

Nova Scotia Bikeways: Scoping the Blue Route

Infrastructure Inventory, Route Mapping and Feasibility of Implementation for a Provincial Bikeways Network



**Prepared by Eastwind Cycle for Bicycle Nova Scotia,
with support from Nova Scotia Health Promotion and Protection**

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1.0 Executive Summary

Nova Scotia Bikeways Vision

All municipalities in Nova Scotia are accessible by safe bikeways, and bicycle infrastructure planning becomes integrated into transportation planning at the municipal and federal level. Nova Scotia develops a culture of cycling that involves Nova Scotian residents as well as visitors from near and far.

Bicycle transportation infrastructure offers health, economic and environmental benefits. Currently, there is no overall, cohesive plan for a provincial bikeways network in Nova Scotia, although several municipalities have developed their own plans for bicycle routes and infrastructure. This report outlines existing initiatives related to creating a bicycle culture in Nova Scotia, potential for economic development related to increased tourism opportunities, and recommendations for policy development, organizational infrastructure and potential cycling routes that will lead to a comprehensive network of bicycle routes throughout the province, achieving the vision stated above.

Both individuals and organizations involved in cycling in Nova Scotia were consulted throughout this report. Additionally, consultations with provincial government departments were also completed and departmental mandates were reviewed to identify how a provincial bikeways network might become an interdepartmental endeavour.

Bicycle networks exist in other provinces in Canada, as well as in many other countries. We identified selected examples of bikeways models, from the infrastructure and financial perspective as in this case there is no need to “reinvent the wheel”.

Nova Scotia would only benefit from a well-designed and integrated cycling network as part of a transportation network. The number and breadth of organizations who are active transportation advocates throughout the province, in both rural, suburban and urban areas has increased over the past decade, indicating significant public support for cycling as a mode of transportation. Additionally, inter-modal transportation is becoming increasingly important for both economic and environmental reasons, and opportunities exist to link rail, ferry, bus and air travel with active transportation infrastructure.

Key recommendations from this report include:

- Development of a provincial bicycle policy that is fully integrated into transportation planning.
- Creation of a non-government organization with the explicit mandate of assisting municipalities with the planning and implementation of bicycle routes, including cycling education.
- Bicycle infrastructure, including designated lanes and low traffic routes with appropriate signage be immediately considered for areas where there is a local demand.

- Cycling be included as a economic development strategy, particularly in rural areas through tourism marketing and planning.
- Through policy development, organizational capacity building, government leadership and education, a culture of cycling be fostered and encouraged throughout Nova Scotia.

2.0 Introduction

In the past decade in Nova Scotia, there has been an increasing amount of advocacy surrounding the need for active transportation infrastructure, particularly cycling infrastructure in urban centers. HRM commissioned and adopted a bicycle plan in 2002 which now guides any road design and construction in HRM. There is a provincial organization, Bicycle Nova Scotia (part of the Canadian Cycling Association), and many active bicycle clubs, including Velo Halifax, Velo Cape Breton, and the Nova Scotia Ramblers, all promoting bicycling as recreation as well as transportation (see Appendix I for a detailed list of organizations). Other provinces in Canada, most notably Quebec, have invested significantly in cycling and cycling infrastructure (i.e., Velo Quebec and the Route Verte Bikeways System). Both Ontario and British Columbia have also invested in urban transportation routes to facilitate and encourage travel by bicycle. In the Atlantic provinces, Prince Edward Island created and now celebrates the Confederation Trail, a rails-to-trails route as a province-wide cycling trail. This momentum is part of a global trend to increase active transportation for both human health and environmental benefits.

Historically, Nova Scotia was part of the “Great Bicycle Boom” which occurred in the decade between 1890 and 1900 as bicycles became more comfortable and efficient and locally available. At that time, these new machines were known as velocipedes; incentives to take rail transport and stay in Nova Scotia’s great hotels were offered to members of the Canadian Cycling Association.¹

More than 100 years later, as Atlantic Canadians suffer from unprecedented levels of obesity and our lifestyles have become less and less active, we are seeing a resurgence in the demand for changes in transportation modes. Most recently, costs of our dependence on fossil fuels for transportation and other human needs are at the height of public concern regarding climate change and global warming.² Barriers to cycling, and to active transportation in general have been identified by Transport Canada, and include a lack of facilities from bike lanes, to parking to workplace showers as well as organizational infrastructure, such as active transportation committees and a lack of social marketing.³

Halifax has one of Canada's highest proportion of workers walking to work in 2001, 10.3%, up from 9.8% in 1996. Shorter commuting distances could be associated with choosing alternative modes of transportation, and just over two-fifths (41.3%) of the population working in Halifax commuted less than 5 km to work (Statscan 2001).

While increased infrastructure and education will ensure that Nova Scotians begin to re-adopt two wheeled transportation, this investment will also have economic spin offs. Nova Scotia is already a destination for cyclotourism with several touring companies operating in the province. Additionally, several municipalities have developed or are in the midst of developing Active Transportation Plans. A recent petition presented to the

¹ Watts 1985 for a detailed account of cycling history in Nova Scotia).

² Ecology Action Centre 2008. Green Mobility Strategy. <http://www.ecologyaction.ca/trax/>

³ Transport Canada 2005. Amenities and programs that encourage active transportation in all seasons <http://www.tc.gc.ca/Programs/Environment/utsp/allseasontransportation.htm#barriers>

Nova Scotia Legislature included over 3000 signatures from people across Nova Scotia, asking that a portion of the provincial gas tax be allocated to active and sustainable transportation. Despite the progress outlined above, bicycle related infrastructure in Nova Scotia is lacking, as is any cohesive plan or organization to take the lead on implementing a Nova Scotia Bikeways plan.

The result is that cycling in Nova Scotia, with few exceptions, is viewed as unsafe and there are few incentives to encourage citizens to use a bicycle as transportation. Nevertheless, the opportunity exists for Nova Scotia to become a premier cycling destination, and to vastly increase the percentage of the provincial population who travel by bicycle to and from work or as a recreational pastime. Investment in cycling infrastructure throughout Canada and other countries has shown direct benefits in population health, number of cyclists, reduction of transportation related greenhouse gas emissions and economic benefits through bicycle related tourism. There is currently recognition of this in Nova Scotia, as well as for the need to improve infrastructure. This is evident in the 2006 vision for Recreation Nova Scotia, which includes the following for the province:

- *Cities and towns in Nova Scotia will have bike lanes*
- *Employers encourage employees to walk, run or wheel to work by providing changing rooms with a shower*
- *Subdivisions have side walks on every street and traffic calming mechanisms*
- *It is safe for kids to walk, run or wheel to school and to play*
- *There are safe convenient connections within and between rural communities*

This report, entitled “Scoping the Blue Route” is a synopsis of existing and planned bicycle related infrastructure in Nova Scotia, as well as recommendations for the implementation of a province-wide bikeways program, that will help achieve the vision stated above. Broad stakeholder consultation, as well as a synthesis of active transportation initiatives, have provided the direction for this document.



A cyclist navigates uneven pavement along the Cabot Trail in Cape Breton.

3.0 Project Overview

3.1 Background

The goal of this report is to provide a rationale and framework for establishing a province-wide bikeways initiative. Throughout the province, there are multiple government agencies, non-profit community based initiatives and organizations all working towards an increase in the use of bicycles as transportation. While the reasons may vary from increased health benefits to greenhouse gas reduction strategies to generation of economic benefits, the end goal of a complete network of cycling routes throughout Nova Scotia is shared among all.

The need to provide active transportation routes was recognized over a decade ago by the New England Governors and Atlantic Canadian Premiers through a 1997 Resolution that supported the linking of regions through bicycle routes. Figure 1. shows progress towards this goal, as identified by Velo Quebec, where routes in adjacent provinces and states are indicated as completed or underdevelopment. It is worth noting that only Prince Edward Island has put significant effort into developing and advertising the Confederation Trail, whereas other provinces have implemented a linked trail system through the TransCanada trail, but do not have dedicated bicycle routes or related advertising. New Brunswick has undertaken bicycle route development along the St. John River Valley and some towns are also exploring the benefits of bicycle infrastructure.

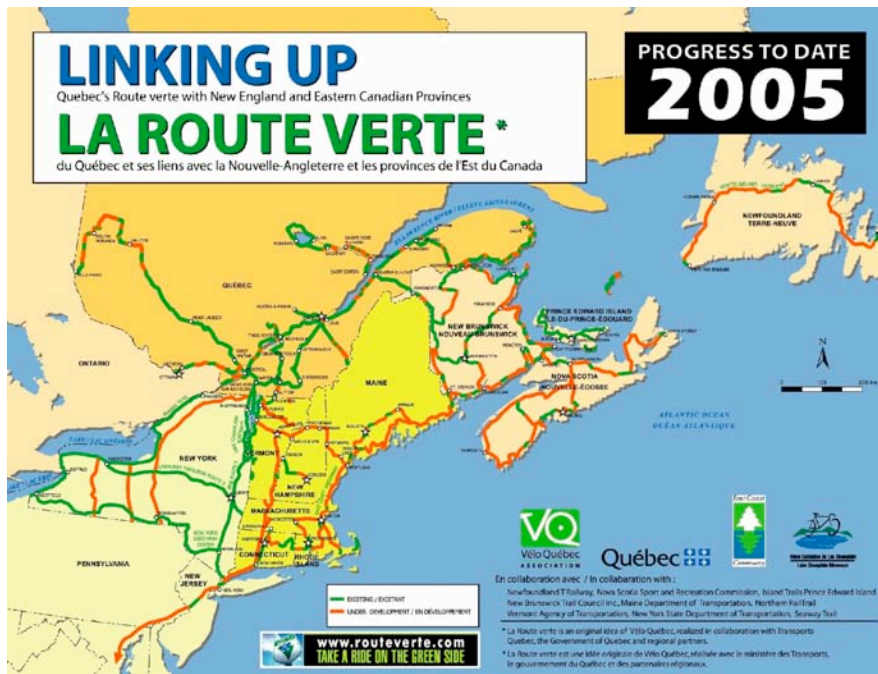


Figure 1. Existing and proposed cycling routes in the New England states and Atlantic Canadian provinces, linking to the Route Verte in Quebec.

In 2006, the first Nova Scotia Cycling Summit was hosted by Velo Cape Breton in St. Ann's, Cape Breton; it brought together many of the groups involved in cycling and cycling advocacy across the province. The Second Summit was held in 2007 in Pictou County where a clear need was seen for a coordinated effort to implement a province-wide bikeways system, that linked existing municipal initiatives, provided consistency throughout the province and included significant levels of government engagement and leadership across a number of government Departments. As a result of the Second Summit, Bicycle Nova Scotia, through funding from the Office of Health Promotion and Protection commissioned this report, in efforts to create a way forward for Nova Scotians and the people already working hard on the ground to see bicycle education and infrastructure become part of a way of life in the province. At the Third Summit, held in Dartmouth Nova Scotia in April 2008, a draft of this project was presented and we have incorporated feedback and additional information collected at that meeting into the final report.

While the health, environmental and economic benefits of bicycle transportation have been elaborated upon and met in numerous jurisdictions, we identify benefits that are specific to Nova Scotia in support of the overarching goal.

3.2 Goals and Objectives

Specific project objectives and deliverables included:

- Produce an overview of bicycle related initiatives in Nova Scotia.
- Develop maps of existing and planned bicycle routes throughout the province.
- Identify potential bicycle routes within a 10 km zone linking all counties and adjacent provinces
- Identify clear gaps in bicycle routes and planning in Nova Scotia.
- Engage stakeholders in developing a Nova Scotia Bikeways Plan, and
- Provide recommendations for organizational structure and government involvement in developing and implementing a Nova Scotia Bikeways plan.

Opportunities and recommendations for realizing these opportunities are identified in the final section of the report. This report is meant to be a useful tool to meet the needs of advocates and make clear and comprehensible recommendations for allocating transportation infrastructure dollars to a province-wide bicycling network.

4.0 Putting Nova Scotia on the Map: The Role of NS Bikeways Project

4.1 Bikeways as Part of Active Transportation

We see bikeways as a key component of active transportation planning and believe that bikeways can and should intersect with municipal trail planning, in keeping with the *2006 Nova Scotia Pathways for People Framework for Action*. In this report, we focus on the broad scale of the province, recognizing that a complete bicycle network will have to be developed at the level of the municipality, where existing trail systems can be incorporated as needed. As a result, bikeways in this report are focused on on-road solutions for bicycle traffic, rather than off-road or trail riding. We recognize that sometimes the use of trail links will be used, where there are high traffic areas, and where there is no other safe and direct route for cyclists, and that there is a partial overlap between shared-use trails and on-road bicycle routes (Figure 2). We also recognize and encourage recreational trail use by cyclists. The key difference is that a bikeways system is effectively a transportation system that makes use of existing road infrastructure and builds upon that infrastructure where there is a need for increased safety and facilities.

