



# YARMOUTH:

## ACTIVE TRANSPORTATION MASTER PLAN

FINAL REPORT  
OCTOBER 2010



**EKISTICS** PLANNING & DESIGN

1 Starr Lane, Dartmouth, NS B2Y 4V7  
t 902.461.2525 ext:102 f 902.465.3131

ACTIVE  
*yarmouth*



Ekistics Planning & Design + Form:Media  
+ SNC-Lavalin + Atlantic Road and Traffic

Final Report  
October 2010

# TABLE OF CONTENTS

ORIGINS.....	1	DESIGN GUIDELINES.....	71
1.1 STUDY PURPOSE AND OBJECTIVES.....	2	5.1 ON-ROAD FACILITY TYPOLOGIES.....	72
1.2 COMMISSION.....	3	5.2 OFF-ROAD FACILITY TYPOLOGIES.....	75
BUILDING BLOCKS.....	9	5.3 OTHER FACILITIES.....	78
2.1 DEMOGRAPHIC PROFILE.....	10	5.4 ROUTE SIGNAGE.....	80
2.2 EXISTING INFRASTRUCTURE.....	14	IMPLEMENTATION.....	83
2.3 PLANNING CONTEXT.....	20	6.2 PLAN PRIORITIZATION.....	86
2.5 OPPORTUNITIES AND CONSTRAINTS.....	24	6.3 BUDGET ESTIMATES.....	88
GUIDING PRINCIPLES.....	27	6.4 PHASING STRATEGY.....	91
3.1 DESIGN APPROACH.....	28	6.5 MEASURING SUCCESS.....	92
3.2 BENEFITS OF ACTIVE TRANSPORTATION.....	29	6.6 NEXT STEPS.....	93
3.3 USER PROFILES.....	30	APPENDIX A: DRAFT BYLAW.....	95
3.4 BEST PRACTICES FOR DESIGN.....	32	APPENDIX B: EDUCATIONAL MATERIALS.....	99
THE PLAN.....	37	APPENDIX C: SURVEY SUMMARY.....	103
4.1 PRIMARY NETWORK.....	38		
4.2 SECONDARY ROUTES.....	64		
4.2 EDUCATION.....	66		
4.3 INCENTIVE.....	68		
4.4 ENFORCEMENT.....	68		
4.5 POLICY.....	69		







# 1

## ORIGINS

Active Transportation can be defined as any form of human-powered transportation, such as walking, cycling, running, wheeling, skiing, or paddling. All people, to some extent, engage in active transportation daily, and there are many ways to integrate it into everyday life. Active transportation has many benefits for individuals and for the broader collective, including improvements to health, the environment, the economy, and the community.

An active transportation master plan provides the basis for a municipality to encourage, support, and expand the role of AT within their community. In order to be successful, an AT plan must outline not only the infrastructure and physical layout of the network, but also the programs and policy changes that will support the use of that network. Active transportation is a vision; a holistic initiative that seeks to capture the hearts and minds of a community, encouraging residents to hang-up their car keys and seek alternative forms of transit. In order to achieve that vision, a public-process oriented approach must be taken, to ensure that the resulting plan reflects the needs and wants to the people. This master plan documents one community's journey towards that vision.

The Yarmouth Active Transportation Master Plan is an opportunity to direct high quality infrastructure development, and to establish a clearly defined sustainable transportation network. The plan calls for a harmonic series of nodes and destinations for living and working, linked by multi-use trails, bike lanes, and sidewalks. The implementation of the Yarmouth Active Transportation Master Plan will create a vibrant, walkable and wheelable waterfront community; one that may eventually become the sustainable transportation centre of the south shore of Nova Scotia.



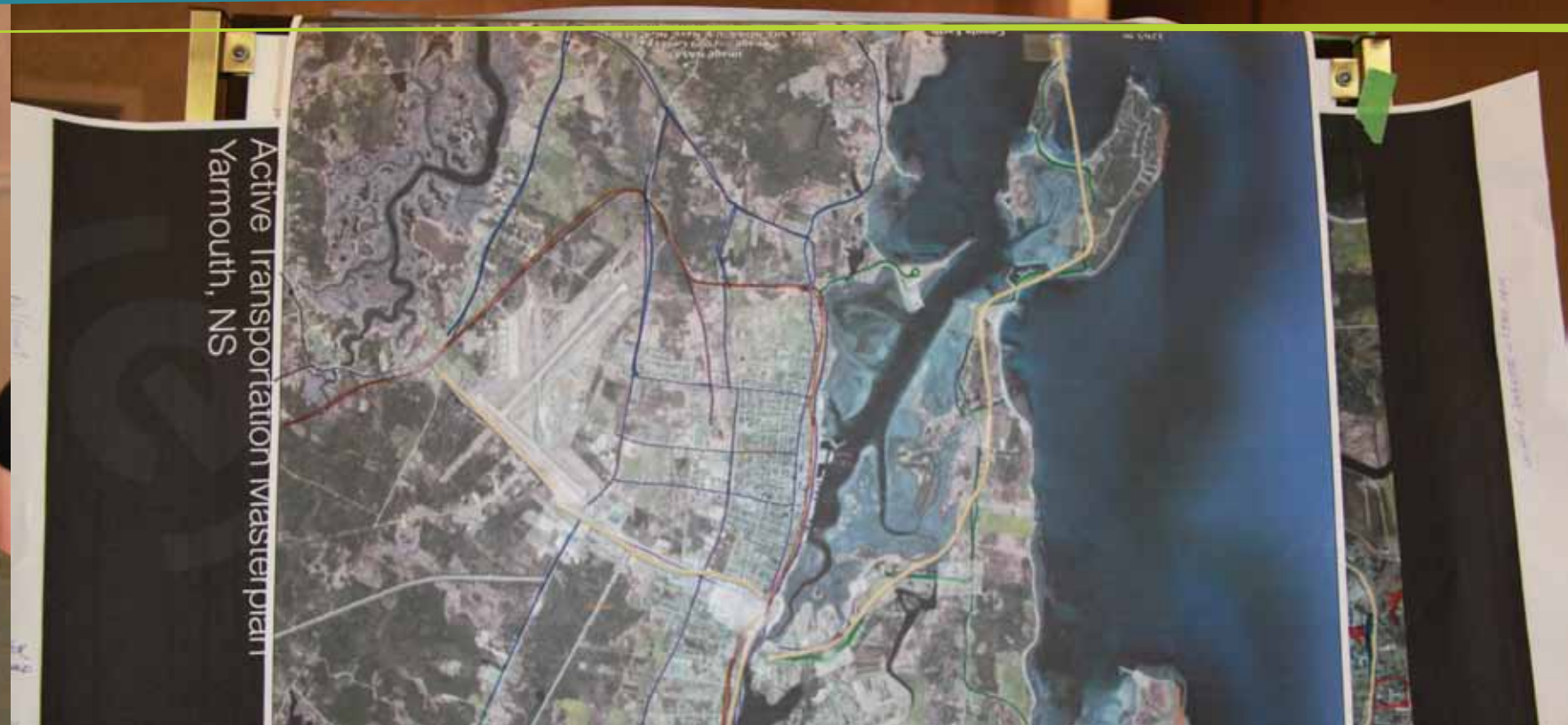
## 1.1 STUDY PURPOSE AND OBJECTIVES

In 2009, the Town and Municipality of Yarmouth, in joint recognition of the importance of active transportation, jointly undertook an Active Transportation Master Planning process. The Town and Municipality envision Yarmouth as a healthy, vibrant, and sustainable community that provides multiple modes of transportation to connect its people and places. The purpose of the active transportation master plan is to build upon this vision, outlining design upgrades and development that will create a walkable and wheelable network extending out from the Town into the broader municipality.

The overarching goal of the study is to provide guidance for the future development of Yarmouth's active transportation system. This guidance should achieve the objectives of the steering committee and stakeholders, be fiscally responsible to the Municipality, and respect the input received from the public.

The core objectives of the study are:

- Build upon the existing infrastructure, programs, and policies that shape the current active transportation framework in Yarmouth;
- Identify the location and characteristics of key transportation routes and access points;
- Create a route designer's toolbox for on and off-road facilities, addressing existing conditions and future considerations;
- Encourage green technology using progressive thinking about the considerations which will likely lead planning thought throughout the next 25 years;
- Provide design guidelines for the technical design and layout of the proposed network facilities;
- Support the People of Yarmouth in their Active Transportation pursuits;
- Create a viable active transportation brand for Yarmouth, and an accompanying cohesive signage design;
- Ensure that the proposed plan is ecologically and fiscally responsible;
- Identify required and discretionary public investments accompanied with preliminary cost estimates; and,
- Engage the steering committee, stakeholders, and the general public.



## 1.2 COMMISSION

This report was prepared by Ekistics Planning Design (in association with SNC-Lavalin, Form:Media, and Atlantic Road and Traffic), and is the culmination of 4-month transportation planning and urban design process commissioned by the Town of Yarmouth, in collaboration with the Municipality of Yarmouth.

The resulting Yarmouth Active Transportation Master Plan is reflective of the ideas and community dialogue heard throughout this project. The vision for the Plan came into focus during a series of stakeholder interviews and public workshops, where participants identified and agreed upon specific issues to address. The need for the Town, the Municipality, and the various stakeholders to come together and work collectively toward similar goals was seen as the best way to successfully address these issues and move a vision forward. This collection of voices ultimately spoke to the need for a plan that would allow the stakeholder groups to champion their ideas.

This study was organized into four phases that were framed by a public engagement process, and designed to generate a new vision for the future of active transportation in Yarmouth, in collaboration with a wide range of stakeholders.

### Phase 1: Understanding and Information Gathering

Phase one began with a project initiation meeting in December 2009 where the Consultant Team met with the steering committee and Town staff to review the timeline, deliverables, and protocol of the study. The Steering Committee was comprised of Town Staff, Municipal Staff, NS Health Promotion and Protection, and South West Shore Development Agency representatives, and Elected Officials. Policy information, past studies, and base maps were thoroughly reviewed to inform the study process. At the end of phase one, an opportunities and constraints exercise was completed.

### Phase 2: Consultation

In order to achieve the sense of realism and uniqueness necessary for implementation, a successful master plan must be based on the needs, wishes, and desires of the community. For this active transportation plan, phase two of the study consisted of a multi-faceted consultation program, comprising of stakeholder interviews, a public workshop, and an online survey.

#### INTERVIEWS

The steering committee provided a list of approximately 20 stakeholders for the Consultants to interview. The interviews were completed in person during visits in December and February, and over the phone throughout the study. The interviewees were generally consistent in their observations, which are outlined below in the thematic summary table (Table ?).



### **WORKSHOPS**

The results of the interviews formed the basis for the public workshop questions. A public workshop was held on the evening of Tuesday, December 15th, at the Rodd Hotel and Convention Centre. The session was very well attended, with more than 35 people participating. The overall response and activity generated during this process was generally positive and successful, especially during the public workshop. Workshop participants were divided into groups of six to eight people, with each group working together to answer a series of questions. Each group was given about 45 minutes to prepare their answers, and then summary presentations were made to all in attendance.

The issue topics and questions posed to participants were:

- Where do you go?
- Where would you like to go?
- What is stopping you from getting there?
- What would make it easier to get there?
- Where should the focus (of this study) be?

Ideas and discussion from the workshop was plentiful, responses to the questions were varied but centered around a number of common themes. The most commonly emerging themes included the need for safer biking facilities, the desire for AT connections along the Lake Milo stretch, the Airport stretch, and out to Cape Forchu, and the overall enjoyment and high usage levels of existing network components.

### **ONLINE SURVEY**

In order to further solicit public input, an online survey was developed to gather additional information on Active Transportation issues. Over a two month period, the survey yielded over 175 respondents, who commented on their commuting and transportation preferences and comfort levels. The full survey results can be found in Appendix A.

The majority of the respondents to the online survey were between the ages of 35 and 64 with an equal representation of male and female respondents. There was a fairly even distribution of people living anywhere within 2 kilometers from work/school and up to 25 kilometers from work/school. Respondents report that the use of their car/truck and walking are their main sources of transportation and the majority of respondents indicate that they are interested in using alternative (active transportation) strategies to get around Yarmouth.

Ninety percent of the respondents walk, on at least a weekly basis, and reports showed that people feel more comfortable walking on a multi-use trail or a sidewalk rather than on the shoulder of the road. Cyclist respondents reported that they feel more comfortable riding on a multi-use trail or a road that has painted bike lanes or wide shoulders. Some of the initiatives that respondents reported would encourage them to walk or bike more often were more/improved sidewalks, more multi-use trails and bike lanes, improved signage for bike and pedestrian use, better education for motorists, cyclists and pedestrians and finally better road and sidewalk maintenance. In order to get the respondents to use their vehicle less they reported that increases in gas prices would discourage use of their vehicle, as well as a convenient public transit system, and an improved trail and bikeway system in Yarmouth.





When asked which locations or corridors require new or better connected trails, bikeways or sidewalks, the majority of survey respondents felt that the Airport Stretch and Starrs Road could use the most help. However, respondents indicated that money is going to be the most significant challenge when it comes to improving Yarmouth's Active Transportation network. The key initiative that will encourage active transportation in Yarmouth is better education for motorists, cyclists, and pedestrians.

### Phase 3: Technical Review & Analysis

Phase three of the study process consisted of the technical review and analysis. In order to rationalize and analyze the many facets of the active transportation network, the study team identified a general hierarchy of facility and area types on which the foundation of the AT plan could be based. This included primary routes that provide the core connectivity throughout the network, and secondary routes for more local connectivity, and other core areas that are serviced by more general means of access (i.e. series of local roads).

The study team identified and investigated candidate routes, based on the information gathered to date from the study goals and objectives, the inventory and analysis, and the public consultation. As is common with most active transportation plans, the primary user groups considered in the development of routes were pedestrians and cyclists, as they form the vast majority of users, and typically dictate facility requirements. Nonetheless, it was recognized that in some areas, special consideration may need to be given to distinct user groups. As this plan moves forward through the various implementation stages, it is important to recognize that distinct user groups may be present, or may develop as time progresses, and specific facility choices may be required.

Based on this premise, the various route options were field verified, and a digital photo inventory and road right-of-way measurements were compiled. Using a study-specific best practices assessment, options were investigated for the identified route options and the recommended routes were further prioritized for implementation, based on the potential overall benefits and impacts.

### Phase 4: Reporting

Based on the preceding three phases, and the outcomes of the technical review and analysis, an overall active transportation plan was completed. The draft plan was presented to the Steering Committee for review and comment, in April 2010.

Committee comments were generally positive, and the requested revisions and refinements were incorporated into the text. The Yarmouth Active Transportation Master Plan was presented to the public on Wednesday, October 16th, 2010.

Public response was positive, with many of the key stakeholders expressing their enthusiasm for the plan.





# 2

## BUILDING BLOCKS

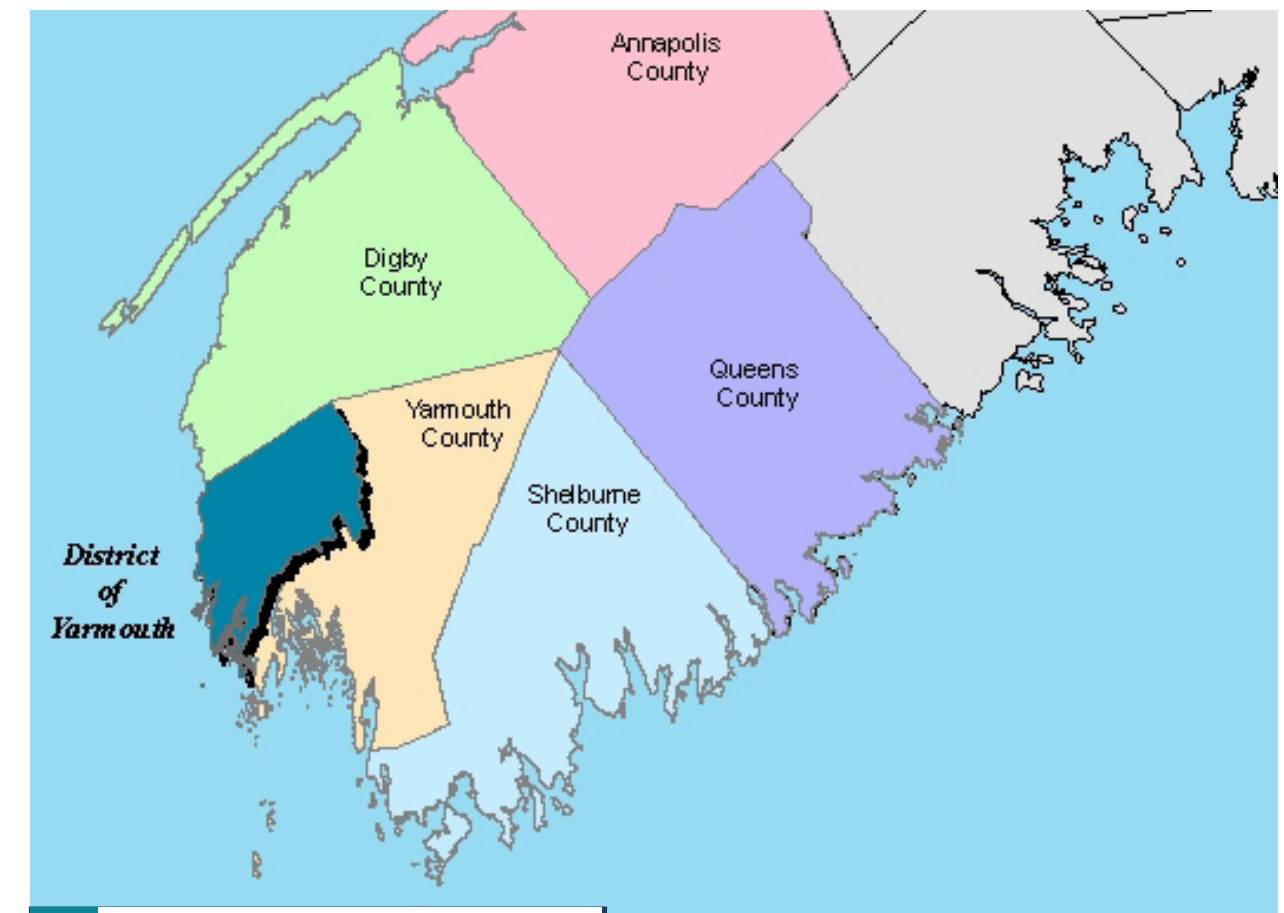
This chapter provides a summary of the existing socio-economic, physical, and environmental attributes of the study area, with specific reference of their relevance for the overall master plan. In order to ensure contextual appropriateness for the design, it is critical to have a thorough understanding of not only the existing conditions of the study area, but also the surrounding municipality of Yarmouth. These conditions, in turn, provide a contextual rationale for the active transportation master plan.



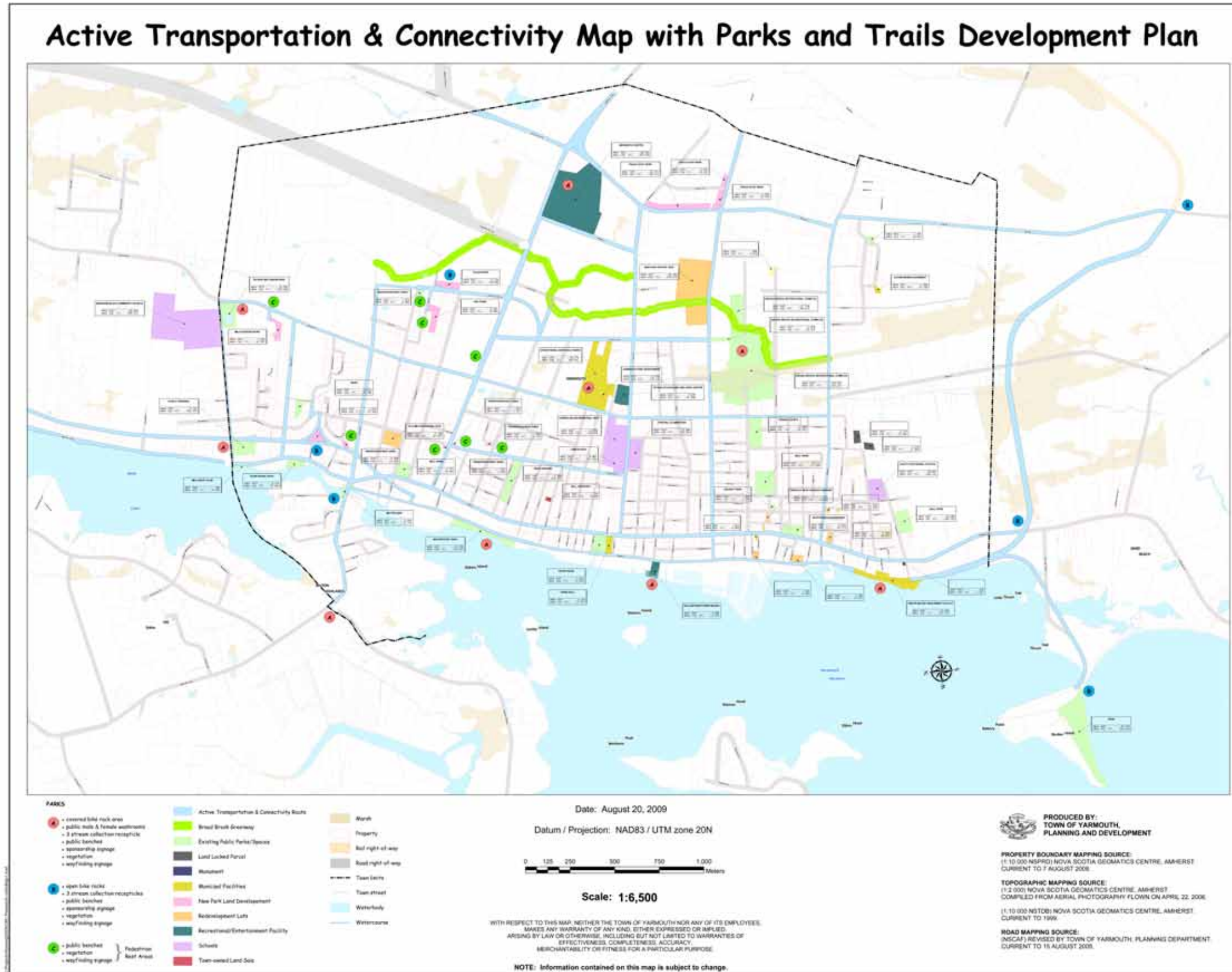
## 2.1 DEMOGRAPHIC PROFILE

Yarmouth is a coastal Town and Municipality in the County of Yarmouth. As is common in many small Towns in Canada, the population of Yarmouth is decreasing. The population of the Town of Yarmouth, according to the 2006 census, was 7,162, which represents a 5.3% decrease from 2001. The Municipality's 2006 population was 10,304, 1.5% lower than the 2001 population. The median age of the Municipality is 42.6, slightly higher than the Provincial median age of 41.8. The genealogy of Yarmouth is well rooted, as 90% of residents 15 years or older are at least third generation Canadians.

Yarmouth's unemployment rate is slightly higher than the Province's (17.2% unemployment in March 2010, versus 10.3% provincial rate). The major employers in the Town include the Western Regional Health Centre, Register.com, the Southwest Regional School Board, Yarmouth Sea Products, and Tidal View Manor. The median household income is \$44,323, slightly lower than the Provincial median household income of \$46,605.



2.1 Study Area





## Community Transportation Profile

A case study comparison was conducted, to further describe the transportation patterns in Yarmouth, based on the 2006 Statistics Canada census findings. The metrics considered were:

- Total population
- Population density
- Land Area
- Median Age and Income
- Mode share (transportation patterns)

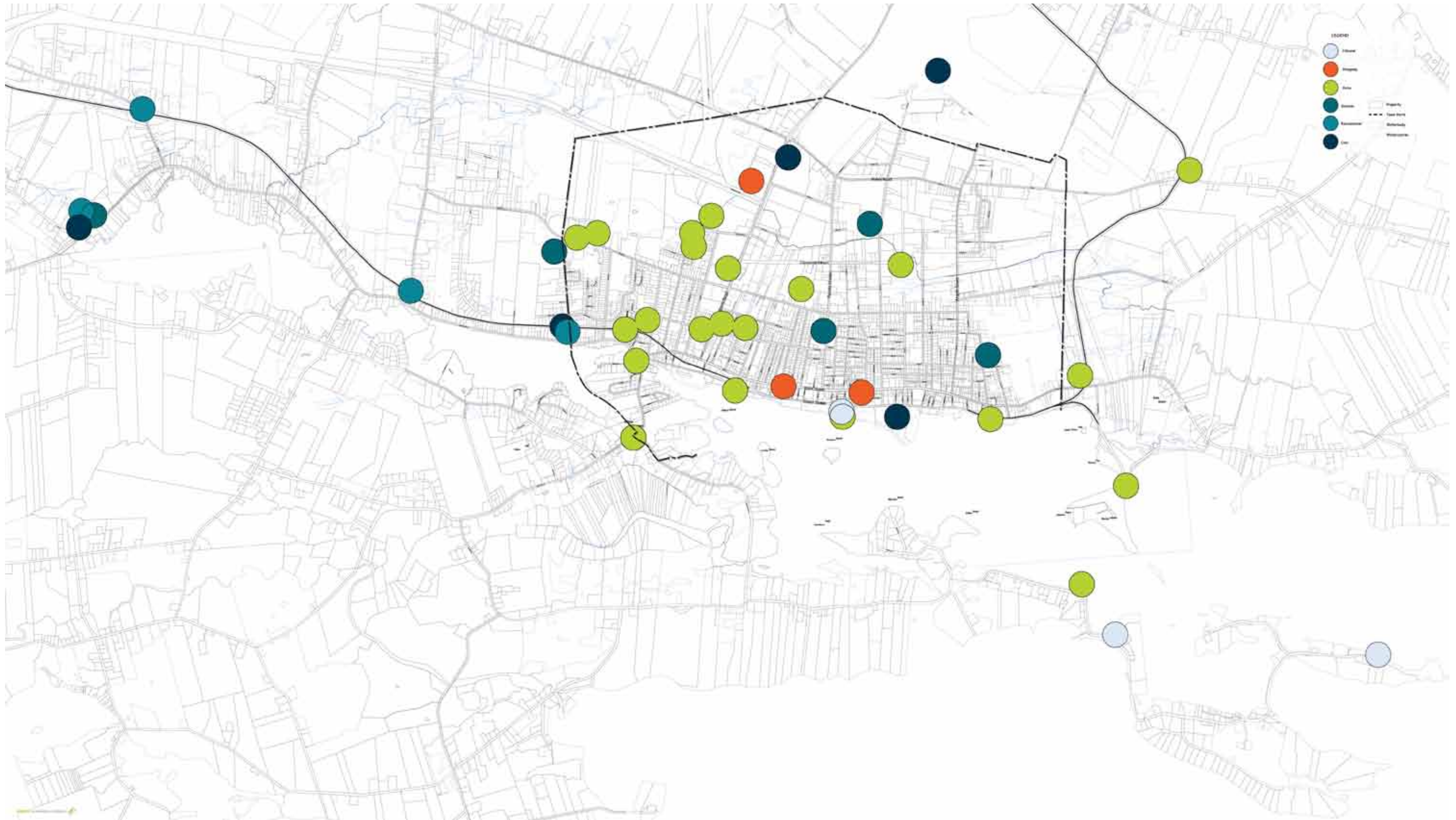
Yarmouth's mode share, similar to other municipalities, is predominantly auto-dependent. The rural nature of the area influences this dominance, with 84% of respondents reporting status as a primary driver of a vehicle; higher than the Provincial average of 72%. Nine percent of Yarmouth residents report walking and cycling as their primary mode of transportation, slightly lower than the Provincial average of 10%. The mode share of Yarmouth is influenced by the absence of public transit, which may explain predominance of the single driver vehicle.

### 2.3 Transportation Modal Share

	Nova Scotia	Yarmouth (MD)	Yarmouth (Town)	HRM	CBRM	Amherst	Chester	Truro
Total Population	913,462	10,304	7,162	372,697	105,925	9,505	10,741	11,765
Population Density	17.3	17.6	678.3	67.9	42.9	790.7	9.6	312.7
Land Area (km <sup>2</sup> )	52,917.46	585.27	10.56	5,490.18	2,470.57	12.02	1,120.75	37.63
Median Age	41.8	42.6	42.3	39	44.3	42.8	46.5	44.7
Median Household Income	55,412	50,995	38,500	66,892	47,571	46,105	53,559	49,854

Car; Truck; Van: As Driver	72%	84%	69%	65%	78%	78%	83%	77%
Car; Truck; Van: As Passenger	11%	6%	10%	11%	12%	12%	8%	11%
Public Transit	6%	0%	1%	12%	1%	0%	0%	0%
Walk & Cycle	10%	9%	17%	11%	6%	8%	7%	10%
All other modes	1%	1%	3%	1%	2%	2%	0%	2%
Total	100%	100%	100%	100%	100%	100%	100%	100%





## 2.2 EXISTING INFRASTRUCTURE

### Hartlin Trail

The Hartlin Trail is one of Yarmouth's best existing active transportation assets. Travelling south along the harbour from the textile factory, the multi-use, asphalt walkway terminates opposite the Tim Horton's parking lot, and transitions to an ornamental concrete sidewalk, with a 1.0m wide traditional segment, and a 2.0m ornamental, stamped segment. The concrete sidewalk continues along the waterfront all the way to the sewage treatment plant, where it meets up with the crusher dust rail trail. The waterfront pedestrian walkway is well used by both residents and tourists. The views of the harbour are spectacular, and it is interesting for all users to travel along the working waterfront.

Water Street, which travels parallel to the Hartlin Trail, is a 50 km / hr two-lane connector street, with on-street parking on both sides. There is adequate space to accommodate cyclists; however the busy nature of the surroundings and congestion during summer months creates conditions not conducive to on-road cycling for all levels of cycling users. Water Street also runs parallel to Main Street, and is a key north-south route for anyone wishing to avoid the congestion of Downtown.



### Lake Milo

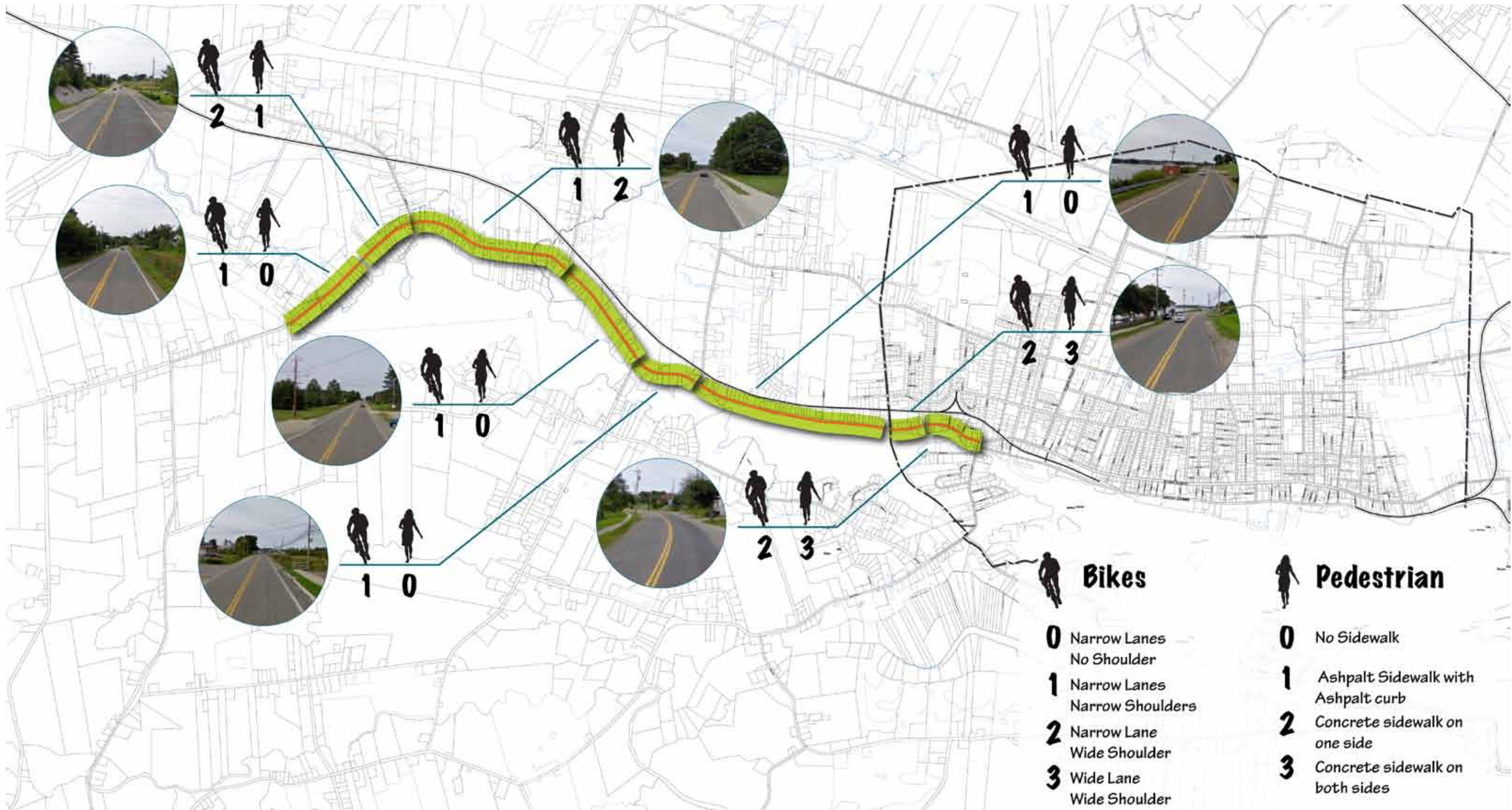
The Lake Milo route parallels a string of freshwater lakes including Lake Milo, Second Lake, and Doctors Lake. Lake Milo is a popular location for canoeing, kayaking and sailing in the summers and includes a year round boat launch. The area is highly used by tourists in the summer months. For the purposes of this project, the route considered extends from Vancouver Street and Lakeside Road, near the north end of Doctors Lake (approximately 6 km). Beyond this point, the route serves as the coastal route towards the Digby area.

