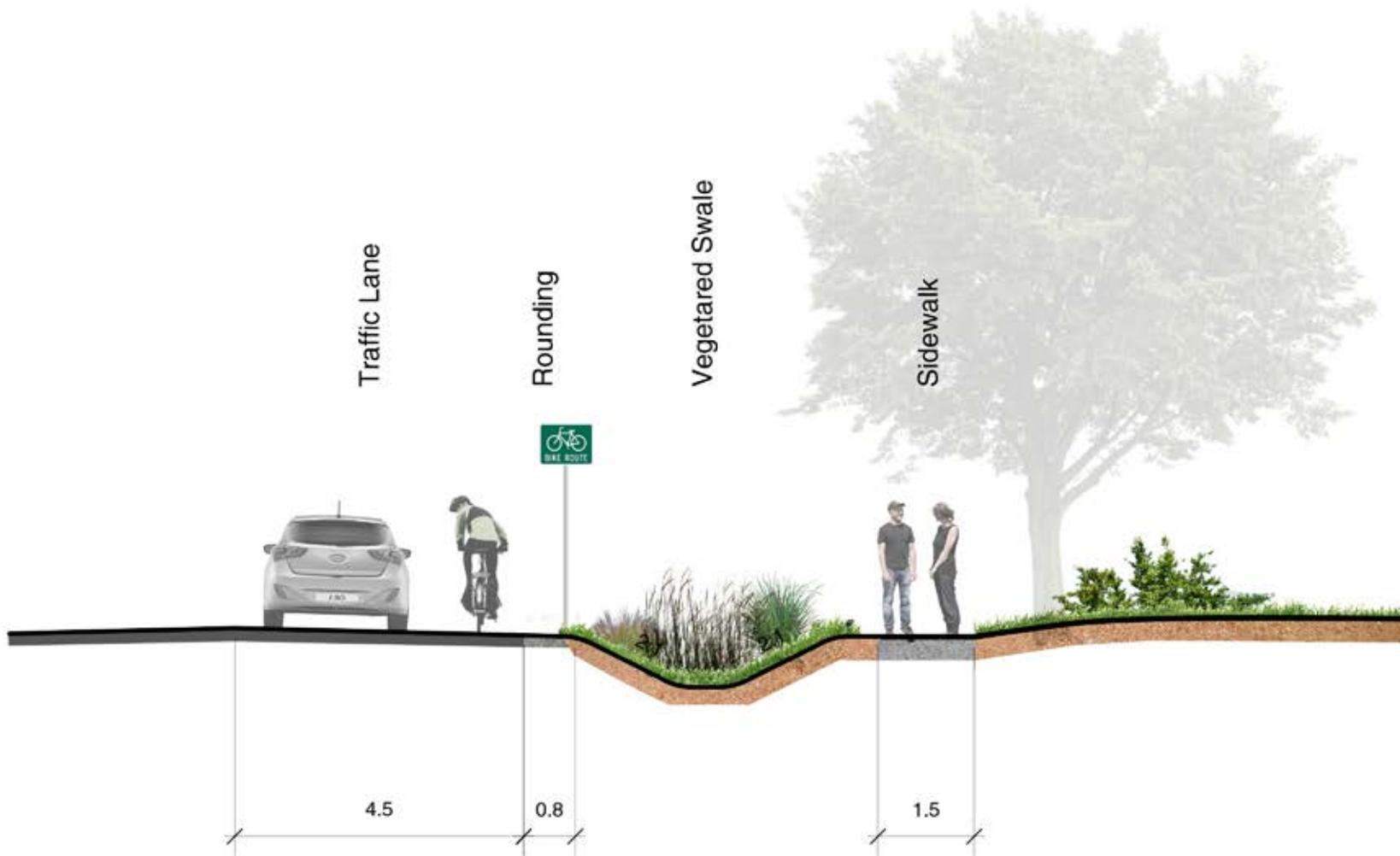
## Urban Local with Vegetated Swale, Sidewalk and Signed Bike Route

New local roads in growth areas could potentially feature vegetated swales instead of curbs. Roadways would function as signed routes and sidewalks would be offset from the road. Vegetated swales create visually interesting streetscapes and typically have several advantages over conventional storm water management practice, such as

storm sewer systems, including the reduction of peak flows, the removal of pollutants, runoff infiltration, and lower capital costs.

A vegetated swale is a broad, shallow channel with a dense stand of vegetation covering the side slopes and bottom. Vegetated swales can serve as

part of a storm water drainage system and can replace curbs, gutters and storm sewer systems. Vegetated swales can be used wherever the local climate and soils permit the establishment and maintenance of a dense vegetative cover. Vegetated swales are easy to design and can be incorporated into a site drainage plan.

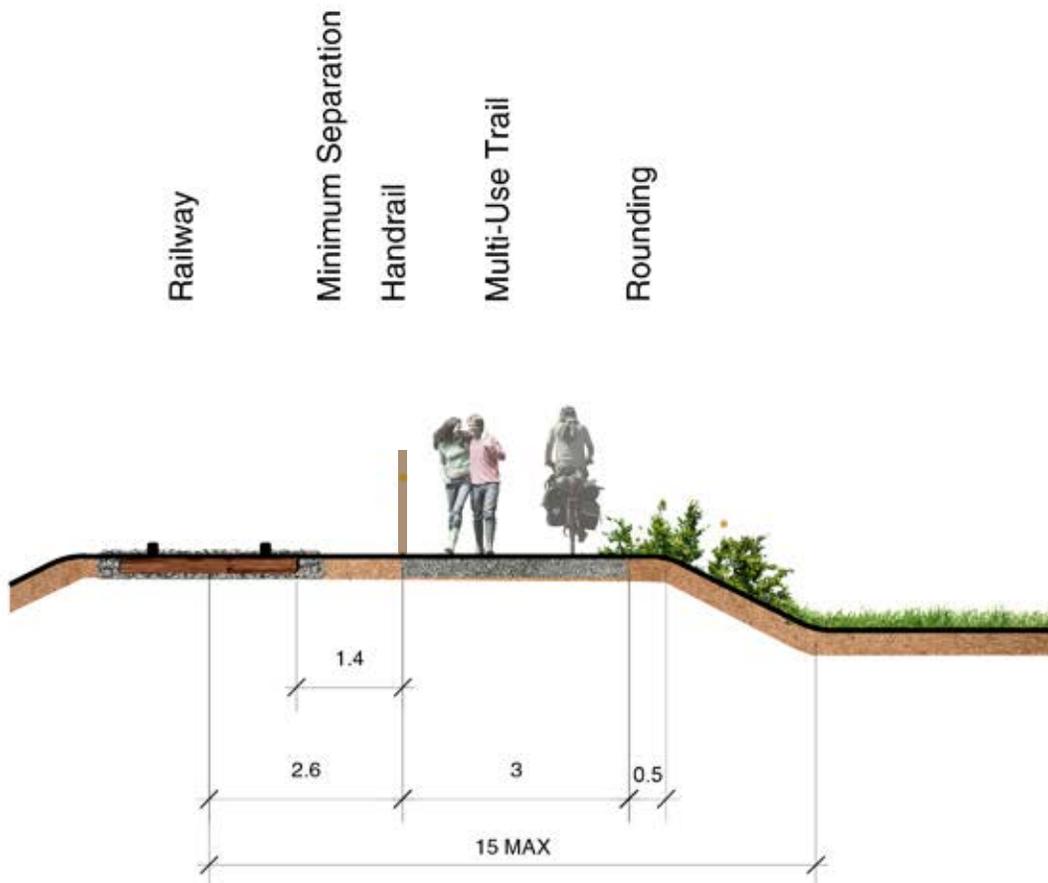


## Rail with Trail

Rails with Trails present a unique opportunity to utilize currently unused right of ways traversing through the heart of several communities. Because of long term ownership interests, trails cannot be constructed on the rail bed

until a lease agreement with the rail line owners is negotiated - similar to what has occurred recently in Kings County, where the 30 metre wide rail right-of-way allows for construction of comfortable multi-use trails. In some instances

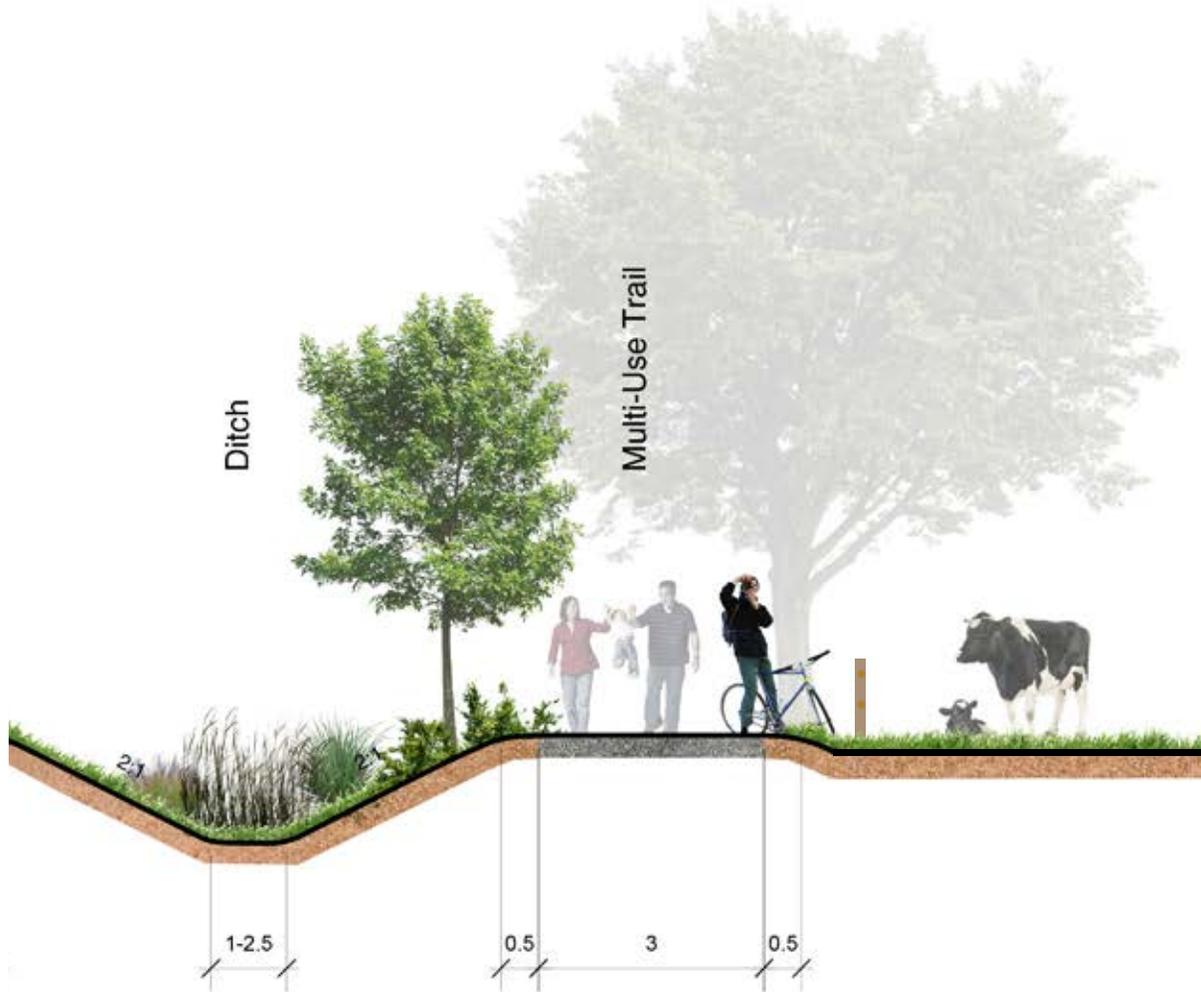
the grading of the existing rail corridor cross section may prove challenging but not insurmountable for the construction of the trail.