Provincial Bikeways Network Trails Network

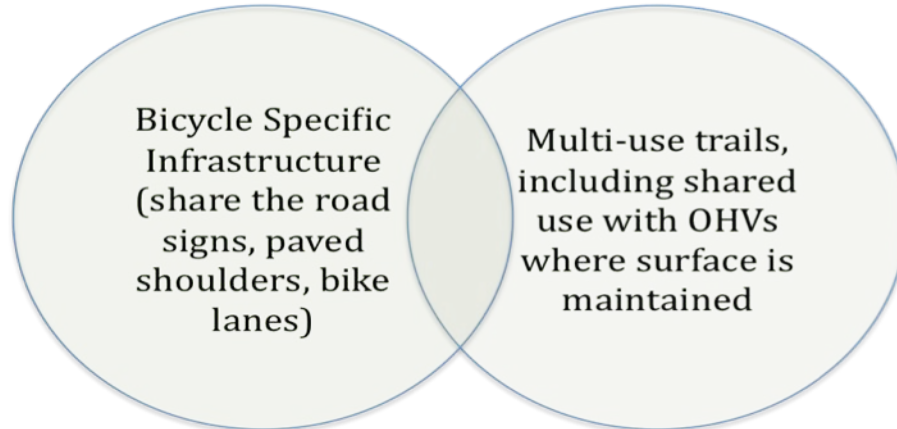


Figure 2. Relationship between active transportation routes and bikeways.

In Nova Scotia, there have been conflicts identified when motorized and non-motorized vehicles make use of the same trail system. In some areas (e.g., Lunenburg County) these conflicts have been resolved through shared use and in other areas conflicts have been resolved through limiting trail use to non-motorized vehicles (e.g., Annapolis Royal). We recognize that trail riding is often a good place in which to become comfortable with cycling. It might therefore be desirable to separate motorized and non-motorized use. In Prince Edward Island, trails are designated for non-motorized use in the spring, summer and fall, while non-motorized uses, such as skiing, are not allowed in the winter, when the trails are opened for motorized vehicles such as snowmobiles and ATVs.

In addition to the rails-to-trails and off-road shared use trails, there is also a growing mountain biking culture in Nova Scotia where an entire other level of trail development exists. There are also perceived conflicts between pedestrian and cycling shared use, although many paths, particularly in urban areas and on rails-to-trails are successfully used by both transportation modes.

Bicycling and Health

Just three hours of bicycling per week can reduce risk of heart disease and stroke by 50%.⁹

In just one generation, the percentage of kids who walk or bike to school has dropped by 70% while childhood obesity has tripled.¹⁰

4.2 Status of Cycling in Nova Scotia

As of 2001, Nova Scotia was below the national average of percent workers commuting to work by bicycle, but ranked the highest in the Atlantic Provinces (Table 1). However, bicycle commuting decreased between 1996 and 2001 in all Atlantic Provinces, where no significant funds had been spent on bicycle infrastructure.

While year round bicycle commuting is sometimes difficult as a result of the winter weather, both the Yukon and the Northwest Territories had more than double per capita increase in bicycle commuting. Quebec and British Columbia saw increases in bicycle commuters between 1996 and 2001 and both provinces have invested heavily in infrastructure and incentives to active transportation.

Table 1: Workers bicycling to work in Canadian provinces and territories, 1996 and 2001.
Data from Statscan.

	1996		2001	
	Number	%	Number	%
Canada	137,440	1.1	162,910	1.2
Newfoundland and Labrador	500	0.3	255	0.1
Prince Edward Island	270	0.5	260	0.4
Nova Scotia	2,455	0.7	2,270	0.6
New Brunswick	1,375	0.5	1,430	0.5
Quebec	29,125	1.0	39,940	1.2
Ontario	47,270	1.0	53,445	1.0
Manitoba	6,370	1.4	7,065	1.4
Saskatchewan	5,120	1.4	6,210	1.6
Alberta	13,070	1.1	17,795	1.2
British Columbia	31,245	1.9	33,635	2.0
Yukon Territory	335	2.1	300	2.0
Northwest Territories	295	1.6	295	1.6
Nunavut	10	0.1	10	0.1

Cycling in Nova Scotia has predominantly been promoted as a recreational exercise. However, in 1999 a dedicated bicycle lane was added to the MacDonald bridge. This made bicycle commuting between Halifax and Dartmouth feasible for an increasing number of cyclists. With the introduction of the Bike Plan in 2002, HRM road design standards were changed to better accommodate cyclists, and bike lanes are now being added where roadworks make this possible. In recent years, HRM and CBRM have held bicycle week events to encourage bicycle commuting.

4.3 Benefits to the Nova Scotia Economy

Cycling has numerous economic benefits, from direct job creation in areas where bicycles⁴ are manufactured, sold, or serviced, to more indirect benefits from increased productivity by employees who are active and healthy.

Non-vehicle transportation modes can also serve to reduce household transportation costs, which is increasingly becoming a concern in rural and urban communities alike, as

⁴ Reference to Quebec manufacturing industry

a result of fuel cost increases. As Nova Scotians seek to economize through increasing energy efficiency, alternative and sustainable modes of transportation, and the related infrastructure will increase in demand.

One of the benefits of a well planned and implemented bikeways network is the potential for economic development as residents and visitors begin to use the routes and trails. Outdoor adventure tourism is increasing, as is demand for “local tourism” as long haul trips become prohibitively expensive.

Tourism

In Nova Scotia, direct economic benefits are seen through bicycle related tourism. Bicycle tourism in Nova Scotia consists of organized excursions run by tour companies who plan meals, accommodations and routes as well as individual, self guided tourists who plan their own trips. Bicycle tourists can be long haul and near haul visitors.

As a preliminary assessment of cycling tourism, we have estimated annual revenue generated by tour companies. The analysis is presented in Table 2 is based on companies running summer tours in the province as of 2006 with an estimated average of 7 weeks of tours for each company (some run more, some run less). The average number of people per tour is 10, and average price \$2,000.00 per person per week, with tours ranging from ~\$1,000.00 to ~\$2,900.00). Cyclists spend time in the province, visit local crafts studios and on average spend more money in the province than visitors on cruise ships or bus tours.

From our preliminary research, the following companies currently run tours in Nova Scotia: Freewheeling Adventures (Hubbards, N.S.); Bike Riders Tours (Boston); Pedal and Sea Adventures (Hubbards, N.S.); Atlantic Canada Cycling Tours (Halifax); Backroads (Berkeley, Ca.); Classic Adventures (Ontario); Easyriders (Newburyport, Mass). The most frequently ridden routes are the South Shore, Evangeline Trail and the Cabot Trail. Several of these companies also run hiking and walking tours. Other companies have run tours in the past, but no longer do so, for various reasons. These include Austin Lehman Adventures, Vermont Bicycle Tours, Butterfield and Robinson (Newfoundland Only).

Table 2. Estimate of annual revenue from guided cycling tours in Nova Scotia.

Estimated Economic Generation from Cycling Tourism In NS (2005 summer season)					
	# Companies	# Guided Tours/ Company	Ave. No. Guests	Average / tour	Total Est. \$
Income for Guided Tours	7	7	10	\$2,000.00	\$980,000.00
Income From Unguided Tours	4	4	4	\$1,000.00	\$64,000.00
Spending while in Province	7	9	6	\$500.00	\$189,000.00
Estimated Total					\$1,233,000.00

While guided tours provide a basis for assessment of cyclotourism, the effect of individual cyclists coming to the province has yet to be assessed. This is a clear gap in understanding economic benefits to the province. Part of increasing visits by cyclists to Nova Scotia involves active marketing of the province and promotion through the Nova

Scotia Department of Tourism, Heritage and Culture and distribution of the Safe Cycling brochures produced by the Department of Infrastructure Renewal.

Other areas in North America and Europe have developed designated cycling routes with great success, including economic benefits, reduced environmental impact, contribution to the physical health of the users and a “slower” way to travel, giving an overall greater quality of experience. For example, the Confederation Trail in PEI⁵ is used heavily by cyclotourists and locals alike. In 2000, cyclists using the Route Verte in Quebec (with over 4200 km of routes and trails), spent over 95 million dollars. In 2006, during the official opening of the Route Verte, spending by cyclists increased to about 140 million.⁶ Development of 40 km of cycling routes and corresponding investment in cycling infrastructure in North Carolina’s Outer Banks has had economic returns of nine times the initial investment, with cycling tourists spending on average \$175.00USD/day in the area.⁷ In Europe, Cycling in Switzerland has a cycling network of 3,300 km and in Germany, D-Route will extend over 10,200 km. Additionally, in Germany more than 3000 accommodation establishments have received an accreditation similar to the “Bienvenue Cyclistes” accreditation used in Quebec. Velo Cape Breton has also instituted a “Bicycle Friendly” program for accommodations and businesses who welcome cyclists through providing bicycle parking, repair stations, and other conveniences (Appendix IV includes the VCB criteria).

4.3.1 Pictou County Case Study

As part of the planning for the Pictou County Bikeways initiative, which began in 2007, Eastwind Cycle conducted a survey of tourism operators in the county to provide baseline information related to cycling related tourism activity as well as to assess willingness of local tourism service providers to augment their facilities to be more bicycle friendly. The survey and its results can serve as a case study for the rest of Nova Scotia in terms of assessing the interest of tourism operators in increasing their business through cyclotourism. The survey results indicate a need to market Pictou County as a bicycle-friendly destination, once Bikeways infrastructure has been implemented.

Methods

Service providers in Pictou County were surveyed to determine the level of support from the tourism industry for a Bikeways Destination project and to collect baseline data on current cycling traffic in the area during the 2006 tourism season. Participants were identified through listings on the Pictou Tourism Association website⁸ and in the Nova Scotia Doers and Dreamers Guide 2006 online edition. A total of 36 providers were

⁵ PEI markets itself as bicycle friendly. The provincial government includes cycling routes on its tourism webpage and actively welcomes cyclists. While many cyclotourists come to the province to cycle the Confederation Trail, most cyclists spend a significant amount of time off the trail, on low traffic roads that are closer to amenities and accommodation. PEI’s cycling promotion can be seen at www.gov.pe.ca/visitorsguide/explore/trail.php3.

⁶ The Quebec government committed funds to the Route Verte, and over ten years, trails, routes, related infrastructure and bicycle friendly businesses now complete the Route Vert. Maps, routes, and a description of the Route are available at www.routeverte.com/ang/index.lasso. The Route Verte is implemented by individual municipalities, with oversight and planning completed by the provincial organization, Velo Quebec.

⁷ As part of the Outer Banks bicycle route, the North Carolina Department of Transportation researched incentives for reasons to invest in cycling infrastructure (www.ncdot.org/transit/bicycle/safety/safety_economicimpact.html)

⁸ <http://www.tourismpictoucounty.com/>

identified, with some providers offering more than one type of accommodation (i.e. cottages / inns).

Table 3. Summary of survey participants.

Type of Provider	Number
B&B	14
Campground	3
Cottages	7 (8)
Hostel	1
Inn	8 (9)
Total	36 (38)

Of the 36 identified service providers, surveys were completed with 24 with a response rate of 66%. Of the 12 where surveys were not completed, 2 businesses were not interested, 5 were closed or phones disconnected and 5 did not respond to repeated messages left. The type of service providers are listed in Table 3.

Results

Perceived Economic Benefits

Of the 24 respondents, 84% felt their business would benefit from more cyclists in Pictou County. Eight percent did not respond to this question and another 8% did not see cyclotourism becoming a significant part of their business in the future. Considering that there is currently no infrastructure for on road cycling, with the exception of good quality and low traffic roads throughout the county, this is a very positive response from tourism providers.