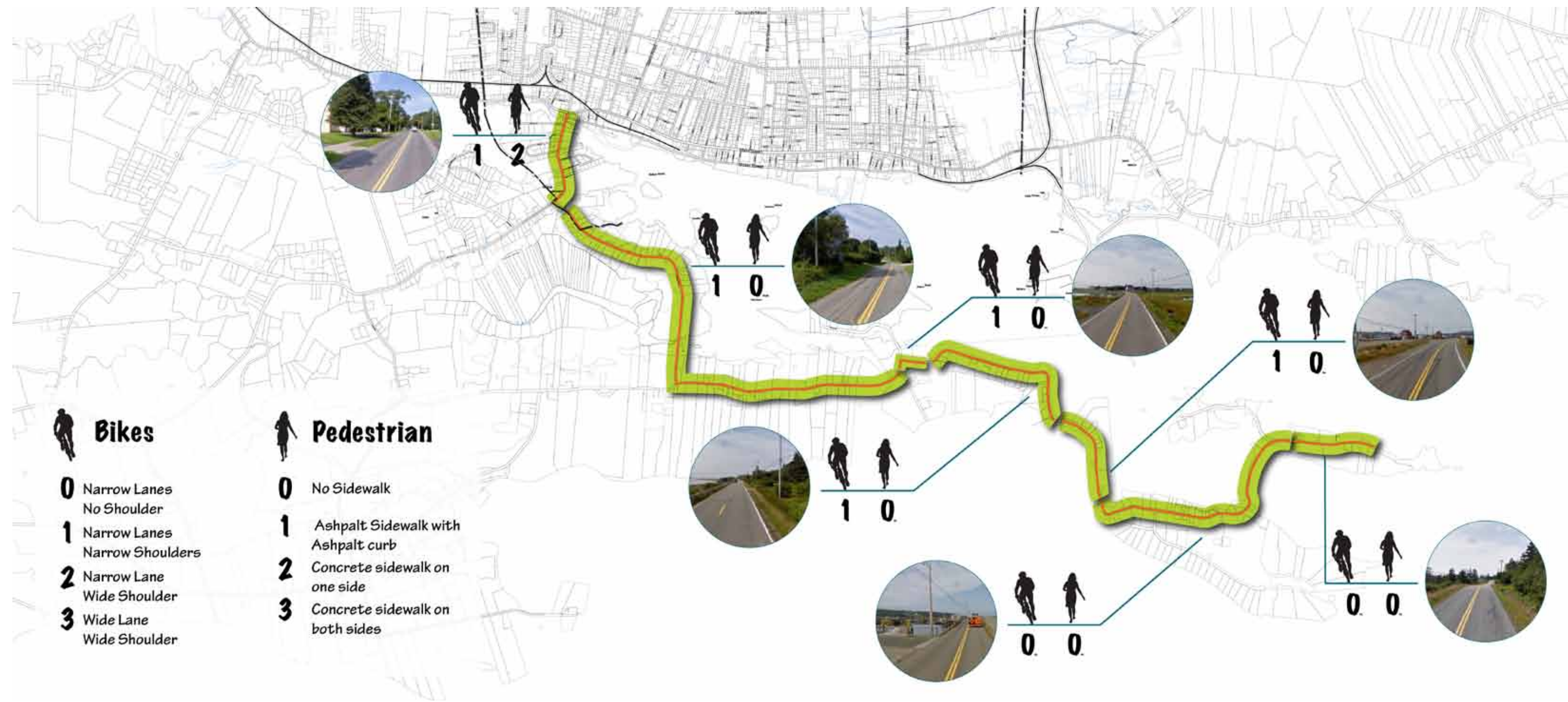
The Lake Milo Route is a continuation of Provincial Trunk Highway 1, and part of the Evangeline Trail. It generally has a two lane undivided cross section which varies between urban and rural contexts, and includes some sections with sidewalks and wider paved shoulders, though typically only on one side of the road. Passing and no passing zones are present throughout as sight distances allow.

The roadside environment is generally residential in nature with pockets of commercial and institutional uses. Posted speeds of 50 – 60 km/hr are maintained throughout the length of the route. It was noted during field investigations that many drivers appear to travel these sections of roadway and speeds exceeding the posted speed limit, which is not uncommon in rural environments such as this. There are a limited number of roadway intersection along the route, though there are many areas where driveway density is relatively high. There are also a significant number of areas that have very wide and uncontrolled access points.

Throughout the route, lane widths are typically quite narrow (in the 3 metre range), though some of the more recently reconstructed areas have lane widths in the 3.5 – 3.7 metre range. In rural cross sectional areas, the roadside is generally bounded by a gravel or grassed shoulder and often an adjacent drainage ditch. In most cases, the edge of the paved surface is just outside of the painted white edge line of the travelled way (approximately 0.3 - 0.5 metres). As a result, cyclists would generally be required to use the gravel shoulders as opposed to the asphalt roadway. In other areas, the roadway mixes an urban cross section (typically on the east side of the road) and a rural cross section on the opposite side of the road. In these situations, the rural cross section again does not provide a paved surface beyond the painted white edge line.

2.5 Lake Milo Inventory





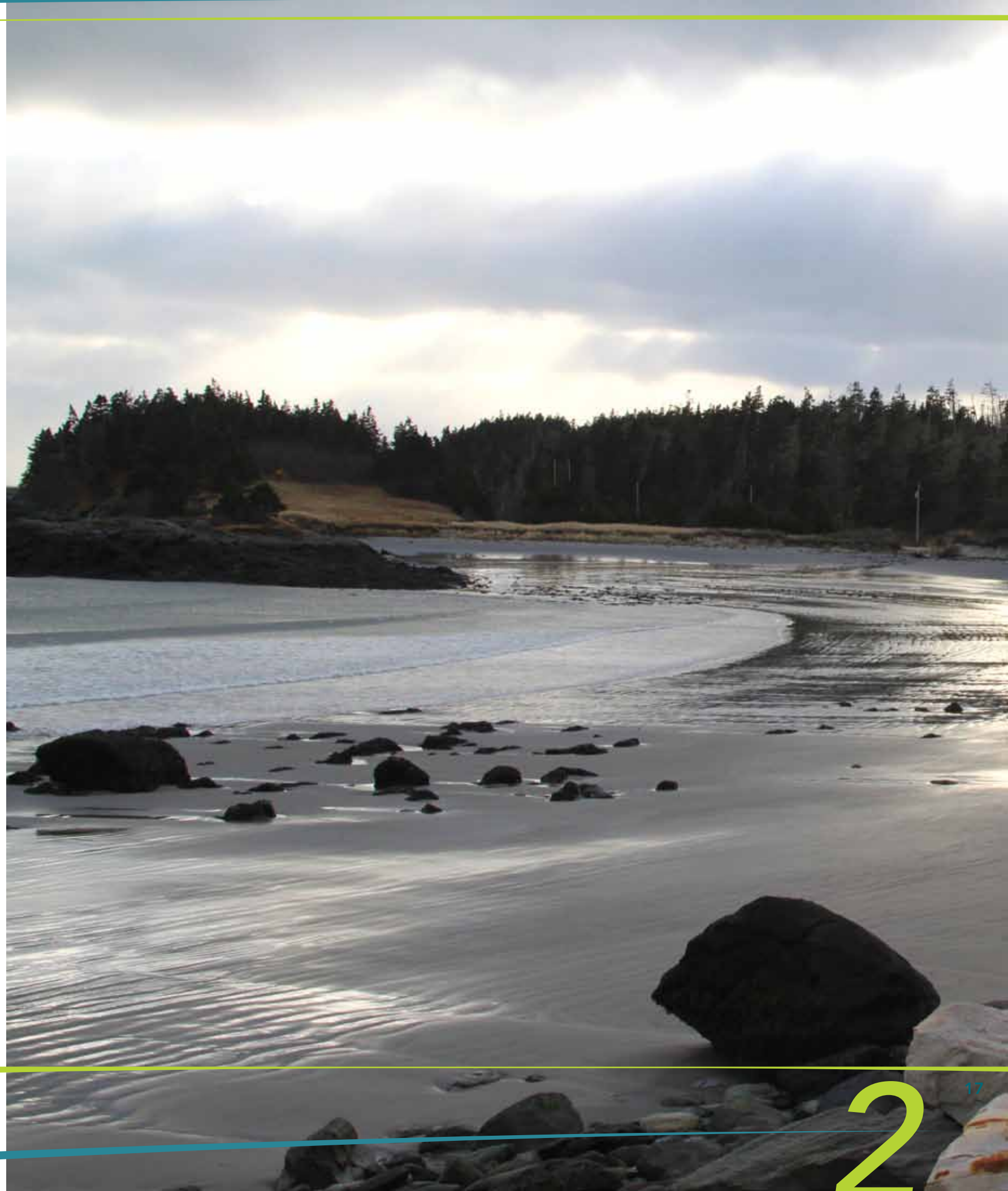
## Cape Forchu Lighthouse Trail

The route to the Cape Forchu lighthouse (Route 304) extends from Main Street and connects to the Main Shore Road using Vancouver Street. The overall length of the route is approximately 10 kilometres and the vast majority of the section consists of a narrow two-lane undivided cross section. There are minimal shoulder widths throughout, suggesting that any cyclist traffic is required to ride within the travel lanes in either direction. While traffic volumes are relatively low, larger trucks from the commercial areas and summer tourist traffic create an environment that may be considered challenging from an Active Transportation perspective.

This route winds along the shoreline and has many vertical and horizontal curves. The narrow lanes and shoulders noted above are often immediately abutted by a ditch or drop off and in some areas have a relatively steep side slope to saltwater marshes, or coastal areas. Posted speeds vary between 50 km/hr in more developed areas to up to 70 km/hr along more rural stretches of the route. There are residential driveways throughout, though the density tends to be relatively low. Guard rail is present in some sections and is generally placed relatively close to the edge of the travelled way.

This route has been identified and is being promoted as a prime cycling route (i.e. the Yarmouth and Acadian Shores brochure promotes the Cape Forchu Light Station for bicycle touring). Due to the length and rural nature of the majority of the route, this study considered the route as primarily a cycling route with minimal demand for lengthy pedestrian trips. Nonetheless, it was also identified that certain sections of the route in more developed areas should provide localized pedestrian accommodation on sidewalks or other pedestrian facilities.

Unique to this route is the section through the causeway /coastal / bar areas, which include significant seawalls for protection, wharf areas, narrow bridge crossings and commercial establishments. This area provides limited pedestrian or cyclist spaces, but also presents some unique opportunities to accommodate these users.



## Starrs Road - Airport Stretch

Starrs Road is a continuation of Provincial Trunk Highway 3 into the Town of Yarmouth and is the prime east-west corridor in the Town of Yarmouth connecting the Downtown core area with rural areas east of Yarmouth. It also is the prime access route connecting the Town to Highways 101 and Highway 103 at Haley / Hardscratch Road. Continuing along Truck 3 provides access to the coastal highway route along the south shore of Nova Scotia, also known as the Lighthouse Route. West of the Highway 103 connection, Starrs Road is predominantly a commercial corridor supporting a variety of strip malls, restaurants, big box retailers, and other commercial and institutional uses. East of Highway 103, Starrs Road runs adjacent, and north of Yarmouth Airport. The north side of Starrs Road in this area becomes more rural in nature, still supporting some commercial uses but at a much reduced density.

Given the diverse nature of Starrs Road, the route typically experiences a wide variety of users includes passenger and commercial vehicles, tourism traffic, pedestrians, cyclists and other vulnerable road user traffic, and event related traffic. It has been identified as a primary cycling route as part of a loop that includes Starrs Road, Cheboque Road, and Main Street/Hartlin Trail through the downtown core of Yarmouth.

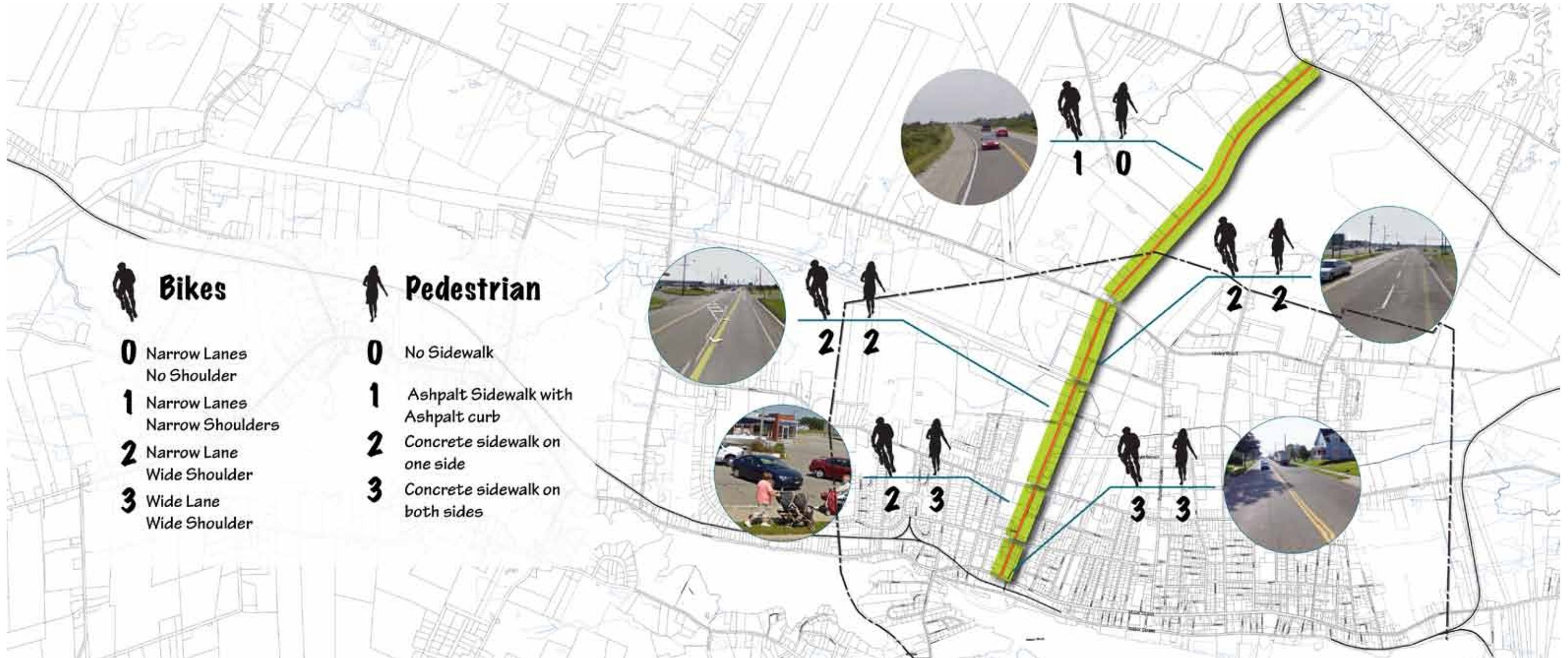
Other facilities on the route that promote a variety of trips include the Mariners Centre, the Tri-County Shopping Mall, Walmart, and other big box retail. In addition, a new High School is to be constructed south of Starrs Road, replacing the existing Yarmouth Consolidated Memorial High. The school is expected to be opened in 2011 and will result in a redistribution of vehicle and active transportation traffic to this new location.

Most major intersections are controlled by traffic signals and other accesses and intersections are



two-way stop controlled on the side streets. There are a variety of cross sections throughout the corridor, though three distinct areas can be identified.

- The sections between Main Street and the Highway 103 turn-off are primarily commercial in nature with pockets of residential, commercial and institutional use. The cross section is generally composed of a three lane cross section which includes a single through lane in each direction and a centre left turn lanes. Left turn accommodation varies between dedicated left turn lanes and two way left turn lanes. Shoulder widths vary throughout and there are intermittent sections of roadway with different cross section characteristics and are described in greater detail in the descriptions of the route subsections.
- From an Active Transportation perspective, the section of roadway is characterized by the need to accommodate a wide variety of users with similarly diverse trip purposes.
- The sections beyond the Highway 103 turn off are primarily rural in nature with minimal roadside development and rural roadway cross sections. The posted speed limit is 80 km/hr in this area and trip purposes are primarily transient in nature as there are few access points for vehicles to enter or exit the roadway.
- Pedestrians are expected to be limited through this area due to the length of the rural cross section with limited origins or destinations for pedestrian trips. Cyclist traffic is more prevalent and requires consideration to accommodate individual cyclists and cycling groups.
- East of the with Cheboque Road intersection, the route travels through a more developed residential area with a posted speed of 50 km/hr, greater access requirements and a greater need to accommodate active transportation modes. The area includes the Arcadia School, a church, and small commercial properties. The need to accommodate both pedestrians and cyclist traffic is appropriate, though the pedestrian related trips are expected to be local in nature.



2.7 Starrs Road



### New Yarmouth High School

A replacement for the existing Yarmouth Consolidated Memorial High School is in the current planning stages, with the proposed site located on the north side of Forest Street, near the Haley Road intersection. A specific traffic impact study is currently being completed by Atlantic Road and Traffic, which reviewed the street cross sections for Pleasant Street, Parade Street, Clements Avenue, Haley Road, Forest Street, and Argyle Street. While the Pleasant Street, Parade Street, Clements Avenue, and Argyle Street have typical urban cross sections, Haley Road and Forest Street (between Haley Road and Pleasant Street) have rural cross sections, characterized by gravel shoulders and open ditches.

Preliminary findings from the traffic impact study indicate that the streets with urban cross sections, including wide, flat shoulders (Pleasant Street, Parade Street, Clements Avenue, and Argyle Street) provide adequate clearance for on-street bicycle traffic. The existing sidewalks on these streets will meet pedestrian needs. Forest Street, which possesses more of a rural cross section, does not have adequate infrastructure to support either bicycle or pedestrian traffic.

## 2.3 PLANNING CONTEXT

Several background studies informed the result of the Yarmouth Active Transportation Strategy. The topical issues relevant to this study are summarized below.

### Municipal Planning Strategy (2007)

The Yarmouth Municipal Planning Strategy (MPS), adopted in 2007, provides Town Council and the general public with the planning framework for development and infrastructure decision making. The MPS facilitates Council's participation in directing quality development by providing an administrative framework for accommodating development proposals. Through the articulation of the goal, objectives, and policies outlined in the Municipal Planning Strategy, Council is setting the tone and intent for future development trends.

The stated goal of the Town of Yarmouth's Municipal Planning Strategy is:

- To promote orderly development to ensure a high quality working and living environment while enhancing the health and vitality of the community by:
- Promoting Yarmouth as a regional commercial, educational, industrial, and service centre;
- Creating a positive climate for investment in the community;
- Ensuring that development costs are minimized and fairly allocated between the public and private sectors; and,
- Co-operating with surrounding municipalities in infrastructure development and service deliveries.





### Town of Yarmouth Integrated Community Planning Strategy (2009)

The Town of Yarmouth's ICPS is a visionary planning document that outlines the Town's direction towards fulfilling its long term sustainability goals. The Plan is a requirement of the Municipal Funding Agreement, which distributes Federal Gas Tax transfer payments to municipalities, in the form of grants to fund sustainable infrastructure projects.

The ICSP addresses the Town's vision for sustainable transportation. The relevant recommendations include the completion of an active transportation master plan, the redesign of streets to accommodate bike lanes, the update of the subdivision bylaw to require developers to construct streets with 1.5m wide bike lanes, and other related AT initiatives.

### Town of Yarmouth Land Use Bylaw

The Town of Yarmouth's Land Use Bylaw (LUB) outlines the development process and design standards for all areas within the Town boundary. For the purposes of the LUB, the Town area is divided into 20 different zones, all with various regulations and standards. Presently, the LUB does not make specific reference to trails or active transportation uses. Land use zones that relate to trails development include Open Space (O-1), Flood plain (O-2), and Environmentally Sensitive (E-S).

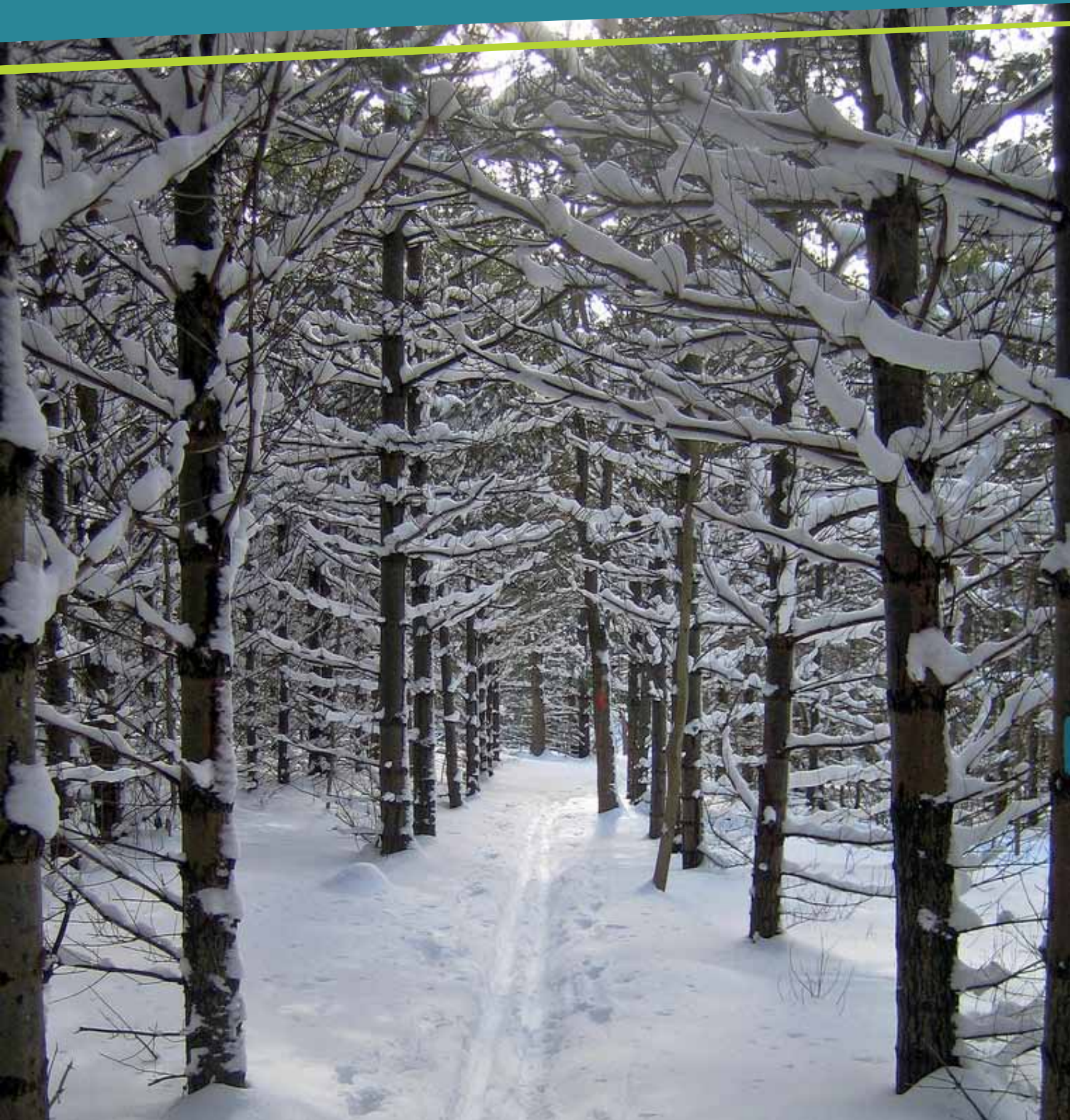
### Municipality of Yarmouth Municipal Planning Strategy (2006)

The Municipality's Municipal Planning Strategy (MPS), adopted in 2006, provides Council and the general public with the planning framework for development and infrastructure decision making. The intentions of the MPS are implemented through the specific objectives of the Land Use Bylaw (LUB), which establishes zoning, permitted uses, and development standards and regulations. The MPS works for the Municipality to ensure that future development is directed in a manner to maximize the best development scenarios possible for residents and the environment.

### Municipality of Yarmouth Integrated Community Planning Strategy (2009)

The Municipality of Yarmouth developed an Integrated Community Planning Strategy in 2009, in response to the need for a progressive and future forward planning vision. The Municipality currently participates in the Yarmouth-Argyle-Barrington District Planning Commission, and sees that a progressive rural municipality can derive many benefits from long term planning and design control. The ICSP is envisioned as an integrative component of a multi-faceted planning strategy, and is a complimentary document to the Municipal MPS. The ICSP addresses the need for a visionary, sustainable approach to future development; one that includes sustainable and active transportation principles.





### Municipality of Yarmouth Land Use Bylaw (2001)

The Municipality of Yarmouth's Land Use Bylaw (LUB) outlines the development process and design standards for all areas within the Municipal boundary. For the purposes of the LUB, the Municipality is divided into a number of zones based on district and land use, all with various regulations and standards. Presently, the LUB does not make specific reference to trails or active transportation uses.

### SWSDA Business Plan (2009 - 2010)

The South West Shore Development Authority (SWSDA) is the agency charged with the leadership of the region's Community Economic Development agenda. This area of the province is culturally diverse and geographically widespread, including Shelburne County, Yarmouth County, and the Municipality of Clare.

The economic slowdown has impacted this region in a similar manner to the entire province, in relation to the natural resources and manufacturing sectors. However, a positive outcome of past SWSDA initiatives has been a turnaround in the tourism industry. The 2009-2010 SWSDA business plan outlines a number of strategy initiatives designed to support the continued economic growth of the region. The activities are referenced to the five-year strategy plan, and timelines and budget estimates are outlined.

SWSDA's Yarmouth-based initiatives for the 2009-2010 business plan include Port Expansion, Downtown Revitalization, Tourism Marketing, and the Farmer's Market.



## 2.4 The Provincial Context

The following legislation provides the structural foundation for the development of active transportation plans and facilities within the Province of Nova Scotia.

### Municipal Government Act (MGA) - 1998, c.18, s.1. (Consolidated 2004)

The Nova Scotia Municipal Government Act outlines the roles and responsibilities of the Province's municipalities. With respect to active transportation, the MGA allows the municipality to identify property for the expansion, development, diversion, or improvement of a roadway or trail, to prepare a Municipal Planning Strategy that may require specific AT provisions for development agreements, and to designate a traffic authority that has the power to establish pedestrian promenades or other restricted access streets.

### Motor Vehicle Act (MVA) - R.S., c 293, s.1. (Consolidated 2005)

The Motor Vehicle Act of Nova Scotia restricts cyclists off of sidewalks, with the exception of children, or in locations where the local traffic authority has declared any portion of the sidewalk as a trail. The MVA also outlines the operation of bicycles along provincial highways, and prohibits roller-blading and skateboarding within the highway right-of-way, unless at a designated crosswalk.

### Trails Act - R.S., c. 476, s.1.

The provincial Trails Act facilitates the development of trails on Crown land. Additionally, this legislation addresses the designation of watercourses as trails, and permits the creation of trail development agreements with other levels of government.



## 2.5 OPPORTUNITIES AND CONSTRAINTS

Given the previous discussion of current conditions, trends in active transportation, and context findings from the participation process, the following assessment of opportunities and constraints conveys the strengths and weaknesses of the existing Yarmouth AT system.

### Opportunities

- Existing Facilities: The Town and the County already have in place a number of AT, bike, and trail facilities, including a stone dust rail trail, and a waterfront sidewalk.
- Engaged Community: The stake-holder groups and the public are very committed and engaged in the Active Transportation planning process. Stake-Holders provided meaningful input, public sessions were well attended, and the online survey received a high volume of responses.
- School Transportation: Some students within the Town boundaries are not bused to school, and must walk.
- Tourism: Yarmouth has a robust tourism industry, and its proximity to the coast, scenic landscape, and desirable destinations provide a strong foundation for developing eco-tourism opportunities.

### Constraints

- Inconsistent Infrastructure: The existing road and trail conditions vary widely across the Town and out into the Municipality. Conditions often change considerably even within relatively short sections of a individual route.
- Use of minimal design standards: Some existing infrastructure has minimal dimensions which can limit the effectiveness, safety performance, and use of those facilities. There is often abundant space along a roadway for a paved shoulder or wide curb lane though paved widths extend just to the white painted edge line. In other cases there is limited space, or pavement edges are jagged and uneven. Sidewalk widths in many areas are in the order of one metre, which is below recommended design guidelines.
- New Infrastructure Capital Costs. The costs for new infrastructure may seem overwhelming, especially given the small population and largely rural context of the study area.
- Distances between Destinations: The study area immediately outside Town boundaries is rural, and distances between nodes and destinations is large; a deterrent to everyday active transportation use.
- Climate: The Nova Scotia winter is a significant deterrent to year-round AT use, and in general, facilities will be used a maximum of three seasons.





2.8 Opportunities & Constraints





# 3

## GUIDING PRINCIPLES

This chapter describes the guiding principles that underlie the foundation of the Yarmouth Active Transportation Master Plan. These principles are used to structure the values, inspirations, and components that comprise the completed master plan, and are central to the overarching theme and intent of the entire project.



## 3.1 DESIGN APPROACH

This report presents the preferred active transportation network, for the Town of Yarmouth, and surrounding Municipal areas. The design approach was framed by the consideration of a number of active transportation values, which provided the foundation for the development of the entire plan.

### Safe

The proposed facilities must be designed to be safe and comfortable for a variety of active transportation users, as well as the general public.

### Accessible

Active Transportation facilities should be accessible from all areas of the Town, by all types and skill levels of users. Effort should be made to service both rural and urban areas equitably, and to meet the greatest range of needs from the largest variety of users.

### Desirable

Active Transportation connections should be reflective of the needs and wishes of the residents. Facilities should connection to nodes and destinations that are highly sought, while taking advantage of scenic vistas and natural amenities. The routes should be attractive assets to the Town's overall infrastructure network.

### Efficient

The planned active transportation connections should link nodes and destinations in an efficient and logical manner, integrating with existing infrastructure or alternative modes of transportation, where feasible.

### Fiscally Responsible

The active transportation connections should be planned and implemented in a practical manner with consideration given to budgetary restrictions, funding sources and cost effective implementation and prioritization while respecting the previous four points.



## 3.2 BENEFITS OF ACTIVE TRANSPORTATION

There are numerous benefits of active transportation, for individuals, the community as a whole, and the entire municipality. These benefits include improvement to public health, increased efficiencies for transportation, mitigated environmental impacts of vehicular infrastructure, local and regional economic stimulus, and enhanced community development.

### Health

Active Transportation provides an enjoyable, convenient and affordable means of exercise and recreation. Physical inactivity is a leading contributor to a number of health implications, such as heart disease, hypertension, stroke, diabetes and osteoporosis. Inactivity is also directly linked to obesity, one of Canada's most pressing health concerns. By encouraging participation of Yarmouth residents in purpose-driven physical activity, active transportation can aid in working towards greater overall community health and well-being.

Unlike traditional motor vehicle transportation, active transportation emits none of the airborne particulates that exacerbate respiratory ailments, and with a reduction of dependence on automobiles, it will help to decrease related respiratory problems. Having a healthier community will also help with reduced health care costs.

### Transportation

Active transportation is a means of transportation that is efficient, affordable and accessible. It is the most energy efficient mode of transportation and generates no pollution. The transportation benefits of active transportation include reduced road congestion and maintenance costs, less costly infrastructure, increased road safety and decreased user costs.

Roadway funding requirements include maintenance costs, safety and enhancement costs plus the addition of roadway capacity through lane widening or additions. An emphasis on walking, cycling and other active transportation modes can result in a reduction in these roadway costs. For example, bicycles are lightweight vehicles that take up little space and cause little wear and tear on a road surface.

Another benefit of reduced car use is a decrease in the amount of parking spaces required. Parking is a significant added cost of operating a vehicle. Encouraging more people to walk and cycle to work could lead to a reduction in the number of parking spaces required at a place of employment.



### Environmental

Active transportation is an energy efficient, non-polluting mode of travel. It can help to alleviate traffic congestion, air pollution, noise and the need for vehicle infrastructure such as increased numbers of roads and parking structures. Automobile exhaust contributes a whole host of harmful substances into the atmosphere, including greenhouse gas emissions, which are responsible for global warming. Airborne toxins and particulates reduce the quality of the air we breathe, which is one reason why forms of active transportation are encouraged.

Short distance, motor vehicle trips are the least fuel-efficient and generate the most pollution per kilometre. These trips have the greatest potential of being replaced by walking or cycling trips and integrated walking-transit and cycling-transit trips. Shifting to these modes can mitigate global climate change, local air pollution, photochemical smog, acid rain, water pollution and hydrologic disruptions, land use and noise pollution.