## Multi-Use Trail

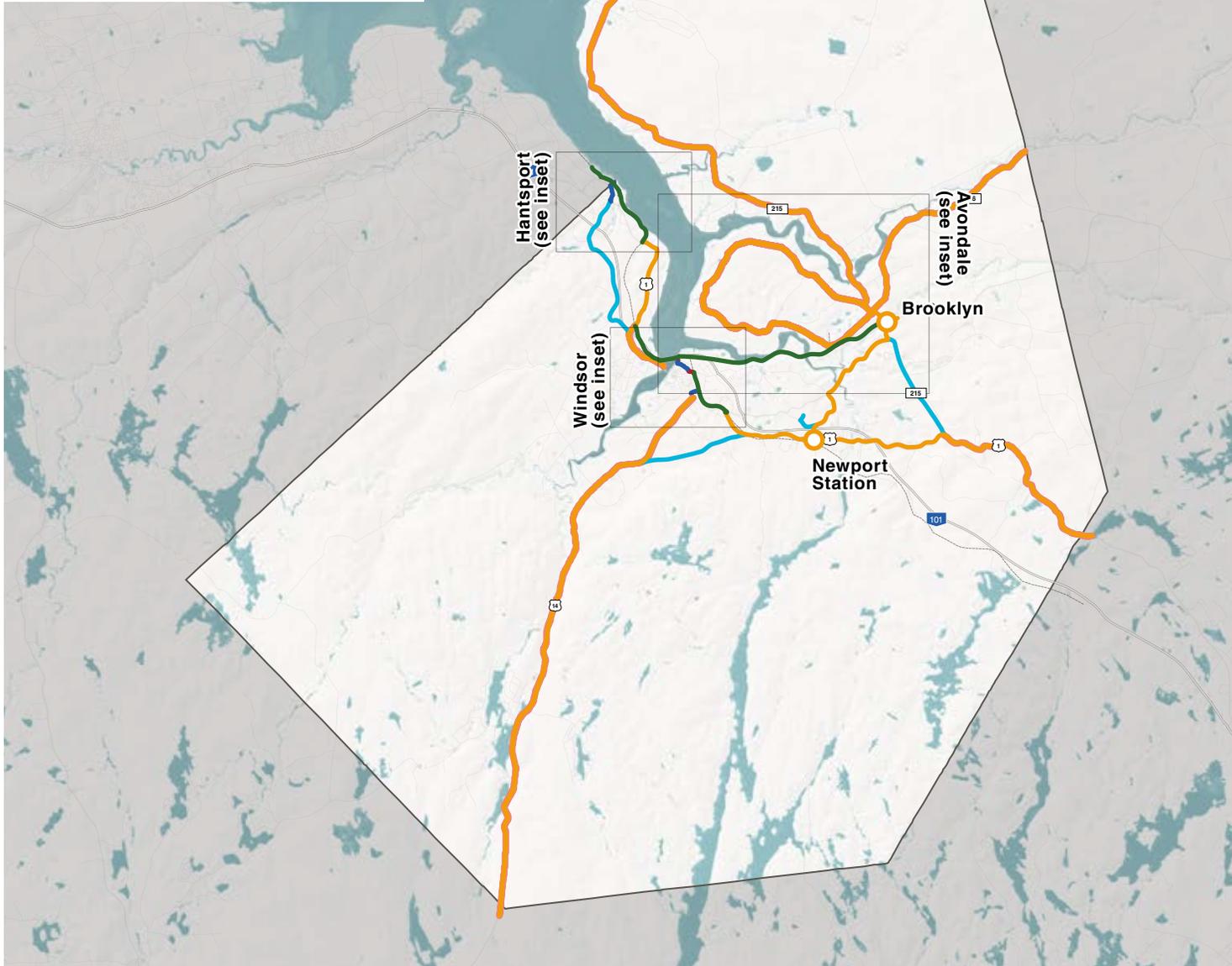
Multi-Use Trails can accommodate a variety of active transportation users, either at the same time or seasonally. Primarily used by pedestrians and cyclists in the summer, they can accommodate cross country skiers, snowshoers, snowmobilers and ATV drivers in the winter.

Cyclists and pedestrians can usually share these trails without conflict, however if the number of users grow, the trail width should be increased to 4.0 m and pedestrian and bike paths should be separated by a line.



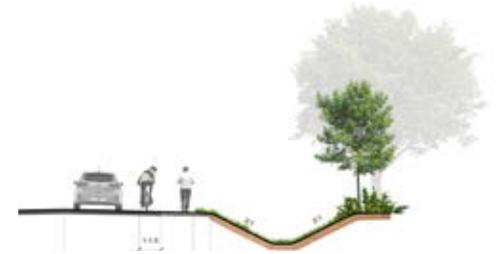
## Route Types

- Rail with Trail
- Rural Collector with Signed Route
- Rural Arterial with Paved Shoulder



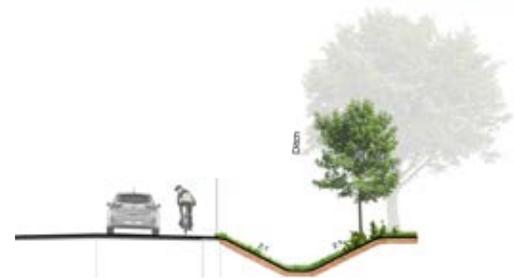
### Cross section

Rural Arterial with Paved Shoulder



### Cross section

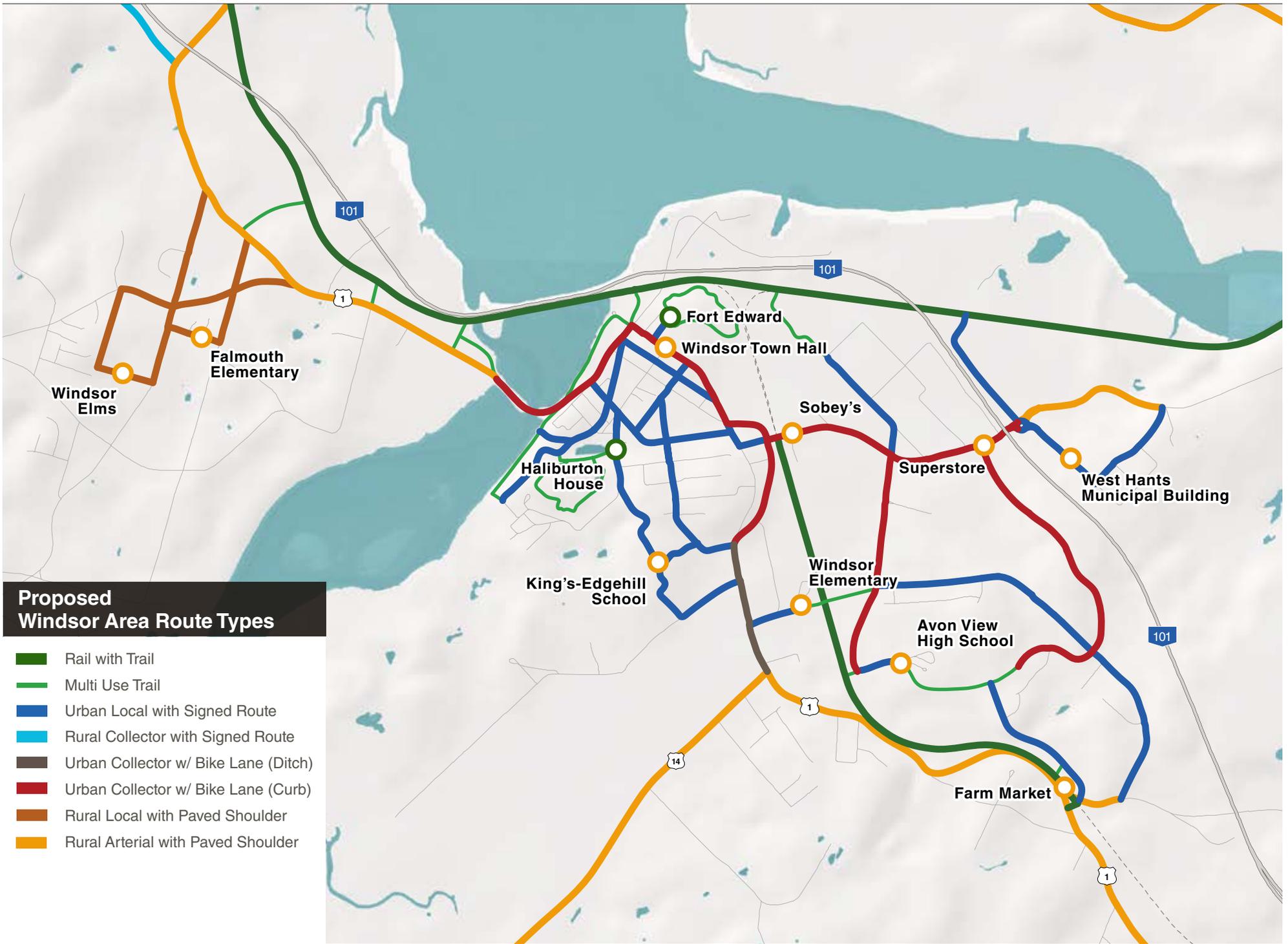
Rural Collector with Signed Route



### Cross section

Rails with Trails





**Proposed Windsor Area Route Types**

- Rail with Trail
- Multi Use Trail
- Urban Local with Signed Route
- Rural Collector with Signed Route
- Urban Collector w/ Bike Lane (Ditch)
- Urban Collector w/ Bike Lane (Curb)
- Rural Local with Paved Shoulder
- Rural Arterial with Paved Shoulder

**Cross section**

Rural Local with Paved Shoulder



**Cross section**

Urban Collector w/ Bike Lane (Curb)



**Cross section**

Multi Use Trail



**Cross section**

Urban Collector w/ Bike Lane (Ditch)



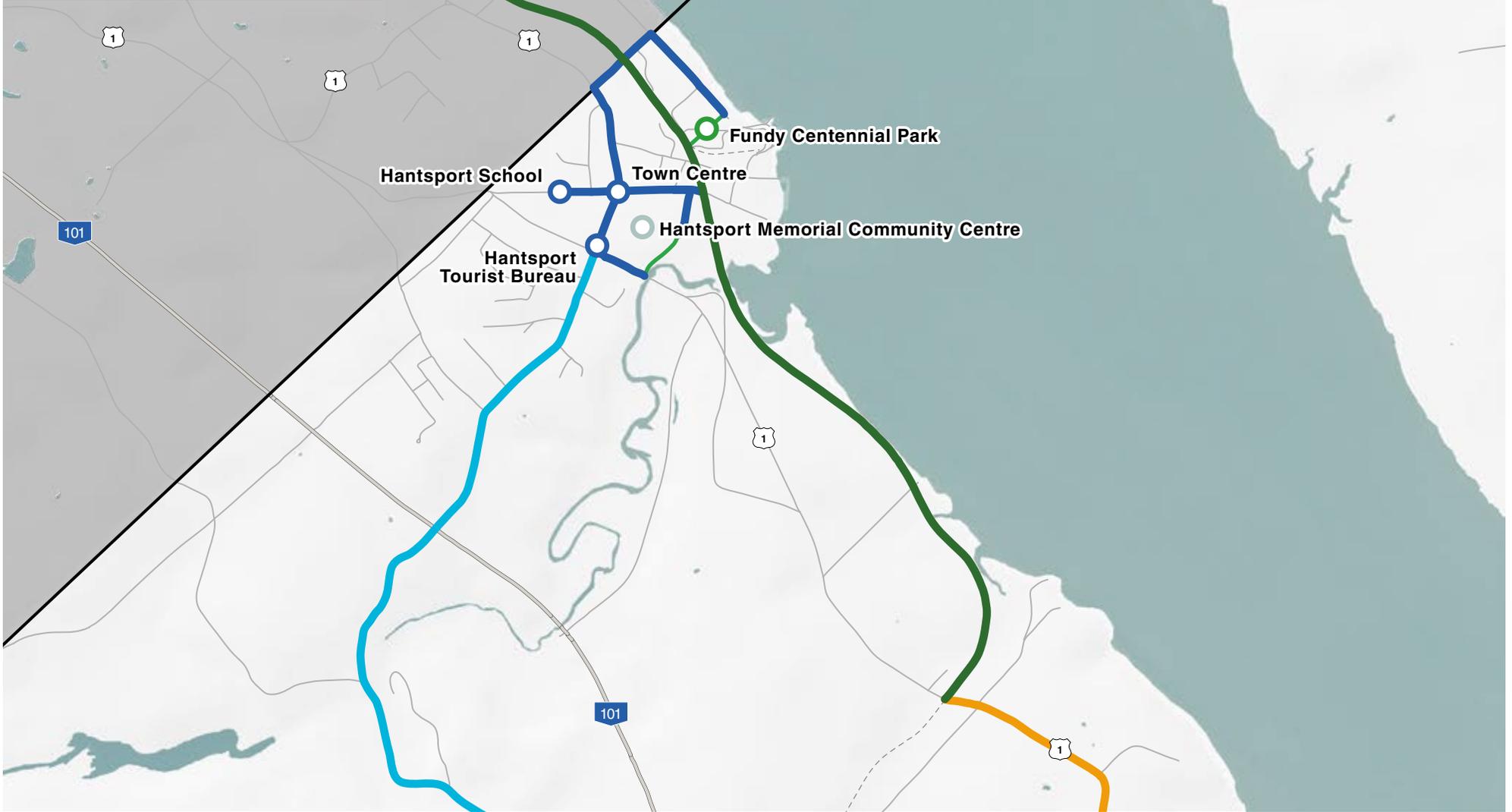
**Cross section**

Urban Local with Signed Route



## Proposed Hantsport Area Route Types

-  Rail with Trail
-  Multi Use Trail
-  Urban Local with Signed Route
-  Rural Collector with Signed Route
-  Rural Arterial with Paved Shoulder





**Proposed  
Avondale Peninsula Route Types**

- Rail with Trail
- Multi Use Trail
- Rural Collector with Signed Route
- Rural Arterial with Paved Shoulder

## 4.2 Intersection Improvements

During the consultation sessions, a number of intersections were repeatedly identified for their unsafe conditions, particularly for AT users.