Direct benefits cited by respondents included:

- Increased number of room nights;
- Longer stays;
- More requests of a different demographic than are now coming to Pictou County;
- Pictou would be a specific destination;
- Greater exposure for the area;
- Increase in the number of cyclists over what they get now;
- Increased traffic in the “shoulder” seasons;
- Increased recreational opportunity to add to those that exist; and
- Encourage PEI- and Cape Breton-bound cyclists to stop in area

Bicycle Specific Facilities

Respondents were asked if they would be willing to provide bicycle friendly infrastructure (Figure 2). Eighty-three percent of respondents were willing to provide some sort of cycling facilities, with over 60% willing to provide outdoor parking, water and an air pump as special amenities available to cyclists. While water was available anyway at all service providers, the question was specifically for providers to create a welcoming atmosphere for cyclists or cyclists that were passing by. Sixty-six percent were willing to consider up to a \$500.00 investment in bicycle friendly infrastructure. Eighty-three percent were interested in a “Welcome Cyclists” certification.

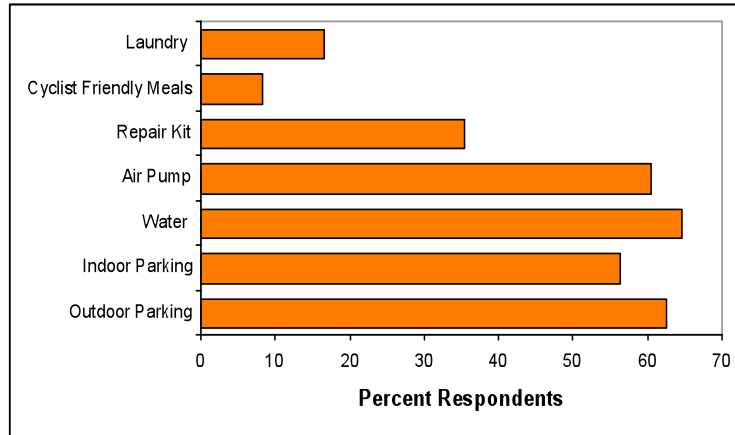


Figure 2. Survey responses indicating willingness to provide specific bicycle friendly infrastructure.

Current Cycling Traffic in Pictou County

Pictou County does not currently have any particular draw for cyclists, except that it is beautiful, has countless low-traffic rural roads and is on the way to PEI, which advertises itself as a bicycling destination.

Current traffic levels are as high as 60 cyclists per season (Figure 3), with 8% of respondents estimating between 36-60 cyclists per year. Over 10% did not have any cycling traffic. Thirty percent of respondents had between 11-20 cyclists per year, and this was the median number of visitors who either came on a bicycle or intended to cycle in the area.

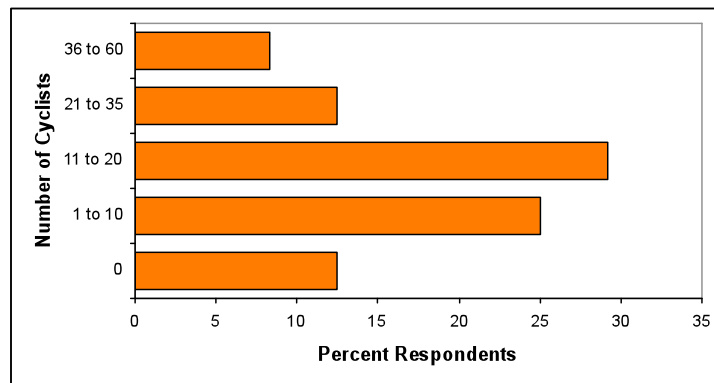


Figure 3. Number of cyclists visiting Pictou County accommodations during the summer of 2006.

Implementation of bikeways infrastructure, and particularly marketing Pictou County as a destination will increase the number of cyclists, from within Nova Scotia and from other provinces and the New England States. Respondents stated that many of the cyclists were European, particularly those who were traveling by bicycle. If obstacles, such as difficult bus transport with a bicycle are removed, this type of visitor will increase in number.

Recommendations from Survey Respondents

Service providers had several ideas that would increase their ability to accommodate cyclists. These included:

- Cycling information should be available on the Pictou County Portal
- Cycling information should be available on the Pictou County Tourism Association website
- Downloadable maps of bike routes and mountain biking trails would be very helpful.

4.4 Inclusion in Transportation Planning: Bikeways Planning Principles

In order for bikeways to become successful, they have to be an integral part of transportation planning. Cycling and the related infrastructure, from parking, to road signs, to paved shoulders and bicycle paths separated from roads is most likely to become part of a transportation system, when it is considered as such.

In all bikeways or bike route projects, there are a set of basic principles that provide the underlying philosophy behind the development and implementation of a final plan. These are outlined succinctly and eloquently in Velo Quebec's "Technical Handbook of Bikeway Design" (Velo Quebec 2003) and can be summarized as follows:

- **Mobility:** A bikeway plan is a transportation plan, whose main purpose is to facilitate travel by bicycle. A properly designed, and implemented bikeway will ensure continuous and comfortable routes for cyclists **within** communities and **between** communities.
- **Continuity:** Bicycle routes should be continuous, with all segments linked together with unifying signs and route markings; whether the route is partially bike lanes and partially share-the-road segments, both cyclists and drivers should be able to easily follow the bike route.
- **Homogeneity:** Bicycle routes should strive for some level of "sameness" throughout the route. For example, off-road routes should be connected through quiet streets, where cyclists can assume the same level of safety. Commuter routes, on paved shoulders or painted lanes should not use segments of off-road trails. Speed, use and route characteristics should remain consistent, to the greatest extent possible. Transitioning between route types must be done with care and consideration, from the cyclist's perspective.
- **Efficiency:** Cyclists, like motor vehicle drivers, like to get to where they are going in the most direct possible manner. In urban settings, in particular, bike routes should not be created on side roads, that take the cyclists far from the major employment or shopping centers.
- **Safety:** Safety must be considered as part of bikeway planning. Where cyclists are sharing the road with motorists, the route must be well signed. Transition and intersections, particularly where traffic turns right and cyclists continue straight, need to be well designed. Cyclists have the right to use any road, and as cycling traffic increases, motorists and cyclists should have the opportunity for education on rules of the road.
- **Charm:** Bikeways and routes should always consider the environmental aesthetics. Cyclists want to travel along routes that are pleasant, with good road quality, and easy access to both the route and to services.

One of the obstacles to overcome in Nova Scotia, is the misconception that cyclists are blocking traffic, or that cyclists do not belong on the road. The *Nova Scotia Motor*

Vehicles Act (Section 85(1)) provides that cyclists are subject to the same provisions as motor vehicle drivers.

Consideration of active transportation should be given, when planning schools in particular, but also other public institutions such as hospitals and government centers. Basic bicycle infrastructure, such as bicycle parking should be installed at major shopping centers, employers and along commercial streets. Installing bicycle parking indicates that cyclists are welcome and encouraged. Active transportation needs to be integrated into health promotion policies, transportation planning, and environmental policy directives, such as the Nova Scotia Green Plan.

Bicycling and the Environment

The U.S. could save 462 million gallons of gas a year by increasing cycling from 1% to 1.5% of all trips.¹²

27% of greenhouse gas emissions in Nova Scotia are from transportation

In Quebec, cyclists make 16% of their trips for transportation purposes, for an annual total of 330 million kilometres. If these trips were made by car, more than 30 million litres of gas would be consumed, producing 76000 tonnes of CO₂.

5.0 Existing Bicycle Related Initiatives in Nova Scotia

Nova Scotia already contains many important aspects that will lead to a successful province-wide bikeways network. A significant part of bicycle infrastructure includes the people who bicycle, and advocate for cycling as recreation and a mode of transportation. Additionally, the organization of municipalities and citizens who are planning for and implementing active transportation plans is another important interest sector. Finally, a key component of successful bikeways, just as gas stations are to motorized transportation systems, is the existence of bicycle repair shops.

5.1 Non-Profit Organizations and Existing Cycling Clubs

Nova Scotia boasts a significant number of bicycle related organizations and clubs. At least 22 different non-profit, and largely volunteer based organizations exist that either directly provide cycling programming or advocate for increased cycling and cycling infrastructure in the province. Many of these organizations have been formed over the last decade, in response to both environmental and health benefits of cycling. There are clear concentrations of initiatives around urban centres, particularly HRM. However, there are also organizations that have a provincial mandate and others that are specific to other areas in the province.

Table 4. lists existing non-profit organizations that provide programming and advocate for active transportation. A detailed explanation of the mandates as well as contact information for each of these organizations is included in Appendix I. There is a clear need for an overarching vision and network within which the activities of these organizations, as they relate to cycling may fit.

Table 4. Non-profit organizations that support increased cycling, provide bicycle based recreational and sport opportunities, or advocate for increased cycling infrastructure in the province.

Non-Profit Organizations	Geographic Focus	Founding Year
AcTraC (Active Transportation Coalition)	Cape Breton Regional Municipality	2007
Active and Safe Routes to School (ASRTS)	Province-wide	2000
Annapolis Valley Mountain Bike Association (AVMBA)	Annapolis Valley	2006
Annapolis Valley Cycling Club	Annapolis Valley	2006
Association of Doctors for the Advancement of Physically-active Transportation (ADAPT)	Province-wide	2001
Bicycle Nova Scotia	Province-wide	1978
Bike Again (project of the Ecology Action Centre)	Halifax Regional Municipality	2000
Cape Breton Island Pathways Association	Cape Breton	2001
Centennial Cycling Club	Annapolis Valley	1994
Cyclepaths	Annapolis Valley	N/A
Commuter Challenge	National Event. Began in HRM, as of 2007 active in CBRM, Bridgewater,	2000

Doctors Nova Scotia	Province-wide	Passed Active Transportation Resolution in 2007
Ecology Action Centre (Transportation Issues Committee)	Province-wide	Transportation Committee began in 1997, TRAX project in 1999
East Coast Mountain Bike Association	Province-wide	2000
Halifax Cycling Coalition	HRM	2007
Kieran Pathways	Kings County	2005
Nova Scotia Ramblers	Province-wide	2007 (originally formed in the 1880s)
Pictou County Active Communities	Pictou County	2006
Randonneurs Long Distance Cycling Club	HRM based, province-wide riding	2003
SPOKE NS	Pictou County	2003
RECAP	Lunenburg County	2006
Trips for Kids Yarmouth	Yarmouth County	2004
SportWheels Metro Cycling Club	HRM (Sackville, NS)	1947 (part of retail store)
Velo Cape Breton	Cape Breton	2004
Velo Halifax	HRM	1974

Map 1. shows the number of schools who participated in the Active and Safe Routes to School program run by the Ecology Action Centre. This illustrates the province-wide interest in active transportation. Schools participate in international walk-to-school day, and many schools promote cycling to school during this event as well. Schools, particularly in urban areas are increasingly installing bicycle racks as demand for active transportation infrastructure increases. A culture of active students is being created by this program and will help to foster increased active transportation in the future.

Insert map of active and safe routes to school

5.2 Municipal & Provincial Active Transportation Committees and Programs

One of the driving forces behind this report is the need for a province-wide strategy, so municipalities have resources for direction in their Active Transportation Plans, and infrastructure is consistent and continuous within and between municipalities. Several municipalities are in the process of or have adopted plans to implement bicycle friendly infrastructure and increase the level of active transportation. These are identified in Table 5 below and on Map 2.

Clear gaps exist in Active Transportation planning in all counties in Cape Breton with the exception of Cape Breton County. Given that the Cabot Trail has been rated as one of the top places in the world to bicycle⁹ the lack of planning for cycling infrastructure is an unfortunate oversight. Velo Cape Breton has been advocating for increased infrastructure on the Cabot Trail, and there has been some commitment to increasing road width during new paving activities by 50cm in either lane. While recognizing the effort, this is less than half the width recommended for on road bicycle lanes.

Mainland Nova Scotia is reasonably well represented by Active Transportation interests, with gaps in Guysborough County, Cumberland County and Yarmouth County.

Table 5. Municipal active transportation initiatives and infrastructure implementation throughout Nova Scotia.

County	Area	Date of AT Plan / Related Initiative	Bike lanes Planned	Bike lanes Installed	Level of Financial Investment to date
Cape Breton County	CBRM	Fall 2007 consultants were hired to complete the plan, plan completed and approved July 2008 ¹⁰	~400 km (incl. shared pedestrian routes)	None to date, none existing	\$75,000.00 initial investment from CBRM est. cost for implementation of bikeways recommendations \$7,730,000.00
Victoria County		Commitment to expand lane width by 50cm in areas around the Cabot Trail during repaving projects. Additional chipseal paving of shoulders between St. Ann's and Cape Smokey		Completed on St. Ann's Bay Road, ~ 10 km (no lanes, just wider lane)	Included in cost of repaving at \$65,000.00/km
Inverness County		No initiatives planned as of September 2008			
Richmond County		No initiatives planned as of September 2008			
Guysborough County		No initiatives planned as of			

⁹ Bicycle Magazine 2007.