Reducing the amount of vehicles in the road reduces the number of pollutants that are emitted into the atmosphere by motor vehicles. Climate change is another problem that can be mitigated by encouraging drivers to use other modes, or to travel outside rush hours. Motor vehicles, roads and parking facilities are major sources of water pollution and hydrologic disruptions due to such factors as road de-icing, air pollution settlement, roadside herbicides, road construction along shorelines, and increased impervious surfaces.

### Economic

Active transportation is the most energy efficient and least costly mode of transportation. Shifting to active modes of transportation results in huge savings in personal and family transportation costs. Active transportation also allows for a reduction in road construction, repair and maintenance costs, costs due to air pollutants, health care costs, safety costs, external costs due to traffic congestion and parking subsidies. This will also allow for increase land values in areas adjacent to active transportation infrastructure. By providing infrastructure for active transportation it will be meeting the needs of those who don't have the option to drive, due to affordability, aging population or youth.

### Social

Active Transportation provides a setting for people to leave their homes and meet and socialize with the local residents. Interacting with neighbours can help people to feel more connected and involved with their community.



## 3.3 USER PROFILES

### Network Users

Generally, this Active Transportation Plan has been designed for two major user groups; pedestrians and cyclists. Within these broad groups, a number of more specific categories emerge. Pedestrians can be either recreational or utilitarian walkers, joggers & runners, and those with mobility and / or vision challenges. Cyclists tend to be classified by their proficiency, and have recreational and utilitarian requirements. When considering the design of various facilities, they must be created to meet the needs of the broadest cross section of users.

### Cyclists

The American Association of State Highway and Transportation Officials (AASHTO) has developed one of the most comprehensive resources for the development of bike facilities. According to AASHTO standards, a typical cyclist occupies at least 1.0m of essential operating space, based on their profile. Consequently, the minimum realistic clearance for a single lane of cycling traffic is 1.2m, while 1.5m is preferable.

Cyclists typically fall into one of three classes of users, outlined below:

**Advanced riders** operate in a similar fashion to a vehicle. While they may be riding for recreational or utilitarian purposes, an advanced cyclist tends to be comfortable in traffic, moves efficiently, and seeks out direct routes to reach destinations. These cyclists still require adequate space, whether that be in the road right-of-way, or on a multi-use trail.

**Basic riders** may also ride for either recreational or utilitarian purposes, but operate distinctively from advanced riders. Basic riders may travel in traffic, but prefer to do so in areas with ample clearance for passing, or with low traffic volumes. Basic riders tend to travel on neighbourhood streets, or off-road paths, and prefer connections with dedicated facilities, such as bike lanes.

**Children** comprise the third major class of cyclists. Travelling solo, or with their parents (who may be either advanced or basic cyclists), children do not travel as fast, and may not possess the technical proficiency of adult cyclists. Children typically require cycling routes that travel along residential streets, or off-road entirely, and avoid arterial streets and major crossings.

## Pedestrians

The Institute of Transportation Engineers (ITE) is one of many organizations overseeing the development of pedestrian facilities. ITE recommends a minimum width of 1.5 m for pedestrian walkways, to facilitate two users to pass comfortably. In areas of high volumes, wider walkways should be implemented, to accommodate more users. Ideally, sidewalks, trails, and walkways should be separated from the street surface by grade and by a buffer of 1.2 to 1.8 m; however this is dependent on the context of the situation.

Pedestrians typically fall into one of four categories, outlined below:

**Walkers** may be travelling for utilitarian or recreational purposes. They tend to walk 2.5 kilometres or less, or the equivalent of a 30 minute trip, and because they are travelling at a slower speed, are more aware of their surroundings.

**Runners or joggers** are participating in fitness pursuits. They will travel further than walkers, but are more particular about pedestrian facilities and surfacing.

**Mobility Restricted users** are dependent on aids, such as canes, walkers, scooters, or wheelchairs. They require special design consideration, such as universal access.

**Other wheeled users** such as parents with strollers, inline skaters, and skateboards tend to behave like pedestrians, although may have specific requirements (i.e. Inline skaters require greater clearance).

When designing pedestrian facilities, the needs of the users must be taken into consideration. Pedestrian facilities should accommodate the broadest range of the population, including children, the elderly, and the physically impaired. Surfacing selection and slope are the design factors with the greatest implications for pedestrian facilities.

Other considerations for pedestrian facilities:

- Walking is inherently social.
- Pedestrian needs are diverse.
- Pedestrians take the most obvious route.



### 3.4 BEST PRACTICES FOR DESIGN

There are a wide variety of resources that provide guidance on Active Transportation infrastructure from around the world, and numerous North American publications can certainly be considered as appropriate references for projects such as this. For cycling, The American Association of State Highway and Transportation Officials (AASHTO) has developed one of the more comprehensive resources for the development of bike facilities (AASHTO Guide for the Development of Bicycle Facilities). The Transportation Association of Canada's (TAC) Geometric Design Guide for Canadian Roads deals with pedestrian sidewalk and bicycle accommodation and is further supplemented by the TAC Bikeway Traffic control Guidelines for Canada. Other guides such as the Velo Quebec Technical Handbook of Bikeway Design and publications from the Institute of Transportation Engineers (ITE) have significant bodies of information and have been referenced in the preparation of this project.

In applying the notion of Best Practices and Active Transportation initiative, as with other infrastructure, it is important to realize that best practices must be applied within the context of a given situation. To provide practical solutions, existing conditions must be considered including existing infrastructure, budgetary constraints, land availability, other coinciding planning initiatives, local preferences and other factors.

The following sections describe the general types of facility Typologies that form the basis for Best Practices that have been considered appropriate and are to be applied in the context of the Yarmouth Active Transportation Initiatives. Additional details on the general principles and usage guidelines are presented in Section 5 of this report.

#### On-road Facility Typologies

The following facility types are described based on the standards outlined by the Velo Quebec Technical Handbook of Bikeway Design, and the AASHTO Guide for the Development of Bicycle Facilities.

##### *PAVED SHOULDER*

A paved shoulder is a bike facility that is adjacent to the outer lane of traffic. Paved shoulders can be constructed on either rural or urban road cross sections, and cyclists travel in the same direction as the vehicular traffic. When travelling on a paved shoulder, cyclists typically follow the same signage and standards as vehicles.

When implementing paved shoulders as an AT facility, both shoulders must be paved, in order to facilitate cyclists riding with the flow of traffic. Widths of paved shoulders typically vary, depending on the road right-of-way width, volume of traffic, and design speed. Paved shoulders that are too wide are not recommended, as they may appear to drivers as an additional lane.

##### *BIKE LANE*

A bike lane is an on-road facility designed for the exclusive use of cyclists. Bike lanes are typically an urban road feature, located on the right (outside) of traffic lanes, but on the left (inside) of any on-street parking. A bike lane is unidirectional; contra-flow bike lanes should have some physical separation from vehicular traffic. A bike lane is separated from the traffic lane by pavement markings, and often includes road signage.



concrete surfacing



asphalt surfacing



crusher dust surfacing



traditional sidewalk



rural (asphalt) sidewalk



wide curb lanes



painted bike route



painted bike lane



paved wide shoulder



separated bike lane



off-road multi-use trail



off-road stone dust trail



'sharrow' road marking



share the road signage





### *SIGNED SHARED ROADWAY ROUTE*

A designated shared roadway cycling route is officially designated and identified by 'Share the Road' signage. This facility is a standard road with light motor vehicle traffic (less than 3,000 vehicles daily in urban settings, less than 1,000 in rural settings), and with light truck traffic (less than 250 / day). Shared road routes should be well signed, frequented by cyclists, and designed to circumvent alternative, more dangerous on-road connections.

### *WIDE CURB LANE*

A wide curb lane is an alternative to a designated bike lane, most often used in the urban context. A curb lane that is wider than the standard of 3.6m can accommodate both vehicles and bicycles safely in the same lane. The provision of extra space means that vehicles can pass cyclists without the need to change lanes, and provides cyclists with additional clearance to navigate around obstacles, such as cars in driveways.

Wide curb lanes tend to be safer facilities than bike lanes, as they are maintained as part of the road, and are considered by drivers to be part of the road. This integration instils more awareness and vigilance on the part of drivers and cyclists for mutual attention to each other.



## Off-road Facility Typologies

### URBAN SIDEWALK

An urban sidewalk is typically constructed of concrete. Often, the sidewalk is adjacent to a grassed boulevard or amenity strip; but the sidewalk may be directly next to the curb. According to Nova Scotia Provincial legislation, cyclists are not permitted to ride on the sidewalk, unless it has been designated a trail by the local traffic authority.

### RURAL SIDEWALK

A rural sidewalk is the asphalt alternative to conventional concrete sidewalk. Often constructed in rural areas, the asphalt sidewalk may or may not have a curb, and may or may not be adjacent to a road or boulevard, depending on the right-of-way width and clearance. In circumstances where the sidewalk is adjacent to a curb, it should be constructed out of concrete to support the asphalt edge.

### MULTI-USE TRAIL

Multi-use trails are situated completely off-road, and have minimal interactions with vehicles at designated crossing points. Multi-use trails are designed to accommodate a number of uses, including cycling, walking, running, and optionally inline skating, skiing, ATV use, or equestrian.

Multi-use trails can be constructed of either hard or soft surfacing material, such as asphalt or crusher dust. The surfacing selection will influence the range of possible uses. Multi-use trails are bidirectional, and require a minimum width to facilitate passing.









# 4

## THE PLAN

This chapter describes the layout, content, and components of the active transportation master plan for Yarmouth. The physical plan arose from a combination of factors including: the best practices review and technical analysis; the public consultation component; the opportunities and constraints identified for the area; field investigations; as well as other economic, development, aesthetic, and environmental considerations.

The intent of the plan is to balance connectivity with public safety, cost with affordability, and new leading edge transportation design with the preservation and enhancement of the natural environment of Yarmouth. The plan is presented in terms of its overall approach, key areas and elements, and overarching site components, through detailed graphics, illustrations, and text.



To achieve the intent of the master plan, a connected network of pedestrian and cycling facilities has been proposed, to link key destinations throughout the Town of Yarmouth, and extending out into the Municipality. The creation of safe, clearly-defined route infrastructure is the first step towards achieving more sustainable transportation, and increasing the AT modal share. The implementation of the physical infrastructure must happen concurrently with a broadly-based education and outreach program, to educate the public and increase user awareness.

The proposed Yarmouth AT network consists of a hierarchy of routes and facilities. The system is initially broken down into three components, which are:

- Primary or foundational route connections;
- Secondary, or linking connections.;
- “Areas” of general connectivity (i.e. downtown core)

The primary and secondary network components are further classified based on the requirements to service both pedestrian and cycling facilities. In many cases, and particularly in urban areas, facilities include servicing for both key groups. In select cases, only one is formally accommodated (typically cycling) where the demand for the other mode is very low or non-existent. While many of the facilities may service other common modes of active transportation as well, these two key facility types act as the design basis for the entire network.

The route selection process was based on the design principles articulated in Chapter Three, with specific reference to the unique context of Yarmouth.

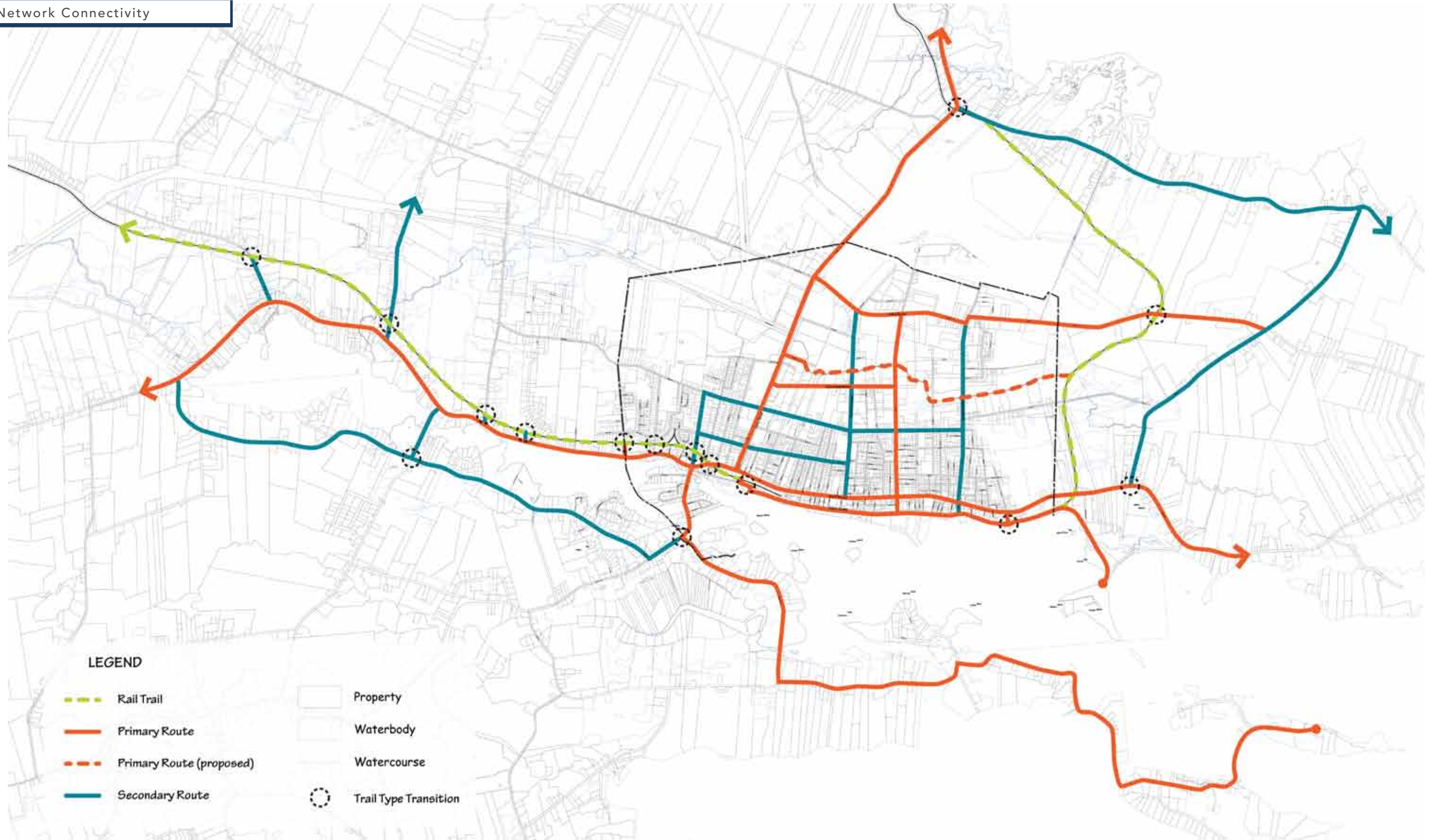
## 4.1 PRIMARY NETWORK

The primary network outlines a Town-wide route system connecting out into the broader Municipality. These connections provide opportunities for cyclists and pedestrians to travel along key routes, towards identified important nodes. The primary network comprises:

- Hartin trail
- Cape Forchu lighthouse trail
- Lake Milo Connector
- Starrs Road
- The Rail Trail
- Pleasant Street
- Main Street
- Forest Street
- Greenway Trail



4.1 Network Connectivity





#### 4.1.1 Hartlin Trail

The waterfront trail is one of Yarmouth's best existing AT assets. Winding along the harbour, it is a north-south connector. The Hartlin trail, in its current configuration, comprises multi-use asphalt trail and 3.0 m wide ornamental sidewalk. The sidewalk portion, which extends the majority of the length of the trail, limits the multi-purpose nature of this facility, as it presently functions as pedestrian-only sidewalk.

According to Provincial legislation, the local traffic authority has the ability to designate portion of sidewalk as multi-use trail, facilitating use by cyclists. The caveat to this designation is the increased potential of pedestrian / cyclist incidents. In the case of the waterfront trail, however, the additional width of the sidewalk portion should allow for the multi-purpose use of the facility. The waterfront trail travels along the harbour to the sewage treatment plant, where it transitions to the rail trail. This is a key node, as users have the option to break off towards Bunker Island, or continue along the rail trail. Water Street terminates in a cul-de-sac at the sewage treatment plant that provides space for occasional parking. The proposed development formalizes the parking area, maximizing space for AT users while maintaining access to the plant. Parking in this location is a logical upgrade, as users have the option of looping north through downtown Yarmouth, or heading south towards Bunker Island.

The proposed parking redevelopment creates the opportunity for a trail head plaza. Here, interpretive signage, trail markers and route maps, and site amenities are welcome additions for AT users.

##### **RECOMMENDATION:**

The sidewalk portion of the waterfront trail be designated as multi-purpose trail, permitting cyclist use. The useable space on the ornamental sidewalk portion of the facility could be increased through the addition of tree grating at planter locations. Improvements to the existing trail head at the sewage treatment plant and improvements to the trail in the vicinity of the plant over the long term.

##### **INTERIM / ALTERNATIVE MEASURE:**

The creation of a signed, shared use roadway along Water Street, facilitating travel for cyclists.

##### **LONG-TERM VISION:**

An upgraded parking area at the sewage treatment plant with a formalized trail head plaza.

4.2 Hartlin Trail Concept





#### 4.1.2 Cape Forchu Lighthouse Trail - Overall

The Cape Forchu lighthouse trail is a popular destination for residents and visitors alike. Highway 304 winds out for 10 kilometres towards the lighthouse, with narrow or no shoulders, and no pedestrian facilities past Grove Road. The narrow rural road cross section is a challenge for all AT users. Over time, as road maintenance takes place, the opportunity will present for facility upgrades.

##### *OVERALL ROUTE RECOMMENDATION:*

Widen and pave the shoulders of road, to provide clearance for cyclists, in all areas except immediate coastal zones, where it is not feasible. Fill will be required in some areas to provide consistency in paved shoulder widths.

##### *INTERIM / ALTERNATIVE MEASURE:*

Widen the cross section with gravel shoulders.

##### *LONG-TERM VISION:*

Paved shoulders along Highway 304, to the lighthouse. Off road facilities may be considered in select locations to remove cyclist traffic from the narrow road section.



4.2 Seafarer's Park Concept

### Cape Forchu Lighthouse Trail - Seafarer's Park

Approximately halfway to Cape Forchu, there is a monument to the seafaring sons of Yarmouth. This memorial cairn marks the site of the first sea launching in the County, in 1764. Presently, the site is an open lot, with some benches for seating. The location of this monument provides an opportunity for development fitting of its symbolic importance. The proposed plan for seafarer's compass park depicts a compass rose, with the needle pointing north east, towards downtown Yarmouth. The end of the needle is a wooden lookoff, connected to the memorial by a new multi-use trail. The relocated monument is oriented south, and its prominent new location provides space for memorial ceremonies or quiet reflection. A new lookoff towards the east captures the scenic views of downtown and Bunker Island. Seating and interpretive panels are welcome site amenities.

The seafarer's compass park also creates formalized parking, facilitating AT users who do not wish to bike the entire distance to Cape Forchu.

Further down the Highway from Seafarer's compass park is the active lobster fishery. There is nothing more interesting to Nova Scotian visitors than the working wharf. The proximity of the working wharf to the park creates an easily walkable loop for visitors and residents alike. This section of the highway is wide enough to permit an AT connection to the wharf, where the proposed concept depicts clearly defined vehicle access points. Improved access management provides the opportunity for sidewalk or boardwalk connections around the wharf buildings, facilitating the interaction of visitors with the waterfront.

Towards the east of the wharf is a narrow bridge with a seawall. This unique section of Highway 304 presents the most significant challenge in terms of active transportation. In this section, signage and reduced speed limits will inform drivers of the potential cyclist / pedestrian traffic crossing this narrow bridge.

#### RECOMMENDATION:

Widen and pave the shoulders of road, to provide clearance for cyclists, in all areas except immediate coastal zones, where it is not feasible. Install Share the Road signage and reduce speed limits for the pedestrian segment along the working wharf.

#### INTERIM / ALTERNATIVE MEASURE:

Widen the cross section with gravel shoulders, create a crusher dust trail between seafarer's compass park and the working wharf.

#### LONG-TERM VISION:

A realized multi-use loop between seafarer's compass park and the working wharf, complete with interpretation, site amenities, and trail signage.

#### 4.3 Cape Forchu Parking Concept





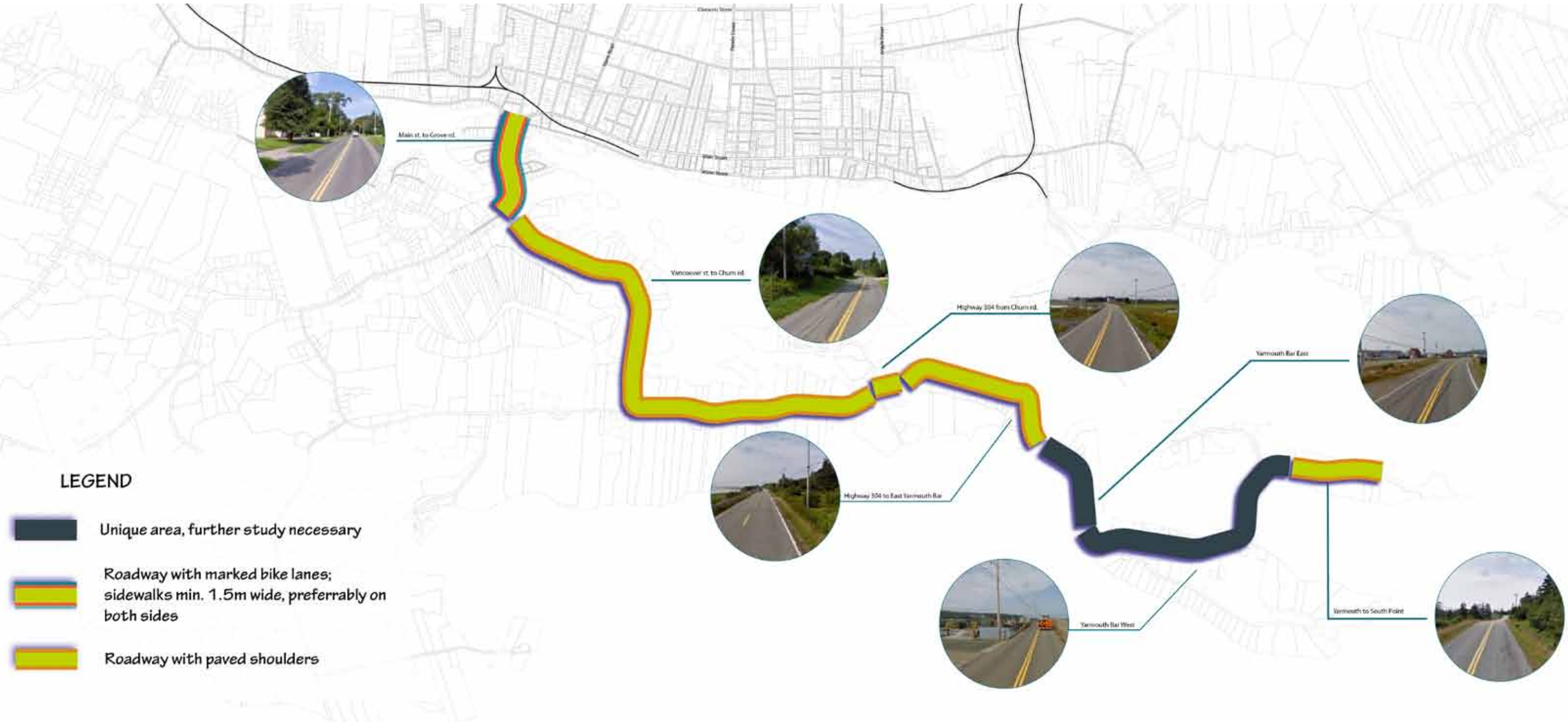
4.4 Working Wharf Concept





4.4 Working Wharf Concept





## Cape Forchu – Section 1 – 0+000 to 0+750 – Main Street to Grove Road

The section along Vancouver Street between Main Street and Grove Road is primarily residential in nature with a sidewalk along the south side of the road. Sidewalk and boulevard width varies along the section with some sections being quite narrow. Widening all sidewalk sections to a minimum of 1.5 metres is recommended particularly given the proximity to the core areas of the Town and the presence of the Hospital. Vegetation and utility poles are present along both sides of the roadway.

As a collector roadway, consideration should be given to providing sidewalks along both sides of the roadway. Similarly, bicycle accommodation should be provided on both sides of the roadway due to the nature of the road and the fact that it serves as a gateway to the Cape Forchu Route.

Existing pavement widths are generally too narrow to support a formal bicycle facility and roadway widening should be considered to provide at minimum a wide curb lane and preferably a dedicated bike lane. Doing so may require strategic widening and potentially minor roadway realignment to minimize impacts on existing and well established vegetation. Consideration may also be given to converting sections to an urban, curbed cross section with storm water upgrading to accommodate facilitate cross section widening.

### RECOMMENDED OPTION:

Widen roadway cross section to include cyclist accommodation and upgrades sidewalks as required to ensure minimum 1.5 metres sidewalk throughout the section.

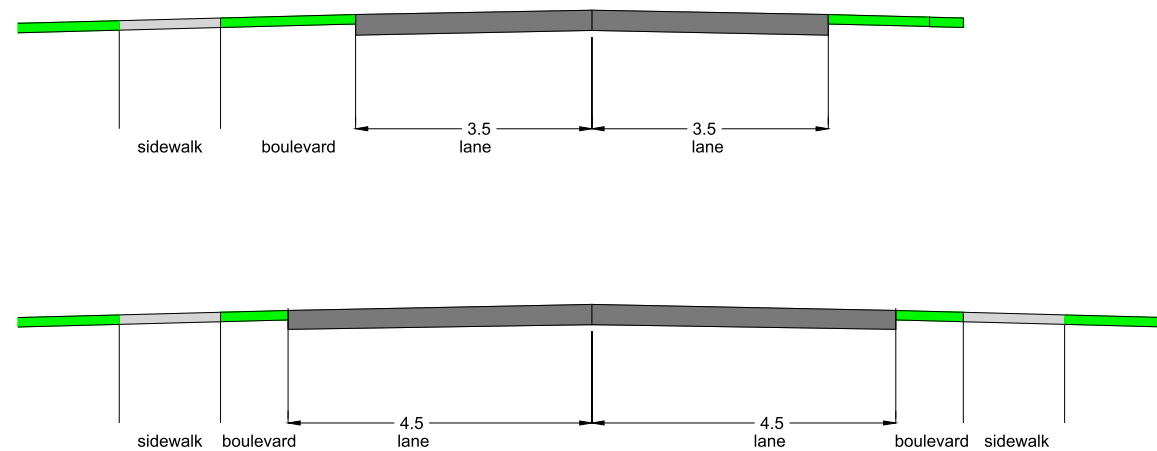
Option 1: Add new 1.5 metres wide sidewalk on north side of roadway.

### CHALLENGES:

Available ROW

Roadside utilities (utility poles, fire hydrants) and trees

Houses in close proximity to the sidewalk



## Section 2 – 0+750 to 4+500 – Vancouver Street to Churn Road

This section of roadway transitions to a semi-rural environment with residential dwellings on larger lots. The roadway cross section is very narrow with lanes approximately 3 metres in width and shallow roadside ditches in some locations. Areas closer to the Hospital include larger parking lots. Given the proximity to the Hospital and associated development and the residential nature of the area, sidewalk could be considered on at least one side of the roadway from Vancouver Street to the south.

Widening of the roadway to an appropriate width to accommodate vehicles and cyclists is recommended. Given the presence of truck traffic on the route, a minimum width of 4.5 metres is suggested include the travel lane and paved shoulder. Such widening may require minor modifications to roadside drainage and some utility pole locations may need to be modified to facilitate the widening.

### RECOMMENDED OPTION:

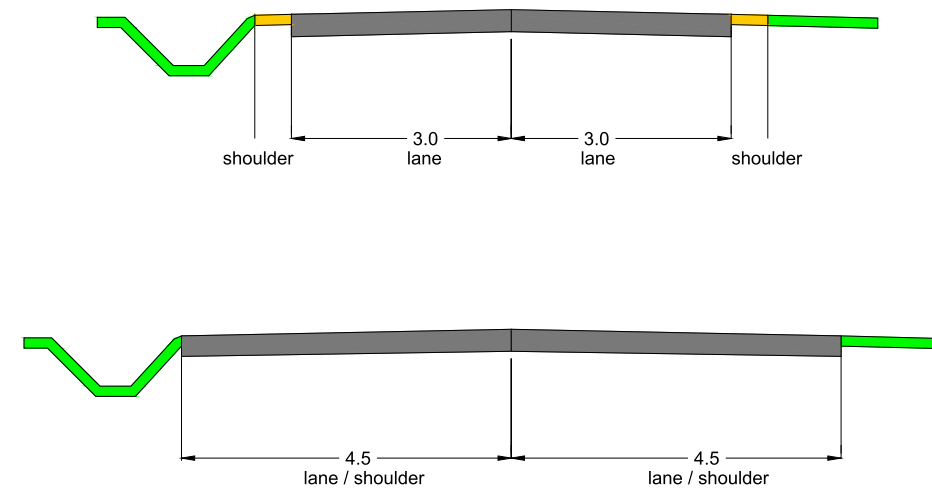
Widen roadway cross section to include cyclist accommodation.

Option 1: Provision of sidewalk near the Hospital and the surrounding residential area should be considered.

### CHALLENGES:

Some houses located close to the roadway.

Accommodation of vehicle, truck and cyclist traffic in a narrow cross section.



### Section 3 – 4+500 to 4+900 – Hwy 304, from Churn Road

Widening of the roadway cross section through this area is more challenging due to the presence of marshland on both sides of the road. Widening of the cross section through these areas will require some limited infilling of the marsh areas, though minor realignments of the roadway may allow widening activities to occur on areas of dry land. Depending on the approvals process for roadway modifications, compromises may be required in pavement width to limited the extent of widening.

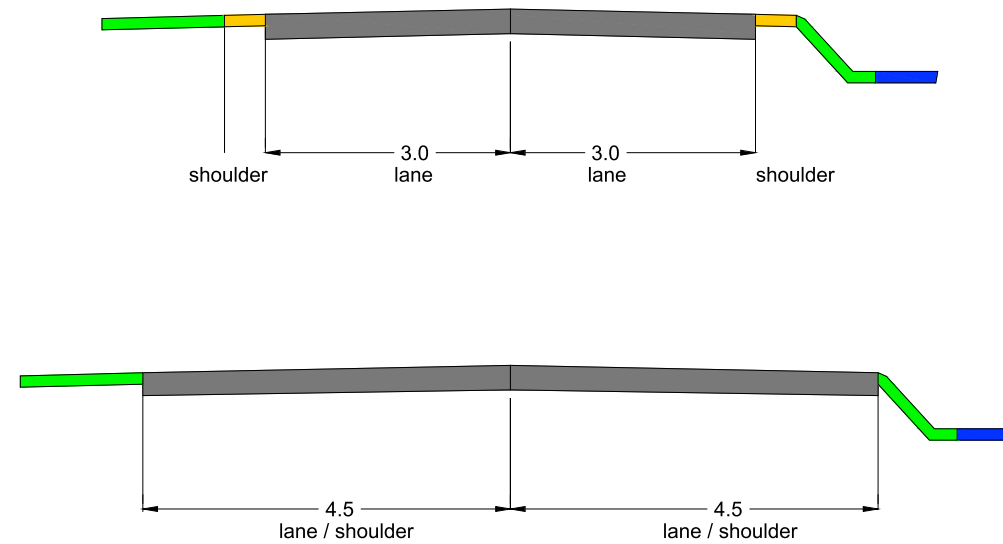
Consideration may also be given to potential off road routes that may limit the impact on the marsh areas, though given the size of the marsh areas, such a route would be well removed from the existing roadway.

**RECOMMENDED OPTION:**

Widen roadway cross section to the greatest extent possible given the presence of the marshlands. Option 1: Consider off road options for minimizing impact on the marsh areas.

**CHALLENGES:**

Marsh areas along both sides of the roadway.  
Limited widening opportunities.