### Junction of Trunk 14 and Route 215 in Brooklyn

The intersection alignment at Trunk 14 and Route 215 has several issues for all road users. While traveling northbound on Highway 14, the road forks off in two directions by the Petro Canada in

Brooklyn. The road forks to the north-east where it continues on as Trunk 14 to Truro, and also splits off to the northwest as Route 215 to Summerville and Cheverie. Officially, road users on Trunk 14 have the right-of-way, however, the wide corners, a lack of signage and faded road markings have resulted in confusion as to who has the right-of-way. Quite often, vehicles turn onto Route 215 assuming they have the right-of-way without realizing oncoming

traffic from Trunk 14 could result in a serious collision. High vehicular speeds due to the generous turning radii combined with the lack of marked pedestrian crossings compound the high risk for pedestrians and cyclist.

NSTIR is currently reviewing this intersection to determine a suitable upgrade/improvement solution.

Trunk 14 / Route 215



### **Junction of Trunk 14 and Trunk 1 at Garlands Crossing**

High traffic volumes and speed limits, and the lack of access control to several businesses along Trunk 1 all contribute to safety issues near Garlands Crossing. The overabundance of driveways along a busy right-of-way creates many potential conflict points and free flowing traffic, which is a particularly daunting environment for vulnerable active transportation users.

The AT Network identifies Trunk 1 as a regional route until it reaches a crosswalk just before the intersection at Trunk 14. At this crosswalk, the regional route switches onto a new AT trail along the former railbed, which runs parallel to Trunk 1. From here, AT users can safely and conveniently get to Windsor and other destinations. A new crosswalk across Trunk 14 would allow AT users to safely cross the busy highway.

Finally, improved access control to the businesses along Trunk 1 would reduce potential conflict points and help create a more safe environment for AT users who travel along the roadway instead of the railbed trail.

**Trunk 14 / Trunk 1**





### 4.3 Wayfinding

#### The Need for Wayfinding

A well designed wayfinding system can make navigating and locating facilities/amenities more easy and convenient for active transportation users, particularly for those who are not familiar with the area or aware of existing facilities. Signage can also be a useful platform to indicate rules and regulations of parks and/or trail networks.

The Avon Region has a handful of trail facilities that are not used as much as they could be because visitors and even residents are not aware of their existence. The need for signage and wayfinding was repeatedly identified to improve the navigability and sense of safety.

A new signage system for Avon Region trails would result in several benefits, such as:

- An improved awareness of underexposed trail facilities by installing

- off-site directional signs;
- Improved internal navigability for trail users;
- Improved linkages between trail or park facilities and adjacent community amenities; and
- Improved sense of arrival for AT users and visitors by installing trailhead or park signs at entrances to AT facilities.

#### Proposed Wayfinding Concept

The following wayfinding concept recommends signposts that will be predominantly placed within trail networks and parks, i.e.; not within the road right-of-way. The road network already features an abundance of directional and regulatory signs accommodating motorists, which can in some areas result in sign clutter.

If another directional signage regime for just AT users is introduced into the right-of-way it will compound sign pollu-

tion issues, which would be a negative environment for all road users.

Nevertheless, there are conditions where on-road directional and regulatory signage are necessary, such as at confusing or important decision-making points, areas with unique safety conditions (such as school zones, trail crossings, etc), and where signage would direct AT users to underexposed trails or parks. Bicycle Nova Scotia is also currently working with NSTIR to develop on-road route markers along the Blue Route.

Recognizing these needs and issues, the following family of themed signs have been developed for the Avon Region Active Transportation Network:

- Trail Markers;
- Entrance Signs;
- Trail Directional Sign Posts; and
- Off-Site Directional Sign Posts.

## Brand

All signs feature a similar theme or aesthetic that revolves around a concept brand or logo for the AT Network. The purpose of incorporating a brand or identity into the signage is to build on and improve region-wide recognition amongst AT trail users.

The “Active Avon” brand is a simple, succinct description of the network. The Active Avon wordmark is highly legible and recognizable, and can be displayed in a two-tone green, or in white when displayed on a dark background. If another brand or logo is preferred by the Avon Region AT Committee, it can easily replace the concept brand and be incorporated into the signage.



## Typeface

Sign messaging is displayed in the typeface DIN Pro, which is frequently used in directional signage due to its high legibility.

### DIN Pro

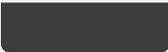
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
1234567890



## Colours

The wayfinding concept utilizes universal colour coding for different sign messaging. Similar to Parks Canada and most standardized signage systems, red is used for prohibition or warning signs, blue is used for conveying information messages, green is used for directional or identification messages, and black is used to indicate a mandatory rule for obligatory action.

Occasionally, a two-tone colour palette is employed when messaging and pictograms are both required on a sign panel.

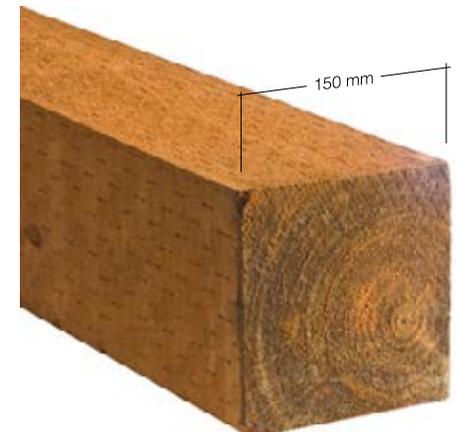
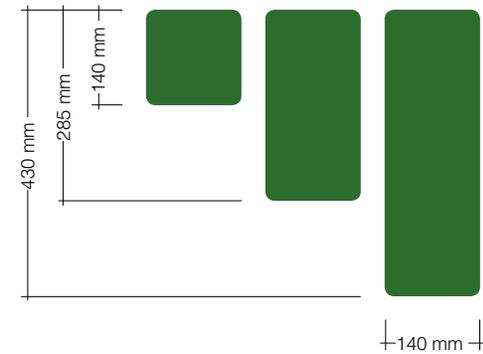
	<b>Guidance and Information</b>
	<b>C:</b> 0% <b>M:</b> 30% <b>Y:</b> 0% <b>K:</b> 20%
	<b>C:</b> 90% <b>M:</b> 60% <b>Y:</b> 25% <b>K:</b> 10%
	<b>Prohibition and Warning</b>
	<b>C:</b> 0% <b>M:</b> 100% <b>Y:</b> 65% <b>K:</b> 15%
	<b>C:</b> 15% <b>M:</b> 90% <b>Y:</b> 65% <b>K:</b> 5%
	<b>Directional and Identification</b>
	<b>C:</b> 60% <b>M:</b> 0% <b>Y:</b> 55% <b>K:</b> 80%
	<b>C:</b> 80% <b>M:</b> 0% <b>Y:</b> 90% <b>K:</b> 0%
	<b>Mandatory</b>
	<b>C:</b> 0% <b>M:</b> 0% <b>Y:</b> 0% <b>K:</b> 100%
	<b>C:</b> 70% <b>M:</b> 60% <b>Y:</b> 50% <b>K:</b> 60%

## Post Layout

The majority of sign panels are to be affixed to 6x6 posts (150 mm by 150 mm) of various heights. Three sign panels are derived from a 140 mm grid (with a 5mm gutter) and feature a uniform width of 140 mm to fit within the 6x6 post.

The three different sign panels are:

- single pane sign panel (140 mm high)
- double pane sign panel (285 mm high)
- triple pane sign panel (430 mm high)



**Example Single Pane Sign  
Panels with Pictograms**



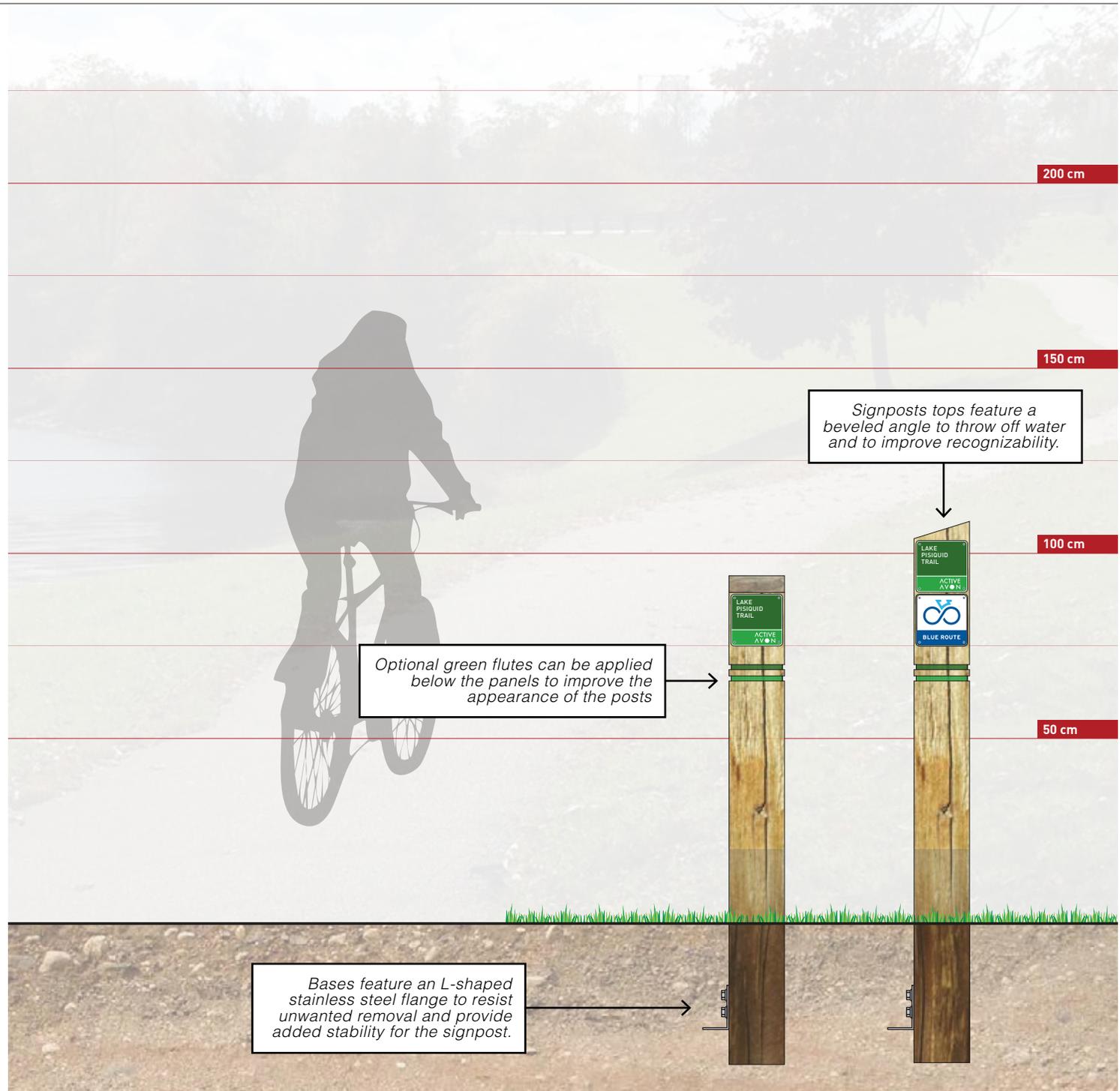
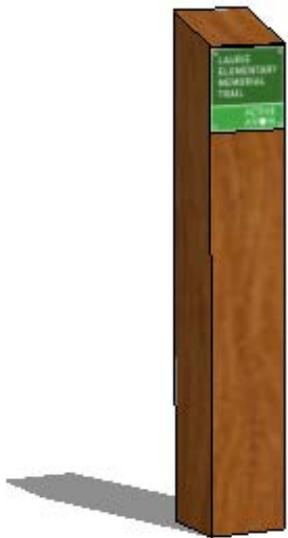
Sample Sign Panel (actual size)