¹⁰ IBI Group & Stantec 2008. CBRM Active Transportation Plan: Walking and Cycling Towards Healthy, Connected Communities. 165p.

		September 2008			
Antigonish County					
Pictou County	Pictou County (PRDC)	Active Living Committee established, Bikeways Plan completed March 2007 ¹¹	320 km	Share the road signs installed, permission not granted to install bike route signs	\$10,000.00 initial investment, ~\$55,000.00 expenditure 2007-2008 (infrastructure and salary for coordinator)
Colchester County		Active Transportation Committee established, Bikeways plan commissioned June 2008			
Cumberland County		No initiatives planned as of September 2008			
Halifax County	Halifax Regional Municipality	Bicycle Blueprint Completed and adopted 2002 Planned chipseal paving of Rt.333 ¹²	>100 recommended 16 km in 2008	46 km	Initial investment of \$50,000.00 in plan, Total expenditure 2002-2007. No budget in 2008/2009. Cost of chipseal: \$65,000.00 km.
Hants County	East Hants	Active Transportation Committee struck in 2008			
Kings County	Wolfville / Kentville / New Minas	Kieran Pathways and AT committee			
Annapolis County		No plan, but Recreation Department produced map of bike routes in county			
Digby County		Joint effort on AT with Annapolis			
Yarmouth County		Joint effort with Digby and Annapolis			
Shelburne County		No initiatives planned as of September 2008			
Queens County		No initiatives planned as of September 2008			
Lunenburg County	Bridgewater, Aspotogan Peninsula	Active Transportation Committee, with AT plan	Share the Road signs along 50 km of the Aspotogan	Signs installed around the 50 km loop.	

5.2.1 Current and Planned Cycling Routes

Recent announcement for cycling infrastructure in the province include a Parks Canada initiative to create a bicycle lane in the Cape Breton Highlands National Park between

¹¹ Eastwind Cycle 2007. Pictou County Bikeways Plan. 95p.

¹² Province of Nova Scotia Press Release, October 16th, 2008. <http://www.gov.ns.ca/news/details.asp?id=20081016002>

Cheticamp and Ingonish.¹³ This is welcome progress for one of the provinces most popular cycling destinations. In the fall of 2008, Nova Scotia announced the inclusion of a bicycle lane along Route 333 between Tantallon and Beechville, near Halifax as well as the widening of the road between St. Ann's Bay and Cape Smokey to more safely accommodate cyclists¹⁴.

¹³ Bike paths to be part of Cabot Trail Redesign. <http://www.cbc.ca/canada/nova-scotia/story/2009/01/20/ns-cabot-trail.html>

¹⁴ See Department of Transportation and Infrastructure Renewal Press Release, October 16 2008. <http://www.gov.ns.ca/news/details.asp?id=20081016002>

MAP 2. AT initiatives

5.3 Private Enterprise Bicycle Purchase and Repair Locations

Cyclists need places to purchase bicycles, get bicycles repaired, and liaise with other cyclists. For its size, and lack of cycling infrastructure, Nova Scotia has a considerable number of bicycle-specific stores and repair shops. Their distribution throughout the province is shown in Map 3 and a complete list of the specific shops is included in Appendix II.

An increase in cycling in Nova Scotia, both for transportation and for tourism would be of great economic benefit to bicycle shops. The Route Verte in Quebec has repair stations, throughout the 4200 km of trail. Frequently, bicycle shops are important venues for local cycling information, organizing of rides and contribute to the social aspect of cycling.

5.4 Education Programs and Initiatives

Creating a culture of cycling requires that both children and adults are exposed to cycling throughout their education. While bicycle rodeos are often held at elementary schools throughout the province, there is a need for regular and consistent cycling education at all school levels, and beyond.

The “Making Tracks Youth Mentor Guide for Cycling” produced by the Active and Safe Routes to School Program in Nova Scotia is an ideal program guide for integrating cycling education into the Nova Scotia school curriculum. The CanBIKE program, which continues to be offered on an annual basis to cyclists in Nova Scotia ensures that participants know the rules of the road, the role of cyclists on the road and safe cycling practices.

An ideal venue for bicycle safety training is during the Drivers Education program for new drivers, and including bicycle education as part of this course as well as the driver testing phase would help to educate drivers early on about the shared responsibility of drivers and cyclists for road safety.

5.5 Nova Scotia Trails System

Throughout Nova Scotia, there are various trail systems, ranging from revitalized rail beds, hiking trails and mountain bicycling trails. For many new cyclists and recreational cyclists, as well as commuting cyclists, trails offer a safe place to ride. The newly established Halifax Ramblers encourages trail riding for cyclists who are renewing their interest in bicycling and hosts regular trail rides during the spring, summer and fall.

Nova Scotia’s commitment to regional trail infrastructure offers significant infrastructure opportunities for a provincial bikeways system, particularly in areas where on-road infrastructure is lacking or where a safe near road trail can be established. Several examples already exist, such as the BLT trail in the Halifax Regional Municipality and the rails to trail path that extends to Hubbards around St. Margarets Bay. Proper trail

surfacing and maintenance is a pre-requisite for most cycling, with the one exception being mountain bike trails. A complete inventory of mountain bike trails has yet to be completed in Nova Scotia, although regional areas are well known by local cyclists.

Insert bicycle store map

6.0 Role of Provincial Government Departments

In order to successfully implement a provincial bikeways network, several government departments must be involved, either directly because of their mandated responsibilities or indirectly because of objectives surrounding health, environment and economy. The following departments should play a key but coordinated role in bikeways implementation:

- **Department of Transportation and Infrastructure Renewal**
 - Responsible for transportation infrastructure on all provincial roadways and 100 series highways in partnership with the federal Department of Transportation.
 - All bicycle signage and route engineering on provincial roads must be approved by this department.
- **Department of Tourism & Heritage**
 - Responsible for marketing of tourism in Nova Scotia.
 - Tourism Partnership Council is an industry and government partnership that shares in planning and decision making for tourism marketing, research and product development in Nova Scotia. There are currently no cycling tourism representatives on the TPC.
- **Department of Health Promotion and Protection**
 - Supports active transportation initiatives province-wide.
 - Health Promotion and Protection co-manages the provincial rails-to-trails policy with Department of Natural Resources- both are heavily involved in supporting community trail development.
- **Department of Economic Development**
 - Develops public policy for economic development, works with Rural Development Associations.
 - Bikeways could be considered part of sustainable economic development, particularly in rural Nova Scotia.
- **Service Nova Scotia**
 - Manage the provincial gas tax money
- **Department of Energy**
 - Conserve NS
 - Green Mobility Grants, clear climate change objectives
- **Department of Environment**
 - Responsible for the implementation of the Environmental Goals and Sustainable Prosperity Act
- **Department of Natural Resources**
 - Responsible for provincial park system, where there is currently no provision for bicycle infrastructure. Important to bring them onsite.

6.1 Achieving Provincial Goals through Bikeways

There are several provincial departments that have goals or mandates that can be partially achieved through the implementation of a province-wide bicycle network. These are listed in Table 6 below.

Table 6. Nova Scotia government departments and policy linkages to a provincial bikeways network.

Provincial Partners	Policy / Mandate Link to Bikeways
Department of Health	Increase in active transportation, increase in overall health and reduction in health care costs in the long term
Department of Health Promotion and Protection	To create a healthier and safer Nova Scotia
Department of Environment	Increase in active / sustainable transportation and achieving green house gas reduction goals as well as long term reduction in motor vehicle related infrastructure / land use
Department of Labour	Workplace incentives for active transportation and cycling
Department of Transportation and Infrastructure Renewal	Active transportation / bikeways needs to be integrated into DTIR and transportation planning, particularly when paving roads / shoulders. Consideration of bicycles in linking transportation modes (airport, buses, trains, etc)
Department of Tourism, Heritage and Culture	Development and marketing of Nova Scotia as a bikeways destination, opportunities for event development and support of small businesses / coastal communities (ie. Lobster Ride of unicycles in NS)
Department of Education	Cycling integrated into school curriculum and Active and Safe Routes to School Program
Department of Energy (ConserveNS)	Active transportation can help to meet GHG reduction goals.
Department of Natural Resources	Through Voluntary Planning, DNR is developing a resource use plan for the province, which includes the future of provincial parks. Parks should consider cycling infrastructure wherever possible.

6.2 Legislative and Policy Incentives

There are numerous legislative and policy directions that can facilitate the development of a network of bicycle routes throughout Nova Scotia. These are listed below according to the type of legislation or policy.

Laws

- Environmental Goals and Sustainable Prosperity Act
- Motor Vehicles Act

Policy / Initiatives

- Pathways for People
- Active Transportation
- Green Mobility Strategy (non-profit initiative)
- Tourism Partnership Council
- Conserve NS
- Active Kids Healthy Kids Strategy

Economic Development Initiatives

- Sustainable economic development in rural areas
- Rural Development Initiative under the Rural Secretariat
- Active tourism business development

7.0 Regional Initiatives

The incentives for a provincial cycling network are increasing, particularly as regional initiatives begin and grow in scope. The most relevant of these initiatives are listed below:

- ACOA contracted a market readiness inventory for Atlantic Canada in the fall of 2008 assessing where the ideal locations would be for additional funding for marketing cycling tourism.
- November 2008 Cycle Tourism Symposium. As part of the market readiness inventory, a one-day meeting was held November 14th, 2008 to more fully consult with the bicycle tourism industry.
- The St. John River bicycle trail in New Brunswick is undergoing a feasibility study to assess linkages to PEI and Nova Scotia.
- Following the November 2008 Cycle Tourism Symposium, a regional organization was formed to link the three Maritime Provinces and bicycle network development.

8.0 Engaging Stakeholders: Obtaining and Developing Nova Scotia Bikeways Vision

8.1 Stakeholders Consultation

Stakeholders in a Nova Scotia Bikeways project include cyclists, health practitioners, environmental organizations, tourism operators, recreation departments and programs, schools, workplaces and those already working towards increasing the use of bicycles as transportation. We interviewed 22 people, from these sectors (See Appendix III for interview participants). We asked a series of questions, to help us determine the level of understanding of what a bikeways project might mean, the individual's personal or institutional experience of cycling and, perhaps most importantly, how such a project should be lead, who might lead it and identification of important partners. Specifically we wanted to understand who needed to be involved and assess whether or not there was a consensus as to how to move forward. We also solicited feedback to our preliminary results and recommendations during the 2008 Nova Scotia Cycling Summit. That feedback has been integrated into our final recommendations on organizational infrastructure and bicycle network implementation.

The following questions were used as a guide to conversations about a Nova Scotia Bikeways Project.

- 1) How are you involved in the cycling community?
- 2) What is your experience of bicycling as transportation?
- 3) What is your experience of bicycling from a tourism perspective?
- 4) Do you see cycling has having economic benefits? How so?
- 5) Are you familiar with bikeways / or the Route Verte? What is your concept of the word bikeways?
- 6) Do you see potential for NS to increase its bicycle infrastructure? Where? How so?
- 7) Who do you think should take the lead on such an initiative? Is there an organization that you think would be well suited?
- 8) What would be the role of government?
- 9) How do you think a NS Bikeways project would be realized?

8.2 Consultation Results

8.2.1 Involvement in Cycling Community & Cycling as Transportation

Interviewees had varied experience and involvement in the cycling community. Some represented the recreation community and therefore residents within municipalities or cycling clubs who are highly supportive of bicycle transportation infrastructure. Others worked directly with youth either through the school system or via volunteer programs. Almost all interviewees rode a bicycle either for recreation or for transportation on a regular basis, with the exception of those in more administrative positions. At least four interviewees depended on cycling or active transportation related work for their

livelihoods, and several more were interested in the potential for economic development as a result of increased bicycle infrastructure and marketing in Nova Scotia.

8.2.2 Experience with Cycling from a Tourism Perspective

Several interview participants stated that they had little experience in bicycle tourism, but were supportive of the idea. Others had had significant experience but mostly out of province with the nearest adequate infrastructure cited to be in Quebec and Maine. Others indicated that while not partaking in bicycle tourism themselves, that they observed many cyclists exiting the ferries in Yarmouth and Digby and during the summer months have observed an increasing number of cyclists on road or bicycles being carried on cars and campers. Most notably, cycling tourism was seen to have increased on the Cabot Trail over a ten year period. Travel to Prince Edward Island for family bicycling trips was described as a safer option than staying in province. Overall, respondents felt that many more tourists would come to Nova Scotia to bicycle if there was safe and welcoming cycling infrastructure.