### Section 4 – 4+900 to 6+200 – Hwy 304 to East Yarmouth Bar

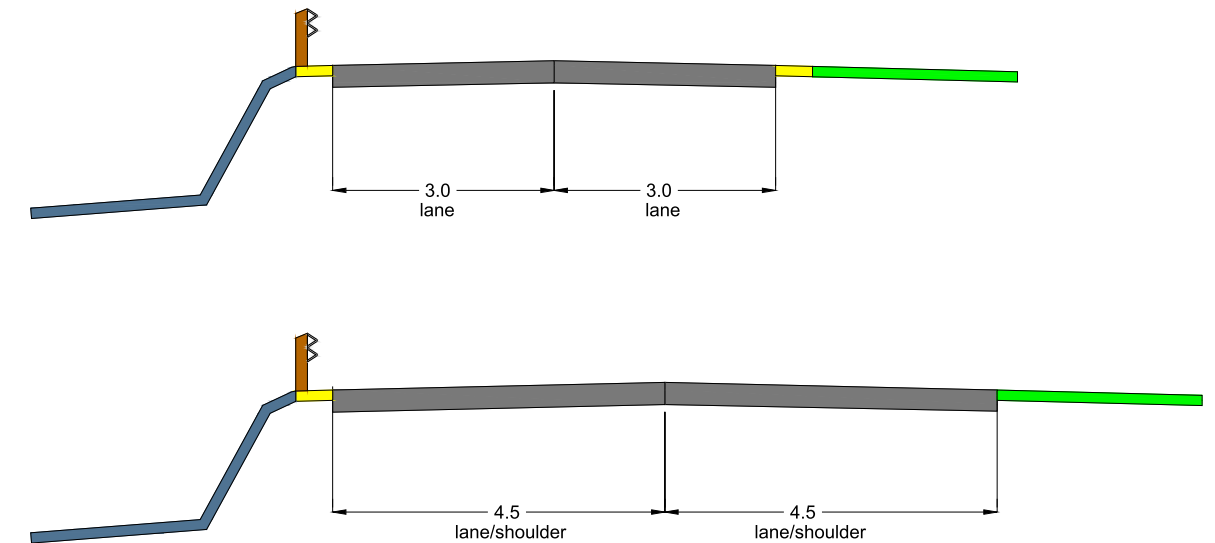
Widening opportunities improve through this section of roadway as the west side of the route is bounded by residential properties that are generally set back from the roadway. Minor regarding of drainage swales and driveway accesses would be required as would some utility pole relocation. The east side of the route is bounded by guiderail and a drop-off to the water which limits widening possibilities. Opportunities to widen further improve closer to Seafarer’s Park and consideration may be given to off road facilities or multiuse trails which could also coordinate with points further towards the working wharf.

**RECOMMENDED OPTION:**

Widen roadway cross section to include a travelled lane and bike lane. Areas surrounding Seafarer’s Park should include sidewalk or off-road trails. Option 1: Consider off road where practical.

**CHALLENGES:**

Available Right of Way.  
Guiderail restriction on east side of road.



### Section 5 – 6+200 to 6+700 – Yarmouth Bar East

This section of roadway is unique in that it pass through a working wharf area which is a significant draw for both local and tourist traffic and potentially becomes a starting point for travelling to adjacent areas. As such, accommodation of both pedestrian and bicycle traffic is important and facilities should be provided for both.

For route continuity for cyclists, roadway widening could still be considered through this area. Consideration could also be given to off road multiuse trail facilities to accommodate both pedestrian and bicycle traffic off of the main roadway. This also have some benefits as the wharf area is the origin of many of the larger trucks destined to and from this areas. The roadside environment is generally accommodating to an off road facility, though there are select areas where buildings area located very near to the roadside.

As accommodation of AT users in this area needs to be consistent with any redevelopment plans for the parks and wharf areas, specific recommendations are not made at this time. Any recommendations should stem from further study of overall planned upgrades for the area.

**RECOMMENDED OPTION:**

Develop an localized AT plan for this area that is coordinate with larger redevelopment or upgrading plans. Both road widening and off road facilities are considered good options.

**CHALLENGES:**

- Available Right of Way.
- Buildings immediately adjacent to the road.
- Integrating AT facilities with working wharf.

### Section 6 – 6+700 to 7+100 – Yarmouth Bar West

The areas immediately surrounding the working wharf area are very challenging from an AT perspective due to adjacent seawalls, boardwalk areas, narrow bridge structures, and other restrictions. There is limited or no opportunity to widen the roadway, and construction of adjacent attached AT facilities would likely be quite costly.

Alternatives in this area may include reduced speed limits, one way passage over narrow structures using directional traffic signals, or other options. Again, as this area is very unique in natures, specific recommendations are expected to stem from a more detailed local areas study of the preferred alternatives for AT accommodation.

**RECOMMENDED OPTION:**

Develop an localized AT plan for this area that is coordinate with larger redevelopment or upgrading plans.

**CHALLENGES:**

- Narrow structures, seawalls and other roadside restrictions.
- Very limited alternatives.

### Section 7 – 7+100 to 10+000 – Yarmouth to South Point

This section is similar to previous sections and includes a more forgiving roadside environment to allow widening of the travelled way. The narrow lanes should be widened to accommodate both vehicles and cyclist traffic, though it is assume that truck traffic is significantly reduce or eliminated between the lighthouse and the wharf area.

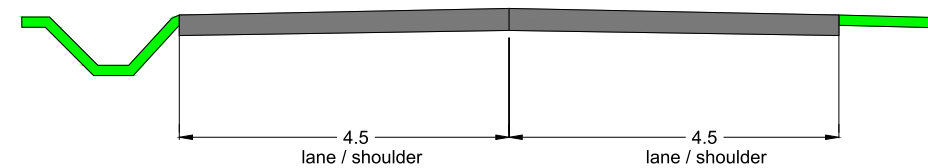
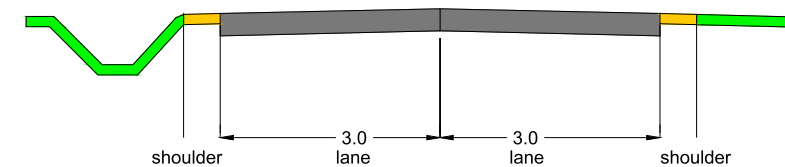
Consideration should be given to traffic volumes though this area whether the roadway could reasonably operation as a shared use facility, potentially with reduced speed limits. Consideration should also be given to the volume of pedestrian traffic that may be experienced in this area to determine whether a sidewalk or trail facility is warranted. Areas surrounding the lighthouse should again accommodate all modes of travel and should be addressed under a more specific and detailed study.

**RECOMMENDED OPTION:**

- Widen roadway cross section to include cyclist accommodation.
- Option 1: Consider addition of pedestrian facilities at key locations.

**CHALLENGES:**

- Available ROW
- Roadside utilities (utility poles, fire hydrants) and trees
- Houses in close proximity to the roadway.





### 4.1.3 Lake Milo Connector

The Lake Milo Connector provides a number of unique lake side opportunities for active transportation facilities, as well as a number of looped routes particularly for cycling traffic. Much of the route parallels in close proximity to the active rail trail corridor providing an opportunity to use the Milo Connector Route and the Trail in concert as a looped system. Alternatively, a somewhat longer looped route could be considered consisting of the Lake Milo Route and Lakeside Road located on the west side of Milo / Second / Doctor Lakes.

The Lake Milo connector considered in this report is approximately 6 kilometres in length and varies significantly in roadside character and existing facilities. Bicycle accommodation should be considered throughout the route using widened paved shoulders as a minimum and where feasible, continuing the concrete curb and paved shoulder that is already present in some locations along the route.

Presently, the most significant infrastructure that supports AT use is located along the east side of route, therefore initiatives to complete the cycling component of the AT network along the east side of the roadway appear to be a reasonable priority given the loop back opportunities presented by Lakeside Drive and the Rails-to-Trails. Improved access management practices are also warranted in many of the commercial areas along this route as uncontrolled access points generally negatively impact pedestrian and cyclist traffic.

#### **RECOMMENDATION:**

Widen and pave the shoulders of road to provide clearance for cyclists in all areas except where wide curb lane and curbing is already present.

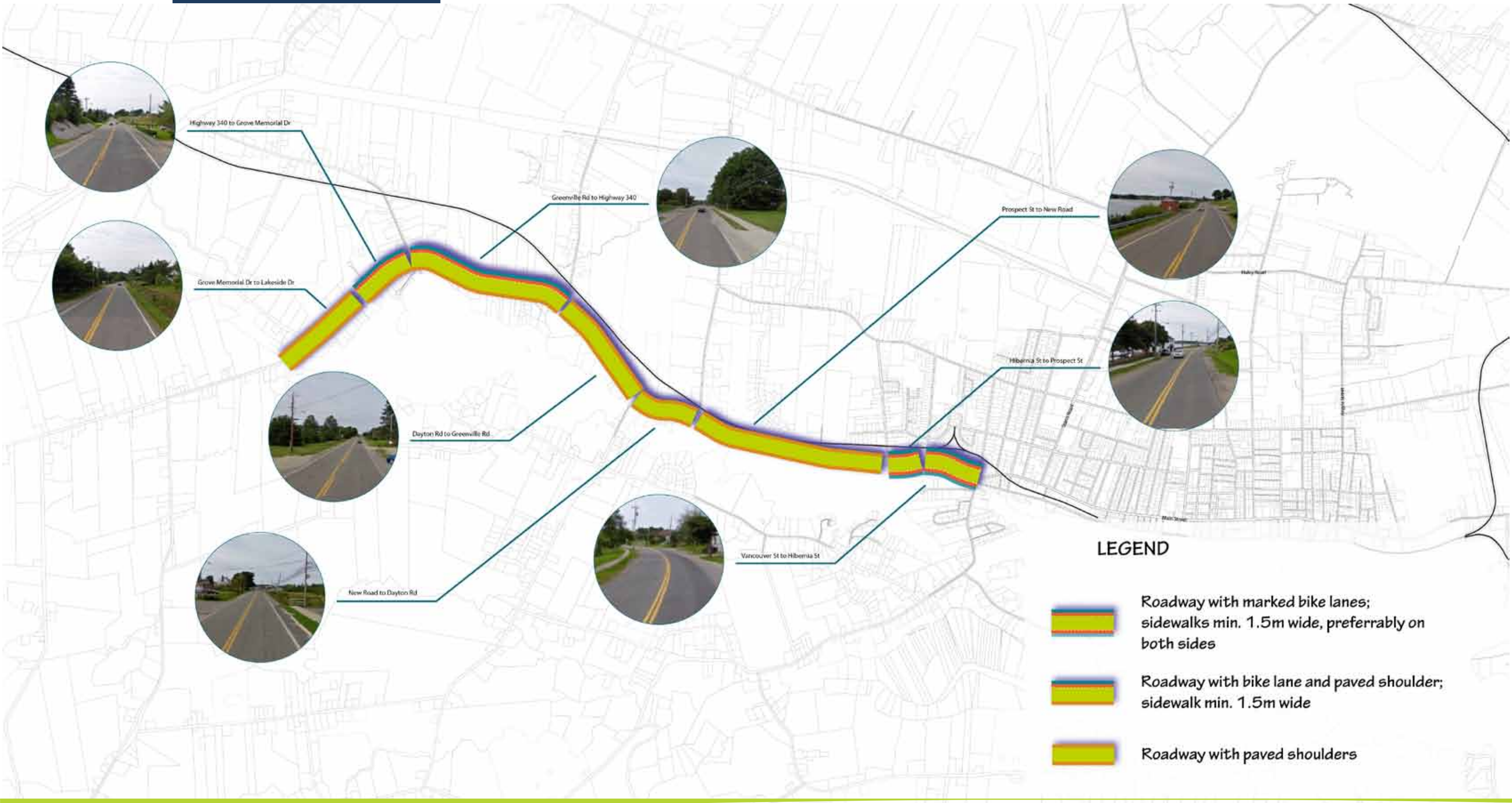
#### **INTERIM / ALTERNATIVE MEASURE:**

Widen cross section with gravel shoulders.

#### **LONG-TERM VISION:**

Capitalize on lake side environment by providing roadside walkways where ever feasible. Due to space restrictions, use of a barrier curb and adjacent concrete sidewalk are recommended complete with wide curb lane for bicycle traffic. Full paved shoulders along length of Milo Connector where curb and wide curb lane are not present.

4.5 Lake Milo Facility Types



## Section 1 - 0+000 to 0+400 – Vancouver Street to Hibernia Street

This section of roadway includes a two lane cross section with gravel shoulders and sidewalk on both sides of the roadway, though a section of more typical urban cross section is present near Vancouver Street including curbs and turning lanes. The available cross section width in most locations is quite wide and would allow for some widening to accommodate AT infrastructure, though the current location of utility poles, hydrants and trees adjacent to the roadway must be considered.

Lane widths are approximately 3.5 metres which is reasonable for a vehicle travelled way, though inadequate to properly accommodate vehicle and bicycle travel. The existing gravel shoulders appear to be in relatively good condition and could accommodate bicycle traffic at this time though a widening of the cross section to include fully paved shoulders and bike lane is preferable. At this time, curbs are not present in this section and conversion to a more typical urban cross section complete with curbs could be considered to more formally define road usage as well as providing some additional protection to sidewalk users from errant vehicles. While many areas in this section have adequate space to consider a off road multiuse trail, the parallel rails to trails facility introduces the possibility of redundancy as it is an obvious and practical alternative for cyclists wishing to separate themselves from regular vehicle traffic. Consideration would also have to be given to the connectivity of such new multiuse facility with adjacent road sections.

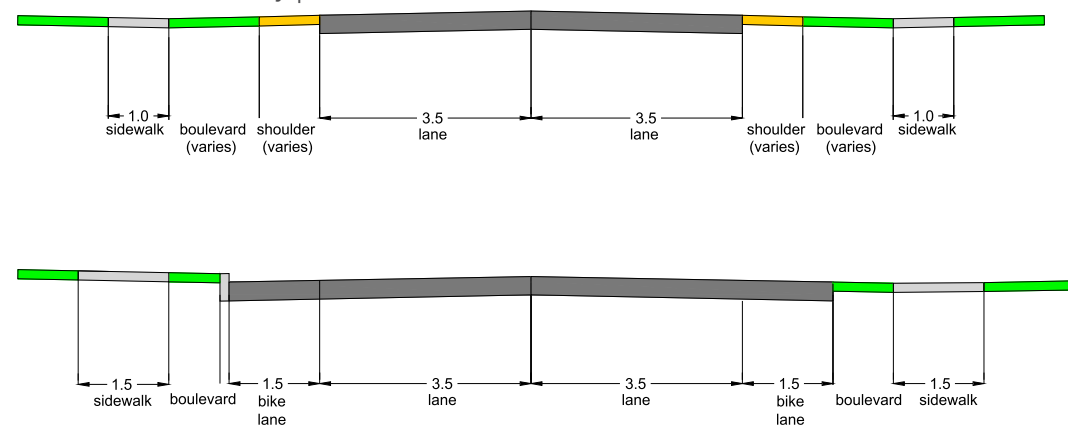
With respect to pedestrian traffic, sidewalks are present on both sides of the roadway through some sections are relatively narrow and should be widened to a minimum of 1.5 metres when maintenance or upgrading occurs on the sidewalk or roadway.

### RECOMMENDED OPTION:

Widen roadway cross section to include cyclist accommodation and upgrades sidewalks as required to ensure minimum 1.5 metres sidewalk throughout the section.  
Option 1: Add curbing to create urban cross section in conjunction with above recommendations.

### CHALLENGES:

Roadside features (utility poles, trees)



## Section 2 – 0+400 to 0+700 – Hibernia Street to Prospect Street

This section is similar to the previous with the exception that sidewalk is eliminated on the east side of the roadway. Given the residential and recreational nature of the surrounding areas, sidewalk on both sides of the roadway would be preferable, though some houses are located relatively close to the roadway which may limit the ability to effectively widen.

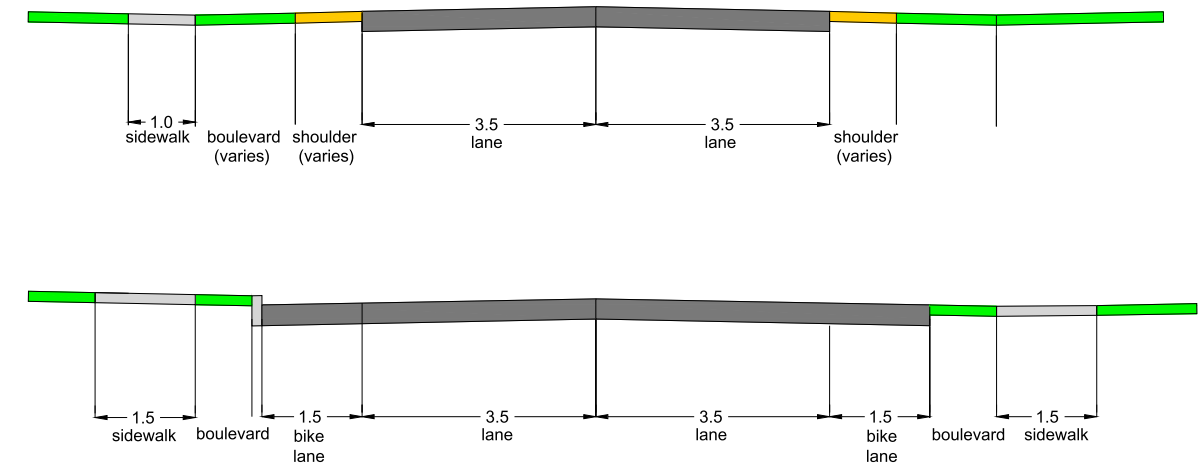
Paved shoulders would again be preferable on this section of roadway for the accommodation of cyclists and addition of a sidewalk on the east side of the roadway would be preferable. There are also some locations where access management practices result in no sidewalk and parking lots directly off of the roadway. Improved access management practices and better delineation of the pedestrian facilities in these areas should be considered.

### RECOMMENDED OPTION:

Widen roadway cross section to include cyclist accommodation. Consider adding sidewalk on the east side of the roadway.  
Option 1: Add curbing to create urban cross section in conjunction with above recommendations.

### CHALLENGES:

Roadside features (utility poles, trees) and houses close to the ROW in some locations.





### Section 3 – 0+700 to 2+100 – Prospect Street to New Road

This section runs parallel to Lake Milo on the west side of the roadway providing for a very scenic roadside environment which often generates interest by active transportation users. Presently, the route does not provide for either pedestrian or cyclist traffic as sidewalk, trails or bike lanes are absent.

Grades adjacent to the road make any widening to accommodate AT facilities challenging, though it appears that a wider pavement width to accommodate cyclist traffic is possible with some regrading of roadside drainage features. It is possible the additional width could be gained through the replacement of roadside ditch / swale drainage with a piped system within the pavement structure. This may allow the addition of a sidewalk on one side of the roadway, which would be beneficial, though pedestrian volumes should be considered in this area to determine the need for such a facility.

Areas in the vicinity of Maple Hill Lane and New Road become commercial in nature and generally, access management practices are poor resulting in wide open roadside driveways and parking areas which is undesirable from an AT perspective and generally results in lower levels of safety performance. While these open areas do provide some wider pavement areas for cyclists, they are intermittent and driver and cyclist paths are not clearly defined, which often leads to conflicts.

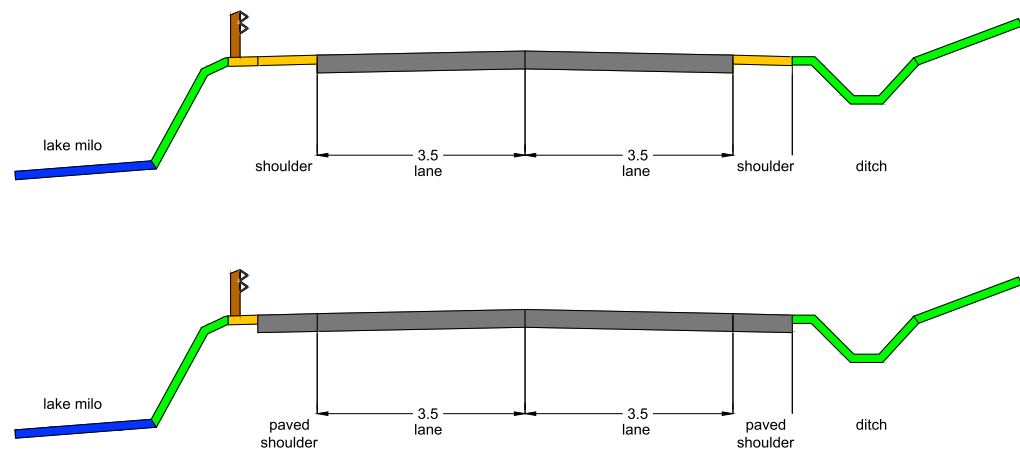
**RECOMMENDED OPTION:**

Widen paved surface to accommodate vehicles and cyclists including regrading or reconstruction of roadside drainage.

Option 1: Further widen cross section to include sidewalk on one side of the roadway.

**CHALLENGES:**

Grades on both sides of the road – up to the adjacent houses and down to Lake Milo. Access management practices in some areas.



### Section 4 – 2+100 to 2+900 – New Road to Dayton Road

Again, access management practices are general poor throughout this section resulting in uncontrolled access along the roadway and a poor environment for AT users. The exception to this is the section of roadway adjacent to the car dealership which has been constructed to include full sidewalk, curb, and bike lane.

Similar to the last section, the pavement surface should be widened to accommodate vehicle and pedestrian traffic, which will likely require some reconstruction of some existing ditches and swales. Pedestrian traffic is not expected to be high at this location, therefore the need for sidewalk should be considered based on demand.

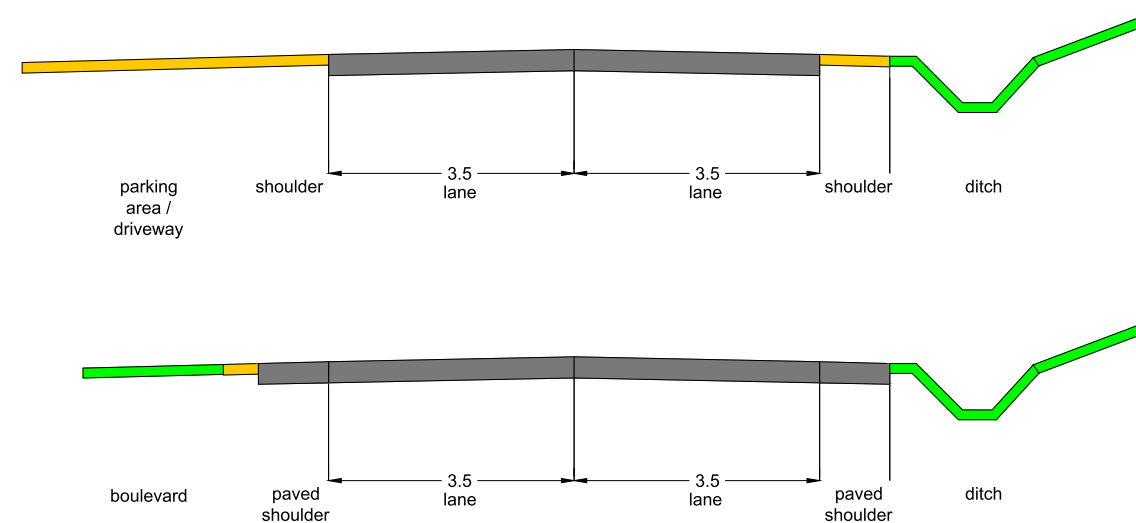
**RECOMMENDED OPTION:**

Widen paved surface to accommodate vehicles and cyclists including regrading or reconstruction of roadside drainage in some areas. Any actions should consider the need for improving access management strategies throughout this section of roadway.

Option 1: Further widen cross section to include sidewalk on one side of the roadway to match east side in front of car dealership.

**CHALLENGES:**

Access management practices in most areas. Accommodation of roadside drainage.



## Section 5 – 2+900 to 3+500 – Dayton Road to Greenville Road

This section of roadway transitions to a more rural and sparsely populated roadside environment. Given the more rural nature of this areas, sidewalks would not typically be expected or warranted, and often bike lanes are not provided unless a specific and significant demand is present.

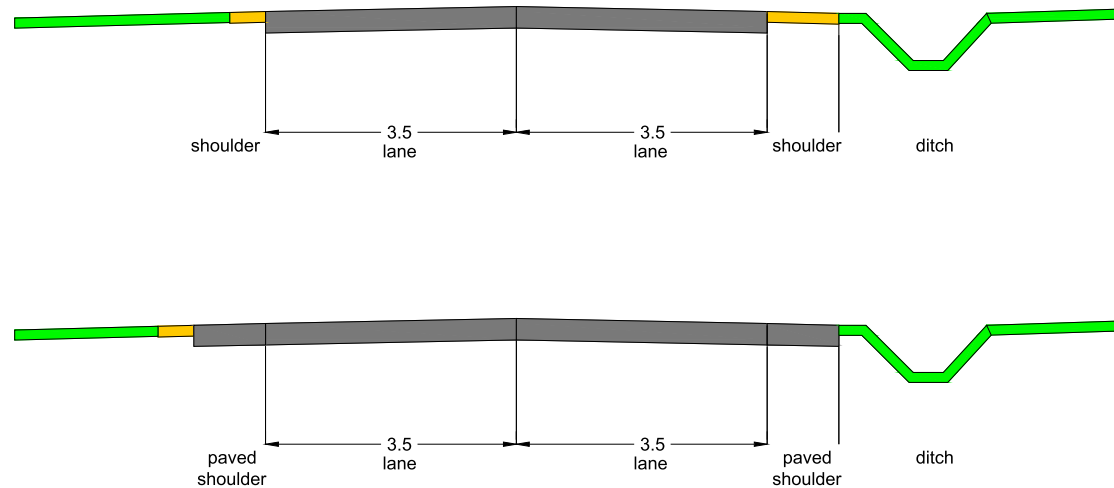
Areas with poor access management practices are present in closer to Dayton Road and recommendation provided in previous section also apply in these areas. Some areas have steeper and deeper ditch lines that may make widening the pavement structure more challenging. While there is more available roadside space in this section, an off road facility does not appear to be warranted given the limited expected pedestrian traffic and the parallel rail line that could be used for longer distance cycling trips.

### RECOMMENDED OPTION:

Widen paved surface to accommodate vehicles and cyclists including regrading or reconstruction of roadside drainage.

### CHALLENGES:

Access management practices in some areas.  
Accommodation of roadside drainage.



## Section 6 – 3+500 to 4+700 – Greenville Road to Highway 340.

While still being relatively rural in nature, this section of roadway has been upgraded to include sidewalk a full width sidewalk, boulevard, curb and bike lane along the east side of road. Based on this, pedestrian and bicycle traffic are well accommodated throughout this section with cyclists being accommodated in the northbound direction.

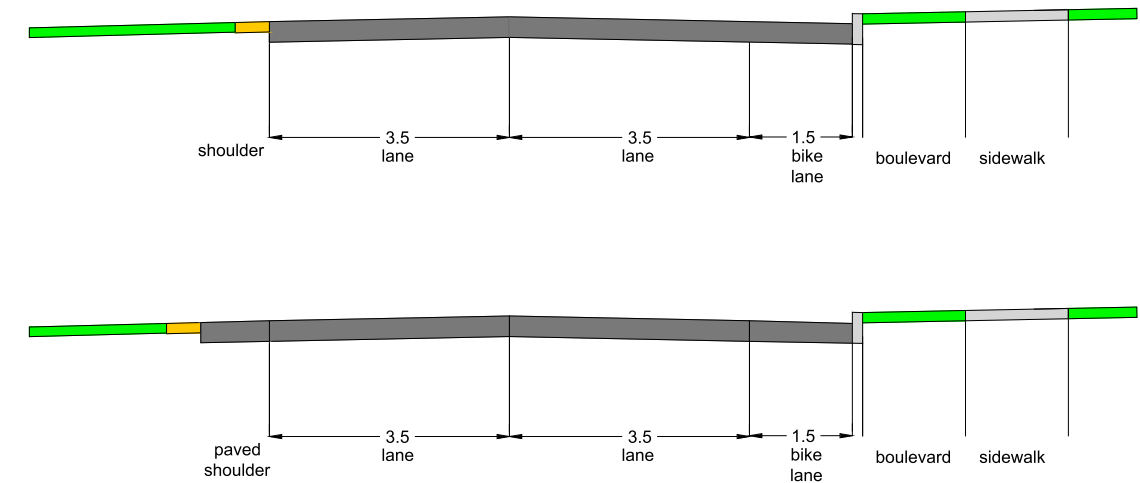
The southbound direction has a narrow shoulder that would require widening to accommodate cyclists and vehicles, though in most areas, it appears that there is adequate spaces to provide such widening or the paved surface.

### RECOMMENDED OPTION:

Widen southbound paved surface to accommodate vehicles and cyclists.

### CHALLENGES:

Roadside Drainage in some areas.



### Section 7 – 4+700 to 5+200 – Highway 340 to Grove Memorial Drive

The northbound bike lane remains in place through out this section and the concrete sidewalk and curb was replaced with an asphalt sidewalk and curb. Portions of the asphalt sidewalk are located immediately adjacent to the asphalt curb but transitions to areas where a grassed boulevard is present.

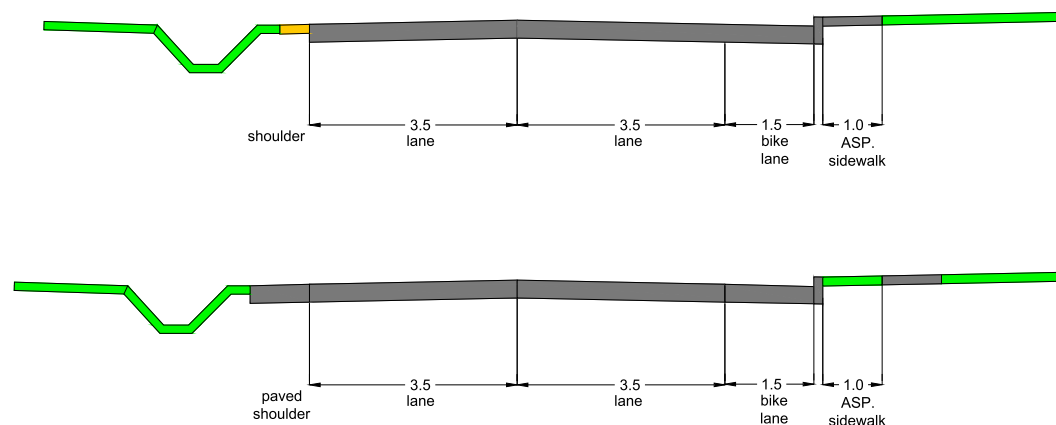
Similar to the previous section, formalizing the bicycle route in the southbound direction though the widening of the shoulder appears appropriated in order to be consistent with the northbound direction. The asphalt sidewalk in many areas is quite narrow and being located immediately adjacent to the curb line, it provides limited protection from an errant vehicle. While increase width and / or separation would be preferable, numerous properties are in close proximity to the roadway making widening or upgrading more challenging.

**RECOMMENDED OPTION:**

Widen southbound paved surface to accommodate vehicles and cyclists.  
Option: Provide greater separation between the roadway and the sidewalk and ensure sidewalk is a minimum of 1.5 meters in width.

**CHALLENGES:**

Roadside Drainage in some areas.  
Properties in close proximity to the roadway.



### Section 8 – 5+200 to 6+000 – Grove Memorial Drive to Lakeside Drive

This section of roadway has a typical urban cross section with narrow shoulders, and roadside ditches for drainage. Consideration should be give to the need for bicycle accommodation in these areas based on demand, though facilities through this section of roadway permits access to Lakeside Road which has been noted as a possible looped bicycle route along the west side of Doctors Lake and Lake Milo.

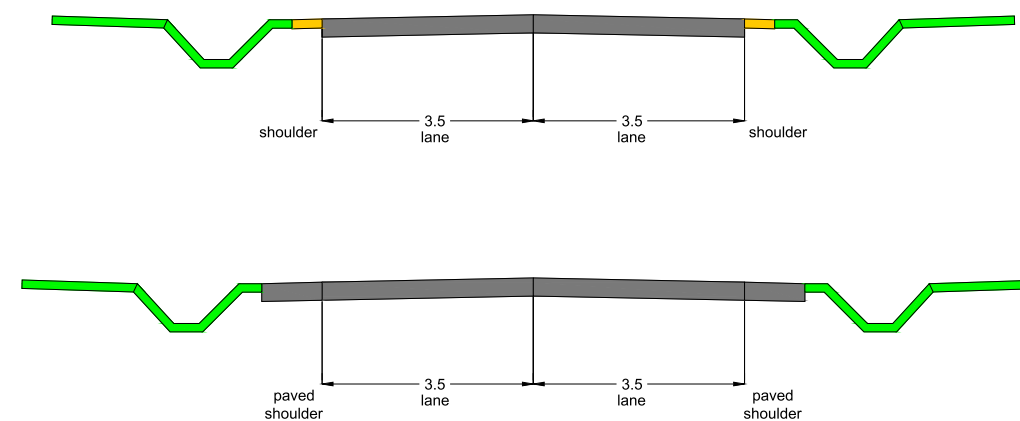
Similar to past sections, widening the pavement structure to accommodate bicycle traffic should be considered based on demand for a cycling connectivity in this area. As a rural road section, the roadside ditching may provide some impediments to widening though minor regrading should not create any significant issues.

**RECOMMENDED OPTION:**

Widen northbound and southbound paved surface to accommodate vehicles and cyclists based on demand.

**CHALLENGES:**

Roadside Drainage in some areas.



#### 4.1.4 Starrs Road

Starrs Road is the primary connecting street between the two 100 series highways and all areas of the Town. Presently, Starrs Road has a sidewalk on at least one side, except for a short section near Canadian Tire, throughout the approximately two kilometers between Main Street and Hardscratch Road. While the sidewalk is generally about 1.5 meters wide, there exists an opportunity for providing a wider multi-use active transportation link on the north side of the street from Pleasant Street to Hardscratch Road

Adjacent to the Yarmouth Airport, Starrs Road becomes a higher speed, rural road with little clearance for cyclists. There is adequate clearance for the implementation of paved shoulders, which would facilitate cyclist travel along this popular connection.

**RECOMMENDATION:**

Along the airport stretch, widen and pave the shoulders of road, to provide clearance for cyclists. Install Share the Road signage. In commercial areas with curb and sidewalk, ensure consistency of shoulder widths, eliminating pinch points. Widen bike lanes where cyclist space is limited, and any areas of significant pedestrian use should be upgraded to a minimum of 1.5m wide sidewalks. Any sidewalks in the vicinity of major intersections should be improved.