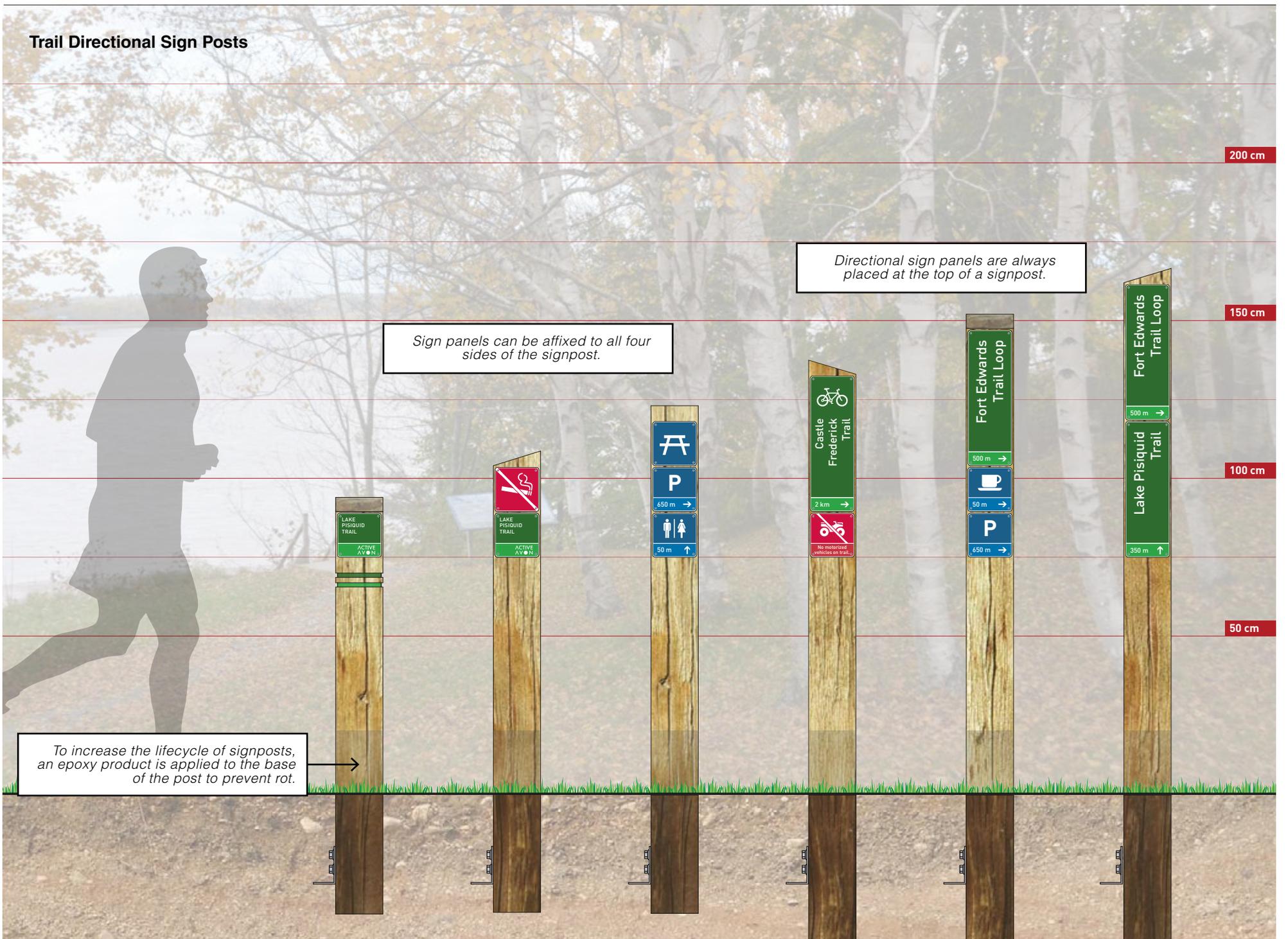
## Trail Markers

Trail markers are placed alongside trails to reassure trail users that they are traveling in the right direction and that they are on the right trail. These types of signs are particularly useful on complex trail networks where there may be more than one trail name. They are also useful for long distance trails (such as the Rails with Trails line) where directional signs aren't as frequently used.

The trail marker signs consist of a single pane sign panel featuring the trail name and Active Avon logo on a 90cm tall 6x6 post. In areas where the Blue Route and Avon Region AT Network overlap, two trail markers may be used on the same signpost - one featuring the Active Avon logo and the other indicating the Blue Route logo.



# Trail Directional Sign Posts



Sign panels can be affixed to all four sides of the signpost.

Directional sign panels are always placed at the top of a signpost.

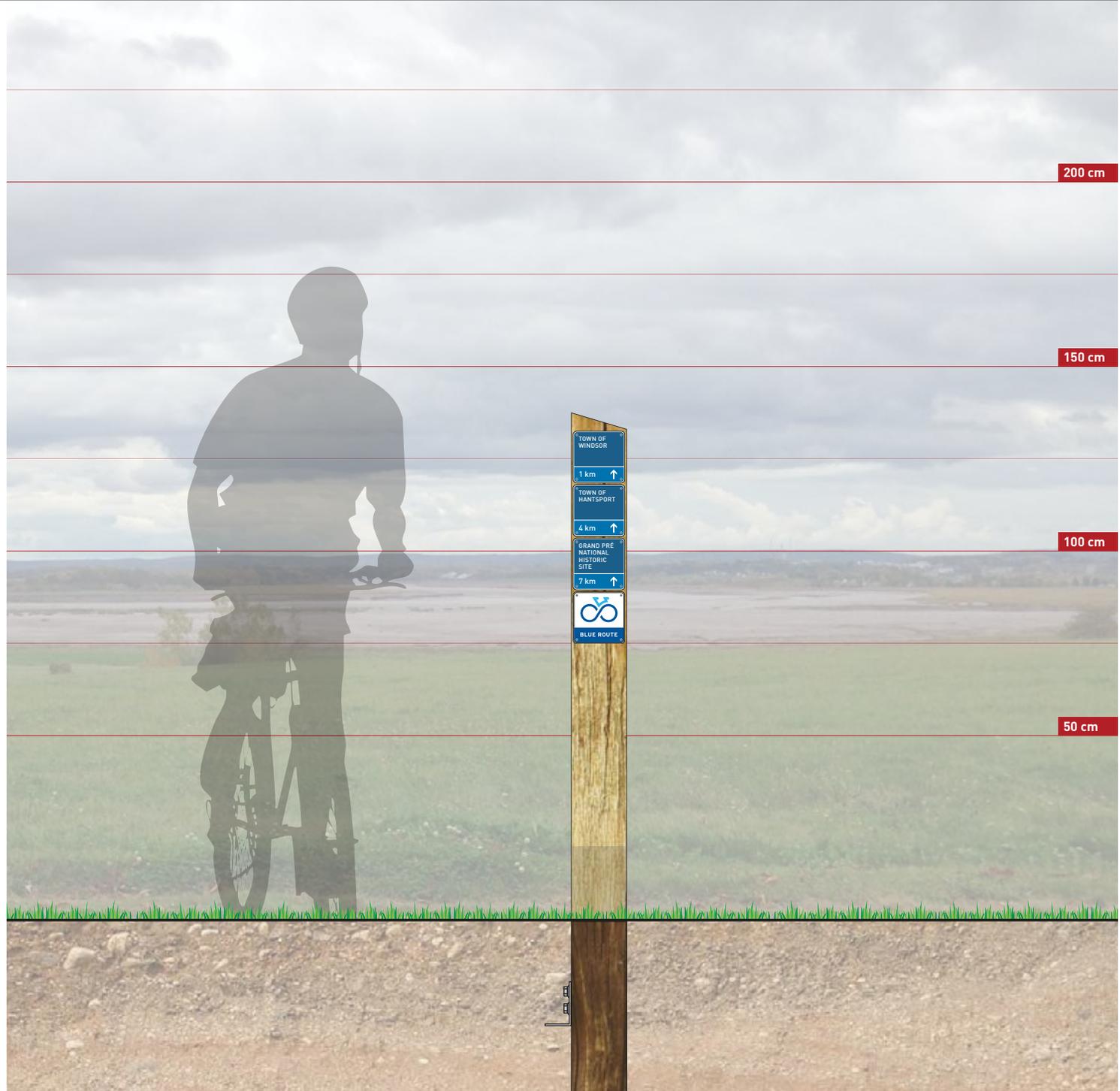
To increase the lifecycle of signposts, an epoxy product is applied to the base of the post to prevent rot.

## Destination Distance Markers

On long distance or linear routes, it may be useful to place sign posts indicating the distances until the next town or landmark. These types of signs would be particularly useful on the potential future railbed trail that would connect many different towns together.

Sign placement criteria:

- Sign posts should be placed along the trail approximately 1km before and after an important destination.
- Sign posts should be placed after an important junction or turning point.
- Each post should be limited to a maximum of three destinations per signpost to reduce information overload.
- The nearest destination should be placed at the top.
- Sign posts should be placed at 5 km intervals on long stretches between destinations.



## Entrance Signs

Entrance signs should be placed at trailheads or park entrances to help convey a sense of arrival for AT users and to communicate park features and regulations. Useful information such as park hours of operation, permitted uses, and emergency contact information should be included on these signs.





# 5 Implementation



## 5.1 Education and Awareness

Education and awareness is vital.

Initiatives that focus on changing the culture around mobility and establishing positive perceptions is essential to the success of the Avon Region Active Transportation Plan.

### Communication Strategy

The Working Group that was formed for the creation of this plan should consider evolving into an AT Steering Committee to steward the plan into the future, create communication materials, coordinate initiatives and collaborate with other organizations.

An attractive branding strategy will bring awareness to opportunities for community members to be more active. A website and social media (Facebook, Twitter, Instagram, etc.) are great platforms for providing educational materials and to celebrate successes. A variety of mediums including maps, brochures, print ads, videos, buttons, magnets, signs, etc. could be used. Regular publications in local media can offer tips and remind the community about upcoming initiatives. It is important in any of these measures to be clear and consistent across all initiatives.

#### Examples:

Share the Road Nova Scotia

<http://www.dal.ca/sites/share-the-road.html>

Pace Car Program

<http://saferoutesns.ca/programs/pace-car>

Cycle Nova Scotia

<http://www.cyclenovascotia.ca/>

Move On Colchester

<http://www.colchester.ca/move-on-colchester>

Town of Bridgewater interactive map

<http://bridgewater.ca/active-transportation13>

### Partnerships

All initiatives become stronger when interested groups join forces. Partnerships and support of the community groups and government departments already undertaking active transportation initiatives can increase the effectiveness of existing campaigns and events.

Success will rely on involvement of the community itself. Volunteers can be utilized to distribute information, to run workshops and tours, and also to collect data for the evaluation and monitoring of this AT Plan. Developing a strategy and putting in effort toward increasing and maintaining volunteers is really important. Often this involves creating associations with membership fees that pay for special volunteer perks.

Business Development Corporations and individual business owners can be effective partners that can enhance the public realm, promote events and encourage active transportation.

#### Examples:

Nova Scotia Trails Volunteering

[http://www.novascotiatrials.com/index.php?option=com\\_content&view=article&id=60&Itemid=373](http://www.novascotiatrials.com/index.php?option=com_content&view=article&id=60&Itemid=373)

Friends of Taylor Head

<http://friendsoftaylorhead.com/membership/>

Halifax North West Trails Association

<http://www.halifaxnorthwesttrails.ca/Membership/HNWTA-membership-card/>

City of Toronto Cycling Ambassadors

<http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=7607748b621f1410VgnVCM10000071d60f89RCRD&vgnextchannel=3904970aa08c1410VgnVCM10000071d60f89RCRD>

### Active Transportation Events and Campaigns

Create one-time or reoccurring events such as Bike/Walk to Work/School Week or Active Life campaigns that highlight the potential for active mobility, and celebrate new or improved infrastructure. Friendly competition is a great way to incentivise individuals and groups to challenge active transportation perceptions, while non-competitive campaigns can include the creation of community walking, cycling, ski, or snowshoe clubs.