In 2007 tourism exit survey, approximately 2% of visitor completing the surveys reported cycling in the province. This amounts to 40,000 visitors.

8.2.3 Economic Benefits of Cycling

Economic benefits to be gained from an increase in “cycling culture” as well as infrastructure were described in the following categories:

- Tourism, specifically through increased length of stay, higher value tourists, and the potential to increase the overall amount of tourists visiting Nova Scotia as well as within province trips by Nova Scotians.
- A reduction over time in health care expenses was also seen as an economic benefit, as a healthier and more active population will see lower rates of obesity, diabetes and related illnesses. Mental health benefits were also mentioned.
- Business opportunities that specifically cater to cyclists were suggested as an untapped market for economic growth. Small rural and local businesses were seen as having the most to benefit from increased cycling in the province, from art galleries, to luggage transfer, to small inns and restaurants.
- Savings to Nova Scotians were also mentioned through a reduction in vehicle use hence reduced maintenance and gasoline costs. This was specifically mentioned for youth who could increase their mobility at no great cost through bicycle transportation.

Overall the implementation of bikeways or the increase in bicycle infrastructure was seen as having low investment for high return rates. Respondents also saw that the economic potential was not being taken advantage of or encouraged by marketing or infrastructure investment and that Nova Scotia was a “gold mine” in terms of this. The need to develop better statistics on cycling and cycling tourism was also mentioned, so that the effect of increased infrastructure could be easily measured.

8.2.4 Familiarity with Bikeways

All respondents were familiar with the term “bikeways” although some had much greater understanding and experience than others. The Route Verte in Quebec was consistently described as an ideal bikeways systems. Bikeways were described as the following:

- “a means to get from place to place safely by bicycle in a comprehensive manner.”
- “bikeways consist of many parts, including route notes, signage and maps.”
- “bikeways infrastructure should be composed of paved shoulders on public roads of high scenic or transportation value”
- “safe spaces on public roads, linked to off-road trail development”
- “ a mix of infrastructure but the overall effect is a safe cycling route”
- “ a combination of on highway routes, rural roads and off-road trails. Bikeways should also include an education component”
- “included in existing road infrastructure before creating new trail systems that don’t encourage shared use. It is more cost effective to build on existing infrastructure”
- “continuous linkage that is safe, with consistent signage and cycling related amenities”
- “safe routes for cycling accessed by a variety of users from commuters to recreational riders to tourists”

Some respondents noted that “bikeways” was the same as “pathways” referring to broader active transportation corridors. Generally, respondents felt that bikeways could consist of a mix of infrastructure, but signage had to be consistent and priority should be given to using the existing road and trail system. The familiarity with and descriptions of bikeways indicate a good knowledge of what a well planned bikeways system looks like. Most of the interview participants will be important players in the development of a provincial bikeways network, and their combined knowledge is an important asset to moving this initiative forward.

8.2.5 Potential for Nova Scotia Bikeways

Nova Scotia was seen as a blank slate for bikeways development, with endless potential for infrastructure and increasing ridership both by Nova Scotians as well as bringing visitors to the province. Several people noted that Nova Scotia was “way behind the curve” and that cycling infrastructure in the province was seriously lacking, as compared to other jurisdictions in Canada. The potential was also described as being “ready to explode exponentially” with the right mix of government support and community leadership. Respondents discussed both process level elements that would lead to Nova Scotia to fulfilling its potential, as well as infrastructure related elements.

Process elements to realizing the potential:

- Clear vision and plan and strategy to move forward.
- Political and leadership will at all levels of government.
- Involvement of NGOs and regional champions.
- Collaboration and partnerships.
- Cost sharing agreements between the province and municipalities.
- Learning from existing models (Route Verte frequently given as the example).
- Critical mass of cyclists to turn the tide.
- Policy changes needed to add shoulders for bikeways during repaving.
- Compile existing infrastructure to understand what already exists.
- Allocate a percentage of Department of Transportation and Infrastructure. Renewal Funding to fund bikeways.

Infrastructure elements to realizing the potential:

- Add shoulders to provincial roads during repaving work (specific examples included Rt. 333 and Blandford / Aspotogan). There are opportunities being missed.
- Include bicycling routes when planning new schools.
- Share the road and bicycle route signage is all that is needed in many low traffic areas.
- Install bikeways on all roads that have the potential to encourage commuting.
- Add cycling lanes to secondary roads that have the potential to draw tourism or recreational riding (i.e. the Cabot Trail).
- Link existing rails-to-trails programs to a bikeways network, especially where high traffic areas cannot be avoided.

Both the strategic process ideas as well as the infrastructure ideas show clear support for a bikeways initiative, as well as indicate that there is some frustration both within and outside government at the lack of leadership on a bikeways initiative, particularly to take advantage of opportunities to add infrastructure during other roadways work.

8.2.3 Nova Scotia Bikeways Leadership

Following the question on the potential for bikeways development in Nova Scotia, respondents were asked to elaborate on who they thought should take the lead, and whether or not there was an existing organization that could take on the role of developing a process and a plan for a provincial network. Several respondents mentioned existing organizations, both government and non-government that would be important to have as part of a collaborative project, but no existing organization was seen to currently have the capacity to move the project ahead. The following suggestions were made:

- Example from Quebec, Velo Quebec is a strong non-profit organization with government support but also independence and an independent mandate.
- An organization should be formed that is a coalition of existing groups (i.e. Bicycle Nova Scotia, Velo Cape Breton, Ecology Action Centre) who are already moving forward on bikeways development in their own areas.
- Form a coalition of the willing.
- Department of Tourism, Health Promotion and Protection, Environment and Transportation & Infrastructure Renewal all need to be involved.
- Municipal partnership is needed for regional implementation.

8.2.4 Role of Government in Nova Scotia Bikeways

Government was seen as having a key role in bikeways implementation in Nova Scotia, but not the sole responsibility. Many respondents felt that non-profit and volunteer organizations have already contributed significantly to advancing the cause of cycling. In addition, municipal governments were also given credit for taking initiative on cycling infrastructure. However, there were clear roles described for all levels of government, which include:

Federal Government

- Allocate percentage of federal gas tax specifically for bikeways development and infrastructure on 100 series highways
- Support provincial initiatives through greenhouse gas reduction grants

Provincial Government

- Create a policy for the inclusion of bicycle transportation in all transportation planning and repaving
- Create policy for intermodal linkages
- Allocating funds specifically to cycling infrastructure
- Provide leadership and develop a concerted interdepartmental approach
- Include bikeways as part of transit funding

It was also suggested that municipal governments:

- Include bicycle planning in Integrated Municipal Sustainability Plan, which are necessary by 2010 for acquiring federal gas tax dollars
- Create interdepartmental steering committees, with community representation to address bikeways planning and implementation
- Include bikeways as part of transit plans

There are clear policy, funding and infrastructure responsibilities at every level of government.

8.2.5 Moving Ahead on Bikeways Development in Nova Scotia

Finally, interviewees were asked to state their opinions on what the next steps should be in creating a provincial bikeways network. The recommendations from identified stakeholders are as follows:

- A “top down bottom up” strategy is needed.
- Continue to build on existing momentum.
- Engage government departments and seek political champions
- Begin to educate the wider public on the bikeways initiative.
- Establish provincial taskforce or committee
- Build bikeways into existing recreational programs at the municipal level
- Stakeholders need to be reengaged on a regular basis
- Information on bikeways initiatives, whether provincial or municipal should be shared
- Examples should be showcased (ie. Pictou County, CBRM, Colchester County)
- Linkages should be made to workplace wellness initiatives
- Begin to include Community Health Boards and Regional Development Associations

Stakeholder information was consolidated and used to form the final recommendations for this report.

8.3 Learning from Other Jurisdictions

In this case the wheel does not have to be reinvented. Models exist within Canada and nearby in Maine, as well as throughout Europe. Additionally, the Bikeways plans that have been developed or are in development in Nova Scotian municipalities including HRM, CBRM, Pictou County and Colchester County all contain important information to create a true network in Nova Scotia. What is needed, sooner rather than later, is an overarching plan to bring these initiatives together, and ensure continuity throughout the province, and linking to other Atlantic Provinces and New England States. While the process of implementation may be different in each area, the end result is similar.

8.3.1 National

Quebec - Route Verte

The Route Verte concept dates back to the late 1980s, when the key members of Vélo Québec were already articulating, in various forms, their plans for the future of cycling in Québec. In 1992, the organization took advantage of its role as the host of the Conférence Vélo Mondiale, along with the celebration of its 25th anniversary, to publicly present the *Plan du Québec cyclable et des corridors verts de l'an 2000*.

In 1995, the Government of Québec announced that it would collaborate with Vélo Québec on the planning and construction of the Route Verte, investing \$88.5 million over ten years to develop a bikeway over 4,000 kilometres linking all parts of Québec. This initiative requires a great deal of effort within the various regions as well as the involvement of several different ministries — work that is coordinated within the Government by the Québec ministry of transportation. Since 1995, Vélo Québec has overseen the development of the Route Verte on behalf of the Government. It coordinates planning, interregional cooperation, communications and promotion of the initiative.

Vélo Québec

For over 40 years, Vélo Québec, a non-profit organization, has been a prominent part of the cycling landscape in Québec. The organization has continuously encouraged the use of the bicycle, whether for tourism purposes or as a means of clean and active transportation, so as to improve the environment and the health and well-being of citizens.

To achieve its objectives, Vélo Québec relies on a vast range of tools and means deployed by four different divisions:

- Vélo Québec Association, a membership association that has been defending the rights of cyclists since 1967. Among other major achievements, it oversees the development of the Route Verte, a cycling route that will link Québec from end to end by means of 4,300 km of bikeways. The association also offers technical training on bikeway design and development, compiles statistics and produces studies on cycling. It also represents cyclists, builds consensus, conducts research, coordinates educational and informational activities, and serves as a consultant upon request. Vélo Québec Association runs an active and safe routes to school program called *On the Move to*

School! since 2005. The program is designed to encourage primary-school children and their parents to make active transportation a part of their daily lives.

- Vélo Québec Éditions not only publishes two magazines (Vélo Mag, which celebrated its 25th anniversary in 2005, and Géo Plein Air) but also various other guides, maps and publications associated with outdoor, recreational, sports and tourism activities.
- Vélo Québec Événements, responsible for the creation and organization of internationally renowned cycling events such as the Tour de l'Île de Montréal, the highlight of the Montréal Bike Fest, which also includes Un Tour la Nuit and the Metropolitan Challenge. This division also organizes the Summer Challenges, a series of 75 km to 150 km bike rides, and produces other events in conjunction with organizations like the Multiple Sclerosis Society of Canada. It has also launched Operation Bike-to-Work, a vast awareness and mobilization campaign designed to promote the bicycle as a means of transportation.
- Vélo Québec Voyages, an active travel agency that offers various cycling packages in Québec, including major bicycle tourism events like the Grand Tour and the Petite Aventure, and also plans routes and designs bicycle vacations in Europe, North America, the Caribbean and Morocco. Every year, approximately 5,000 people travel with Vélo Québec Voyages.

Prince Edward Island

PEI features cycling itineraries prominently on their tourism web site and in their visitors guide. The main piece of biking infrastructure is the Confederation Trail and the province has leveraged this to make PEI a well-regarded bike tourism destination. In fact, many Nova Scotians leave the mainland specifically to bike and spend their tourism dollars in PEI

8.3.2 International

Bicycle Coalition of Maine

Maine's example is perhaps more instructive to Nova Scotia due to similar issues of population density, climate and road conditions. The Bicycle Coalition of Maine is an example of how a new "Velo NS Bikeways" organization could operate. Founded in 1992 as voice for bicycle advocacy, this organization has grown exponentially to become a powerful lobby group. It is now recognized as the top state bicycle advocacy organization in the US. Key to its success has been integration with Maine Department of Transportation so that it now advises on bikeways development on all new road construction and repair of existing roads. BCM also delivers bike safety courses to schools and MDOT employees. It has worked closely with the state legislature in appropriating funds for the bikeways network, formed an advisory committee on bikeways that includes state senators and other politicians and successfully lobbied to integrate bike safety programs into various government initiatives.

Cycling Network in the United Kingdom

SUSTRANS is the key organization in the UK responsible for building their bikeways network. Currently this network is comprised of over 16000 km of bicycle routes. The example of SUSTRANS has lessons for NS Bikeways especially in their funding structure.