**LONG-TERM VISION:**

Full with sidewalks or multi-use trail throughout the commercial area, on both sides of the roadway. Full paved shoulders and adjacent gravel areas through the airport stretch.



#### Section 1 – 0+000 to 0+250 – Main to Brunswick

This section of roadway presently has 1.0 metre wide sidewalks on both sides of the roadway and a widened cross section which would accommodate cyclists in a wide curb lane for the majority of the section. At intersections, lane widths are narrowed to accommodate left turn lanes and a dedicated cyclist area would be eliminated. While development of a cross section that accommodates painted bike lanes would be preferred, existing roadside infrastructure and trees would increase the cost of such upgrading.

Sidewalks on this section of roadway are approximately 1.0 m in width and preferably would be widened to a minimum width of 1.5 metres. Widening the sidewalk may have impacts on available right-of-way and again may increase costs of any such upgrades.

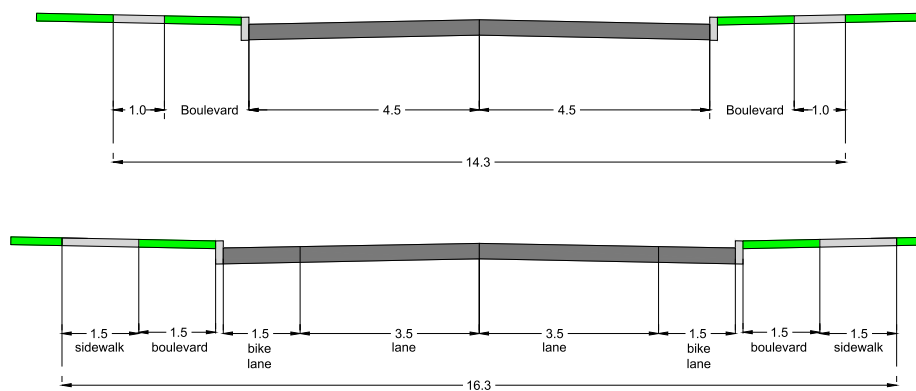
Parking is permitted on sections of the street, however, as a preferred bike route, elimination of short term parking would be preferred in order to provide a more contiguous bike lane and limit the encroachment of cyclists into the through traffic lanes.

**RECOMMENDED OPTION:**

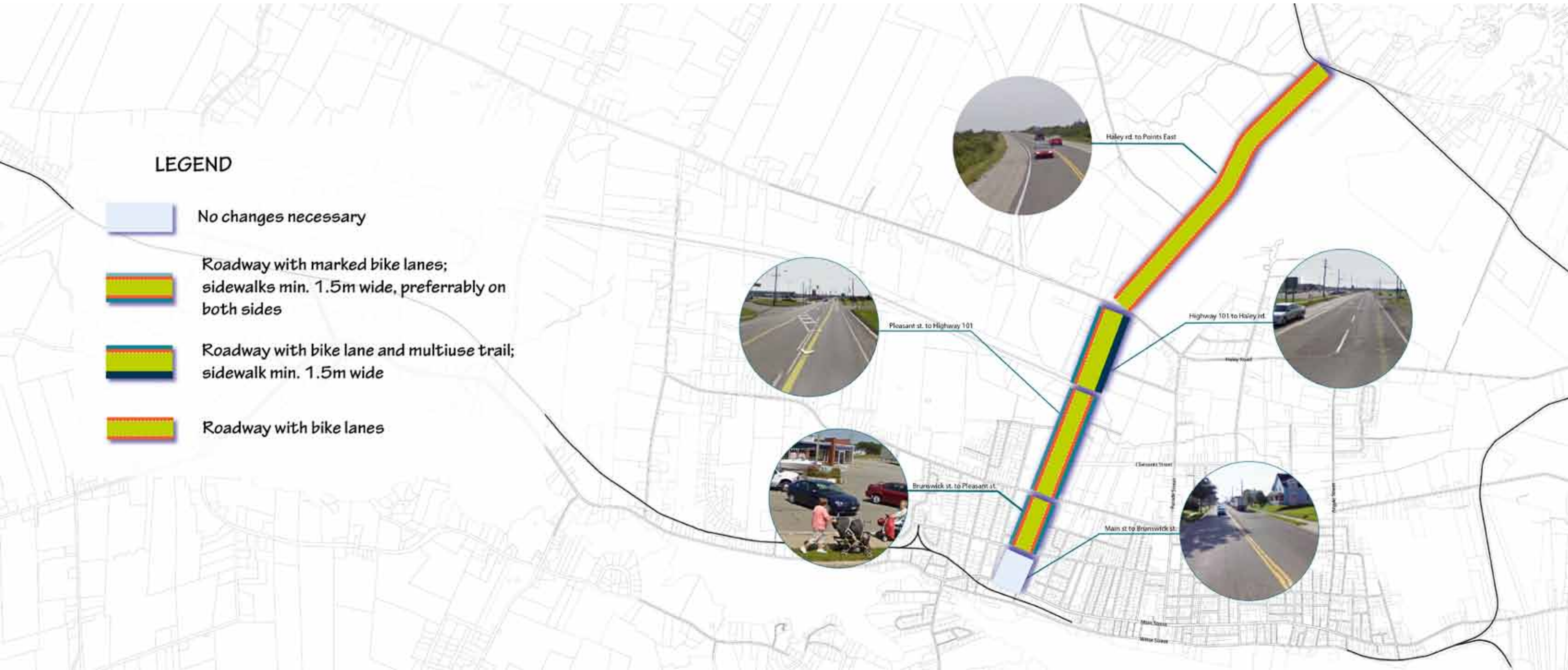
- Cross section to remain as is.
- Option 2: Increase sidewalk widths to 1.5 metres on at least one side of the roadway, but preferably both.
- Option 3: Increase lane widths to 5 metres on each side of the roadway.

**CHALLENGES:**

- Available ROW
- Roadside utilities (utility poles, fire hydrants) and trees
- Houses in close proximity to the sidewalk



4.6 Starrs Road Facility Types



## Section 2 – 0+250 to 0+650 – Brunswick to Pleasant

Narrow 1 m sidewalks are maintained along both sides of the roadway throughout this section though the roadside environment is more forgiving and opportunities to widen sidewalks to a full 1.5 metre minimum width are more readily available, particularly along the south side of the roadway. Consideration should be given to widening the sidewalk on at least one side of the roadway as a minimum.

A two way left turn lane or dedicated left turn lanes are introduced in this section which eliminates the wide curb lane as a facility for cyclists. A white painted lane slightly offset from the curb face is provided and the offset distance changes throughout. The available space is generally not adequate to define a cycling facility. With the presence of a three lane cross section, roadway widening should be considered to accommodate a minimum of 4.5 metre wide curb lanes, or preferably full 1.5 metre wide painted bike lanes.

The set back of power lines along the majority of the north side of Starrs Road provides some opportunity to consider widening of the roadway cross section. In a more general sense, elimination of the two way left turn lanes and replacement with dedicated left turn lanes and an improved access management strategy would be expected to improve safety performance and the general environment for AT users.

Also some minor intersection improvements should be considered for the accommodation of pedestrians.

### RECOMMENDED OPTION:

Widen cross section to provide wide curb lanes or preferably painted bike lanes, and increase sidewalk widths to 1.5 metres on at least one side of the roadway.

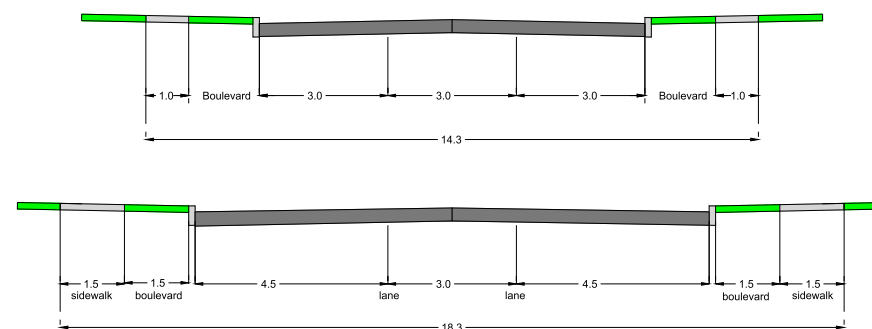
Option 1: Widen cross section to accommodate full bike lanes and 1.5 metre sidewalks. This may also include upgrading access management strategies and elimination of the double left turn lane.

### CHALLENGES:

Available ROW

Roadside utilities (utility poles)

3 lane cross section in commercial area



## Section 3 - 0+650 to 1+450 – Pleasant to Highway 101

This section of roadway is similar to the previous in that a three lane cross section is maintained. Elimination of the sidewalk on the south side of Starrs Road reduces pedestrian accessibility to commercial properties on that side of the roadway. Addition of a sidewalk along this section of roadway is recommended. Similar to previous sections, widening of the sidewalk to a minimum 1.5 metre width is also recommended.

Cycling accommodation is provided, though the width varies at some locations and the provided width is less than the recommended 1.5 metres for a painted bike lane. Preferable, the road cross section would be modified to ensure a consistent 1.5 metre painted bike lane on each side, or alternatively the outside lanes should be configured as wide curb lanes with the elimination of the painted edge line.

Areas between Charles Crosbey Drive and Highway 101 provide transition to more rural roadside environment and opportunities exist to upgrade these areas to include full bike lane, boulevard and sidewalk. Consideration could also be given to incorporating an off road multiuse trail in coordination with subsequent road section.

### RECOMMENDED OPTION:

Widen cross where required to ensure consistency in bicycle accommodation to a minimum wide curb lane width. Addition of a sidewalk or potentially a multiuse trail on the south side. Increase sidewalk widths to minimum of 1.5 metres on at least one side of the roadway.

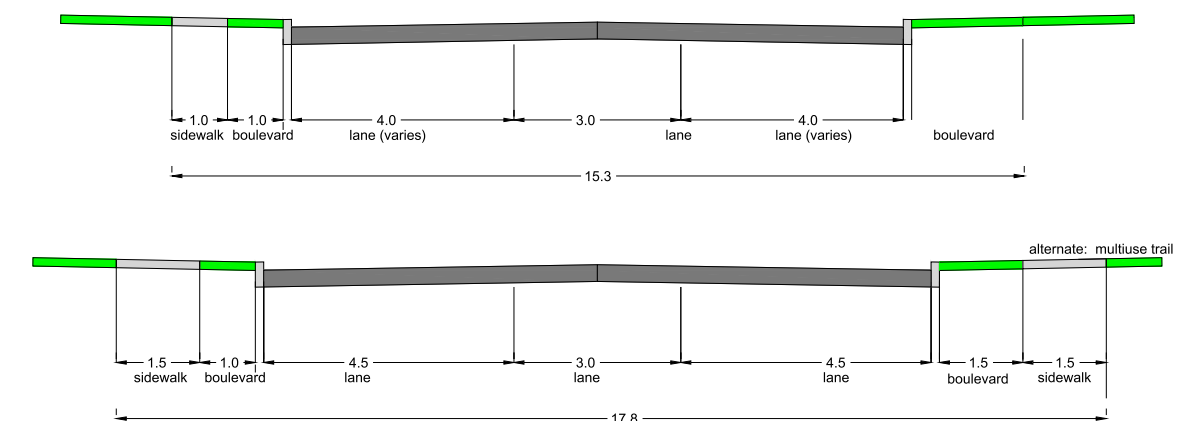
Option 1: Widen cross section to provide full 1.5 metre wide bike lane width on both sides of road.

### CHALLENGES:

Grades adjacent to the road in some areas.

Roadside utilities (utility poles).

Inconsistencies in cross section.



### Section 4 – 1+450 to 2+030 – Hwy 101 to Haley Rd.

The roadside environment on the south side of Starr Road becomes rural in nature with minimal development adjacent to the roadway. The three lane cross section is maintained though access is primarily provided to properties on the north side of the roadway.

Portions of sidewalk throughout the section are absent and should be constructed for facility continuity through the commercial areas. Sidewalk that is in place does provide a wider cross section. No pedestrian facilities are present on the south side of Starrs Road, but given the absence of development, is not considered a priority. That said, the topography of the south side of the roadway is well suited to accommodate a multiuse trail which is also consistent with AT opportunities on adjacent sections of roadway.

A multiuse trail on the south side of the road would eliminate the need for bike lane upgrading on this section of roadway. Should a multiuse trail not be considered, widening of the asphalt pavement surface to accommodate a full 1.5 metre painted bike lane should be considered. Again, consistency of bike lane width should be reviewed in the westbound direction.

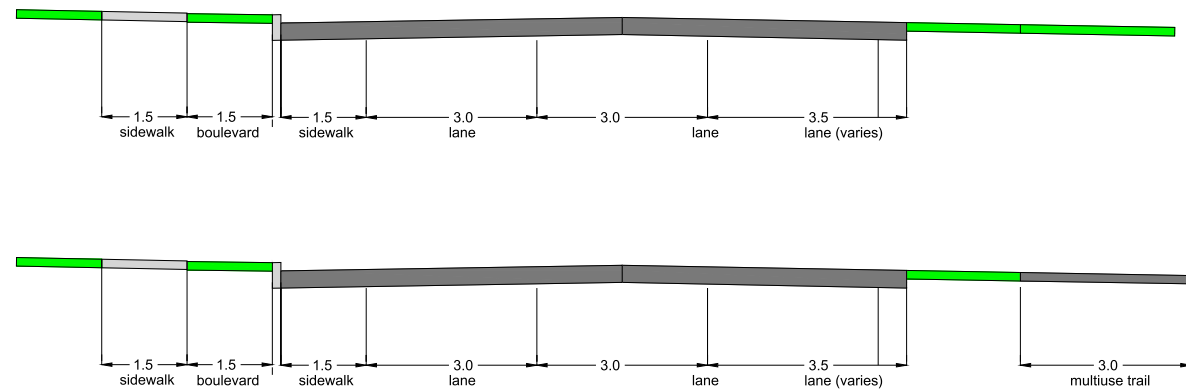
**RECOMMENDED OPTION:**

Fill in section of missing sidewalk on the north side and ensure consistent bike lane widths. Provide multiuse trail on south side.

Option 1: Add pavement width on south side to accommodate full bike lane width.

**CHALLENGES:**

Grades adjacent to the road in some areas.  
Increased vehicle speeds.



### Section 5 - 2+030 (Haley Rd.) to Points East

This section of roadway and points beyond to the east are generally rural in nature and it is expected to have minimal pedestrian traffic. Adequate roadside space is generally available should pedestrians or other vulnerable road users decide to use this area. The paved portions of the roadway are quite narrow and provide poor accommodation of bicycle traffic.

Most areas have available width to accommodate a continuation of a multiuse trail on either side of the roadway, through transition to the north side may be considered given the presence of development along this side of the roadway. Beyond Robinson Road, roadside slope become more significant and make construction of a multiuse trail somewhat more challenging.

Alternatively, accommodation of cyclists could be facilitated through the addition of paved width which would preferably accommodate 3.5 metre lanes and a 1.5 metre lane width.

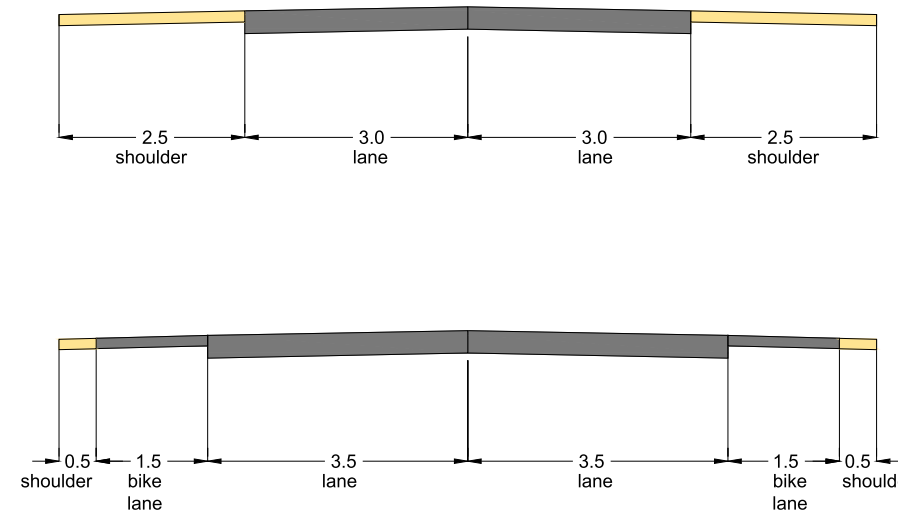
**RECOMMENDED OPTION:**

Widen pavement width to accommodate 3.5 metre lanes and 1.5 metre bike lanes.

Option 1: Add multiuse trail.

**CHALLENGES:**

Grades adjacent to the road in some areas.  
Increased vehicle speeds.



### 4.1.5 Main Street

Main Street is the heart of the downtown core, and includes significant street front commercial areas, businesses, amenities; as well as connectivity to other areas of the downtown core. Typically, there is ample pedestrian space along the roadway for significant pedestrian volumes. Cyclist traffic using on-road facilities must navigate street side parking, intersections and pedestrian crossing locations, but generally there is adequate space for cyclist traffic.

**RECOMMENDATION:**

Rationalize and upgrade pedestrian crossings and crossing locations to better accommodate desire lines and eliminate the “concentrations” of pedestrian crossing areas. Create a dedicated bike lane from Starrs Road to Argyle Street.

**RECOMMENDED FACILITY TYPES:**

- Bike Lane
- Urban Sidewalk



### 4.1.6 Pleasant Street

The Pleasant Street north-south connection bisects the Town approximately halfway from the water to the airport, and is a natural corridor for a connection. New paving projects, the presence of the Nova Scotia Community College, and a new senior’s home make this connection important.

**RECOMMENDATION:**

Rationalize and upgrade pedestrian crossings and crossing locations to better accommodate desire lines and eliminate the “concentrations” of pedestrian crossing areas. Provide contiguous sidewalk along at least one side of Pleasant Street from Prospect Street to Argyle Street.

In areas where there is adequate right-of-way, delineate a dedicated bike lane. In other areas, install share the road signage, to indicate a cycling route.

**INTERIM / ALTERNATIVE MEASURE:**

Install share the route signage along Pleasant Street from Prospect Street to Argyle Street.

**LONG-TERM VISION:**

A dedicated cycling route from Prospect Street to Argyle Street, with an accompanying sidewalk connection on at least one side of the street, for pedestrian usage.

**RECOMMENDED FACILITY TYPES:**

- Bike Lane
- Signed Share Route
- Urban Sidewalk





### 4.1.7 Yarmouth Rail Trail

The Yarmouth Rail Trail is one of the region's crowning AT achievements, and the volunteer commitment to its development should be commended. This well-travelled arterial route connects a broad section of the Municipality, reaching out towards the County. Presently, the rail trail is entirely maintained by volunteer efforts, which are currently more than sufficient. However, as time passes, a more formalized maintenance regime should be established to ensure the longevity of this valued asset.

**RECOMMENDATION:**

With the Town boundary, upgrade the existing crusher dust surfacing to asphalt. Install signage, wayfinding, and route markers, clearly branding the trail for new users.

**LONG-TERM VISION:**

A realized multi-use paved trail that connects to the Waterfront trail, linking the north and south ends of the Town.

**RECOMMENDED FACILITY TYPES:**

- Paved Multi-use Trail
- Stone Dust Multi=Use Trail



### 4.5 Rural Trail head Concept

The Rural trail head depicts a crusher dust pathway intersecting a road. Vegetation has been cleared back to provide clear sight lines, and drivers are



### 4.6 Urban Trail head Concept



## LEGEND

-  Implement bike lanes where feasible, Share The Road signage elsewhere; sidewalk on at least one side
-  Implement painted bike lanes
-  Implement painted bike lanes; sidewalk on at least one side
-  Create and/or designate as multiuse trail



#### 4.1.8 Forest Street

A new Yarmouth High School is planned for development along Forest Street. As students within Town limits will not be bused, there is a need for a clearly defined AT connection. The current configuration of Forest Street has narrow shoulders and ditches so that it is not suitable for bicycles or pedestrians. When the new high school is constructed, it will require a sidewalk or multi-use trail along the north side of Forest Street, to facilitate student travel to school.

Additionally, the sidewalk along Clements Avenue, from Cliff Street to Forest Street, should be completed, to provide a much needed pedestrian connection to the school.

**RECOMMENDATION:**

Create a sidewalk or multi-use trail connection along Forest Street. If sidewalk is the preferred pedestrian facility, upgrade the road to provide for bike lanes.

**RECOMMENDED FACILITY TYPES:**

- Bike Lane
- Signed Share Route
- Urban Sidewalk

#### 4.1.9 Broad Brook Greenway Trail

It is expected that once complete, the new Yarmouth High School will generate student traffic to many of the retail outlets and fast food restaurants along Starrs Road. A multi-use trail connection from the school site along the future Clements Avenue connection, from Parade Street to Starrs Road would likely become a popular walking route, serving not only the student population, but anyone wishing to connect from the surrounding neighbourhoods over to the Big Box retail. A natural extension to this trail would be to continue its development along the greenway, joining in with the existing rail trail.



**RECOMMENDATION:**

Create a trail link through the greenway, from Parade Street to Starrs Road, and from Forest Street to the rail trail.

**INTERIM / ALTERNATIVE MEASURE:**

Initially create a crusher dust trail connection, seek future upgrades to asphalt.

**LONG-TERM VISION:**

A realized multi-use trail connection from Starrs Road to the Rail Trail.

**RECOMMENDED FACILITY TYPES:**

- Paved Multi-use Trail

#### 4.1.10 Argyle Street

Argyle Street is a key south boundary to the core area of the Town of Yarmouth. Linking two primary connections, from Main Street to Pleasant Street, and tying into Haley Road, Argyle Street is an important segment that helps to define the boundary of the core Town network.

**RECOMMENDATION:**

Provide contiguous sidewalk along at least one side of Argyle Street from Water Street to Pleasant Street (phase one), and eventually linking to Haley Street.

In areas where there is adequate right-of-way, delineate a dedicated bike lane. In other areas, install share the road signage, to indicate a cycling route.

**INTERIM / ALTERNATIVE MEASURE:**

Install share the route signage along Argyle Street from Water Street to Haley Road.

**LONG-TERM VISION:**

A dedicated cycling route from Prospect Street to Argyle Street, with an accompanying sidewalk connection on at least one side of the street, for pedestrian usage.

**RECOMMENDED FACILITY TYPES:**

- Bike Lane
- Signed Share Route
- Urban Sidewalk



## 4.2 SECONDARY ROUTES

The secondary network consists of on-road and sidewalk connections throughout the Town, and out into the Municipality. These connections provide opportunities for cyclists and pedestrians to connect to primary routes and important nodes. The secondary network comprises:

- Lakeside Road
- Chebogue Road - Wyman Road connector
- Parade Street
- Haley Road

### *OVERALL RECOMMENDATION:*

Update road cross sections to accommodate bikes lanes in urban areas, and paved shoulders in rural areas. Provide continuous sidewalk on at least one side of urban streets.

### *INTERIM / ALTERNATIVE MEASURE:*

Upgrade secondary routes on a priority-demand basis.

### *LONG-TERM VISION:*

A realized secondary route network.



### 4.2.1 Lakeside Road

Lakeside Road provides an ideal loop back towards Town, for cyclists traveling around Lake Milo.

**RECOMMENDATION:**

Create a signed bike route along Lakeside Road, from the Evangeline Trail until its intersection with Main Shore Road.

**RECOMMENDED FACILITY TYPES:**

- Signed Shared Route

### 4.2.2 Chebogue Road - Wyman Road Connector

Chebogue Road heading towards Wyman Road is an ideal connection to create a longer cycling route out into the Municipality. Due to the more rural nature of this connection, implementation could be facilitated with the installation of Share the Route signage.

**RECOMMENDATION:**

Create a signed bike route along Chebogue Road to Wyman Road.

**RECOMMENDED FACILITY TYPES:**

- Signed Shared Route

### 4.2.3 Parade Street

Parade Street provides another east-west connection through the Town. Not as highly used as perhaps Forest Street (due to the School) or Starrs Road, Parade Street should be considered as a secondary route to link Haley Street with the Downtown Core.

**RECOMMENDATION:**

Provide contiguous sidewalk along at least one side of Parade Street from Main Street to Pleasant Street and eventually linking to Haley Street.

In areas where there is adequate right-of-way, delineate a dedicated bike lane. In other areas, install share the road signage, to indicate a cycling route.

**RECOMMENDED FACILITY TYPES:**

- Bike Lane
- Signed Share Route
- Urban Sidewalk

### 4.2.1 Haley Road

Haley Road provides a north-south connection at the east edge of the Town boundary.

**RECOMMENDATION:**

Provide contiguous sidewalk along at least one side of Haley Street from Starrs Road to Argyle Street.

In areas where there is adequate right-of-way, delineate a dedicated bike lane. In other areas, install share the road signage, to indicate a cycling route.

**RECOMMENDED FACILITY TYPES:**

- Bike Lane
- Signed Share Route
- Urban Sidewalk

4.6 Greenway Trail





## 4.2 EDUCATION

The physical network is only one component of a realistic and implementable master plan; education is a critical component that must be taken into consideration. Infrastructure such as bike lanes, route signage, and multi-use trails are necessary facilities in order to provide users with the option of active transportation; education works to contribute to the incentive to use the system. The Town and Municipality of Yarmouth must work with the various stake-holders in the community to take an active role in promoting and developing active transportation leadership; creating and supporting programs and policies that will encourage users to enjoy the various network facilities. Education is the keystone for a safe and legible Active Transportation system. Safety, and the benefits of AT use are the two most common topics of public education. AT users need to be well informed on how to safely navigate the network, and the general public needs to be well informed on safe interactions with AT users.

### Branding and Marketing

The Town and Municipality should jointly undertake and adopt a comprehensive branding and marketing strategy, to develop a clear Active Transportation message. A draft brand and signage program has been included in this study, but a more detailed examination is required. The scope of this strategy would include developing an Active Yarmouth website (which could provide route information, regulations, conditions, and standards), as well as educational and marketing material. Social networking is also a powerful tool that should be leveraged to inform the public about AT related issues.

A branding program will help to elevate the profile of AT in the committee, and deliver a consistent and clear message to residents. Trail regulatory signage, internet support, and coordinating brochures and mapping will reach a broad range of system and facilities users, and ensure consistency among the messages being broadcast.

#### **EDUCATIONAL RECOMMENDATION:**

- Undertake a branding and marketing study, to create a clear and consistent message for all issues related to Active Transportation in Yarmouth.

### Cyclist Education

The Town and the Municipality should also engage with the RCMP / Local Police to encourage active transportation education in school, such as through the CAN-BIKE program. Establishing a Road and Trail Safety Ambassador program, such as in the City of Toronto, is a good way for stake-holders to interact with the community. A similar program in Madison, Wisconsin, had uniformed youth ambassadors promoting safe cycling practices, who were instrumental in encouraging teenagers to adopt sustainable transportation. Efforts should be made to consistently enforce bicycle and trail safety standards, such as riding on the sidewalk, and the Town and Municipality should work to support a 'Police on bikes' community policing unit, to further interact with AT users.

Yarmouth should follow the example of other municipalities, when it comes to broad spectrum public education. The City of Ottawa's Citizens for Safe Cycling have produced a range of public educational materials for both cyclists and non-cyclists. These materials include newsletters, educational pamphlets (i.e. Cycling for Seniors, and Cycling 365 - A guide for year round cycling) and web-based information. This information could be easily adapted for use in Yarmouth, for marginal costs.

**EDUCATIONAL RECOMMENDATION:**

- Educate the public on safe operations for multi-use trails and along on-road facilities. This may be accomplished through a number of forums, such as an Active Yarmouth website, social networking, public outreach brochures, classes, driver education, and trail signage and policy development.

**School Boards**

Partnering with Schools is a key opportunity to teach children bicycle safety, etiquette, and active transportation appreciation. Cycling is a basic skill that supports a healthy body and mind, as well as fosters an environmentally sensitive transportation footprint. Children used to walk and ride to school as the predominant transportation alternative, and in recent years this has changed to car or bus transportation, due to safety and security concerns. School boards should be encouraged to partner with like-minded groups (such as the YCATC) to set up mechanisms to support walking and biking to school.

School may also be a venue, either through physical education class time, or after school, to partner with the RCMP / Local Police to offer CAN-BIKE programs.

**EDUCATIONAL RECOMMENDATION:**

- Explore the potential to partner with local schools in the delivery of educational programs for safe cycling.

**Area-specific Initiatives**

In any locations where concrete sidewalk is designated as multi-use trail (i.e. Hartlen trail), more focused public education will be required, to prevent pedestrian / cyclist accidents. Cyclists and pedestrians will need to be informed about the multi-use, unique nature of the connection, and this could be accomplished through on-site blitzes (during peak usage times) marketing material, outreach, or online education.

**EDUCATIONAL RECOMMENDATION:**

- In areas of higher potential conflict, examine specific educational opportunities, such as enhanced signage, volunteer or police presence, or site specific public information materials.



## 4.3 INCENTIVE

Once the necessary infrastructure is in place for alternative forms of transportation, potential users need to feel the network conditions and environment are supportive and conducive to use. People will only consider walking or biking if they feel it is safe and convenient. This provides the Town and the Municipality with the opportunity to develop programs to encourage and support the use of active transportation.

The Yarmouth County AT Committee is an active stake-holder group, which can provide valuable insight towards supporting increased AT use. The Municipality and the Town should work with engaged stake-holders to develop incentive programs. Other municipalities are excellent case studies from which to adopt successful incentive programs; adapting them to the unique context of Yarmouth. The City of Whitehorse, Yukon, developed a Wheel to Work campaign, encouraging residents to cycle to work. Participants signed up to track the number of kilometres they cycled, over the biking season, and prizes were offered as incentives. The first summer of the program, the 210 participants recorded over 40,000 kilometres ridden.

Key community leaders should be encouraged to set a positive example, and walk or bike to work. Watching high profile residents embrace the AT system will reinforce the importance of the plan for the entire community. The Town should work with partners to develop end-of-trip facilities, such as bike racks, benches, and showers, to facilitate sustainable commuting. Any incentive programs should be tied into the overall branding scheme, to ensure consistent message delivery.

### *INCENTIVE RECOMMENDATION:*

- Develop a Yarmouth-specific incentive program, based on the success of other communities (i.e. Whitehorse's Wheel To Work).
- Modify administrative policies to support or require the development of end-of-trip facilities, such as lockers and showers.
- Encourage local businesses to provide such facilities for employees.
- Set a positive example. The Town and Municipality should set the example by encouraging staff to ride or walk to work, providing end of trip facilities, and increasing the visibility of AT initiatives.

## 4.4 ENFORCEMENT

Enforcement in terms of active transportation refers more to ensuring pedestrian and cyclist safety than specific attention to vehicular violations. The community should seek to commence enforcement programs on both on and off-road sections of the network, to improve the visibility of the system, to enhance the perception of safety of the system, and to engage AT users. The enforcement program could begin with a volunteer, ambassador-based program, such as was undertaken in Toronto. Communication should also be initiated with local Police and RCMP, to examine the feasibility of a cycling patrol unit, or other form of community policing service appropriate to the AT network.

### *ENFORCEMENT RECOMMENDATION:*

- Work with community groups to develop a volunteer-based ambassador program.
- Contact local police to determine the feasibility of a community biking patrol or program.
- Ensure facility and public safety information is widely available to the public.





## 4.5 POLICY

Administrative policy development is a critical tool in helping the Town and Municipality of Yarmouth implement a realistic and highly usable AT system. Strong and clearly articulated policy will create an AT-friendly environment, foster the ongoing development of new AT facilities, and ensure the longevity and maintenance of the system.

From a user point of view, the AT system should be implemented in a seamless manner. This means that when and where possible, synergy and overlap between the Town and the Municipality should be exploited to the benefit of the public. Ideally, one person or department should be named the champion of the AT plan for both the Town and the Municipality, and focus on a streamlined and integral implementation of the plan. Minimizing administrative hurdles will be an important first step in facilitating implementation of the plan, especially with respect to policy decisions.

The Town and Municipality should investigate the creation of a Trails / Active Transportation bylaw. As current Town and Municipal policy does not specifically reference any of the planning issues surrounding AT facilities, a Trails bylaw would create the administrative framework to support expansion and implementation of the system. A trails bylaw could be used to define the permitted uses of the network, such as equestrian, ATV, or skiing, and would work to establish end-of-trip facilities, such as bike racks and showers. Town and Municipal policy could also be updated to adopt child and youth-friendly policies, such as requiring multi-use trail development, and wider standard sidewalks.

As implementation of the plan occurs, a comprehensive monitoring program should be developed, to review development progress. A set of metrics should be devised, to track the successes of the network implementation. Measures such as capital dollars spent, users increase, or kilometres ridden are all good metrics to track AT success. The Town and Municipality should also develop a reporting system for network conditions, so that users can phone / email in pertinent trail information.

### **POLICY RECOMMENDATION:**

- Adopt a seamless administrative structure for AT related initiatives, when possible.
- Draft and adopt a Town & Municipal Trails / Active Transportation bylaw.
- Update the relevant Town and Municipal policy, as outlined in table 4.4.1
- Formalize a monitoring program (more detail in Chapter 6) to track the progress of implementation.