Collaborate on existing initiatives taking place locally, across the province or nationally to maximize organizational and promotional efforts.

#### Examples:

Switch Open Streets

<http://switchhfx.ca/>

Victoria's Secret Mountain Bike Race, Truro

<http://www.bicycle.ns.ca/>

Winter Walk Day

<http://saferoutesns.ca/programs/winter-walk-day>

Nova Scotia Bike Week

<http://nsbikeweek.ca/>

Take the Roof off Winter Campaign <http://www.recreationns.ns.ca/take-the-roof-off-winter/>

WOW Campaign (We often Walk or Wheel)

<http://saferoutesns.ca/programs/wow>

Lets Get Active

[http://www.novascotiatrials.com/index.php?option=com\\_content&view=article&id=82&Itemid=412](http://www.novascotiatrials.com/index.php?option=com_content&view=article&id=82&Itemid=412)

Commuter Challenge

<http://commuterchallenge.ca>

Heart&Stroke Walkabout™

<http://walkaboutns.ca>

## Community Events

Capitalize on existing community events that have already proven successful at attracting attendance. This is an opportunity to run an educational campaign, a workshop or a group activity, and to engage residents and visitors that might not attend an event that is centered on active transportation.

### *Examples*

Hantsport Winter Carnival

<http://www.hantsportnovascotia.com/winter-carnival-2015.html>

Avon River Days

<http://www.avonriverdays.com>

Windsor-West Hants Pumpkin Festival

<http://www.worldsbiggestpumpkins.com>

## Education

The key to changing the culture of active transportation is through teaching safe practices and benefits of active transportation. Strategies can increase awareness about routes, teach new users about safety or how to ride a bike and can involve community groups or schools in planning how they can increase active transportation in their lives. Important safety topics include everything from proper equipment and maintenance, to etiquette on multi-use trails as well as navigating common conflicts between non-motorized transportation and ATVs, snowmobile and vehicles.

Economic benefits include the savings of decreased vehicle use, as well as the benefits to local businesses that will see increased foot traffic.

### *Examples:*

Can Bike

<http://canbikecanada.ca/media-materials/#>

School Travel Planning

<http://saferoutesns.ca/programs/school-travel-planning>

Making Tracks

<http://saferoutesns.ca/programs/making-tracks>

Youth Trans-Actions

<http://saferoutesns.ca/programs/youth-trans-actions>

## Workshops

Sometimes the main barrier to using a bike is that it has a flat tire or the breaks don't work. Bicycles, skateboards, skis and other equipment repair lessons and workshops are a great way to encourage healthy activity. They can be held as independent events, have a fixed location or be part of broader community event.

### *Examples:*

Bike Again!

<https://www.ecologyaction.ca/issue-area/bike-again>

Dal Bike Centre

<http://www.dal.ca/dept/bike-centre.html>

Halifax Smart Cycle Lunch&Learn

<http://halifax.ca/smarttrip/cycle/index.php>

## Ceremonies

Opening and award ceremonies are great opportunities to promote active transportation by inviting out community stakeholders and the media to reveal what has been done to promote active transportation and reward those who have worked hard to promote AT. Sometimes a little recognition can go a long way.

### *Examples:*

Recreation Nova Scotia Awards

<http://www.recreationns.ns.ca/membership/recreation-nova-scotia-awards/>

Nova Scotia Trails White Hill Summit Award

[http://www.novascotiatrials.com/index.php?option=com\\_content&view=article&id=45:home&catid=9&Itemid=375](http://www.novascotiatrials.com/index.php?option=com_content&view=article&id=45:home&catid=9&Itemid=375)

Brookfield Volunteer Recognition Awards

<http://www.colchester.ca/volunteer-recognition>

## 5.2 Policies and Planning

Good policy directs good planning and design of communities. For the future, it is vitally important that planning guidelines for in-fill and new development makes walkable and bikeable communities a priority. This means policy that directs growth and development in existing communities and with compact form. Not just urban but also rural municipalities can practice “smart growth” that prioritizes compact, human-scale development and that rejects developments “out in the middle of nowhere.” This is especially important in the siting of any new schools, recreation centres, health centres and similar public institutions and destinations.

The eight year outlook of the Avon Region Active Transportation Plan opens the opportunity for the three Municipalities to take a more holistic look at active transportation planning; to see beyond ordinary network design; and to achieve the integration of active transportation with other municipal policies and plans.

Administrative policy development is a critical tool in helping the three municipi-

palities implement a realistic and highly usable active transportation system. Strong and clearly articulated policy will create a highly useable active transportation network, foster the ongoing development of new facilities, and ensure the longevity and maintenance of the system.

As a first step, an Active Transportation Policy should be developed at the municipal level for each of the three municipal units in the Avon Region. This will provide a high-level policy which outlines the commitment the three municipalities have to Active Transportation. A Draft Active Transportation Policy is provided in Appendix A.

Once adopted, the commitment to active transportation should find its way into Municipal Planning Strategies, Land Use By-Laws and Subdivision By-Laws. The upcoming 2016 Plan Review of the West Hants Municipal Planning Strategy provides a timely opportunity to incorporate active transportation into land use planning policy and by-laws.

## 5.3 Collaboration

This Plan requires a strong commitment to future collaboration between the three Municipalities and the Province of Nova Scotia – a relationship that will prove essential for the successful implementation of active transportation infrastructure in the Avon Region. The implementation of this plan can only be accomplished through coordinated actions and guidance from all three municipal councils, staff and NSTIR.

Given the number of provincial roads that are identified as active transportation links in the network plan, working closely with NSTIR transportation representatives will be the most important partnership undertaking. The three municipalities should stay up-to-date on NSTIR’s Five Year Highway Improvement Plan and more importantly on the year-to-year pavement schedules as these can account for about half of the actual annual repaving work done by NSTIR.

Another critical link should be made to the provincial initiative of creating the Nova Scotia Blue Route, a province wide network of bike ways modeled on the Quebec Route Verte. Integrating West Hants, Hantsport and Windsor trails into the Blue Route could potentially have significant impact on recreational cyclists visiting the Region and would create synergies and benefits through cross-marketing by the Nova Scotia Tourism Agency.

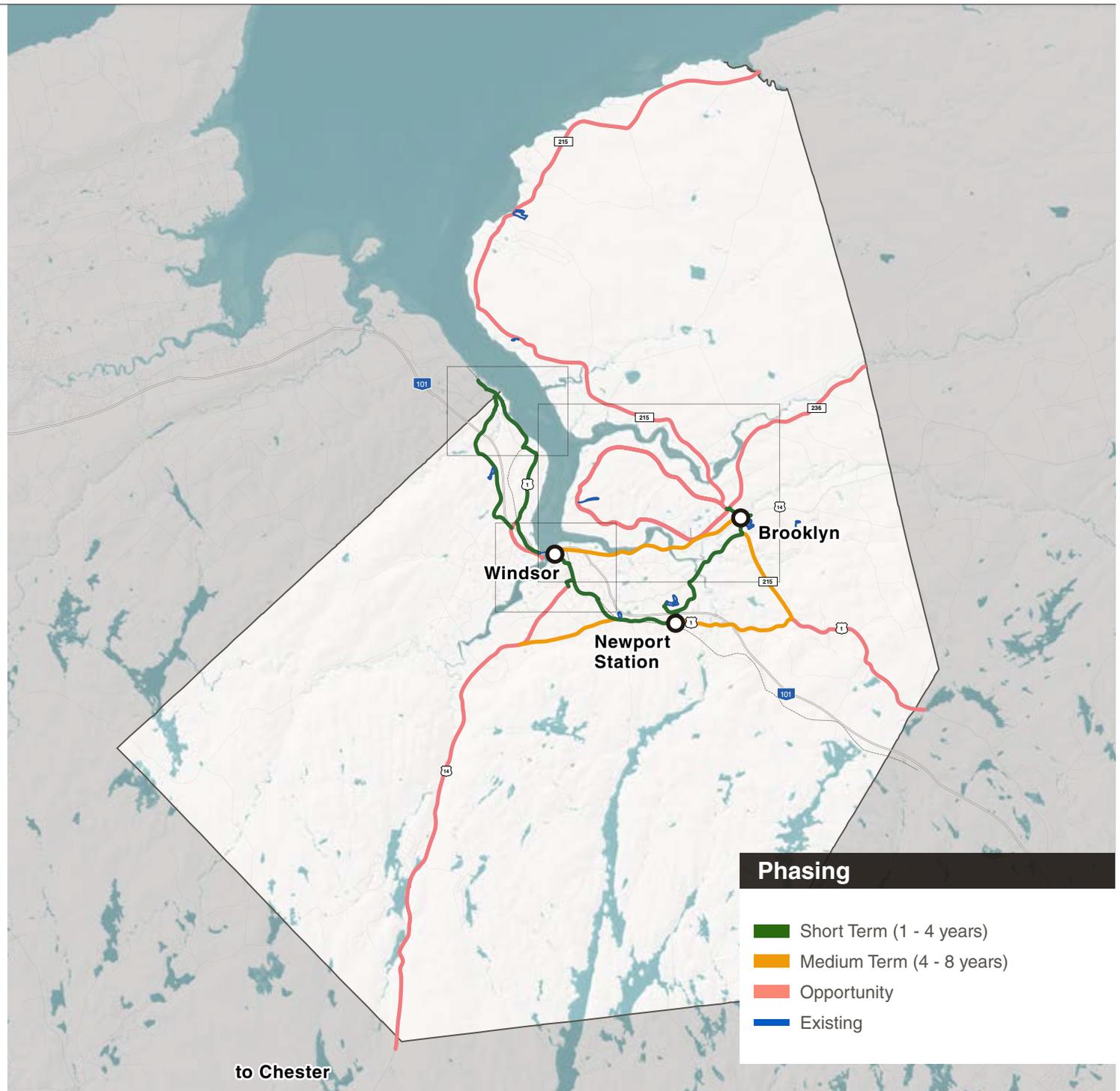
## 5.4 Priorities and Phasing

Achieving the goals of the Avon Region Active Transportation Plan will require setting clear priorities. As a general approach, the following road map describes the steps that should be taken to implement the plan.

1. **Formal adoption of AT Plan by all three municipal councils**
2. **Official launch of AT Plan**
3. **Adoption of AT Policy**
4. **Start lining up financial support for AT Plan**
5. **Develop and maintain strategic partnerships**
6. **Continue public outreach**
7. **Seize every opportunity to implement AT infrastructure - pick the low hanging fruit first**
8. **Embark on regular evaluation**
9. **Encourage grassroots activism**

The phasing of new active transportation infrastructure is depicted on the following diagrams.

Not all elements of the future network have equal weight. In particular the more remote portions of the regional routes, called "Opportunity Routes", should only be elevated to active transportation standards when the NSTIR capital paving program designates funding to repaving work.