As a registered charity, Sustrans is dependent on funding from a wide range of sources to keep work ongoing. These include contributions from tens of thousands of committed supporters, as well as grants from sources including charitable trusts and companies, the National Lottery, the Landfill Tax Credit Scheme, local and central government (including the devolved governments in Wales and Scotland and government departments in Northern Ireland), Non-Departmental Public Bodies, and the European Union.

Significant financial support from the Millennium Commission was key to building the first 5,000 miles of the National Cycle Network, while further input has come from the cycle industry including the Bicycle Association, the Association of Cycle Traders and the Consortium of Bicycle Retailers.

The success of these efforts is clear with over half of the population of the UK living within a mile of the National Cycle Network. The Network now carries over 230 million individual journeys per year

9.0 How to Pay for Bikeways? Financial Models for Success

There are several different financial models that can be used to successfully implement a bikeways network. Often, a combination of models can be used as well. Different models may also be applicable to different parts of bikeways development, from the organizational structure to final infrastructure implementation. Several examples are described in the following sections.

9.1 Entrepreneurial Model

From an organizational perspective and often an infrastructure implementation perspective, an entrepreneurial model can be used. For example, Vélo Québec is a registered charity and raises funds for its operations through a variety of means, from membership, to book sales, trip organizing, running a café and working on a fee-for-service basis for municipalities as well as for other jurisdictions who are seeking to emulate the Route Verte. The government of Quebec also contributes to the operation of Velo Quebec, but they remain arms length from the government and are responsible for raising a portion of their operating and programming funds.

Bikeways themselves can also be partially paid for by private enterprises. A local example is the contribution of small businesses to purchasing the Share the Road and Bicycle Route signs on particular sections of road. This is occurring in Pictou County, where tourism businesses see the benefits of bikeways infrastructure as well as the value of private sector investment to move the initiative forward.

9.2 Shared Costs

As it is important to have the buy-in from multiple government departments, there is the opportunity for small amounts of funding from several departments to fund either organizational structures, feasibility studies or the infrastructure itself. Indeed this is how some of the Active Communities Committees fund staff and hold events that promote active living and active transportation.

In terms of infrastructure, municipal, provincial and federal departments can cost share for large infrastructure projects, such as road paving or highway crossings. Bikeways infrastructure, which includes marketing materials, maps, as well as on road changes and trail development can be funded through tourism funds, economic development assistance and reallocation of transportation funds.

9.3 Leveraged Funds

Leveraging funds is an important aspect of shared costs. An excellent example of leveraged funds for sustainable transportation infrastructure was the Green Mobility Grants project funded by Conserve Nova Scotia and managed by the Ecology Action Centre in 2007 / 2008. While only \$170,000.00 of grants were provided from provincial funds, the total value of the projects funded was over \$800,000.00. Allowing for leveraged funds also means that organizations and communities can contribute in kind work which then values the work of volunteers or paid staff.

9.4 Private Investment

As an important aspect of a bikeways network is amenities for cyclists, from bicycle parking, to repair stations, to bike stores and accommodations, the investment of private enterprises can be used to increase the overall value of the network as well as provide infrastructure. Businesses in Pictou County expressed interest in investing up to \$500.00 of their own funds to increasing the facilities available for cyclists. “Bicycle Friendly” or “Welcome Cyclists” certification programs are also a way of encouraging private investment in bicycle infrastructure. Private businesses may also be willing to sponsor cycling related events for advertising, which can be a great asset to municipalities who need to offset event costs.

10. Challenges to Implementation of Nova Scotia Bikeways

10.1 Gaps in Bicycle Routes and Planning in Nova Scotia

Four municipalities have conducted or are in the process of conducting active transportation or bicycle plans. HRM, Colchester and Pictou County are all in various stages of implementing bikeways plans and are all linked geographically. This is an excellent opportunity for the core of a provincial bikeways network, which should then be extended through Lunenburg County, and west Hants through the Annapolis Valley to Yarmouth County, linking to New Brunswick and Maine. There are clear gaps in active transportation initiatives, particularly in Cape Breton with the exception of CBRM.

10.2 Intermodal Linkages

Accessing Nova Scotia by bicycle must be linked to other modes of transportation, such as bus and rail. This is also noted in the Green Mobility Strategy developed by the Ecology Action Centre in 2007 and 2008, which included extensive community consultation in creating the policy and developing recommendations. The lack of access to intermodal transportation is a major obstacle to traveling throughout Nova Scotia by bicycle, whether for transportation or recreation. There have been some measures to improve this, particularly through bicycle racks on buses run by Kings Transit in the Annapolis Valley and some buses run by Metro Transit in HRM. Bicycles can be taken on VIA Rail, but only at an extra charge.

A major barrier is the privately run Acadian Lines bus system, where bicycles are not guaranteed to arrive on the same day as a passenger. The lack of public transit in rural areas, and lack of infrastructure (bike racks) on private transportation, including shuttle vans which are often the only way of getting to some areas of the province means that cycling is often inconvenient.

Ferries to and from New Brunswick, the United States, Prince Edward Island and Newfoundland generally have bicycle racks and are good modes of transportation for cyclists. However, the linkages on the other side, where there is likely no bicycle infrastructure, are missing as few buses or vans carry bicycles. There is a clear need for improvement in intermodal transportation.

10.3 Departmental Mandates

Currently, bicycle planning and infrastructure is not a clear part of the departmental mandate of the Department of Transportation and Infrastructure Renewal, or municipal transportation planning. This will remain an obstacle to effective planning and implementation until there is a paradigm shift from motor vehicle transportation only to transportation including active modes. Quebec has successfully integrated Route Verte planning into all transportation projects, and this has greatly facilitated the success to date of the Route.

The Utilities and Review Board now prohibits towing a trailer behind a van and carrying passengers at the same time. This has led to several bicycle tour companies leaving the province for other areas where there are no such restrictions. As gas prices increase, making two or more trips with bicycles and then with passengers becomes unaffordable both time wise and financially. A change in this regulation would smooth the way for existing and additional bicycle or multi-sport tour companies.

11. Nova Scotia Bikeways Recommendations

11.1 Creating a Culture of Cycling

At the 2007 Nova Scotia Cycling Summit, a vision for Nova Scotia and bicycle infrastructure was created. It is as follows:

All municipalities in Nova Scotia are accessible by safe bikeways, and bicycle infrastructure planning becomes integrated into transportation planning at the municipal, provincial and federal level. Nova Scotia develops a culture of cycling that involves Nova Scotia residents, as well as visitors from near and far.

Moving forward with a Nova Scotia Bikeways plan will require both organizational infrastructure as well as implementation of cycling infrastructure. The recommendations are thus in two categories, reflecting these two important aspects of a provincial network. Recommendations are a result of our public consultation, analysis of existing cycling infrastructure both on road and in terms of cycling organizations and initiatives, from lessons learned in other jurisdictions and from input from tourism development opportunities throughout the Maritime Provinces.

Nova Scotia needs to foster a culture of cycling, for both transportation and recreation. This can be done by encouraging cycling at an early age, providing cycling infrastructure and integrating cycling into all transportation planning. Proven benefits of cycling infrastructure include improved health, decreased greenhouse gas emissions and stimulation of a “bicycle economy” through local and tourist usage.

11.2 Organizational Structure Recommendations

Much of the work involved in creating bikeways infrastructure includes communication between government departments, adopted standards for infrastructure implementation, networking between government departments and volunteer / non-profit groups and committees involved in active transportation and cycling advocacy as well as support for mapping and route development. Currently, Nova Scotia has a wide range of organizations involved in cycling, but there is no provincial based organization that has the capacity to act as the lead on a province-wide bikeways plan. Additionally, there is no government department solely responsible for bikeways implementation and such a project would involve multiple government departments.

The first steps towards achieving a province-wide bikeways initiative is to enable the organizational framework. To date, much of the work in the province has been achieved through the commitment and dedication of volunteers. In order to move to the next stage, funding will be required for dedicated staff to move from a patchwork of initiatives to a well-organized provincial cycling network.

Table 7 outlines recommendations, suggested lead organization or partnership and a proposed timeline. Recommendations that will require funding are identified, however the level of funding will depend on how and by whom the recommendation is followed through.

Table 7. Organizational Structure Recommendations for Nova Scotia Bikeways Implementation

Recommendation	Lead Organization / Partners	Timeline	Funding
O1. Create a dedicated organization (“Velo NS”) or committee to oversee bikeways implementation in the province and ensure continuity between municipal and provincial projects (e.g. Velo Quebec model).	Relevant provincial non-profit, in partnership with cycling advocacy organizations. Diverse steering committee recommended.	January – June 2009	Funding required for staff time (initial funding of 50K – 100K year for at least a 3 yr period)
O2. Create an interdepartmental provincial committee to ensure that Active Transportation is included in overall planning and policy direction across Nova Scotia. The committee should contain one or more non-government seats, to ensure a link to cycling organizations and initiatives.	Health Promotion and Protection, in addition to government departments identified in Section 6.1 of this report.	January 2009	
O3. Establish an active transportation seat on provincial tourism visioning transportation subcommittee.	Tourism Partnership Council, in cooperation with Tourism Industry Association of Nova Scotia.	2009	
O4. Create position in Department of Transportation and Infrastructure Renewal for Bicycle Coordinator who will act as a liaison between “Velo NS” and the Department.	Department of Transportation and Infrastructure Renewal	2009	Departmental funding required for staff time

11.3 Policy Recommendations

Organizational structure recommendations go hand in hand with creating new policy that allows for the inclusion of cycling as a mode of transportation and bikeways infrastructure as an economic development tool.

Table 8. Policy Recommendations for Nova Scotia Bikeways Implementation.

Recommendation	Lead Organization / Partners	Timeline	Funding
P1. Nova Scotia should develop a bicycle policy that integrates cycling into existing government mandates.	Interdepartmental committee on Active Transportation, with input from relevant cycling advocacy organizations.	Policy drafted by 2010.	No additional funding required, unless third party organization is tasked with policy development.
P2. Bicycle networks and routes should be integrated into all Municipal Sustainability Plans by 2010.	Municipal recreation directors.	2010	No additional funding required.
P3. School board support and policy direction for cycling to school, as well as siting of new schools based on active transportation.	Department of Education and School Boards	2010	No additional funding required.

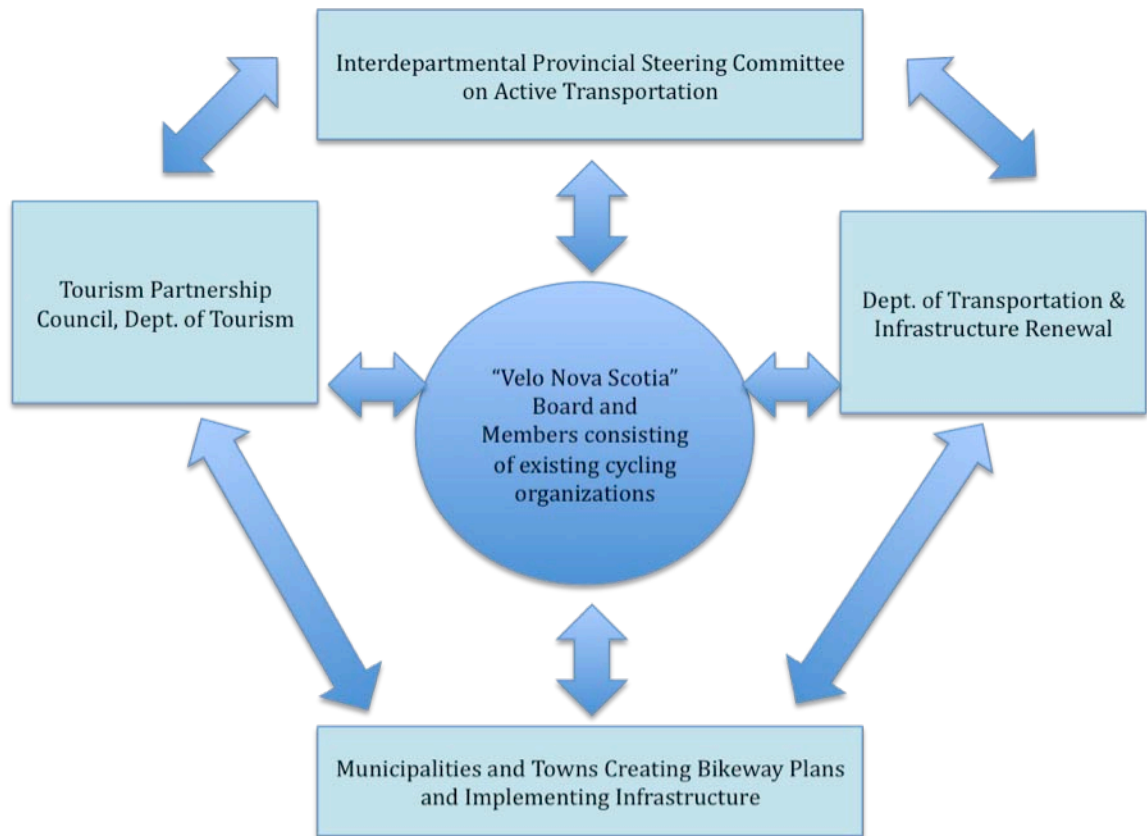


Figure 5. Schematic of organizational structure and communication relationships

between “Velo Nova Scotia”, Interdepartmental Steering Committee and directly relevant government departments and municipalities.