### 4.6 Recommended Policy Updates

Administrative Body	Policy Document	Section	Policy Amendment
Town of Yarmouth	LUB	Part 5: General Provisions	Add standards for bicycling parking (from design guidelines).
		Part 7: Residential	Add standards for bicycling parking (from design guidelines).
		Parts 13 - 17: Commercial	Add provisions requiring businesses to provide end of trip facilities.
		Part 25: Open Space	Add trails and linear parks as permitted uses.
		Part 27: Floodplain	Add trails and linear parks as permitted uses.
		Part 28: ESAs	Add trails and linear parks as permitted uses.
	Subdivision	Part 30: Definitions	Add definitions for active transportation, linear parks, multi-use trails, and bike lanes.
		Part 6: General Provisions	Add requirement for sidewalk inclusion for any length of frontage (as part of standard road
		Part 13: Street Specifications	Adopt design guidelines as standards for bike lanes and other AT facilities.
		Part 14: Sidewalk Specifications	Adopt design guidelines as standards for sidewalks, and other AT facilities.
Municipality of Yarmouth	LUB	Part 18: Walkway Specifications	Adopt design guidelines as standards for trails and other AT facilities.
		Part 10: Parking and Loading	Add standards for bicycling parking (from design guidelines).
		Parts 15 - 17: Commercial	Add provisions requiring businesses to provide end of trip facilities.
	Subdivision	Part 34: Definitions	Add definitions for active transportation, linear parks, multi-use trails, and bike lanes.
		Part 5: General Provisions	Add requirement for sidewalk inclusion (as part of standard road development) and bike lanes.
		Part 14: Public Roads	Add requirement for sidewalk inclusion (as part of standard road development) and bike lanes.



# 5

## DESIGN GUIDELINES

This chapter provides a summary of the technical design guidelines that are required to frame the detailed design and implementation of the recommended active transportation facilities. In order to ensure a realistic, sustainable, and implementable network, strongly articulated standards are an essential component of the master planning process. These design guidelines are based on best practices standards derived from the Nova Scotia Department of Natural Resources Trail Guidelines, the Velo Quebec Technical Handbook of Bikeway Design, and the American Association of State Highway and Transportation Officials (AASHTO).

## 5.1 ON-ROAD FACILITY TYPOLOGIES

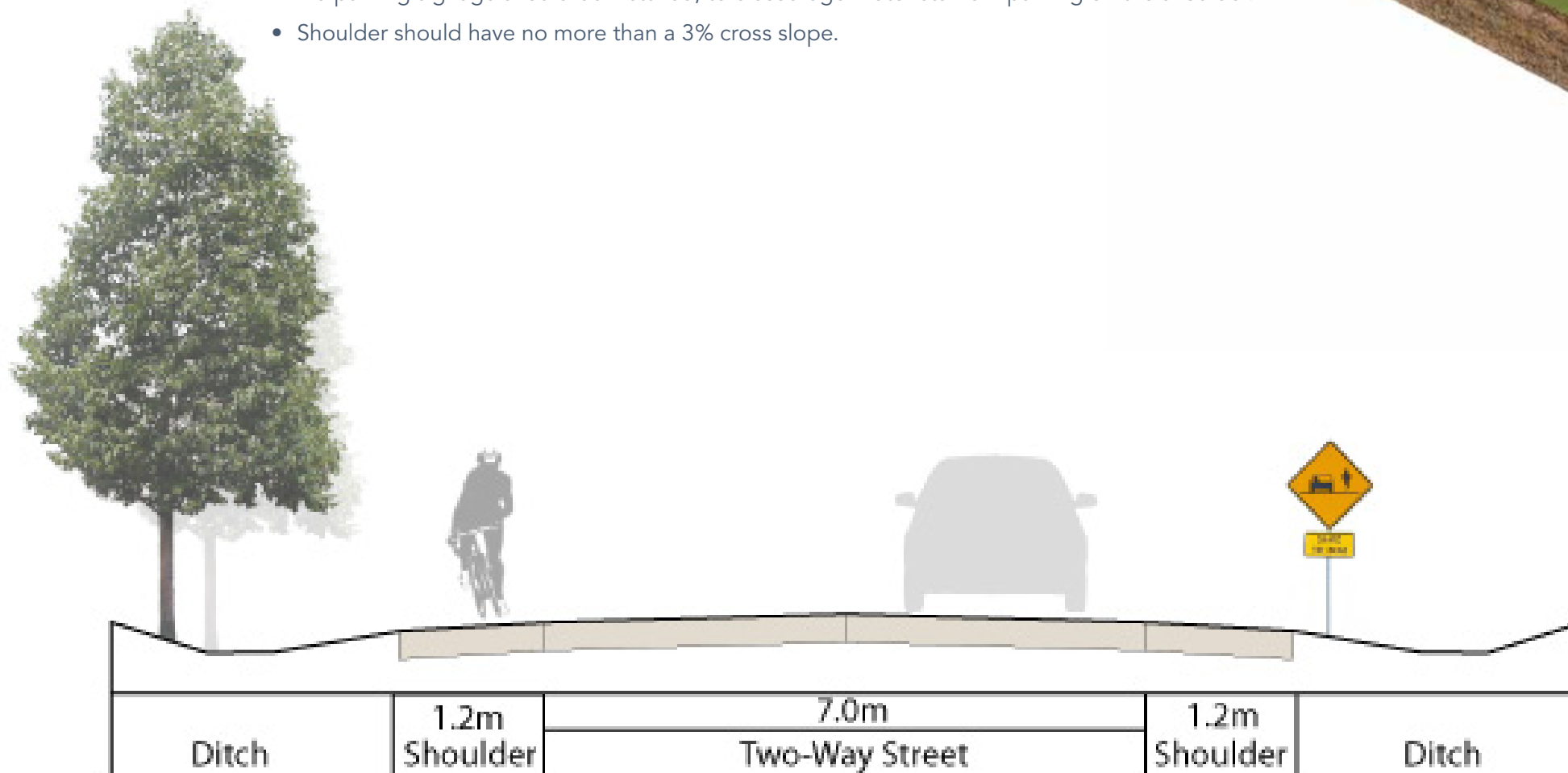
### Paved Shoulder

#### GENERAL PRINCIPLES

- Paved shoulders should be implemented on all primary road connectivity routes within the network.
- Paved shoulders should be constructed at the same time as regular road maintenance or right-of-way improvements.
- Paved shoulders should be considered a desirable asset to the standard road cross section.

#### GUIDELINES

- Paved shoulders should be a minimum of 1.0m wide, and a maximum of 1.75m wide.
- No parking signage should be installed, to discourage motorists from parking on the shoulder.
- Shoulder should have no more than a 3% cross slope.



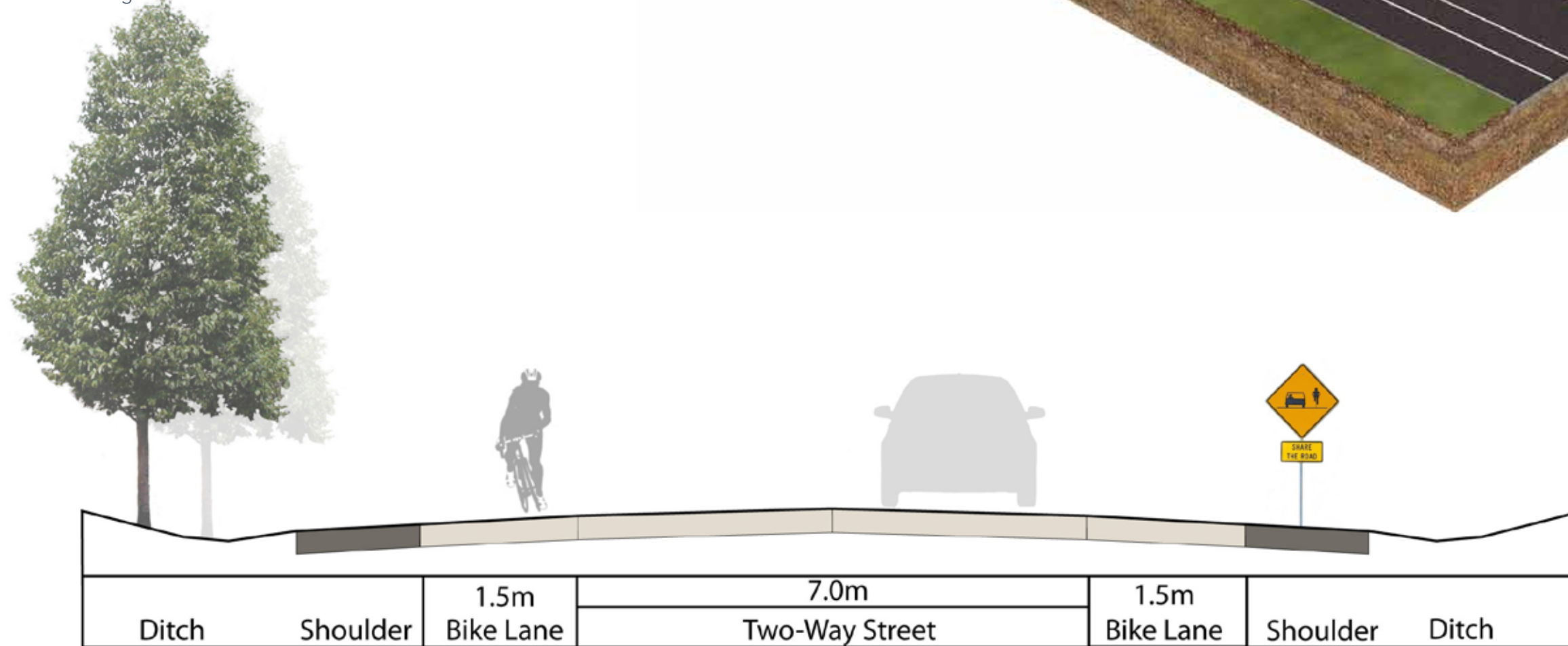
## Bike Lane

### GENERAL PRINCIPLES

- Bike lanes should be generally accepted as the preferred cycling facility.
- Whenever space allows, bike lanes should be implemented on primary connectivity routes.
- Bike lanes are not considered a multi-use facility.

### GUIDELINES

- Bike lanes should be a minimum of 1.2m wide, and a maximum of 1.5m wide.
- Bike lanes should be separated by traffic lanes with a 150 - 200 mm painted line, and surface road markings (such as a sharrow).
- Bike lane, and share the road signage should be installed.
- On roads without street parking, the bike lane should be the outermost (right-hand) lane.
- On roads with street parking, the parking area should be the outermost (right-hand) lane. The standard width of street parking should be 2.1m - 2.5m.
- To facilitate the installation of bike lanes on existing street cross sections, travel lanes could be reduced according to TAC standards for minimum road widths.





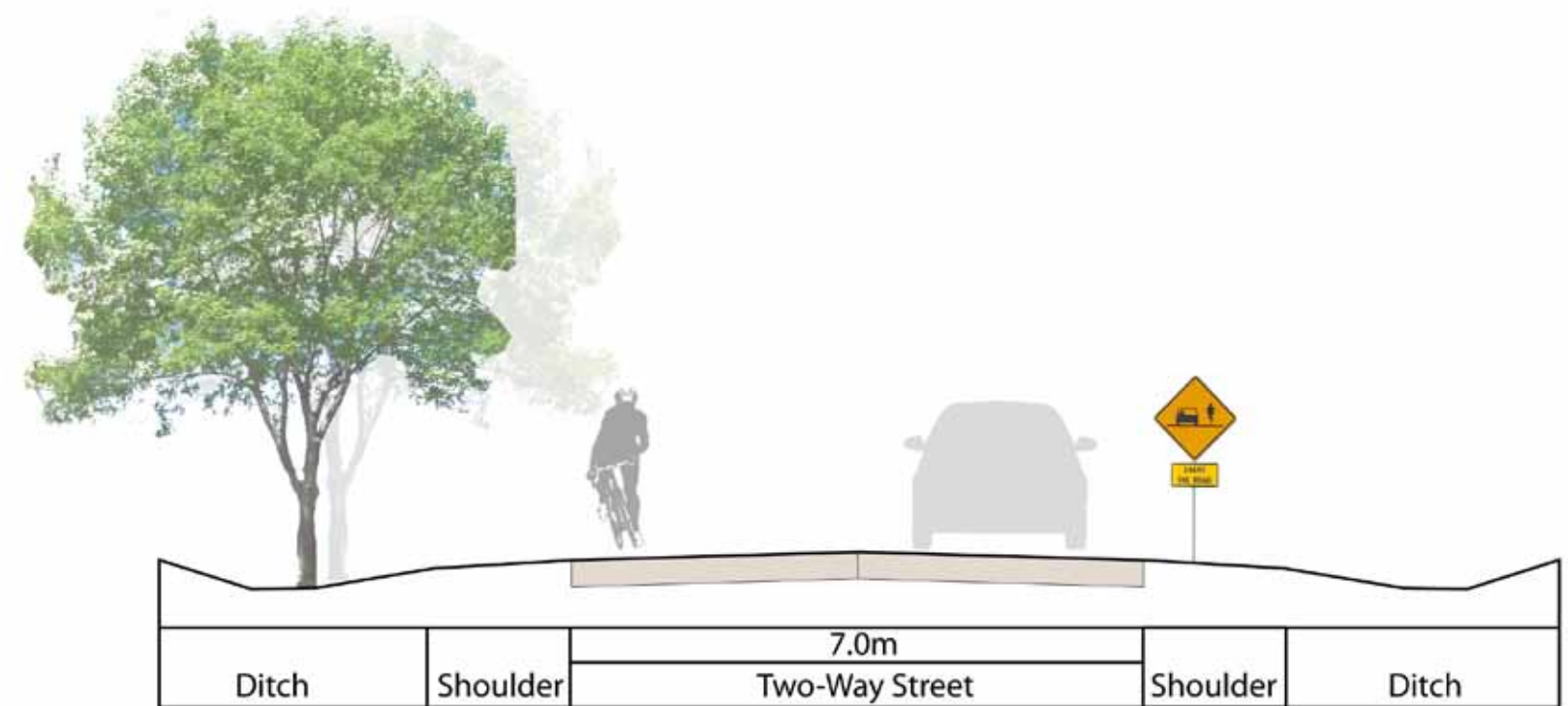
## Signed Route

### GENERAL PRINCIPLES

- Signed routes should be considered only in circumstances where other facility types (i.e bike lanes, paved shoulders) are not technically feasible.
- Signed routes should only be considered on roads with light motor vehicle traffic, in order to maximize cyclist safety.

### GUIDELINES

- Signed routes should have traffic volumes of no greater than 3,000 vehicles / day (urban) and 1,000 vehicles / day (rural). Truck traffic should not exceed 250 vehicles / day.
- Share the Road signage should be installed frequently, after intersections, and repeated as necessary.



## 5.2 OFF-ROAD FACILITY TYPOLOGIES

### Urban Sidewalk

#### GENERAL PRINCIPLES

- Sidewalk is primarily a pedestrian amenity.
- In unique situations, sidewalk may be designated as multi-use trail by the traffic authority, thereby permitting cyclists to ride on it.
- Guidelines
- Urban sidewalk should be a minimum of 1.5m wide, made of high quality concrete.
- Where space permits, sidewalk should border a (minimum) 1.5m wide boulevard / amenity strip.
- In areas of sidewalk to be designated as multi-use trail, the sidewalk should be a minimum of 3.0m wide.



### Rural Sidewalk

#### GENERAL PRINCIPLES

- Sidewalk is primarily a pedestrian amenity.
- In unique situations, sidewalk may be designated as multi-use trail by the traffic authority, thereby permitting cyclists to ride on it.

#### GUIDELINES

- Rural sidewalk should be a minimum of 1.5m wide, made of high quality asphalt.
- Where space permits, sidewalk should border a (minimum) 1.5m wide boulevard / amenity strip.
- In areas of sidewalk to be designated as multi-use trail, the sidewalk should be a minimum of 3.0m wide.
- In areas where the sidewalk is adjacent to a curb or roadway, a concrete curb should be installed.



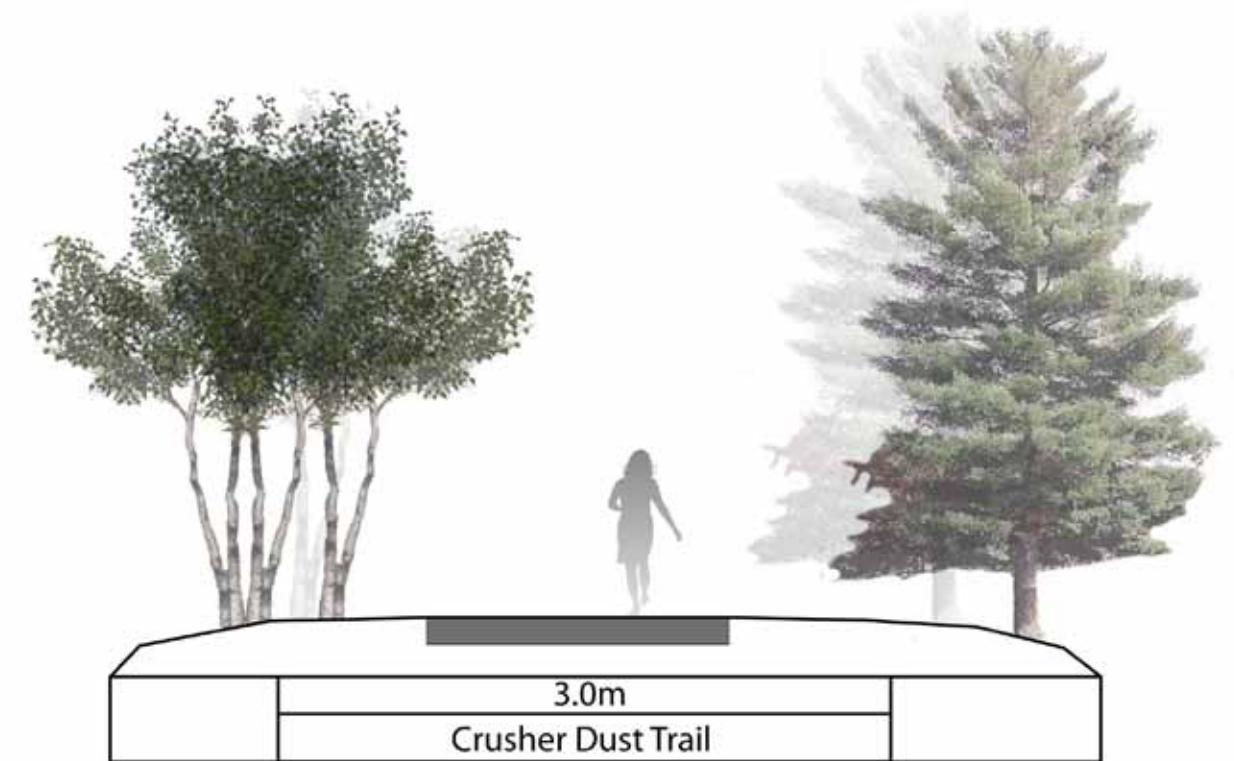
## Stone Dust Multi-use Trail

### GENERAL PRINCIPLES

- A multi-use trail must meet the needs of a variety of users.

### GUIDELINES

- Multi-use trail should be a minimum of 3.0m wide made of high quality, crushed stone, tamped down and compacted.
- An additional 1.0m of clearance on either side of the path is required, with 3.0m vertical clearance.
- Adequate drainage is required, to reduce ponding and erosion.





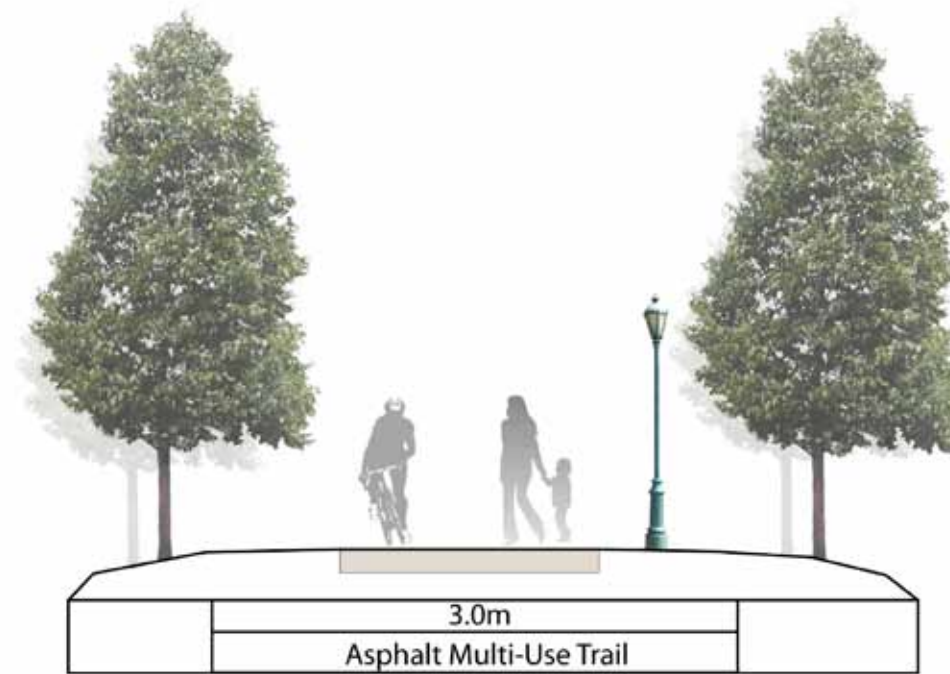
## Paved Multi-use Trail

### GENERAL PRINCIPLES

- A multi-use trail must meet the needs of a variety of users.

### GUIDELINES

- Multi-use trail should be a minimum of 3.0m wide made of high quality, light duty asphalt.
- An additional 1.0m of clearance on either side of the path is required, with 3.0m vertical clearance.
- Adequate drainage is required, to reduce ponding and erosion.



## 5.3 OTHER FACILITIES

### Bicycle Parking

Bicycles can generally be parked anywhere, however their light weight and financial value often dictate that they need to be securely stored. Bike storage should facilitate the upright, lockable parking of bikes. When possible, protection from inclement weather will reduce damage to bikes, and is a desirable storage attribute for cyclists.

#### GENERAL PRINCIPLES

- Two points of contact should be provided when locking to a rack, for improved stability and increased security.
- Overhead shelter reduces wear and rusting of bikes
- Locate parking facility close to the central stream of traffic for increased visibility, security and convenience.
- Class 'A' parking secures the entire bicycle and protects it from inclement weather. Class 'A' parking includes any key secured areas such as lockers, bicycle rooms, and bicycle cages.
- Class 'A' parking should be located within 200m of the facility entrance, in a well lit and highly visible area.
- Class 'B' parking racks include wall mounted bike racks, which permit the locking of the bicycle by the frame and the front wheel, and provide two points of contact to support the bike in an upright and vertical position.
- Class 'B' parking should be located no further than 15m from the building entrance. If shelter exists, such as an awning, overhangs, or other protective elements, parking may be located up to 30m from the entrance. Class 'B' parking should be located in well lit, highly visible areas, to promote safety and security.

#### GUIDELINES

- Spaces should be 1.8m long for regular bicycles, 3.0m long for bicycles with trailers. For double loaded bicycle parking, the minimum overall length should be 3.0m.
- Spaces should be a minimum of 0.7m wide, reduced to 0.5m if overlapping handlebars are permitted.
- The minimum vertical clearance for spaces is 2.1m, 2.5 is preferable. Racks should be spaced a minimum of 1.5m apart, to allow for access.
- Number of Spaces required based on following table:

Establishment	Parking Requirements
Multi-family residence	0.5 spaces / dwelling unit. 80% Class 'A' parking.
Educational Facility	1 space / 20 employees or students. 20% Class 'A' parking.
Hospital	1 space for every 50 employees. 50% Class 'A' parking.
Office	1 space for every 50 employees. 50% Class 'A' parking.
Commercial Street	5 spaces for every 200m of storefront. 20% Class 'A' parking.
Shopping Centre	1 space for every 300m <sup>2</sup> of retail space. 20% Class 'A'.
Any other use	1 space for every 500m <sup>2</sup> of gross floor area. 50% Class 'A'
Multi-family residence	0.5 spaces / dwelling unit. 80% Class 'A' parking.
Educational Facility	1 space / 20 employees or students. 20% Class 'A' parking.
Hospital	1 space for every 50 employees. 50% Class 'A' parking.
Office	1 space for every 50 employees. 50% Class 'A' parking.
Commercial Street	5 spaces for every 200m of storefront. 20% Class 'A' parking.
Shopping Centre	1 space for every 300m <sup>2</sup> of retail space. 20% Class 'A'.
Any other use	1 space for every 500m <sup>2</sup> of gross floor area. 50% Class 'A'



## Lighting

Lighting on trails facilitates trail users visibility of each other, and users' visibility by adjacent elements, such as vehicles. Lighting permits nighttime use of trail amenities, which is especially valuable in the fall and spring, when daylight periods are shorter.

### GENERAL PRINCIPLES

- designated roadways, paved shoulders, and bike lanes are typically lit to roadway standards.
- Off-road trails should be lit, based on volume, location, and context; generally these features are lit in concert with existing part lighting, or if the route is a key commuter connection.

### GUIDELINES

- In urban areas, the average minimum illumination levels should be 2 to 6 lux for residential streets, and 10 to 17 lux for commercial streets.
- The uniformity coefficient should be 6:1 for residential streets, and 3:1 for commercial streets.
- Off road multi-use trails should be lit at a minimum of 5 lux, with a maximum uniformity coefficient of 6:1.
- Tunnels should be lit during the day and night if longer than 10m. The recommended illumination level should be 43 lux.
- Lampposts along roadways should be a minimum of 10m tall, along multi-use trails a minimum of 6m tall, with a lateral clearance of 1m.
- Lampposts should be spaced to provide for the required illumination levels and uniformity coefficients.



## Vehicular Parking

Vehicular Parking is an added attribute to trail design, and should be considered when looking at new trail development, or improvement of existing trail facilities. Until the AT system is well connected, users will drive to and park at their preferred trail locations.

### GENERAL PRINCIPLES

- Vehicular parking should be designed to meet all relevant municipal standards.
- Vehicular parking should be designed in concert with trail rest areas or other amenity areas, and trail heads at parking should include at a minimum recycling centres, and route & information signage.
- Number of spaces to be determined primarily by available land area, although demand should be taken into consideration as well.

### GUIDELINES

- Parking space stall size and layout to meet applicable municipal standards.



## 5.4 ROUTE SIGNAGE

The following signage hierarchy has been developed to meet the anticipated needs of all users of Yarmouth's active transportation route network, from an initial vehicular/cycling mode of travel to site specific trail needs, e.g., route marking, directional and regulatory information.

### Signage Hierarchy:

- Primary Orientation Panel
- Secondary Orientation Panel
- Regulatory Sign
- Primary Pedestrian Directional
- Secondary Pedestrian Directional
- Trail Markers

### ACTIVE YARMOUTH BRAND

This logo has been developed to give Yarmouth a recognizable, memorable, and energetic identity for its active transportation route network. This brand will also reinforce Yarmouth as a place where healthy, active living is fostered. Complimentary icons representing various activities have been created to reinforce the primary brand.

# ACTIVE yarmouth

Supporting Brand Elements



### PRIMARY ORIENTATION PANEL

Map elements are essential to provide fundamental, route-wide orientation, route information and etiquette. These sign types should be located at primary active transportation route entry points and will also serve to create a sense of arrival.

These elements are important to expose first-time users to the route's signage aesthetic and brand. In this respect they will serve as highly recognizable icons for route users seeking wayfinding information.

### SECONDARY ORIENTATION PANEL

Providing the same level of information as the *Primary Orientation Panel*, this sign element is designed to be located at secondary active transportation route entry points and will also serve as a recognizable wayfinding icon for route users.

### REGULATORY SIGN

This sign is designed to display regulations for a given active transportation route, provide etiquette and to serve as a reminder of what activities are and aren't permitted.

### PRIMARY PEDESTRIAN DIRECTIONAL

These elements work in tandem with other pedestrian-level signage elements (i.e., the orientation/route marker elements), providing both assurance and directions to the user.

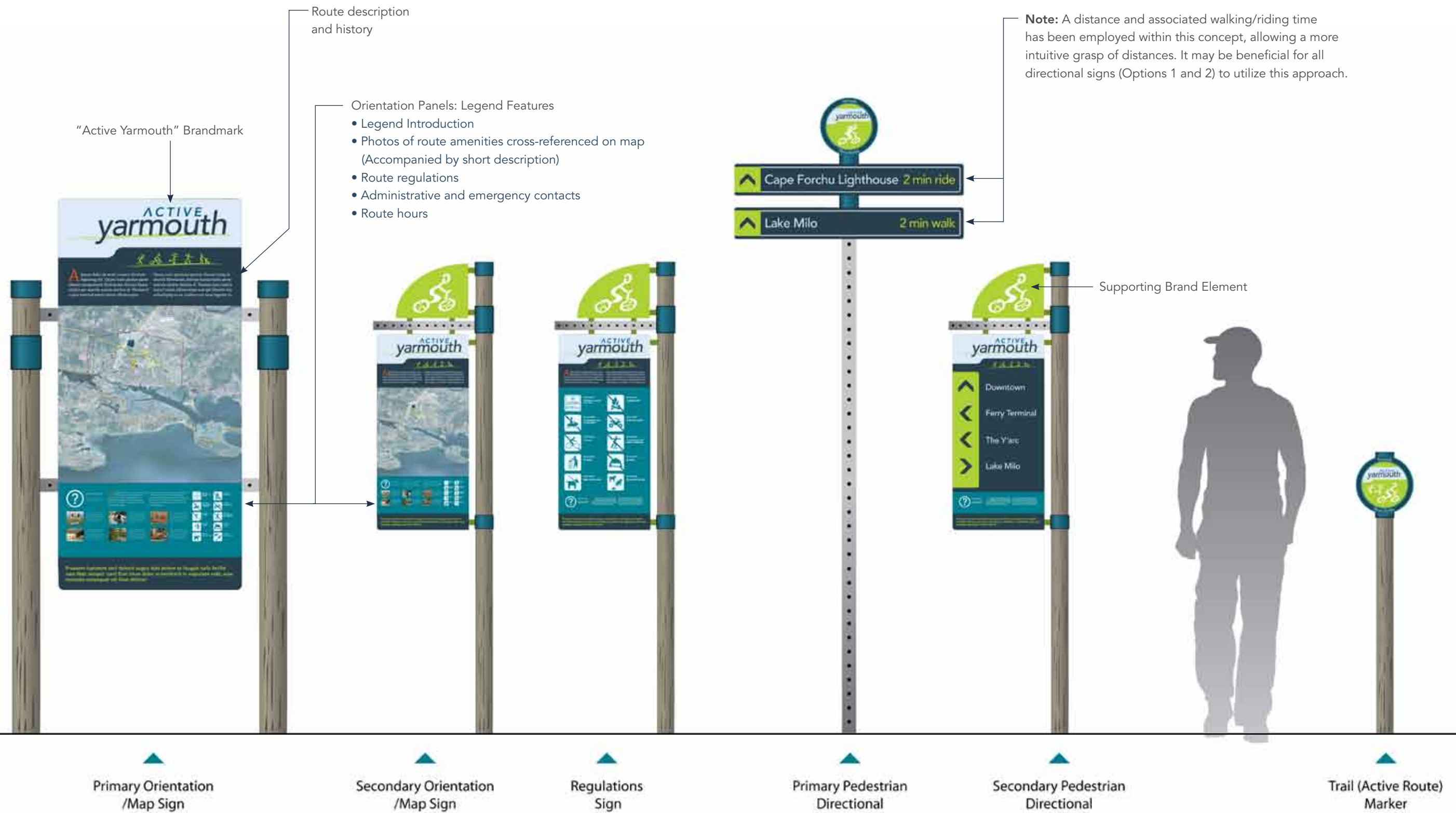
These sign units will be found at key route intersections and will provide directions to multiple locations near or along Yarmouth's active transportation routes.

### SECONDARY PEDESTRIAN DIRECTIONAL

The *Secondary Pedestrian Directional* signs are intended to supplement the *Primary Pedestrian Directional* elements. They should be located at decision points to secondary destinations or where there are installation spatial restrictions.

### ROUTE MARKERS

Route markers shall be located along all primary routes. It is recommended that they are positioned to be within visual distance from one another (approximately 300'). These sign elements have been designed to augment other pedestrian-level signage elements (i.e., the orientation/map, regulations elements), providing assurance, information, and directions to the user.





# 6

## IMPLEMENTATION

This report describes the long term vision for active transportation in Yarmouth, and outlines an achievable and feasible phasing plan. The proposed plan is consistent with the objectives outlined by previous studies and plans for the area, as well as the strategic direction provided by the Steering Committee.

## 6.1 IMPLEMENTATION PROCESS

The Yarmouth Active Transportation Plan is intended to be an evolving plan. Implementation will occur through a suggested four phase process that allows for checks and balances of the program elements, as municipal and stakeholder priorities change, and opportunities become available.

### Phase One: Preliminary Review

The first step towards implementation of the AT plan is adoption and ratification of the plan by Yarmouth Town Council and Yarmouth Municipal Council. The plan should be adopted and endorsed in principle, which will set the underlying foundation for any subsequent work related to active transportation. This will still permit both Councils to implement the various projects, segments, and recommendations on an individual basis.