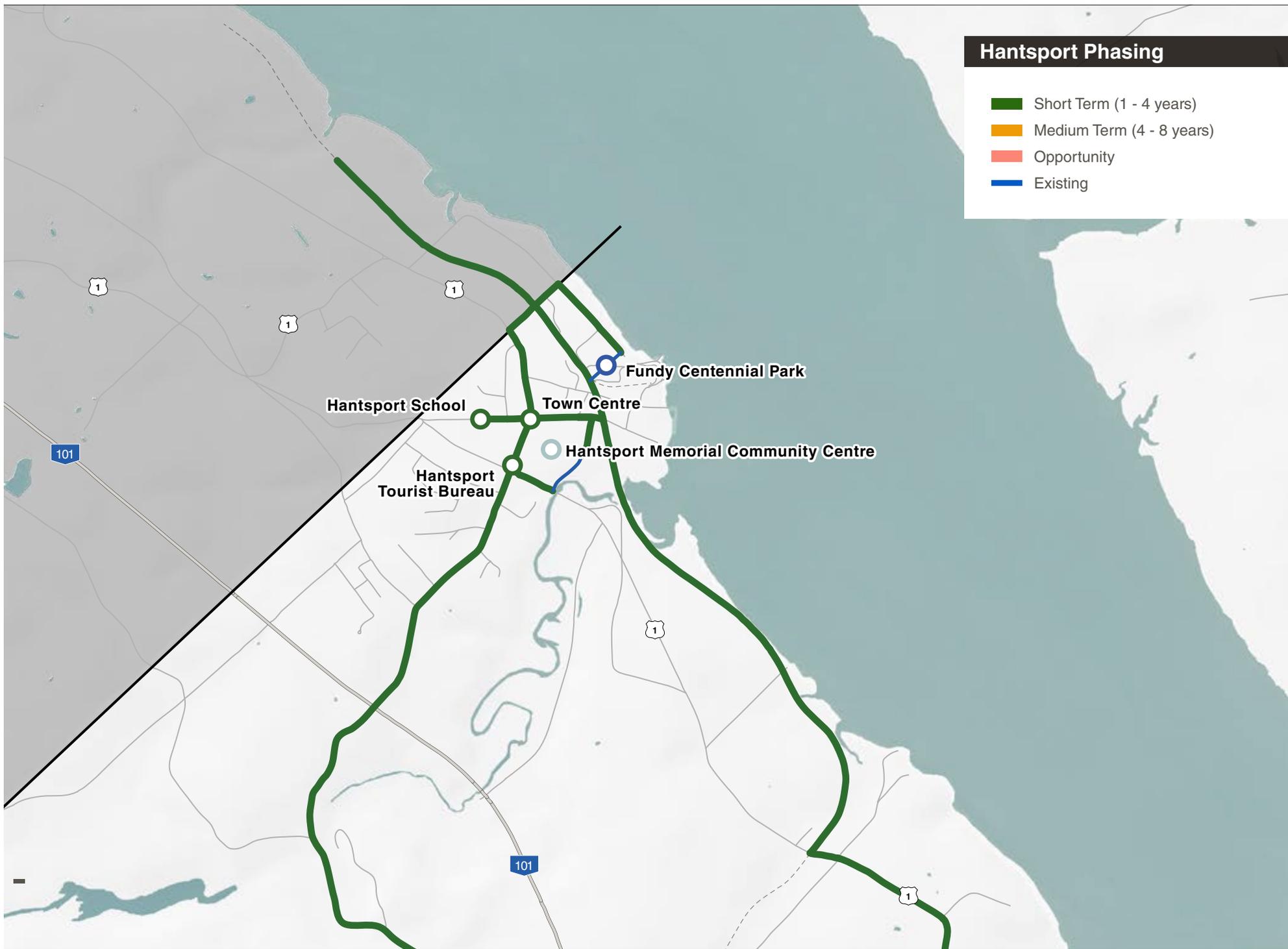


**Regional Core Phasing**

- Short Term (1 - 4 years)
- Medium Term (4 - 8 years)
- Opportunity
- Existing

## Hantsport Phasing

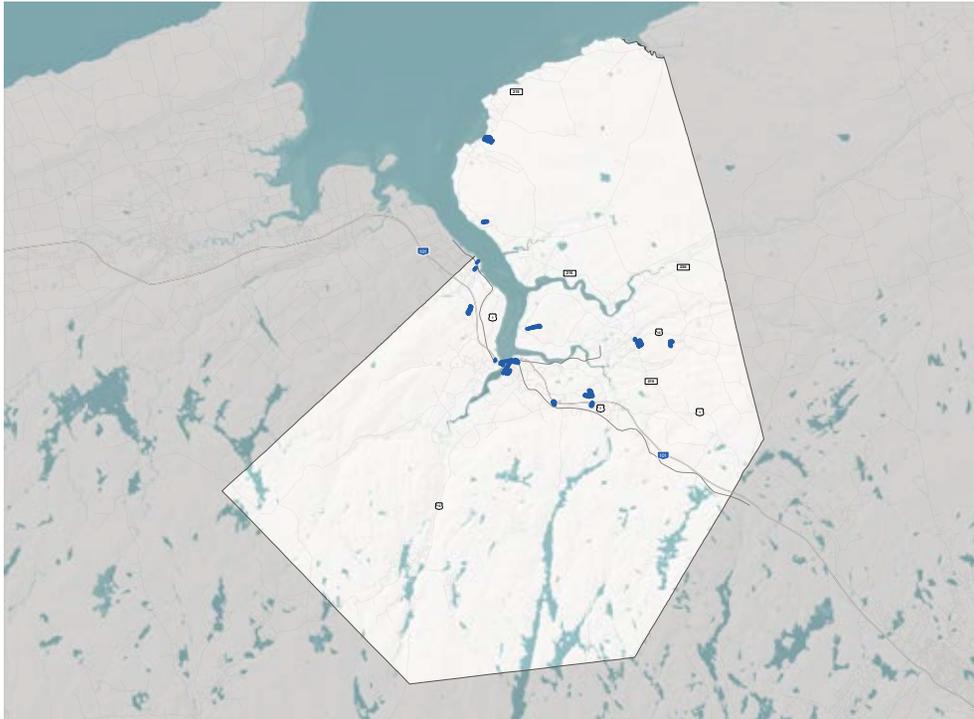
- Short Term (1 - 4 years)
- Medium Term (4 - 8 years)
- Opportunity
- Existing



# Avondale Peninsula Phasing

- Short Term (1 - 4 years)
- Medium Term (4 - 8 years)
- Opportunity
- Existing

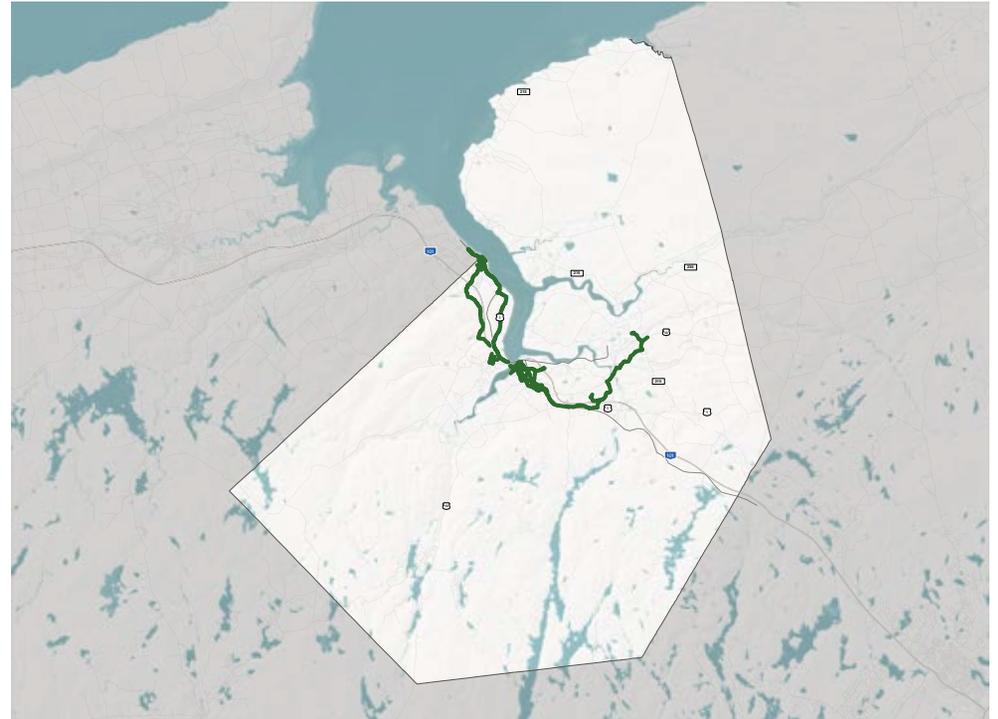




Existing

**Infrastructure**

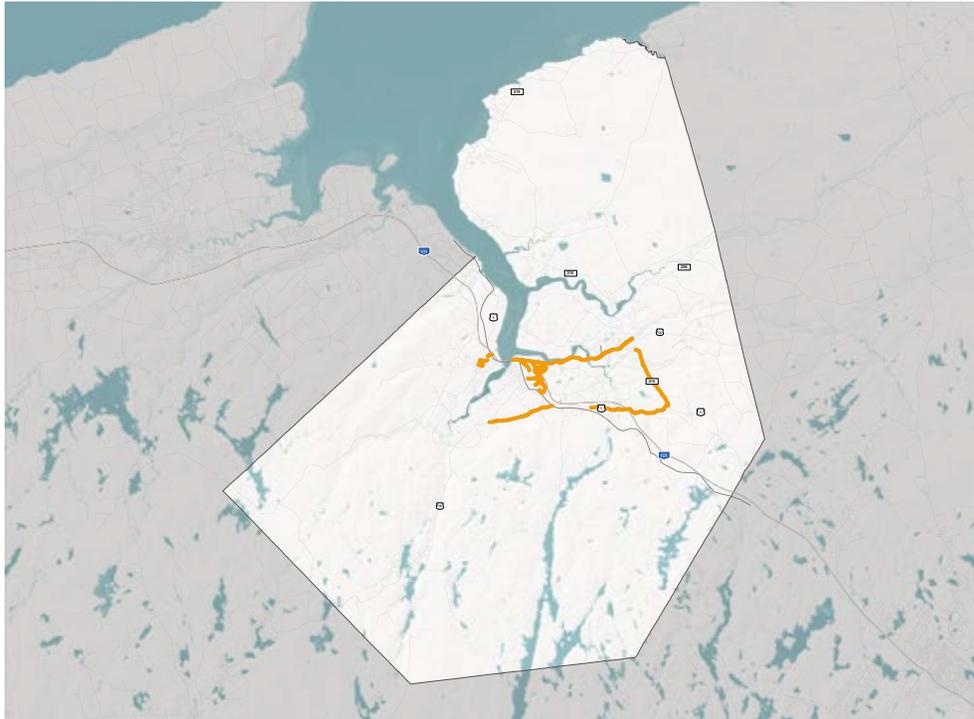
Route Type	Quantity	Units
Rural Arterial with Paved Shoulder		km
Rural Connector with Signed Route		km
Rural Local with Paved Shoulder		km
Urban Collector with Bike Lane (Curb)		km
Urban Collector with Bike Lane (Ditch)		km
Urban Local with Signed Route		km
Multi-Use Trail	20.2	km
Rail with Trail	0.9	km
<b>Total</b>	<b>21.1</b>	<b>km</b>



PHASE 1 (Year 1-4)

**Infrastructure**

Route Type	Quantity	Units
Rural Arterial with Paved Shoulder		21.2 km
Rural Connector with Signed Route		9.3 km
Rural Local with Paved Shoulder		1.9 km
Urban Collector with Bike Lane (Curb)		5.1 km
Urban Collector with Bike Lane (Ditch)		0.7 km
Urban Local with Signed Route		11.4 km
Multi-Use Trail		0.6 km
Rail with Trail		9.7 km
<b>Total</b>		<b>60.0 km</b>



PHASE 2 (Year 4 -8)

**Infrastructure**

Route Type	Quantity	Units
Rural Arterial with Paved Shoulder		8.0 km
Rural Connector with Signed Route		10.8 km
Rural Local with Paved Shoulder		1.6 km
Urban Collector with Bike Lane (Curb)		1.8 km
Urban Collector with Bike Lane (Ditch)		km
Urban Local with Signed Route		4.6 km
Multi-Use Trail		1.2 km
Rail with Trail		10.5 km
<b>Total</b>		<b>38.5 km</b>



Opportunity

**Infrastructure**

Route Type	Quantity	Units
Rural Arterial with Paved Shoulder		136.4 km
Rural Connector with Signed Route		km
Rural Local with Paved Shoulder		km
Urban Collector with Bike Lane (Curb)		km
Urban Collector with Bike Lane (Ditch)		km
Urban Local with Signed Route		km
Multi-Use Trail		km
Rail with Trail		km
<b>Total</b>		<b>136.4 km</b>

Completed Network: **256 kilometers**

## 5.5 Cost Estimates

The Class D (Indicative) Opinion of Probable Cost was developed at the concept level in order to provide a magnitude of cost for the project and should be treated as such; variance at this level of estimating can be significant. The

opinion of probable cost was developed based on the information available combined with our professional judgment. The changing costs of material and labor, as well as the conditions and underlying principles from which

contractors will derive their bids for the work are outside our knowledge and control. As such, this is an opinion only and UPLAND and SLI cannot and will not guarantee that actual project costs will not fluctuate from this.

Cost estimates for AT infrastructure only include capital costs for the addition of AT facilities. Not included are costs for maintenance and land lease agreements.