Infrastructure Recommendations

Map 4 outlines a skeleton of a bikeways network throughout the province. There is a focus on transportation routes, with the addition of scenic routes for tourism and recreation purposes. All routes are on road, and additional roads and off-road trails should be added at the municipal bicycle plan level. Table 8 breaks down all routes into smaller pieces, which can be used as planning units. The total length of the skeleton route is 4186 km. Some routes will only need adequate signage, including share the road and bicycle routes sign. Others, where there is traffic greater than 1000 cars per day should be priorities for paved shoulders. Implementation of a bikeways network should be done incrementally, and with full partnership of municipal and provincial governments, as well as federal government agencies where appropriate. Community organizations and local cycling shops should also be included. Oversight and consistency of planning should be jointly organized through a provincial cycling association and the planning staff from the relevant government departments.

For successful implementation of a bikeways network, the following recommendations are made:

Recommendation	Lead Organization / Partners	Timeline	Funding
11. Provincial infrastructure funding through economic stimulus packages aimed at transportation infrastructure should include funds for bikeways.	Nova Scotia government.	2009	Communities with existing bikeways plans should receive priority for funding.
12. Where there is community support and demand for bicycle infrastructure, work with municipalities and regional organizations to install share the road and bike route signs. This is a first step in welcoming cyclists and considering their safety.	Provincial and municipal governments, with input from local cycling organizations.	2009-2010	Funding required for infrastructure (estimated cost / km of signed bike route = \$200 for signage)
13. As bicycle infrastructure becomes part of transportation planning, high priority bicycle routes (of standard 1 m - 1.5 m) must be integrated into repaving plans.	Department of Transportation and Infrastructure Renewal	2009-2010	Funding required for infrastructure. (estimated cost / km of paved shoulder = 50K)
14. Bicycle infrastructure	Department of Natural	2009-2010	Funding

should be incorporated into infrastructure upgrades in national and provincial parks.	Resources and Parks Canada.		required for infrastructure.
Intermodal Transportation			
15. Bicycles can be carried by bus / shuttle service between different areas in the province as well as inter-provincially.	Bus service companies, and Utilities and Review Board.	Ongoing	
16. Bicycles are able to be transported to and from the airports in the province / bikeways should extend to airports.	Airport bus services, and airport authorities.	Ongoing	
17. Bicycles should be welcome on VIA Rail.	VIA Rail	Ongoing	
18. Ferries within Nova Scotia and linking Nova Scotia to other states and provinces should have adequate infrastructure for cyclists and bicycles.	Relevant ferry service operators.	Ongoing	

Insert map of bike routes

Table 10. Potential bicycle routes in Nova Scotia for transportation and scenic opportunities. Routes do not include existing trail systems, or proposed bicycle routes planned for several counties and municipalities.

Route Type	Start Point	End Point	Leg name	Distance (km)
Transportation	Bridgewater	Lunenburg		18.4
Transportation	Lunenburg	Mahone Bay		10.7
Transportation	Mahone Bay	Chester		24.1
Transportation	Chester	Halifax		66.4
Transportation	Dartmouth	Halifax	MacDonald Bridge	1.1
Transportation	Dartmouth	Halifax	McKay Bridge	2.0
Transportation	Halifax	Bedford		15.1
Transportation	Dartmouth	Musquodoboit Harbour		34.9
Transportation	Musquodoboit Harbour	Sheet Harbour		72.5
Transportation	Sherbrooke	Antigonish		60.0
Transportation	Antigonish	Monastery		32.9
Transportation	Monastery	Guysborough		30.7
Transportation	Guysborough	Canso		47.3
Transportation	Sheet Harbour	Sherbrooke		79.2
Transportation	Monastery	Port Hastings		23.5
Transportation	Antigonish	New Glasgow		58.9
Transportation	New Glasgow	Pictou		14.7
Transportation	Pictou	Wallace		71.9
Transportation	Wallace	Pugwash		16.5
Transportation	Pugwash	Amherst		48.1
Transportation	Amherst	Fort Lawrence		4.7
Transportation	Amherst	Springhill		25.5
Transportation	Springhill	Parrsboro		45.5
Transportation	Parrsboro	Truro		90.4
Transportation	Truro	Bedford		83.9
Transportation	Lower Sackville	Windsor		52.9
Transportation	Windsor	Chester		52.2
Transportation	Windsor	Wolfville		27.6
Transportation	Wolfville	Kentville		11.4
Transportation	Kentville	Berwick		20.2
Transportation	Berwick	Middleton		30.0
Transportation	Middleton	Bridgetown		21.8
Transportation	Bridgetown	Annapolis Royal		23.4
Transportation	Annapolis Royal	Digby		29.0
Transportation	Digby	Digby		3.2
Transportation	Digby	Yarmouth		100.0
Transportation	Yarmouth	Pubnico		41.2
Transportation	Pubnico	Shelburne		80.2
Transportation	Shelburne	Liverpool		87.5
Transportation	Liverpool	Medway		23.5
Transportation	Medway	Bridgewater		54.6
Transportation	Annapolis Royal	Liverpool		110.0

Scenic	North East Point	Clark's Harbour	Cape Sable Island	14.4
Scenic	Barrington	Clyde River		29.4
Scenic	Port Clyde	Birchtown		36.3
Scenic	Marshalltown	Brier Island		61.8
Scenic	East River	Hubbards	Aspotogan Peninsula	39.6
Scenic	Head of St Margs Bay	Lakeside		60.5
Scenic	Halifax	Halifax	Herring Cove	21.1
Scenic	Harrietsfield	Herring Cove		33.0
Scenic	Dartmouth	Head of Chezzetcook		50.5
Scenic	Musquodoboit Harbour	Elmsdale		71.0
Scenic	Goffs	Goffs		2.4
Scenic	Windsor	Truro		130.0
Scenic	Wolfville	Scots Bay	Cape Split	53.3
Scenic	Canard	Melvorn Square		54.2
Scenic	Amherst	Parrsboro		130.0
Scenic	Amherst	Port Howe		49.6
Scenic	Pugwash	Wallace		35.5
Scenic	Pictou Island	Pictou Island	Pictou Island	8.1
Scenic	Pictou	Caribou River		26.7
Scenic	New Glasgow	Sheet Harbour		85.9
Scenic	Sutherland River	Antigonish		97.2
Scenic	Antigonish Harbour	Pomquet Harbour		28.1
Scenic	Pomquet Harbour	Big Tracadie		12.9
Scenic	Canso Strait	Boylston	Chedabucto Bay	49.3
Scenic	Half Island Cove	Sherbrooke		110.0
Transportation	Port Hastings	Whycocomagh		47.1
Transportation	Nyanza	Cheticamp		76.9
Transportation	Cheticamp	Cape North		71.1
Transportation	Cape North	Ingonish		34.3
Transportation	Ingonish	St. Anns		81.0
Transportation	Whycocomagh	Nyanza		28.0
Transportation	Nyanza	St. Anns		27.7
Transportation	St. Anns	North Sydney		43.0
Transportation	North Sydney	Sydney		24.1
Transportation	Sydney	Glance Bay		35.13
Transportation	Sydney	Louisbourg		33.1
Transportation	St. Peters	Port Hastings		51.2
Transportation	Sydney	St. Peters		81.2
Scenic	Grand Anse	Grand Anse	Isle Madame	36.8
Scenic	St. Peters	East Bay	Bras d'Or	160.0
Scenic	Estmere	Balls Creek	Great Bras d'Or	81.4
Scenic	Cape North	Meat Cove		26.4
Scenic	Margaree Forks	Egypt Road		210.0
Total				4186.8

Sources Consulted

AASHTO Guide for the Development of Bicycle Facilities. 1999. American Association of State Highway and Transportation Officials.

Bicycling in Quebec in 2005. Velo Quebec.

Bicycle Transportation System Plan 1999. Maricopa County Dept. of Transportation Arizona.

Bike Lane Design Guide: City of Chicago 2002. Chicago Land Bicycle Federation.

Bikeroutes, Greenways and Bicycle Touring: Development Issues and International Perspectives. *Comments and observations from the international mobile forum on Quebec's Route Verte*. 2007. Velo Quebec.

Blueprint for a Bicycle-Friendly HRM. 2002. Halifax Regional Municipality Bicycle Plan Final Report.

Brunswick Bicycle and Pedestrian Plan 2002. Brunswick Bicycle and Pedestrian Advisory Committee.

CBRM Active Transportation Plan. 2008. 195p.

From Fun to Functional: Cycling- A Mode of Transportation in its Own Right. Bicycle Policy. 2008. Province of Quebec. Revised Edition.

Green Mobility Strategy. 2008. Ecology Action Centre.
<http://www.ecologyaction.ca/content/policy-and-planning>

Cycle Network and Route Planning Guide. 2004. Land Transport Safety Authority New Zealand.

Interpretation Resources Consulting Inc. 2006. Nova Scotia Street and Road Atlas. Nimbus Publishing, Halifax Nova Scotia. 499p.

Making Tracks: Youth Mentor Manual – Cycling. 2007. Active and Safe Routes to School. Nova Scotia. 71p.

Pathways to Prosperity: The Economic Impact of Investments in Bicycle Facilities. 2004. North Carolina Department of Transportation.

Pictou County Bikeways Plan. 2007. Pictou Regional Development Corporation. Prepared by Eastwind Cycle Consultants.

Transport Association of Canada. 1998. Bikeway Traffic Control Guidelines for Canada, prepared by the National Committee on Uniform Traffic Control. 78p.

Vélo Québec. 2003. Technical Handbook of Bikeway Design 2nd Edition. Vélo Québec, In collaboration with the Ministère des Transports du Québec and the Secrétariat au loisir et au sport. 136p.

Watt, Walton. 1995. Nova Scotia by Bicycle: Bicycle Nova Scotia's Touring Guide. 122p.

Watts, Heather. 2003. Silent Steeds: Cycling in Nova Scotia to 1900. 1985. Nova Scotia Museum, Halifax Nova Scotia. 43p.