Once the plan has been adopted in principle, it will be important to determine the administrative owner. Implementation will be facilitated if one Town or one Municipal department has clear ownership and responsibility to move the plan forward. Ownership may rest with the Town Engineer, or Municipal Recreation Director, or be directed towards another department.

Upon a determination of who will champion the plan towards implementation, a review of planned / anticipated capital projects should be completed. This should occur concurrently with a review of the priorities outlined in the AT plan. A preliminary review of the year's planned AT facilities should be completed, taking into consideration any synergistic opportunities to piggyback with other planned capital maintenance or operational road improvement projects. Once this review is complete, adequate information should exist to make the determination to move forward with a project (or projects), or hold off until the follow budgetary year.

### Phase Two: Feasibility

Once the decision to move forward has been made, it is necessary to determine what type of AT facility is under consideration. A feasibility assessment should be conducted, looking at the following:

- undertake an evaluation of the route, based on the criteria outlined in the priority matrix;
- collect necessary site information, such as a topographic and legal survey, environmental assessment, or other required or informative studies;
- examine costs and benefits of proposed route linkage, looking at capital and maintenance costs, efficiencies with other capital projects, and overall benefits;
- Coordinate construction with other projects, if that option is available;
- Make a recommendation regarding the feasibility of the route linkage.

The feasibility assessment generally would occur concurrently with any Class EAs, or schematic or functional design processes for road works or open space design. The feasibility assessment provides the opportunity to develop route linkages concurrently with capital projects, although this is not the only trigger of route linkage feasibility.

### Phase Three: Detailed Design

Once feasibility of the route linkage has been confirmed, detailed design can proceed. Detailed design may occur with or without coordination with ongoing capital improvement projects. Design should follow the recommended facility typologies and standard Municipal and Provincial design guidelines. Once detailed design has commenced, budget should be set aside in the applicable Town or Municipal budget for implementation.

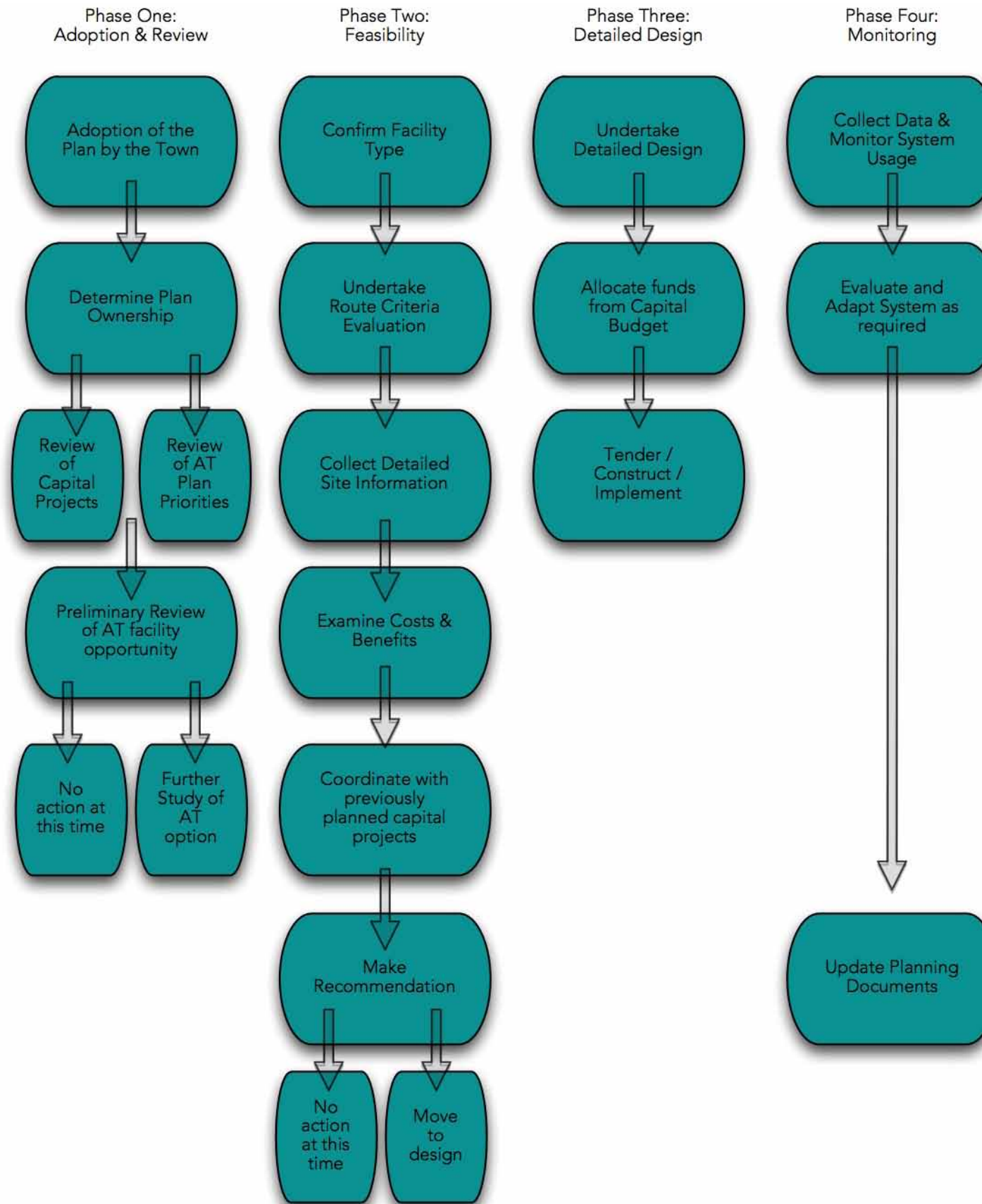
It is possible that once detailed design is completed, the project will be unable to move towards implementation, for a variety of reasons. If this occurs, the route linkage should return to Phase Two, feasibility assessment, to determine the reason for the delay (i.e. design flaw, missing information, priority change, etc).

### Phase Four: Monitoring

Once AT facilities have been implemented, their design and use should be monitored. Monitoring will determine if the facility functions as designed. As necessary, plan documents, details, and guidelines should be updated to reflect the implemented case use of the system. As the plan is revised and updated, the necessary planning and policy documentation should be updated as well.



6.1 Implementation Process



## 6.2 PLAN PRIORITIZATION

This report describes both a long-term 20-year vision and achievable short-term 10-year plan for Active Transportation in Yarmouth. The plans and proposals are consistent with the objectives described in both the public consultation component of this project, and many previous studies and reports.

Initiatives with a high profile and ease of implementation should be given the highest priority, especially where cost is not prohibitive. Larger and more complex projects will require time and further study to work out all the details required for implementation.

Setting priorities for implementation should be based on the following criteria:

- Immediate economic impact;
- Best probable funding opportunity;
- Timeline for possible environmental, infrastructure, and land acquisition issues;
- Potential for greatest positive impact;
- Ability to link to other open spaces and sites;
- Status of land ownership or construction readiness;
- Opportunity for partnerships with the private sector;
- Co-ordination with other on-going municipal projects;
- Logical design and construction sequence.

It is recommended that the Town & Municipality adopt a formal prioritization strategy, to rank proposed and planned projects. This ranking would then be taken into consideration along with the other factors outlined in the implementation process, in order to aid in the decision making process. A sample matrix is included in figure 6.2.

The matrix looks at a sidewalk, trails, and bike routes separately, and assigns points based on specific criteria. The higher the number of points, the more significant or important the factor. For example, a portion of sidewalk under consideration that is within 500m of a school would be highly ranked. The criteria and scoring should be refined by the Town and Municipality, to reflect specific community objectives. This approach will provide a more quantitative method to develop priority segments or facilities for implementation.



Sidewalk			Trail			Bike Route					
Criteria	Within 500m	Within 1000m	Total Points	Criteria	Within 500m	Within 1000m	Total Points	Criteria	Within 1000m	Within 2000m	Total Points
Elementary or Middle School	6	5		Elementary or Middle School	6	5		Elementary or Middle School	6	5	
High School	4	3		High School	4	3		High School	4	3	
Seniors Centre	4	3		Seniors Centre	4	3		Seniors Centre	4	3	
Daycare Facility	3	2									
Park or Recreation Centre	4	3		Park or Recreation Centre	4	3		Park or Recreation Centre	4	3	
Tourism Destination	3	3		Tourism Destination	3	3		Tourism Destination	3	3	
Commercial Area	3	2		Commercial Area	3	2		Commercial Area	3	2	
Place of Worship	2	1		Place of Worship	2	1		Place of Worship	2	1	
High Speed Limit or High Traffic Volume	4			High Speed Limit or High Traffic Volume	4			High Speed Limit or High Traffic Volume	4		
High Density Residential	4			High Density Residential	4			High Density Residential	4		
Medium speed limit or medium traffic volume	3			Medium speed limit or medium traffic volume	3			Medium speed limit or medium traffic volume	3		
Mid-density residential street	3			Mid-density residential street	3			Mid-density residential street	3		
Low-density residential street	2			Low-density residential street	2			Low-density residential street	2		
Industrial business park	1			Industrial business park	1			Industrial business park	1		
Rural street	1			Rural street	1			Rural street	1		
Missing Connection in otherwise contiguous sidewalk	1			Missing Connection in otherwise contiguous trail	1			Missing Connection in otherwise contiguous trail	1		
Years section has been on the forecast	0.5 x # of Years										
Connection to Rail Trail	1			Connection to Rail Trail	1			Connection to Rail Trail	1		
<b>Total</b>				<b>Total</b>				<b>Total</b>			

6.2 Sample Priority Matrix

## 6.3 BUDGET ESTIMATES

The implementation strategy illustrates how the recommended public projects may be completed in three phases. Assuming that funding is available, the work indicated should be able to be completed within the 20-year vision. These estimates also assume program budgets will be adjusted accordingly for inflation and other unexpected cost increases. The following table (Table 6.3) summarizes the total cost of implementation, and a breakdown of how these costs may be distributed over three phases.

The total implementation budget for the 20-year Yarmouth Active Transportation Master Plan is approximately \$10.2 million dollars (2010 dollars). If the Town and project funding partners were able to contribute approximately \$525,000 (2010 dollars) in capital or in-kind to the projects identified each year, all works could be completed within 20 years.

Some of the capital required may already exist within annual budgets for maintenance and renewal of the streets and other related infrastructure. We have included a 20% contingency to allow some flexibility during detailed design. We have also added 15% for design and project management costs; however, these will vary from 8% to 18% depending on the size, nature and the level of project management required. Exact costs will depend upon detailed designs and bidding climate prevailing at the time of implementation. All projects require detailed design to facilitate quality implementation.

Materials and quantities were derived from measurements taken from the georeferenced base mapping. This level of accuracy is sufficient for general planning; however, more accurate estimates will be required during the detailed design and construction stages before going to tender with proposed work. Actual costs may be plus or minus 20%. All quotes reflect December 2009 'installed' prices, not including tax. With recent ballooning petroleum values, prices could increase rapidly in line.

The budget estimate does not include costs for long-term easements, land purchases or private improvements. Miscellaneous items/costs are outlined in the various sub-area descriptions and these include allowances for grading, catch basin relocation and special features.

It is important to recognize that the drawings and designs in this document are conceptual only. A qualified design firm/team should be commissioned to prepare schematic and detailed design drawings and contract documents for each individual project. This additional cost has been accounted for in the cost spreadsheet.

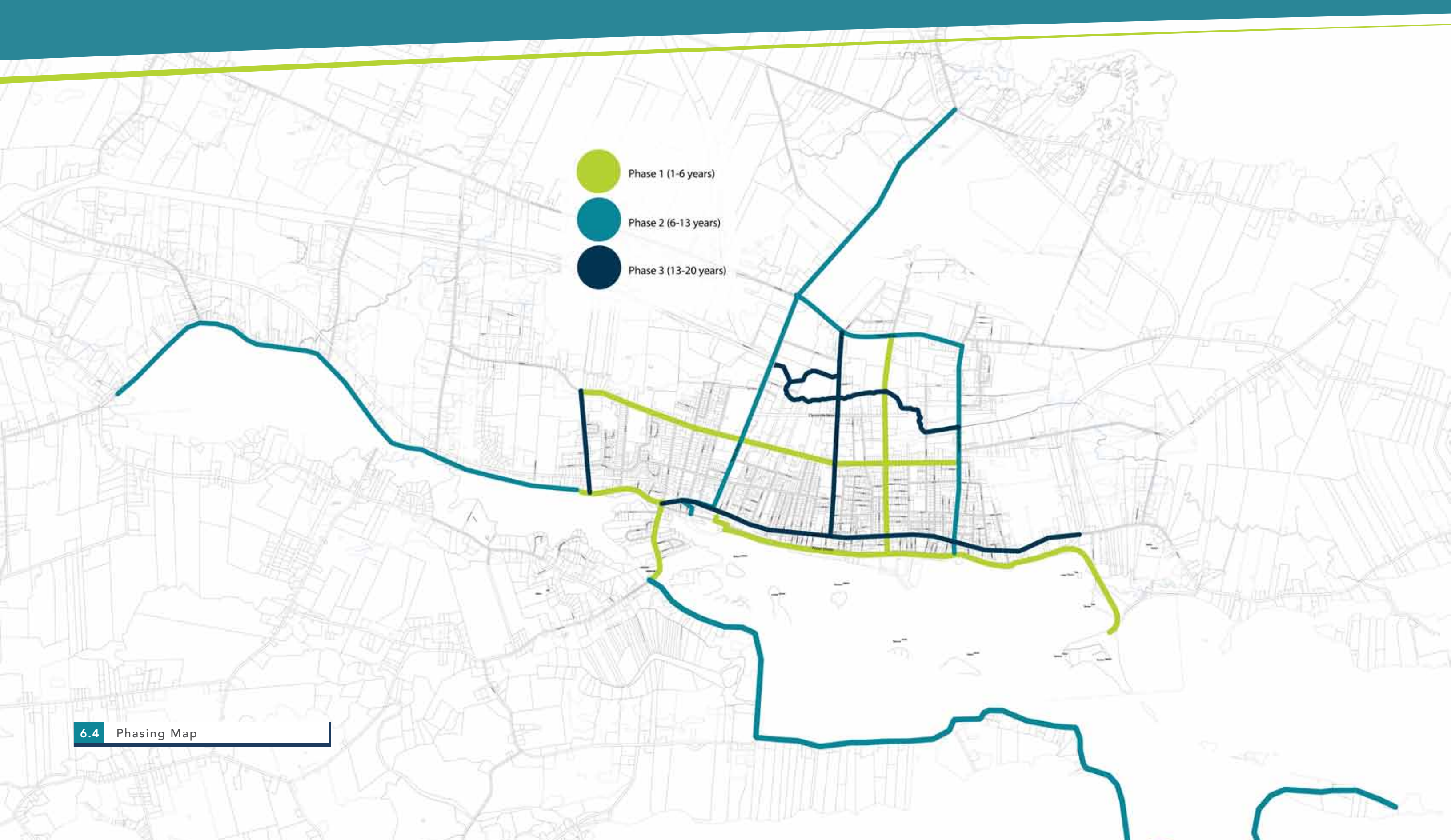
The implementation of the Yarmouth Active Transportation Master Plan will take a financial commitment on the part of the Town, and Municipality, with assistance from the County and the Province. A realistic strategy towards implementation is for proposed on-road facilities to be integrated into standard road capital and operational maintenance costs. In that manner, facilities can be constructed as part of regular Municipal and Provincial road construction and resurfacing.

The continuing increase in the popularity of trail-related recreation, in concert with a concern for community public health and the environment have led to an increase in the availability of funding for active transportation. It is recommended that the Town and Municipality seek additional funding outside of the tax base, in order to assist with the implementation of the AT master plan. Potential funding sources include:

- Federal / Provincial Gas Tax;
- Transport Canada's MOST (Moving on Sustainable Transportation) and
- ecoMobility (TDM) grant programs;
- Federation of Canadian Municipalities Green Municipal Fund;
- Conserve Nova Scotia
- Nova Scotia Health Promotion and Protection
- Federal / Provincial infrastructure stimulus funding;
- Human Resources Development Canada program that enables personnel positions to be made available to various groups and organizations. For example, the Ontario Trails Council has been able to hire two people under this program;
- Corporate Environmental Funds such as Shell and Mountain Equipment Co-op that tend to fund small, labour-intensive projects where materials or logistical support is required;
- Corporate donations may consist of money or services in-kind, and have been contributed by a number of large and small corporations over the years;
- Service Clubs such as the Lions, Rotary and Optimists have assisted with a number of high visibility projects at the community level; and
- Private citizen donations/bequeaths.

Estimate of Probable Costs									
	Measure	Units	Unit Cost	Phase One (km)	Phase One Cost	Phase Two (km)	Phase Two Cost	Phase Three (km)	Phase Three Cost
<b>On Road Bike Lanes (both sides)</b>									
Bike Lane Creation - Line Painting	8.1	km	\$10,000			4.2	\$42,000	3.9	\$39,000
Bike Lane Creation - Road retrofit	9.9	km	\$300,000	6.9	\$2,070,000	3.0	\$900,000		
Bike Lane Creation (tied into new road construction)	\$0	km	\$240,000						
Subtotal Bike Lanes					\$2,070,000		\$942,000		\$39,000
<b>On Road Paved Shoulders (both sides)</b>									
Paved Shoulder Surfacing - urban	0	km	\$300,000						
Paved Shoulder Surfacing - rural	11.8	km	\$400,000			11.8	\$4,720,000		
Paved Shoulders associated with road works - urban	0	km	\$160,000						
Paved Shoulders associated with road works - rural	0	km	\$225,000						
Subtotal Paved Shoulders					\$0		\$4,720,000		\$0
<b>Signed Route</b>									
Signed Route	16.3	km	\$4,000	16.3	\$65,200				
Subtotal Signed Route					\$65,200		\$0		\$0
<b>Sidewalks</b>									
1.5m wide concrete sidewalk	13.4	km	\$175,000	6.9		6.5	\$1,137,500		
3.0m wide concrete multi-use sidewalk	0	km	\$350,000						
1.5m wide asphalt sidewalk (with concrete curb)	0	km	\$125,000						
Subtotal Sidewalks					\$0		\$1,137,500		\$0
<b>Off-road Multi-use Trail</b>									
3.0m wide asphalt multi-use trail	3.7	km	\$190,000					3.7	\$703,000
3.0m wide crusher dust trail	0	km	\$125,000						
Crusher dust to asphalt trail conversion	5	km	\$115,000			5	\$575,000		
Subtotal Multi-use Trail					\$0		\$575,000		\$703,000
<b>TOTAL</b>	<b>\$10,251,700</b>				<b>\$2,135,200</b>		<b>\$7,374,500</b>		<b>\$742,000</b>

6.3 Cost Estimate



- Phase 1 (1-6 years)
- Phase 2 (6-13 years)
- Phase 3 (13-20 years)

6.4 Phasing Map

## 6.4 PHASING STRATEGY

This report describes the long term vision for Active Transportation in Yarmouth. Implementation of the various plan components will occur over a 20 year build out period, and successful realization of the strategy is integrally linked to a comprehensive and realistic phasing program. A successful approach will address any challenges that may arise and will implement the various elements of the plan in logical and cost-efficient manner.

Forecasting a year-by-year phasing strategy is difficult without a strong sense of annual budgets. Priorities set by the Steering Committee can be influenced by the opportunities that arise from unforeseen funding sources, new developments and private sector initiatives.

### Phasing Timeline

- Phase One: 1 - 5 Years.
- Phase Two: 6 - 13 Years
- Phase Three: 13 + Years

The adjacent phasing plan (Figure 6.3.1) outlines the completion of the primary routes over the three phase implementation period. Priorities have been generally set, based on ease of implementation, ongoing projects, safety concerns, and connectivity. The phasing plan should be refined by Town and Municipal staff, based on the implementation and prioritization process outlined in this plan.

### Phase One: Recommended Projects

Phase one projects should be the 'low hanging fruit'; the highly visible and highly requested projects with relatively easy implementation. Starting with visible projects will help to instill confidence in the public that the plan is moving forward, and will build excitement and momentum for implementation. The realization of a highly visible project would also provide the Town and Municipality with a marketing tool to help raise external funding for subsequent projects.

#### *KEY PROJECTS SUGGESTED FOR PHASE ONE:*

- The designation of the Hartlin Trail as a multi-use trail to facilitate use by cyclists.
- Pleasant Street - the addition of share the route signage, bike lanes, and contiguous sidewalk from Prospect Street to Argyle Street.
- Forest Street - the addition of share the route signage, bike lanes, and contiguous sidewalk from Haley Road to Water Street. This connection becomes increasingly important once the new High School is in operation.
- Vancouver Street - the addition of contiguous sidewalk, and painted bike lanes (share the road signage as an interim step).
- Main Street (the Evangeline Trail) along Lake Milo, to Prospect Street. The addition of paved shoulders or bike lanes, and contiguous sidewalk.
- Starrs Road - airport stretch. The addition of share the road signage.
- Cape Forchu - the addition of share the road signage.
- Evangeline Trail - the addition of share the road signage.

## Phase Two: Recommended Projects

Phase Two projects begin to really move the entire project vision forward, from individual facilities to a contiguous active transportation network.

### *KEY PROJECTS FOR PHASE TWO:*

- Starrs Road - the addition of paved shoulders along the airport stretch.
- Starrs Road - painted bike lanes from Haley Road to Main Street. Contiguous sidewalk from Haley Road to Main Street.
- Haley Road - the addition of share the route signage, bike lanes (or paved shoulders) and contiguous sidewalk, from Starrs Road to Argyle Street.
- Argyle Street - the addition of share the route signage, bike lanes (or paved shoulders) and contiguous sidewalk, from Haley Road to Water Street.
- The upgrade of the Rail Trail within Town limits from stone dust to asphalt surfacing
- The construction of the Broad Brook Trail, with stone dust surfacing (option to postpone to Phase Three)

## Phase Three: Recommended Projects

Phase Three projects will likely have been revisited or re prioritized, based on the ongoing review and monitoring of the implementation process. Projects left to phase three should be those with significant engineering or implementation challenges, high capital costs, or other impediments to development.

### *KEY PROJECTS FOR PHASE THREE:*

- The construction (or upgrade) of the Broad Brook Trail. If construction is postponed until this phase, recommendation to install asphalt surfacing immediately.
- The addition of painted bike lanes along Main Street.
- Parade Street: the addition of share the route signage, bike lanes (or paved shoulders) and contiguous sidewalk, from Haley Road to Main Street.

## Phasing Summary

This is a hypothetical phasing plan, based on the initial assessment of AT priorities. The Town and Municipality should conduct their own prioritization assessment, based on internally evaluated criteria, to determine a more refined phasing plan. The phasing plan will adapt to meet the changing needs of the community, and the ongoing development of active transportation as a key lifestyle attribute of the citizens of Yarmouth.

## 6.5 MEASURING SUCCESS

Embarking on a twenty year plan requires dedication and assurance that capital investment is actually having a positive impact on the travel patterns of residents and visitors. Collecting data to properly assess this impact will be critical for the Town & Municipality in evaluating the effectiveness of the AT Plan. Every two years the Town and Municipality should conduct traffic counts on the trails and review the projected phased targets against actual conditions. Every five years the AT Plan should be updated to reflect new realities in the community and global trends. The following chart, Table 6.4 - Benchmarking Indices provides a sample of the type of data that should be collected and assessed. Initially an assessment will be done to establish existing benchmarks.





## 6.6 NEXT STEPS

In order for Yarmouth to move forward towards implementation of this AT vision, there are a number of recommended steps to be taken:

- Town and Municipal Council must adopt the Final Report of the Yarmouth Active Transportation Master Plan.
- Final copies of the approved master plan should be issued to adjacent municipalities, and other key stakeholding & funding groups, such as the Provincial Government, the School Boards, etc,
- The Town and Municipality should consider, and if fiscally feasible, begin to implement projects based on the priorities identified by this plan.

The AT plan is meant to be a dynamic document that evolves through community consultation and technical assessment of environmental and budget realities. Priorities may change in tune with development and street infrastructure upgrading. For instance, the abandonment of railways or the exchange of property ownership may provide the impetus to expedite trail enhancement in those areas.

### STEPS TOWARDS IMPLEMENTATION

- Steering Committee approval of the AT master plan
- Presentation of approved master plan to Town and Municipal Council.
- Encourage Council's adoption of the master plan.
- Append adopted master plan to the Municipal Plan as a background document and encourage Council to adopt policies that facilitate the AT Master Plan strategy with subdivision development.
- Research and apply for funding for trail development and programming in concert with other organizations in the community looking for trails funding.

A successful AT Plan for Yarmouth will require leadership and champions to make trails a priority for the community. The Town and Municipality must nurture the present relationship with private and not-for-profit organizations to ensure collaboration and a common vision. Non-public funding opportunities for trail development area an important component of the AT network to be explored. Staff at the Planning Commission will play a key role in the long term initiative to link trails and accumulate land for future trail connections. The AT Plan would be reviewed and given consideration during development review, municipal updates, and during capital budget preparations.

Measuring Success			
Infrastructure	Beginning Benchmark	Current Year	Long Term Goal
Capital Funding			
Maintenance & Programming Funding			
Paved Shoulder			
Wide Curb Lane			
Bike Lane			
Signed Route			
Urban Sidewalk			
Rural Sidewalk			
Stone Dust Multi – Use Trail			
Paved Multi-Use Trail			
ATV Trail			
Snowmobile Trail			
Cross Country Trails			
Mountain Bike Trails			
Bicycle Parking Spots			
Management			
% Children walking or cycling to school			
% residents walking or cycling to work			
% of reported pedestrian and bicycle collisions/ 1000 population			
Number of students participating in safety education programs			
Funding for Outreach			

6.5 Benchmarking Indices





# A

## APPENDIX A: DRAFT BYLAW



**TOWN OF YARMOUTH / MUNICIPALITY OF YARMOUTH  
PROPOSED TRAIL BY-LAW NUMBER**

RESPECTING THE CONDUCT AND ACTIVITIES OF PEOPLE AND DOGS ON DESIGNATED MUNICIPAL TRAILS BE IT ENACTED by the Council of the Municipality as follows:

**Short Title**

This By-Law shall be known as By-Law No. XXX and may be cited as the “Trail By-Law”.

**Interpretation**

In this By-law,

1. **“Active Transportation”** is any form of self-propelled (no-motorized) transportation that relies on the use of human energy such as walking, cycling, inline skating and jogging;
2. **“Clerk”** means the Clerk of the Municipality or the person designated by the Clerk to administer this by-law;
3. **“Designated Motorized Vehicle Crossing Location”** means a designated section of Municipal Trail where All Terrain Vehicles (ATV) or other motorized modes can cross the Municipal Trail in accordance with the *Motor Vehicle Act* and the *Off-Highway Vehicle Act*;
4. **“Dog”** means any dog, male or female;
5. **“Formal Trail”** means an identifiable off-road trail on the Municipality’s Active Transportation Plan;
6. **“Motor Vehicle”** means a Vehicle propelled by any power other than muscular power but does not include a motorized wheelchair or other similar device;
7. **“Motorized Vehicle Link”** means a designated crossing of an Improved Trail that is subject to such limitations as are posted;
8. **“Municipal Public Park”** includes any municipal park, school grounds, public swimming areas, playgrounds or sports or athletic field, but does not include Provincial or Federal lands;
9. **“Municipality”** means Halifax Regional Municipality;
10. **“Off Leash Area”** is an area designated by signage as an area where dogs are permitted to be without a leash subject to such limitations as are posted;
11. **“Owner”** of a dog includes any person who possess, has the care of, has the control of or harbours a dog, where the person is a minor, includes the person responsible for the custody of the minor;
12. **“Runs At Large”** means a dog off the premises of its owner *and without a leash*; and furthermore a dog shall be deemed to be running at large where it is on any private property or premises without the permission of the owner;
13. **“Trail Control Officer”** means a police officer or a by-law enforcement officer appointed pursuant to the Police Act; and
14. **“Casual Trail”** means an identifiable path, track or public right of way on Municipality property intended for use by Active Transportation modes.

**PART I – REGULATION OF ACTIVITIES ON IMPROVED TRAILS**

**DOGS**

Unless otherwise permitted by this bylaw and By Law D-100, no person shall allow any dog under their control, or for which they are responsible, to be on Municipal Trails.

1. A person may have a dog on Municipal Trail so long as the dog is:
  - 1.1. leashed and in an area governed by signage permitting dogs; or
  - 1.2. in an Off Leash Area.

2. Notwithstanding this section, a person having a dog on Municipal Trails remains subject, at all times, to every provision contained in By Law D-100 respecting the registration and regulation of dogs.
3. While on Municipal Trails no person shall:
  - 3.1. kill, injure, trap, tease or disturb any animal, bird or other wildlife; or
  - 3.2. touch, damage, disturb or remove any nest or egg therein.

**MOTOR VEHICLES**

No person shall:

1. operate a motor vehicle on Municipal Trails except on a designated rural crossing location;
2. operate an Off-Highway Vehicle, as per the *Motor Vehicle Act* and the *Off-Highway Vehicle Act*, on Municipal Trails.
3. drive or leave a motor vehicle on Municipal Trails during the hours people are not permitted to enter or remain on Municipal Trails as set out in this bylaw;
4. service, maintain or, except in the event of an emergency, repair a motor vehicle on Municipal Trails;

**FIRE PREVENTION**

While on Municipal Trails no person shall:

1. start, maintain or permit to remain lit a fire except in a fireplace, fire-pit or other similar receptacle provided by the Municipality for this purpose;
2. leave a fire burning unattended; or
3. leave a fire without completely extinguishing any flame and ensuring the embers are cold.

**PRESERVATION OF NATURAL AREAS**

While on Municipal Trails no person shall:

1. enter into any undeveloped or natural area other than on a Trail;
2. remove any rock, gravel, sand or soil;
3. move, remove, cut or damage any tree, shrub, flower, other plant or deadfall; or
4. possess a chain saw or machete.

**PROTECTION OF THE ENVIRONMENT**

While on Municipal Trails no person shall:

1. attach any poster, notice, advertisement or other similar item to any property except in an area designated by the Municipality for this activity;
2. urinate or defecate except in a facility provided by the Municipality for this purpose;
3. leave garbage, litter or other refuse except in a receptacle provided by the Municipality for this purpose;
4. deposit grass clippings, dirt, rubble or other waste materials;
5. deposit chemicals or pesticides; or foul the water of any lake, pond or other similar body of water.

**RESTRICTED AREAS**

While on Municipal Trails no person shall:

1. enter any area to which access has been prohibited or regulated by signage or fencing or other barricade; or
2. move, remove or alter any signage or fencing or other barricade prohibiting or regulating access to any area.

**MUNICIPAL TRAIL ACCESS**

No person shall enter or be on Municipal Trails:

1. between the hours of 11 p.m. and 5 a.m.; or
2. at any time when a section of Municipal Trails is closed.

**TRAIL USE**

1. Every person using an Improved Trail or an Unimproved Trail shall:
  - 1.1. yield the right of way to slower moving people; and
  - 1.2. use reasonable care when overtaking another person.
2. No person shall use an Improved Trail or an Unimproved Trail in a manner prohibited or regulated by signage governing the trail or any portion of the trail.
3. No person shall use an Unimproved Trail when conditions are such that using the Unimproved Trail is reasonably likely to result in damage to the facility.

**DANGEROUS ACTIVITIES**

While on Municipal Trails no person shall:

1. act in a way, including throwing or propelling an object, that is reasonably likely to cause injury to another person, or damage to property;
2. possess any firearm, bow, arrow or hunting type knife; or
3. modify any land in a way that is reasonably likely to cause injury to another person or damage to property.

**OTHER MUNICIPAL TRAIL USERS**

While on Municipal Trails no person shall:

1. do anything that is reasonably likely to disturb the peace or enjoyment of other persons using the Municipal Trails; or
2. interfere with the exclusive use of any section of Municipal Trails granted to another person or group.

**INTERFERENCE**

No person shall interfere with a Trail Control Officer in the exercise of their powers and duties pursuant this bylaw and By-Law D-100.

**PART II – PENALTIES**

The penalties will be prescribed in By-Law D-100.





# B

## APPENDIX B: EDUCATIONAL MATERIALS



### **The Guide for the Development of Bicycle Facilities**

[www.aashto.org](http://www.aashto.org)

“The Guide for the Development of Bicycle Facilities” outlines the growing need for facilities that cater to the increased use of bicycles as a means of transportation. The guide suggests a variety of improvements that could be made within a given community to better accommodate the growing number of cyclists. Some of these suggestions include: constructing paved shoulders, widening roads, and improving the quality of the paved surface and drainage. This guide also emphasises that construction and redesign are not the only ways to improve Bicycle transportation but education is also crucial in the development and use of Bicycle facilities.

### **Bicycling for Transportation and Health: The Role of Infrastructure**

<http://www.palgrave-journals.com/jphp/journal/v30/nS1/abs/jphp200856a.html>

Jennifer Dill’s paper, “Bicycling for Transportation and Health: The Role of Infrastructure”, investigates the impact of infrastructure on the amount of bicycle use. Dill follows 166 cyclists using gps systems and records their type of use (recreation or utilitarian) and tracks the type of routes they frequented. Dill concluded that approximately 49% of the cyclists travel used facilities specific to bicycle use.