### Infrastructure Cost by Phase

Existing		
Infrastructure		
Route Type	Length (km)	Cost (\$)
Rural Arterial with Paved Shoulder		
Rural Connector with Signed Route		
Rural Local with Paved Shoulder		
Urban Collector with Bike Lane (Curb)		
Urban Collector with Bike Lane (Ditch)		
Urban Local with Signed Route		
Multi-Use Trail	20.2	N/A
Rail with Trail	0.9	N/A
<b>Total</b>	<b>21.1</b>	<b>N/A</b>

PHASE 1 (Year 1-4)		
Infrastructure		
Route Type	Length (km)	Cost (\$)
Rural Arterial with Paved Shoulder	21.2	863,866
Rural Connector with Signed Route	9.3	64,308
Rural Local with Paved Shoulder	1.9	103,241
Urban Collector with Bike Lane (Curb)	5.1	15,014
Urban Collector with Bike Lane (Ditch)	0.7	27,683
Urban Local with Signed Route	11.4	78,729
Multi-Use Trail	0.6	131,882
Rail with Trail	9.7	2,817,750
<b>Total</b>	<b>60.0</b>	<b>4,102,474</b>

PHASE 2 (Year 4 -8)		
Infrastructure		
Route Type	Length (km)	Cost (\$)
Rural Arterial with Paved Shoulder	8.0	326,494
Rural Connector with Signed Route	10.8	74,796
Rural Local with Paved Shoulder	1.6	88,027
Urban Collector with Bike Lane (Curb)	1.8	5,132
Urban Collector with Bike Lane (Ditch)		
Urban Local with Signed Route	4.6	31,464
Multi-Use Trail	1.2	250,792
Rail with Trail	10.5	3,043,866
<b>Total</b>	<b>38.5</b>	<b>3,820,571</b>

Opportunity		
Infrastructure		
Route Type	Length (km)	Cost (\$)
Rural Arterial with Paved Shoulder	136.4	5,552,030
Rural Connector with Signed Route		
Rural Local with Paved Shoulder		
Urban Collector with Bike Lane (Curb)		
Urban Collector with Bike Lane (Ditch)		
Urban Local with Signed Route		
Multi-Use Trail		
Rail with Trail		
<b>Total</b>	<b>136.4</b>	<b>5,552,030</b>

## Infrastructure Cost by Route Type

Infrastructure				
Route Type	Description	Cost per km	Contingency (15%)	Total Cost per km
Rural Arterial with Paved Shoulder	Paved Shoulder as Part of Road Retrofit	\$ 35,400.00	\$ 5,310.00	\$ 40,710.00
Rural Connector with Signed Bike Route	Signage, Pavement Marking on Existing Road*	\$ 6,000.00	\$ 900.00	\$ 6,900.00
Rural Local with Paved Shoulder	Paved Shoulder as Part of Road Retrofit	\$ 47,250.00	\$ 7,087.50	\$ 54,337.50
Urban Collector with Bike Lane, Curb and Sidewalk	Line Painting on Existing Road	\$ 2,550.00	\$ 382.50	\$ 2,932.50
Urban Collector with Bike Lane, Ditch and Sidewalk	Paved Shoulder as Part of Road Retrofit	\$ 35,400.00	\$ 5,310.00	\$ 40,710.00
Urban Local with Signed Bike Route, Curb and Sidewalk	Signage, Pavement Marking on Existing Road*	\$ 6,000.00	\$ 900.00	\$ 6,900.00
Multi-Use Trail	Crusher Dust, New Construction	\$ 188,000.00	\$ 28,200.00	\$ 216,200.00
Rail with Trail	Crusher Dust, New Construction	\$ 252,080.00	\$ 37,812.00	\$ 289,892.00

\*Assumed Bike Lane Signage @ 200m Spacing; Bike Lane Pavement Markings @ 75m Spacing

\*\* Rail with Trail do not include annual lease costs.

## Cost for Wayfinding

Wayfinding				
Sign Type	Description	Cost	Contingency (15% HST (15%))	Total Cost
Off-Site Directional Sign	Sign panel plus post kit, installed	\$ 200.00	\$ 30.00	\$ 264.50
Entrance Sign	Sign panel and wooden posts, installed	\$ 500.00	\$ 75.00	\$ 661.25
Trail Directional Sign Post	Post only, installed	\$ 125.00	\$ 18.75	\$ 165.31
Small Directional Sign Panel	14x14 cm, panel only	\$ 30.00	\$ 4.50	\$ 39.68
Medium Direction Sign Panel	14x28.5 cm, panel only	\$ 40.00	\$ 6.00	\$ 52.90
Large Directional Sign Panel	14x43 cm, panel only	\$ 50.00	\$ 7.50	\$ 66.13

\*Design fees not included (Layout, placement, production, etc). Add 15% to unit cost to include design fees.

## 5.6 Evaluation

Monitoring and evaluating the impact of capital and programming initiatives is a critical component of the eight-year plan. The three Avon Region municipalities should start to collect data that lets each municipality assess the effectiveness of active transportation investments as well as their commitment to advancing active transportation in the region. The following table provides examples of data that could be collected.

Measure	Current Year	Year 1-4 Goal	Year 5-8 Goal
<b>Guiding Principle: Education and Awareness is Vital</b>			
Community events			
Workshops			
Educational events			
Ceremonies			
<b>Guiding Principle: Make it Safe.</b>			
# of collisions, injuries and fatalities involving AT users			
Safety brochures			
Number of students participating in safety education programs			
Municipal AT policies in place			
Municipal land use by-laws in place			
<b>Guiding Principle: Provide Connections</b>			
Paved shoulders			
Signed routes			
Sidewalks			
Bike lanes			
Multi-use trails			
Rail with trails			
<b>Guiding Principle: Focus the Right Interventions in the Right Places</b>			
Local network investment			
Regional network investment			
<b>Guiding Principle: Make it Fun and Attractive</b>			
Promotional materials			
Promotional events			
<b>Guiding Principle: Be Strategic and Opportunistic</b>			
Active transportation modal share			
% of kids walking/biking to school			
<b>Guiding Principle: Work Together</b>			
Inter-municipal active transportation meetings			
Meetings with NSTIR			
Meetings with NSTA			
AT working group meetings			



# Appendix A



# Draft Active Transportation Policy

## Avon Region Active Transportation Policy

MUNICIPALITY OF \_\_\_\_\_

## ACTIVE TRANSPORTATION POLICY

POLICY \_\_\_\_\_ EFFECTIVE DATE: \_\_\_\_\_

### **1. Purpose**

Include a short section of 3-5 sentences, including, in paragraph form why the policy is being written, the benefits of AT, a definition of AT and why the municipality wants to promote AT.

Active Transportation is a broad term that refers to all forms of human powered or non-motorized transportation, the most common modes being walking and cycling. There is clear evidence of the advantages associated with designing cycling and pedestrian friendly communities, which enable and encourage residents to be more active by walking and biking for recreation and utilitarian purposes. The Municipality of \_\_\_\_\_ recognizes the importance of providing both rural and urban residents as well as visitors with improved infrastructure for safe and enjoyable self-propelled transportation

### **2. Guiding Principles**

The following guiding principles form the foundation of this policy:

1. Education is vital.
2. Make it safe.
3. Provide connections.
4. The right interventions in the right places
5. Make it fun and attractive.
6. Be strategic and opportunistic.
7. Work together.

### **3. Goals**

The goal of this Active Transportation Policy is to trigger a culture shift in the Avon Region where active transportation is a safe, convenient and celebrated mode of transportation for all residents. The active transportation network will offer fun and safe opportunities, and will increase awareness of the social, economic and environmental benefits of using active modes of transportation.

## 4. Policy Statements

### 2. Education and Awareness

1. The Municipality recognizes the need to raise awareness of the Active Transportation options available to citizens in the Avon Region about the benefits of active, healthy living, recreation, and sustainable communities, through special events and promotions.
2. The Municipality recognizes that efforts to improve education and awareness amongst all road users can help improve actual and perceived safety, and will cultivate a culture that embraces active transportation by sharing the road with a positive attitude.
3. The Municipality recognizes that education and awareness measures must include the needs, rights and responsibilities of active transportation users as well as of drivers.
4. The Municipality will target education efforts toward people of all ages and abilities including, but not limited to: schools, business associations, and community organizations.
5. The Municipality shall designate active transportation routes as shown on map #, The Avon Region Active Transportation Network.
6. An interactive map on the Municipality website shows routes, completed projects, proposed projects, trails and parks, share the road, bike racks, and destinations. (See Bridgewater <http://www.bridgewater.ca/active-transportation> )

### 3. Connectivity

1. The Municipality recognizes that reducing travel times is a crucial component to making active transportation a feasible mode of transportation.
2. Active transportation solutions shall strive to create a connected and comprehensive network with dedicated and useable space for pedestrians, cyclists and other active transportation users; protection and refuge; greater visibility; stable pathways; predictable traffic movements; more appropriate functional speeds; and options for route selection.
3. The Municipality will take advantage of opportunities to make simple connections in the existing network that would significantly improve travel times for active transportation users.
4. When land use planning policies (e.g. Land-Use Bylaw, Municipal Planning Strategies, Sub-division bylaws) are being reviewed, active transportation principles will be considered for incorporation. This includes mechanisms including but not limited to: density incentives, easements, healthy community checklists, and expanded street design guidelines.

### 4. Infrastructure Design and Amenities

1. The Municipality recognizes that active transportation infrastructure includes, but is not limited to: safe crossings, traffic calming measures, multi-use trails, opportunities for rest and end of trip facilities.
2. The Municipality will consider the specific active transportation needs of people of all ages and abilities in all street design, trail, parkland, public space, multi-use trails and bikeway projects.
3. All new development will incorporate active transportation in the initial phases of planning. Subdividing and developing land identified as adjacent to or integral to the continuity of the active transportation network shall be required to provide infrastructure for active transportation that is consistent with any adjacent infrastructure.
4. The Municipality recognizes that integrating appropriate facilities into the initial design of street projects and public spaces avoids the expense of retrofits later.
5. The Municipality will install and maintain signage for all active transportation facilities.

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## 5. Safety and Attractiveness

1. Safe, convenient, accessible pedestrian corridors, as well as appropriate landscaping and lighting shall be considered as part of any development or redevelopment in the Municipality.
2. Safe, convenient, and multi-use corridors, as well as appropriate landscaping and lighting, shall be considered as part of any development or redevelopment of trails network within the Municipality.

## 6. Collaboration

1. The Municipality will actively seek opportunities to partner with other levels of government, business and the community to achieve the objectives of the Active Transportation Plan, including but not limited to: bike racks on public transportation, paved shoulders, benches, waste sorting receptacles and bike locks on active transportation routes.

## 7. Regulation

1. The Municipality recognizes the safety benefits of reducing vehicle speeds on local streets.

## 8. Budget

1. The Municipality recognizes the need for sustained funding of aspects including, but not limited to: infrastructure improvements and maintenance, seasonal maintenance, staff positions for a Steering Committee, and for education and awareness initiatives.
2. The Municipality will annually review active transportation improvement opportunities as part of the Capital Improvement Plan and/or operations budgeting process.
3. Trail improvements shall be implemented as funds allow and in conjunction with implementation of the Avon Region Active Transportation Plan.

## 9. Measurement and Evaluation

1. The Municipality recognizes the need for the Steering Committee to establish indicators for measuring the effectiveness of all aspects of this active transportation policy.
2. The Municipality further recognizes the need for the Steering Committee to evaluate the outcomes of indicators and adjust any aspect of the Active Transportation strategy if deemed to be underperforming in accordance with the goals of this policy.



# Appendix B



## Review of Previous Studies

There are numerous documents for the Avon Region that deal directly or indirectly with Active Transportation. These range from the Land Use By-Laws, Municipal Planning Strategies and Integrated Community Sustainability Plans for the three Municipalities to a variety of studies focused on active living, green mobility and traffic flow. A complete list of all the reports and studies we looked at is available in the table below.

The reports are rich with information on how the Municipalities of the Avon

Region want to see Active Transportation enhanced in their communities. They call for more cooperation between government bodies in the region and propose realistic actions to achieve increased Active Transportation. The documents most directly relevant to this report are the ones specifically targeted at sustainable transportation options. Brief summaries of the documents and the recommendations directly applicable to the Avon Region AT Report are included in the Appendix.