### **Child-and Youth Friendly Land-Use and Transport Planning Guidelines**

[cst.uwinnipeg.ca](http://cst.uwinnipeg.ca)

“Child-and Youth Friendly Land-Use and Transport Planning Guidelines” establishes a set of guidelines focused on reducing the use of automobiles by children and youth as a primary use of transportation and reducing automotive traffic in areas frequented by children and youth. The document also outlines the issues that surround automobile use and our younger generation’s lack of physical activity.

### **Let’s Move**

[www.letsmove.gov](http://www.letsmove.gov)

The “Let’s Move” campaign established by Michelle Obama is an example of a successful campaign to decrease childhood Obesity in North America and encourages people to increase their daily physical activity. The “Let’s Move” website suggests ways in which we can as an individual, as a family and as a community, live a healthier lifestyle.

### **Communities in Motion: Bringing Active Transportation to Life**

[www.sustainablecommunities.fcm.ca](http://www.sustainablecommunities.fcm.ca)

“Communities in Motion: Bringing Active Transportation to Life” encourages municipalities to promote active transportation through; the development of committees to oversee planning endeavours and educating the public, the creation of resources to support active transportation, and effective planning for new active transport facilities.

### **Haliburton County Cycling Master Plan: Final Report**

[www.cyclehaliburton.ca](http://www.cyclehaliburton.ca)

The “Haliburton County Cycling Master Plan: Final Report” is an example of the efforts planned by the Haliburton, Kawartha, Pine Ridge District in Ontario to support cycle use in their community. Recognizing the need for better cycling facilities, the community established a phased plan to complete the improvements required by cyclists.

### **Healthy Communities and the Built Environment: Multi-Sectoral Collaboratives**

“Healthy Communities and the Built Environment: Multi-Sectoral Collaboratives” used a series of seven examples of collaboratives across Ontario that devised plans and conducted efforts to increase the use of active transportation in their communities. The report draws conclusions from the methods used by these communities and investigates the success or failure of the methods.

### **Teacher’s Guide to Physical Activity for Children**

<http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/pag-gap/cy-ej/pdf/kids-teachguide-eng.pdf>

The “Teacher’s Guide to Physical Activity for Children” is a guide developed by the Public Health Agency of Canada to assist teacher’s in discussing the importance of physical activity with young students ages 6 to 9 years old. The guide provides a variety of methods that could be used to encourage and educate children about physical activity. The guide also includes methods used of teacher in the classroom to educate children about the importance of physical activity.

### **Making Tracks**

<http://saferoutesns.ca/index.php/special/making-tracks/>

“Making Tracks” is a programme established to provide active transportation safety education for children and youth across Nova Scotia. The programme focuses on four main modes of active transportation: walking; bicycling; in-line skating and skateboarding. The programme encourages both children and adults to use active transportation; outlining the benefits to the individual, the environment and the community.

### **Mark Wide Curb Lanes**

“Mark Wide Curb Lanes” by Richard Drdul community transportation planning offers an alternative to conventional bike lanes. In many situations it is not possible to implement bike lanes for economical or practical reasons. Drdul provides a description of the wide curb lanes and outlines the benefits, proper usage, and examples of wide curb lanes currently in use.

### **Road Diets: Fixing the Big Roads**

<http://www.walkable.org/assets/downloads/roaddiets.pdf>



“Road Diets: Fixing the Big Roads” by Dan Burden and Peter Lagerwey investigates the advantages of reducing four lane roads to three lane roads, making them more accessible for pedestrian and bicycle traffic. The paper outlines the benefits of thinning the roads and provides examples of “Road Diets” across North America.

**The Street Design Policies for the Metro area**

The Street Design Policies for the Metro area (Clackamas, Multnomah, Washington and Portland USA) provides the design plan for new street development and improvement in these regions. The plan includes the implementation of throughways, boulevards and mixed use corridors.

**The Sustainable Transportation Strategies from the City of Vancouver’s Green Municipal Fund final report on Sustainable Transportation in Southeast False Creek**

[http://gmf.fcm.ca/files/Capacity\\_Building\\_Transportation/SustainableTransportation-en.pdf](http://gmf.fcm.ca/files/Capacity_Building_Transportation/SustainableTransportation-en.pdf)

“The Sustainable Transportation Strategies from the City of Vancouver’s Green Municipal Fund final report on Sustainable Transportation in Southeast False Creek” investigates the strategies purposed for sustainable development in Southeast False Creek. The community suggests a variety of transportation options including options for both walking and cycling.

**The Yarmouth Area Transportation Study**

The Yarmouth Area Transportation Study provides a list of improvements needed for major roads in the area. The study summarises the use of each roads and offers suggestions of how the roads can be improved.

**The Yarmouth County Community Health Board Community Health Plan**

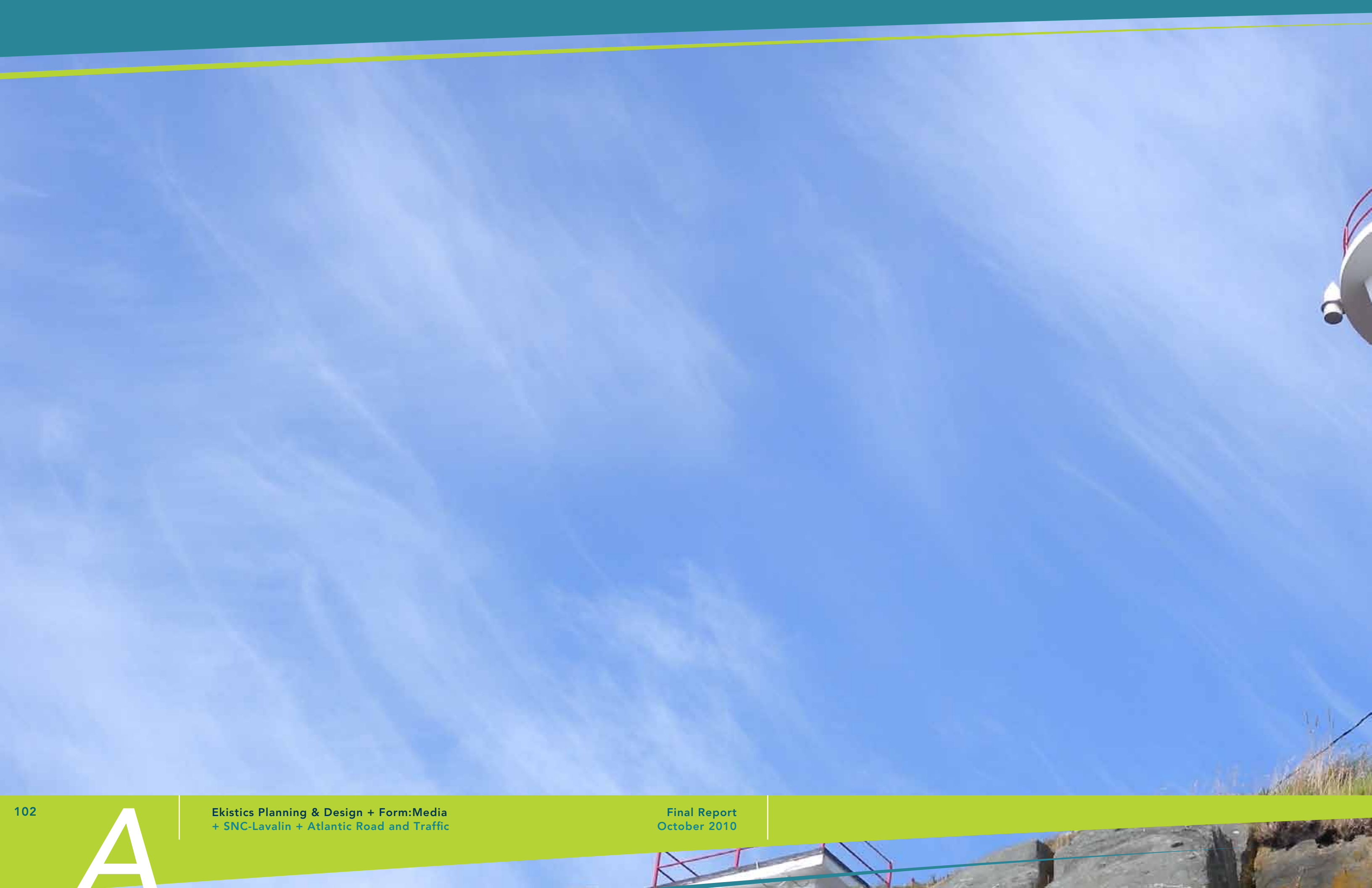
<http://www.swndha.nshealth.ca/pages/yarmCHB.htm>

The Yarmouth County Community Health Board Community Health Plan for 2009-2012 establishes an understanding of the composition of the communities in the region and outlines the possible health needs of those individuals. This information is gathered and used to develop an action plan to improve the health of the residents.



# BIKE TO WORK







# C

## APPENDIX C: SURVEY SUMMARY



# Yarmouth Active Transportation Master Plan

## 1. Are you?

	Response Percent	Response Count
Male	50.8%	91
Female	49.2%	88
<b>answered question</b>		<b>179</b>
<b>skipped question</b>		<b>2</b>

## 2. How old are you?

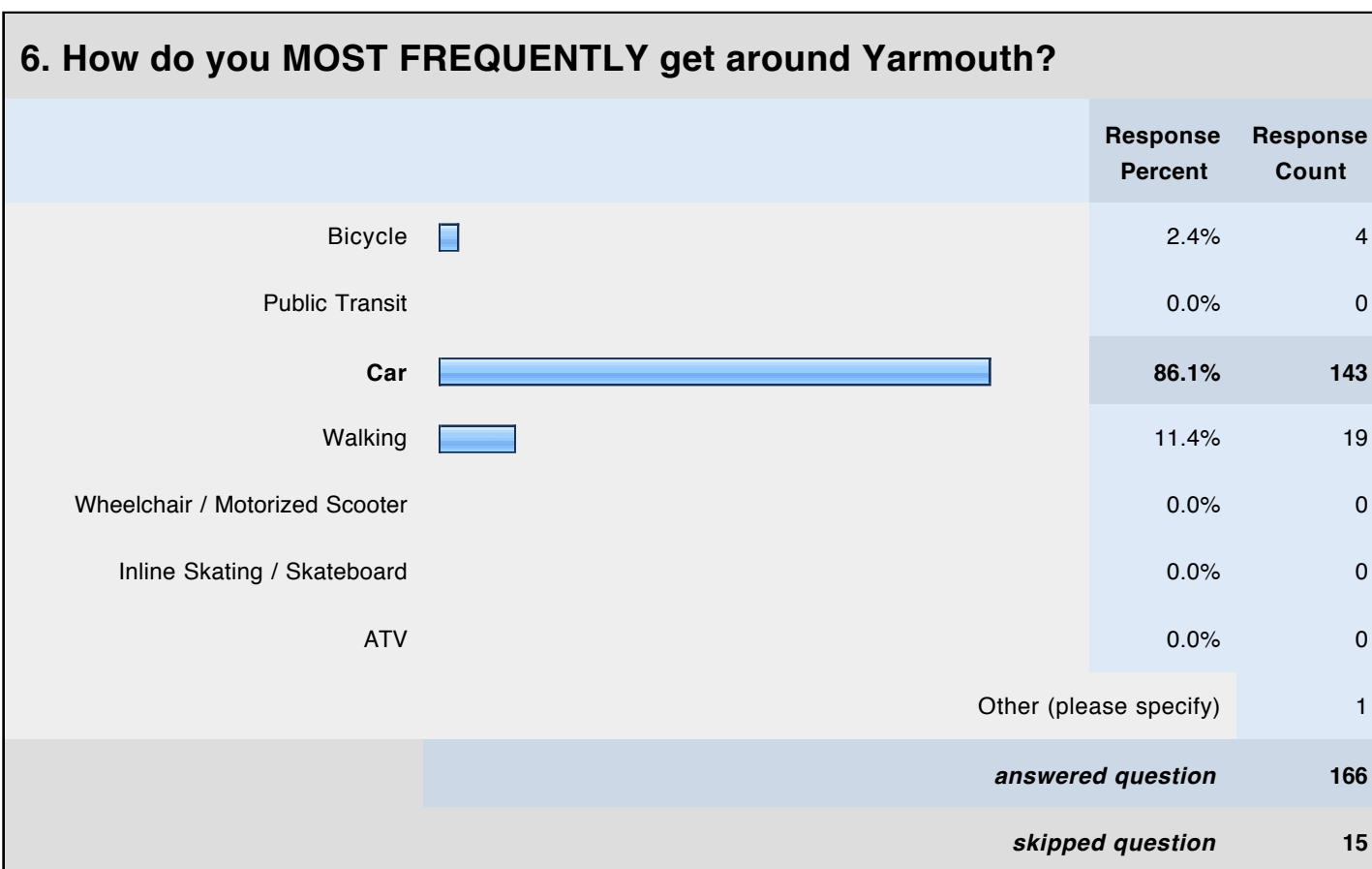
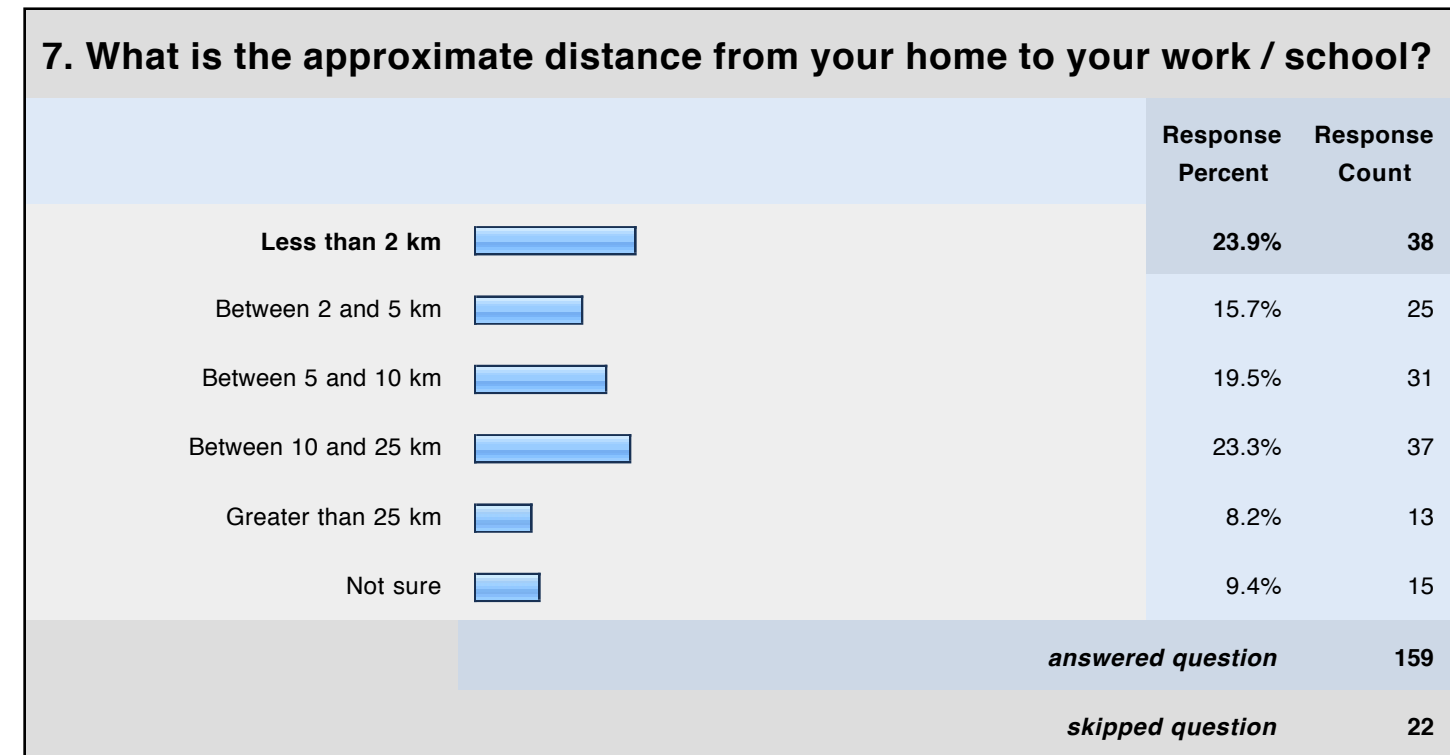
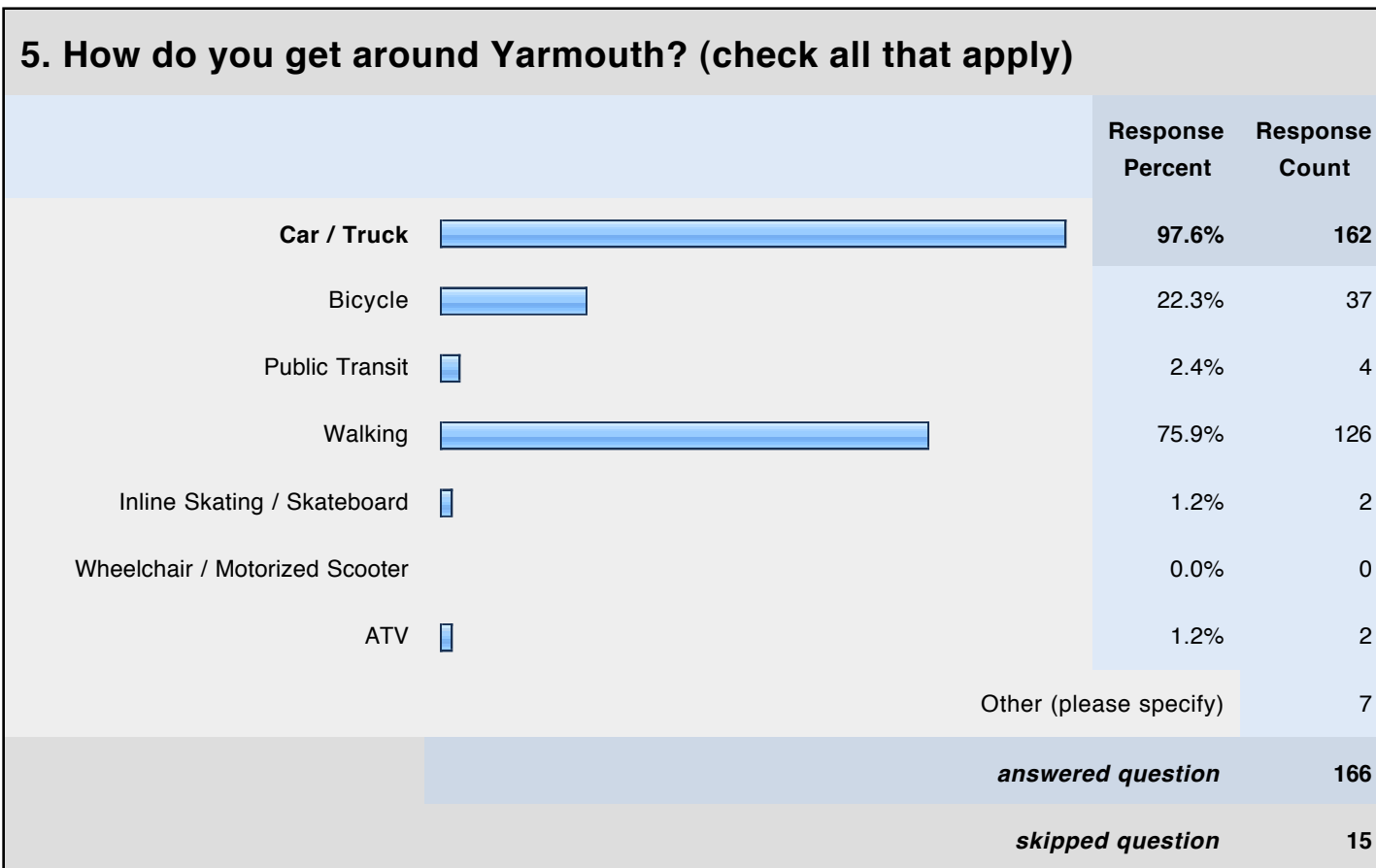
	Response Percent	Response Count
under 21	2.2%	4
21 - 34	16.2%	29
35 - 49	32.4%	58
50 - 64	36.3%	65
65+	12.8%	23
<b>answered question</b>		<b>179</b>
<b>skipped question</b>		<b>2</b>

## 3. How many people live in your household?

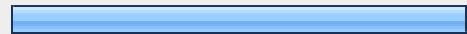

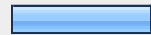
	Response Percent	Response Count
1	10.6%	19
2	51.4%	92
3	12.8%	23
4	19.0%	34
5 or more	6.1%	11
<b>answered question</b>		<b>179</b>
<b>skipped question</b>		<b>2</b>

## 4. How often do you participate in the following activities?

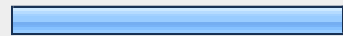


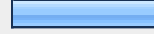

	Daily	Weekly	Monthly	Yearly	Never	Response Count
Walking	55.6% (90)	35.2% (57)	8.0% (13)	1.9% (3)	0.0% (0)	162
Hiking	0.8% (1)	15.7% (20)	26.8% (34)	29.9% (38)	27.6% (35)	127
Cycling	6.6% (9)	19.9% (27)	10.3% (14)	25.0% (34)	39.7% (54)	136
Inline Skating	0.0% (0)	0.9% (1)	1.8% (2)	3.5% (4)	93.9% (107)	114
Running	12.5% (16)	18.0% (23)	7.8% (10)	9.4% (12)	53.1% (68)	128
Ice Skating	1.6% (2)	12.2% (15)	6.5% (8)	26.8% (33)	54.5% (67)	123
Skateboarding	0.0% (0)	0.0% (0)	1.8% (2)	0.9% (1)	98.2% (112)	114
<b>answered question</b>						<b>165</b>
<b>skipped question</b>						<b>16</b>



### 9. Are you interested in using alternative (active transportation) strategies to get around Yarmouth?

	Response Percent	Response Count
Yes 	68.9%	113
No 	10.4%	17
Not Sure 	20.7%	34
<b>answered question</b>		<b>164</b>
<b>skipped question</b>		<b>17</b>

### 10. Why not? (please check all that apply)

	Response Percent	Response Count
Destinations are too far 	50.0%	7
Destinations are not connected by trails / sidewalks 	14.3%	2
Physically too demanding 	7.1%	1
Habitual use of Vehicle 	21.4%	3
No interest 	7.1%	1
Other (please specify)		4
<b>answered question</b>		<b>14</b>
<b>skipped question</b>		<b>167</b>

### 11. Please indicate your comfort level with regards to Walking for each of the following statements:

	Very comfortable	Comfortable	Uncomfortable	Very uncomfortable	Not sure / Not applicable	Response Count
Walking on a paved multi-use trail	61.5% (99)	28.6% (46)	5.0% (8)	0.0% (0)	5.0% (8)	
Walking on a gravel multi-use trail	63.4% (102)	31.7% (51)	3.1% (5)	1.2% (2)	0.6% (1)	
Walking on the sidewalk	67.7% (109)	29.2% (47)	3.1% (5)	0.0% (0)	0.0% (0)	
Walking on the shoulder of a rural road	9.4% (15)	20.0% (32)	38.1% (61)	31.3% (50)	1.3% (2)	
Walking on the shoulder of a town road	7.5% (12)	17.5% (28)	40.6% (65)	33.1% (53)	1.3% (2)	
<b>answered question</b>						
<b>skipped question</b>						

**12. Please indicate your comfort level with regards to Cycling for each of the following statements:**

	Very comfortable	Comfortable	Uncomfortable	Very uncomfortable	Not sure / Not applicable	Response Count
Cycling on a paved multi-use trail	<b>47.8% (75)</b>	21.7% (34)	3.2% (5)	0.0% (0)	27.4% (43)	
Cycling on a gravel multi-use trail	<b>29.7% (46)</b>	<b>29.7% (46)</b>	12.9% (20)	1.3% (2)	26.5% (41)	
Cycling on the sidewalk	10.2% (16)	14.6% (23)	<b>28.7% (45)</b>	18.5% (29)	28.0% (44)	
Cycling on residential (minor) streets	24.4% (38)	<b>39.7% (62)</b>	8.3% (13)	1.3% (2)	26.3% (41)	
Cycling on arterial (major) streets, with painted bike lanes	26.3% (41)	<b>33.3% (52)</b>	8.3% (13)	2.6% (4)	29.5% (46)	
Cycling on arterial (major) streets, with wider curb lanes / shoulders	14.9% (23)	<b>35.1% (54)</b>	20.1% (31)	3.2% (5)	26.6% (41)	
Cycling on arterial (major) streets, sharing the road with vehicles.	3.9% (6)	21.3% (33)	24.5% (38)	23.2% (36)	<b>27.1% (42)</b>	
	<i>answered question</i>					
	<i>skipped question</i>					

**13. Please indicate your level of agreement with the following statements, regarding initiatives that might encourage you to walk or bike more often.**

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Response Count
Nothing will encourage me to walk or bike more often.	0.7% (1)	6.0% (9)	14.1% (21)	38.3% (57)	<b>40.9% (61)</b>	149
No improvements are necessary, the existing trails & sidewalks are meeting my needs.	5.3% (8)	6.7% (10)	16.7% (25)	<b>38.0% (57)</b>	33.3% (50)	150
More bike lanes or paved shoulders for cycling (on-street)	<b>44.4% (67)</b>	39.1% (59)	13.2% (20)	1.3% (2)	2.0% (3)	151
More multi-use trails (off-street)	41.7% (63)	<b>43.0% (65)</b>	13.9% (21)	0.7% (1)	0.7% (1)	151
More / improved sidewalks	<b>44.7% (67)</b>	41.3% (62)	12.0% (18)	0.7% (1)	1.3% (2)	150
Better education for motorists	<b>40.8% (62)</b>	36.8% (56)	19.1% (29)	2.6% (4)	0.7% (1)	152
Better education for cyclists and pedestrians	32.5% (49)	<b>35.1% (53)</b>	25.8% (39)	6.0% (9)	0.7% (1)	151
Improved signage for bike and pedestrian routes	38.4% (58)	<b>39.1% (59)</b>	20.5% (31)	0.7% (1)	1.3% (2)	151
Secure bicycle parking at work / school	25.3% (38)	<b>44.0% (66)</b>	29.3% (44)	1.3% (2)	0.0% (0)	150
Shower & Locker Rooms at Work / School	14.8% (22)	37.6% (56)	<b>38.9% (58)</b>	6.7% (10)	2.0% (3)	149
Reduced Traffic Speeds	14.7% (22)	34.7% (52)	<b>36.0% (54)</b>	10.7% (16)	4.0% (6)	150
Improved Road Maintenance	<b>53.7% (80)</b>	38.3% (57)	6.7% (10)	0.0% (0)	1.3% (2)	149
Improved Sidewalk & Pathway Maintenance	<b>46.0% (69)</b>	39.3% (59)	12.7% (19)	0.7% (1)	1.3% (2)	150
Cycling and Trails Route Map	27.0% (40)	<b>47.3% (70)</b>	20.9% (31)	3.4% (5)	1.4% (2)	148
More connections to key destinations (i.e. shopping, school, downtown)	36.4% (55)	<b>42.4% (64)</b>	20.5% (31)	0.0% (0)	0.7% (1)	151
More bicycle parking at key destinations	29.1% (44)	<b>50.3% (76)</b>	19.2% (29)	1.3% (2)	0.0% (0)	151
	Other (please specify)					10

**15. What are the top three locations or corridors in Yarmouth that require new or better connected trails, bikeways, or sidewalks?**

	Response Percent	Response Count
1	100.0%	111
2	85.6%	95
3	70.3%	78
<i>answered question</i>		<b>111</b>
<i>skipped question</i>		<b>70</b>

**16. What do you think will be the three most significant obstacles or challenges to improving Yarmouth's Active Transportation network?**

	Response Percent	Response Count
1	100.0%	113
2	87.6%	99
3	69.0%	78
<i>answered question</i>		<b>113</b>
<i>skipped question</i>		<b>68</b>

**17. What do you think are the three key initiatives or programs that will encourage Active Transportation in Yarmouth?**

	Response Percent	Response Count
1	100.0%	101
2	78.2%	79
3	64.4%	65
<i>answered question</i>		<b>101</b>
<i>skipped question</i>		<b>80</b>

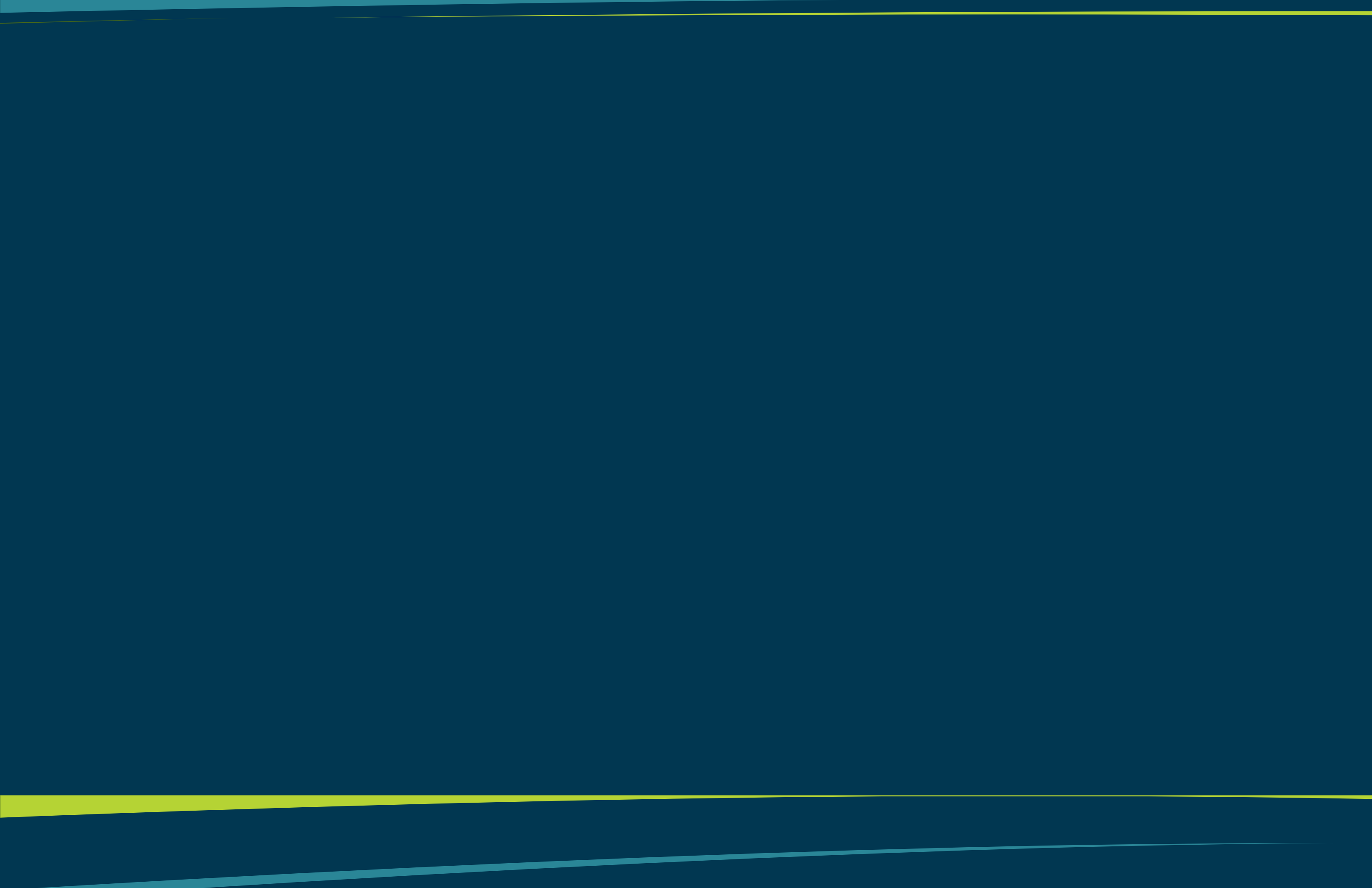
*answered question* 153

*skipped question* 28

**14. Please indicate your level of agreement with the following statements, regarding issues that may make you drive your vehicle less.**

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Response Count
Fuel prices greater than \$1.50 / L	17.7% (26)	<b>36.1% (53)</b>	26.5% (39)	15.0% (22)	4.8% (7)	147
Fuel prices greater than \$2.00 / L	26.2% (38)	<b>35.9% (52)</b>	20.7% (30)	11.7% (17)	5.5% (8)	145
Convenient Public Transit System	24.7% (36)	<b>42.5% (62)</b>	21.2% (31)	9.6% (14)	2.1% (3)	146
Access to a carpool	10.7% (16)	22.1% (33)	<b>42.3% (63)</b>	22.1% (33)	2.7% (4)	149
Access to a Car Share (a vehicle available for communal use)	10.8% (16)	22.3% (33)	<b>39.9% (59)</b>	21.6% (32)	5.4% (8)	148
Improved Trail & Bikeway system in Yarmouth	<b>37.2% (55)</b>	33.1% (49)	23.6% (35)	4.1% (6)	2.0% (3)	148
Nothing will encourage me to drive my vehicle less often	3.4% (5)	8.9% (13)	25.3% (37)	<b>37.7% (55)</b>	24.7% (36)	146
Other (please specify)						7
<i>answered question</i>						<b>152</b>
<i>skipped question</i>						<b>29</b>







**EKISTICS PLANNING & DESIGN**

1 Starr Lane, Dartmouth, NS B2Y 4V7  
t 902.461.2525 ext:102 f 902.465.3131