**Table of Reports Containing Active Transportation Policy and Strategies for Avon Region**

Title of Report	Author(s)	Date
Municipality of the District of West Hants: Municipal Planning Strategy	Municipality of the District of West Hants	May 2008
Municipality of the District of West Hants: Land Use By-Law	Municipality of the District of West Hants	May 2008
Municipalities for Green Mobility: Town of Windsor Green Mobility Community Workshop Outcomes & Recommendations	Ecology Action Centre & Cities and Environment Unit	Aug 2009
Municipality of West Hants: Integrated Community Sustainability Plan	Municipality of the District of West Hants	Mar 2010
Integrated Community Sustainability Plan: Town of Windsor	Town of Windsor	Mar 2010
Municipality of West Hants: Integrated Community Sustainability Plan	Municipality of the District of West Hants	Mar 2010
Integrated Community Sustainability Plan: Town of Windsor	Town of Windsor	Mar 2010
Town of Hantsport: Land Use By-Law	Town of Hantsport	May 2010
Town of Windsor: Land Use By-Law	Town of Windsor	Jul 2010
Town of Hantsport: Municipal Planning Strategy and ICSP	Town of Hantsport	Sep 2010
Town of Windsor: Municipal Planning Strategy	Town of Windsor	Jul 2012
Active Transportation 101: Windsor, West Hants & Hantsport Active Transportation Workshop Report	Ecology Action Centre	Nov 2012
Municipality of the District of West Hants Trails Plan	Cobequid Trails Consulting	Nov 2013



**Municipalities for Green Mobility**

Report outlines results of an April 2009 community engagement in Windsor that had the stated purpose of finding ways to incorporate sustainable transportation best practices into the ICSP. The most relevant recommendations from the engagement sessions are:

- Create safe, legal trail across railway tracks at Avon View High School
- Utilize rail beds for rails with trails or rails to trails network
- More sidewalks on main streets and bike lanes on Payzant Drive
- In collaboration with surrounding municipalities, create a 100 series bikeway
- Widen roads to accommodate bike lanes and add crosswalks at important locations
- Create an integrated biking/walking plan with connections to important destinations
- Require new developments to include connected green spaces and walk/bike paths

**Active Transportation 101**

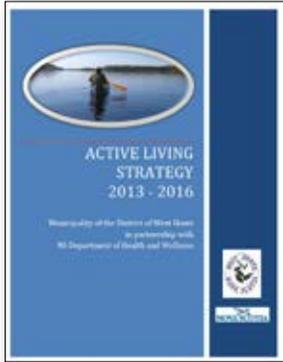
Report contains information harvested from an AT Workshop in November, 2012 that involved citizens from all three municipalities and had the stated purpose of increasing Active Transportation awareness amongst participants and developing AT options for the region. From the workshop almost two dozen action items were developed, the most prescient to this report are:

- Consider “share the road” signs for Windsor
- Continue to keep the conversation about AT open
- Recruit volunteers to help with trail maintenance
- Continue work on Avondale Peninsula trail system
- Make inventory of trails and plan for development and maintenance
- Encourage Hantsport council to keep AT in mind
- Collect and share stories and best practices around AT

**Garlands Crossing / Windsor Border Area Transportation Study**

This document is a traffic planning and engineering study to providing direction for transportation infrastructure in a 600 acre area that is in both Windsor and West Hants. Though primarily focused on automobile traffic, the study does make provisions for Active Transportation. In the Alternative E Network scenario, the industry guidelines (5Ds of AT) are incorporated (p.48).

Integrating the 5-D's of Active Transportation into Garlands Crossing/Windsor Border Area	
<b>Diversity</b>	Hospital, church, school & employment areas on Wentworth offer land use diversity, this could be improved by connecting area to the south in the vicinity of King Street, adding more commercial/employment opportunities and encouraging additional employment/cultural amenities in the future.
<b>Density</b>	The area has a mix of housing densities and this mix should continue to be encouraged.
<b>Design</b>	The street layout for Alternative E is mostly curvilinear; a function of the rolling topography. By adding trail connectivity between these curvilinear “blocks”, a grid-like functionality can be implemented offering more efficient travel routes to AT users.
<b>Distance to Transit</b>	Providing access to King Street, there is opportunity for both ends of development area to be served by transit. This connectivity may even allow transit to be routed through the site.
<b>Destination Access</b>	Addition of a multi-use AT connection through the site to Cole Rd is viewed as the main opportunity to address access. Ideally, AT infrastructure would have a 3m wide paved surface to accommodate bicycling, pedestrians, mobility challenged individuals, etc.



### Active Living Strategy 2013-16

The report commissioned by West Hants deals with active living and active transportation trails. It utilizes information harvested from background research, community engagement sessions and an Ipsos Reid Survey to develop an action plan to increase physical activity in the Municipality.

The main goals and objectives directly related to increasing active transportation in West Hants include:

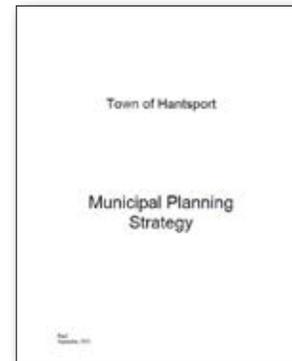
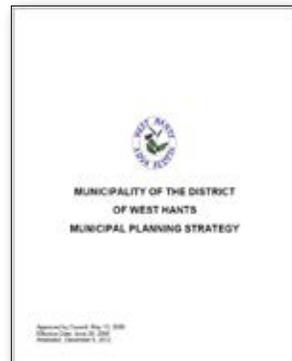
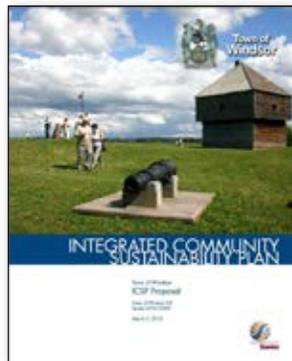
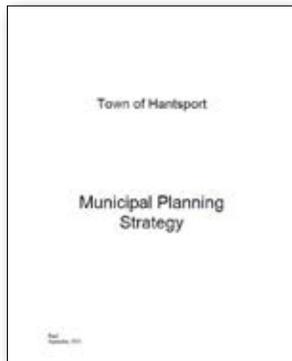
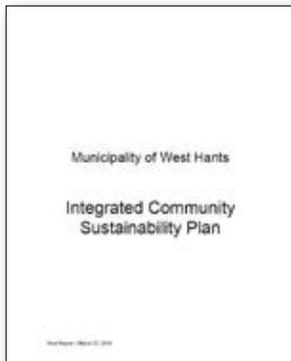
- **Goal - Public Awareness:** Educate residents about benefits of physical activity and provide information about recreation opportunities.
- **Objective:** Promote AT & create materials to identify trails/sites for outdoor recreation.
- **Goal - Supportive Social Environment:** Provide opportunities for residents to participate in a variety of physical activities.
- **Objective:** Create opportunities for spontaneous unstructured outdoor recreation
- **Goal - Supportive Physical Environments:** Create, maintain and enhance physical environment, both built and natural, that support physical activity
- **Objectives:** Develop/implement Trails Plan, AT Plan, and Parks/Open Spaces Plan.
- **Goal: Leadership, Partnerships, Sustainability:** To lead initiatives, build partnerships and develop policies to sustain physical activity opportunities.
- **Objectives:** Develop Municipal Policies that support physical activity.



### West Hants Trails Plan

As a standalone follow-up to the Active Living Strategy, it provides an inventory of eighteen trails in West Hants and includes ideas for how the municipality could invest and develop these sites in order to ensure maximum use and community benefit. This includes creating a minimum standard for trails throughout the municipality with more advanced standards on important high traffic routes. In order to achieve this overarching goal the following criteria was identified as necessary:

- Volunteer community group willing to lead project
- Equitable distribution throughout Municipality
- Reasonable building costs
- Diversity of trail types and uses
- Adjacent attractions (support existing businesses and facilities)
- Low maintenance costs



### **Integrated Community Sustainability Plans**

The Integrated Community Sustainability Plans (ICSPs) all contain important policy recommendations to promote active transportation. This ranges from sidewalk construction and maintenance to promote pedestrian safety to developing dedicated bikeways with signage and multi-use trails connecting concentrations of residential development and commercial centres or other important amenities (schools, community centres, parks, etc).

### **Municipal Planning Strategies / Land Use Bylaws**

The Municipal Planning Strategies (MPS) for each municipality all have policies related to active transportation with a range of general and site specific strategies. The Land Use Bylaw (LUB) for each of municipality is the legal document that implements MPS policies. Many MPS active transportation policies, however, are not often incorporated into the LUB. The following active transportation policies can be found in their respective documents:

**Windsor ICSP**  
 Policy 14.6.2: incorporate sidewalks and walkways, and bike lanes and bike paths where technically and financially feasible, particularly within designated Gateway corridors, on the waterfront, and between King's-Edgehill/Gladys Manning and the Downtown (p. 61)

**West Hants ICSP**  
 Goal 6 Response: explore the potential of designating a number of roads in the municipality as bicycle routes and promoting their use (p. 44)

**Hantsport ICSP**  
 Policy ICSP- 19: continue with a program of concrete sidewalk construction as funding becomes available.

**Windsor MPS**  
 Policy 11.0.2: promote development of multi-use trails and pathways within the Town which connect residential and commercial areas with community uses including institutional uses, recreation facilities and open space areas.  
 Policy 14.7.3: investigate providing bicycle pathways and bicycle lanes throughout the Town.

**West Hants MPS**  
 Policy 13.2.1: establish an Open Space (OS) zone which applies to parks and other public outdoor recreation uses, cemeteries, historic sites and similar uses.

**Hantsport MPS**  
 Goal 2: Provide parks and recreational opportunities.  
 Goal 2b: Encourage active transportation through construction of sidewalks.

## Survey Suggestions

The table below outlines critical areas of concern and a number of reoccurring suggestions on the regional scale that were brought up during the survey.

Location	Issue	Suggested improvement
<b>Falmouth Back Rd</b>	Safety concerns: <ul style="list-style-type: none"> <li>• <i>'unsafe to bike anywhere in Falmouth (especially along the back road)'</i></li> <li>• <i>'busy road with many pedestrians'.</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>more sidewalks..'</i></li> <li>• <i>'widen road shoulders..'</i></li> <li>• <i>'improve winter maintenance..'</i></li> </ul>
<b>Intersection of Falmouth Back Rd and Gabriel.</b>	Eroded side of road conditions and narrow road shoulder	<i>'add sidewalk or widen and maintain road shoulder..'</i>
<b>Intersection of Hwys1&amp;14 at Garland Crossing</b>	Confusing and dangerous intersection.	<i>'the intersection at Garland's Crossing should be made more friendly to walkers..'</i>
<b>Avondale Loop</b>	The shoulder is usually grass or ditch and not suitable [for riding]	<i>improve shoulders and add signage to identify it as an AT route..'</i>
<b>Brooklyn Village</b>	High levels of truck traffic, speed limits too high... <i>'traffic is horrible, last week 42 18-wheelers in the hour that I walked'.</i>	<ul style="list-style-type: none"> <li>• <i>'Brooklyn desperately needs sidewalks and cross walks..'</i></li> <li>• <i>'A crosswalk is needed between the Victory Credit Union and the Post Office and between the two schools..'</i></li> </ul>
<b>Hwy 1 between Windsor and Garland Crossing</b>	Discontinuous sidewalk.	<i>'extend sidewalk or develop rail trail..'</i>
<b>Falmouth to Three Mile Plain corridor</b>	Roads and highways creating disconnected communities.	<i>'trails connecting different communities and facilities within communities that are [currently] separated..'</i>
<b>Bog Rd</b>	Road condition	<i>pave Bog Rd..'</i>
<b>Region wide</b>	<i>no legal or safe location for skateboarding..'</i>	Consider by-law amendment
<b>Region wide</b>	Shopping centres and amenities located away from urban centres	<i>'increasing density and locating amenities closer to downtown areas..'</i>
<b>Region wide</b>	Increasing Awareness	<ul style="list-style-type: none"> <li>• Signage to indicate <i>'trails..'</i>, roads which are <i>'AT routes &amp; for drivers to use caution'</i> in those locations.</li> <li>• a regional <i>'map indicating routes and level of difficulty'</i></li> </ul>
<b>Region wide</b>	Current policy	<i>An 'AT lens applied to all development that happens in the Avon Region..'</i>
<b>Region wide</b>	Poorly located infrastructure	<i>'look at Wentworth Rd..a crosswalk to nowhere in one instance and crosswalks missing in several others where they're badly needed..'</i>

UPLAND