Appendix I: Annotated List Existing Active Transportation and Cycling Initiatives & Organizations

Name of Organization	Mission / Mandate / Description	Area Covered and Contact Information
AcTraC(Active Transportation Coalition)	<p>AcTrac works on the following, to further active transportation infrastructure and education needs in the CBRM:</p> <ol style="list-style-type: none"> 1. Public awareness & education 2. Work cooperatively with CBRM AT Steering Committee in pursuit of active transportation for CBRM 3. Community based research on AT 4. Monitor AT policy & planning in CBRM and advocate for appropriate change 5. Advise on opportunities and barriers to AT 6. Support community organizations in advancing appropriate AT goals. <p>Members include: Cape Breton University Nova Scotia Health Promotion & Protection Public Health Services Cape Breton Regional Municipality Canadian Diabetes Association ACAP Cape Breton Velo Cape Breton Nova Scotia Heart & Stroke Foundation Active Cape Breton Communities</p>	Cape Breton Municipality
Active and Safe Routes to School (ASRTS)	<p>ASRTS is a national Go for Green program coordinated in Nova Scotia by the Ecology Action Centre in partnership with the Nova Scotia Department of Health Promotion and Protection as part of the Active Kids Healthy Kids initiative. Active & Safe Routes to School (ASRTS) encourages the use of active modes of transportation to and from school in a safe and healthy environment. Active transportation means any non-motorized mode such as walking, cycling, in-line skating, skateboarding, scootering, wheelchairs, cross-country skiing, canoeing, etc.</p>	Province-wide, asrts@ecologyaction.ca
Annapolis Valley Cycling Club	<p>The Annapolis Valley Cycling Club aims to:</p> <ul style="list-style-type: none"> •Promote bicycling in the Annapolis Valley •Establish a resource of bicycling information and expertise •Carry on its objectives in affiliation with Bicycle Nova Scotia (BNS), the Canadian Cycling Association (CCA), and other organizations of bicyclists throughout the world •Develop and promote health, safety and education relating to the use of the bicycle •Promote the use of the bicycle as a safe means of transportation in the Annapolis Valley •Encourage and promote bicycle racing •Organize and promote bicycle competition within the rules established by BNS, CCA and the International Cycling Union (UCI). 	Annapolis Valley, Info@valleycycling.ca
Association of Doctors for the Advancement of Physically-active Transportation (ADAPT)	<p>ADAPT is a group of doctors who advocate for active transportation infrastructure, such as bikeways and multi-use paths. ADAPT draws on its expertise to prevent, rather than react to, health problems related to physical inactivity, obesity and poor air quality.</p>	Province-wide, trax@ecologyaction.ca
Bicycle Nova Scotia (BNS)	Bicycle Nova Scotia is a not-for-profit organization	Province-wide,

	<p>that coordinates cycling in Nova Scotia, promoting all types of cycling activity: racing, touring, recreation, and transportation. BNS is part of the Canadian Cycling Association who through BNS provides liability insurance to affiliated recreational and racing bicycle clubs in the province. BNS is also a leader in the Can Bike training courses designed to teach safe cycling practices for all ages, on both rural and city roads. BNS advocates for cyclists' rights and better infrastructure and is officially represented on the HRM Active Transportation Committee and on the provincial Vulnerable Road Users Committee.</p> <p>www.bicycle.ns.ca</p>	<p>advocacy@bicycle.ns.ca</p>
Centennial Cycling Club	<p>The Centennial Cycling Club (CCC) is based in the Annapolis Valley and has been in existence since 1994. In addition to cycling, the club has also become a hiking and cross-country ski club outside the cycling season. The club was the personal project of Gary Spicer our first President for Life. A small club of maybe 60-70 members, those who show up to ride or deign to respond to an e-mail query make decisions. Our club motto: Sodalitas rotivectorum sese aegre vehentium, translated as "The Eating Club with a Cycling Disorder", is richly deserved and anyone traveling with us for any period of time will enjoy eating at quaint and interesting eating establishments, often some of the best kept culinary secrets in the country. Many Velo (Halifax) and Cycelpath (Annapolis Royal) club members are also members of the Centennial Bicycle Club. Rides take place Saturdays at 10:00 AM from various locations usually throughout the beautiful Annapolis Valley, justifiably considered one of the finest places to cycle in North America. Check our schedule at www.cyclecanada.ca (www.cyclecanada.com/Centcc/Cycshed.htm) for particulars, or contact our scribe at ar688@chebucto.ns.ca and ask to be put on our mailing list for weekly updates if you are interested.</p>	<p>gspicer@win.eastlink.ca (check on this contact information)</p>
Commuter Challenge	<p>The Commuter Challenge is a national program that is held during the first week of June. It is coordinated in Nova Scotia by the TRAX project of the Ecology Action Centre and occurs in several cities and towns throughout Nova Scotia</p>	
Doctors Nova Scotia	<p>Passed an active transportation resolution in 2007</p>	
Ecology Action Centre (Transportation Issues Committee)	<p>The Ecology Action Centre, based in Halifax, has had an active Transportation Issues Committee (TIC) for over a decade. In the past several years, TIC has</p> <ul style="list-style-type: none"> - developed the TRAX project which has worked on cycling advocacy within HRM as well as across Nova Scotia - Encouraged active transportation through the Active and Safe Routes to School Program, Open Streets events, annual Corey Mock Memorial Ride and through the Bike Again program - Through funds provided by Conserve Nova Scotia, established the Green Mobility Grants program - Developed a Green Mobility Strategy for the province of Nova Scotia. 	<p>Province-wide, trax@ecologyaction.ca</p>
East Coast Mountain Bike Association	<p>Organizes races and is an online forum for mountain bike enthusiasts</p>	

<p>Halifax Cycling Coalition</p>	<p>Formed in 2007 out of frustration at the speed of implementation of bicycle infrastructure in Halifax. HCC OBJECTIVES include: to create, maintain and promote an association of cyclists; to improve conditions for cyclists and cycling in the Halifax Regional Municipality (HRM); to integrate cycling into the transportation network and work to secure public investments in cycling infrastructure; to improve cycling awareness amongst HRM residents to increase the safety of cyclists, motorists and pedestrians alike; to facilitate communication between cyclists and other bodies such as governments, businesses, community associations; to improve facilities for bicycle use in the HRM; to build partnerships with like-minded organizations in Nova Scotia; to encourage more people to ride bicycles more often; and to develop a source of reliable information, tips and resources related to cycling in the HRM; to advocate on behalf of cyclists, with a particular focus on municipal government, for improved cycling conditions including better facilities, cycling infrastructure and cycling awareness.</p>	<p>Halifax Regional Municipality, http://www.cyclehalifax.ca/</p>
<p>Heart and Stroke Foundation</p>	<p>Heart and Stroke have developed the NS "Walkabout" program to encourage and support walking. Heartland Tour: its goal is to inspire communities to come together to improve the lives of Nova Scotians by encouraging them to take ownership of their health and reduce their risk of heart disease.</p>	<p>www.heartlandtour.ca</p>
<p>Kieran Pathways – Kings County</p>	<p>The Kieran Pathways Society was registered as a non-profit society in March of 2005. Its mission is to promote active forms of transportation in Kings County. The immediate goal of the Society is to facilitate the construction of a high-quality and continuous active transportation pathway from Grand Pré to Berwick, with a spur to Port Williams. The Society feels this corridor represents a "linear city" within the Valley. Due to its urban and suburban roles, this linear city would benefit greatly from having a safe and convenient route for active travelers. Furthermore, the Society feels the rail bed corridor represents an exceptional opportunity for such development.</p>	<p>Kings County Glyn Bissix glyn.bissix@acadiou.ca</p>
<p>Recreation Nova Scotia (RNS) – Active Transportation Vision and Plan</p>	<p>Recreation Nova Scotia has been developing policies around promotion of active transportation for several years. Active transportation is seen as an integral part of recreation planning, and is also viewed as low in capital costs and operating costs in comparison to the infrastructure required for recreation infrastructure and building facilities. The RNS Vision for Active Transportation outlines specific Strategy Objectives through which to achieve the Vision. Specific outcomes include cities and towns of Nova Scotia having bike lanes, employers who encourage employees to commute via active transportation, safety for children and safe, convenient connections between rural communities.</p>	<p>Province-wide http://www.recreationns.ns.ca/</p>
<p>SPOKE NS</p>	<p>Spoke NS is the local cycling club in Pictou County that focuses mainly on mountain bike rides and races. This group has been extremely important in increasing youth involvement in cycling.</p>	<p>Pictou County Pictou County Cycle 265 Archimedes street New Glasgow, Nova Scotia, B2H 2V1 902-928-0331</p>
<p>Trips For Kids Yarmouth</p>	<p>Trips for Kids Yarmouth is a nationally recognized non-profit volunteer organization that provides mountain bicycle outings for disadvantaged, low-</p>	<p>Trips for Kids - Yarmouth Contact: Jack Harding Tel1: 902-740-5208</p>

	income kids and those who would not otherwise have these opportunities.	Email1: tfkyarmouth@hotmail.com Web: www.tripsforkids.org/national/index/htm http://www.geocities.com/tfkyarmouth/home.html
Velo Cape Breton	Velo Cape Breton is working to promote all aspects of bicycling in Cape Breton through numerous initiatives and commitments for its membership and the general population. Velo Cape Breton is also focusing on the improvement of the health of citizens and the environment through the promotion of the bicycle as a mode of transportation and recreation. Velo Cape Breton is a non-profit, volunteer-run organization primarily serving the Cape Breton Regional Municipality. Velo offers a wide variety of rides for people of all ages and abilities, including Road Cycling Instruction Sessions and Rides for novice cyclists, Instruction on Touring by bicycle, week-end rides, short casual Evening Rides, Day Tours and Multi-day Camping Tours. Velo Cape Breton funds are derived from membership dues.	Cape Breton Jacques Côté jacques.cote@ns.sympatico.ca
Nova Scotia Ramblers	The Ramblers strive to be a very social, relaxed paced bicycle club; one that appreciates the exercise aspect, without the competitive stress in having to maintain pace lines. The distances are generally moderate, suitable for new cyclists as well as folks re-entering cycling after a period of absence.	Bob White bikebob@eastlink.ca www.ramblers.ca
Randonneurs Nova Scotia	Long distance cycling club	Mark Beaver mark.beaver@ns.sympatico.ca
Velo Halifax	Halifax Regional Municipality The largest bicycle club in Atlantic Canada	Halifax NS cycling@chebucto.ns.ca
Hub Cycle Racing Club Truro	Competition/Racing	hubcycle.ca
Sea Level Racing CC	Competition/Racing	South West Nova/Yarmouth admin@sealevelracing.net
Cyclesmith Cycling Club	Competition/Racing	6112 Quinpool Road Halifax, NS B3L 1A3 902-425-1756 http://cyclesmith.ca/page.cfm?pageID=37
Bicycle Plus Cycling Club	Competition / Racing	Bedford NS President: Gerard Walsh www.bicyclesplus.ca/newcycling.html

Appendix II. Existing Bicycle Shops in Nova Scotia

All Seasons Sport & Bike Shop
(902) 354-4311
P.O. Box 75
Liverpool, NS BOT 1K0

Bicycles Plus
(902) 832-1700
bicyclesplus@accesswave.ca
950 Bedford Hwy.
Bedford, NS B4A 1A8
www.bicyclesplus.ca

Bikes by Dave
902-455-1677
bikesbydave@eastlink.ca
2828 Windsor Street
Halifax, NS B3K 5E6

Cyclesmith
Dartmouth - (902) 434-1756
Halifax - (902) 425-1756
14 Woodlawn Road
Dartmouth, NS B2W 2S7
6112 Quinpool Road
Halifax, NS B3L 1A3
www.cyclesmith.ca

FrameWork Fitness & Bikes
Ph: (902) 567-1909
Fax: (902) 567-0678
273 Townsend Street
Sydney, NS B1P 5E7
www.frameworkfitness.com

Hub Cycle
(902) 897-2482
hubcycle@ns.aliantzinc.ca
www.hubcycle.ca
33 Inglis Place
Truro, NS B2N 4B5

Hubbard's Pedal and Sea Adventures
9075 St. Margaret's Bay Road
RR2, Hubbards, NS B0J 1T0
877-777-5699
dana@pedalandseaadventures.com
www.pedalandseaadventures.com

Kentville Bike Shop
(902) 679-2453
www.kentvillebikeshop.com
366 Main St
Kentville, NS B4N 1H6

Lunenburg Bicycle Barn
(902) 634-3426 RR#1
579 Blue Rocks Rd.
Lunenburg NS B0J 2C0

Manser's Bike Shop
165 Pleasant St.
Yarmouth, NS B5A 2J5
phone 902-742-0494
fax 902-742-6614
web: www.sealevelracing.net

Me Buddy's Bike Shop
(902) 539-3141
87 Charlotte St.
Sydney NS B1P 1B8

Nauss Bicycle Shop
2533 Agricola Street
Halifax, NS B3K 4C4

Peak Performance
(902) 863-1736
104 Post Rd.
Antigonish, NS B2G 2K5

Pictou County Cycle
<http://www.pictoucountycycle.com/>
265 Archimedes Street
New Glasgow, NS B2H 2V1
902-928-0331
Clint Snell - clint@pictoucountycycle.com

Ramsay's Cycle & Sport
(902) 539-4730
616 Keltic Dr.
Sydney, NS B1L 1B6

Sea Spray Cycle
(902) 383-2732
seaspray.cb@ns.sympatico.ca
Smelt Brook, NS

Spin Your Wheels Bike Shop
252 Aberdeen Road
Bridgewater, NS
530-7746(SPIN)
Chris Talbot - syw@eastlink.ca

Sports Experts
(902) 755-4780
689 Westville Rd.
Highland Square Mall
New Glasgow, NS B2H 2J6

Sportwheels
(902) 865-9033 209 Sackville Dr.
Lower Sackville, NS B4L 2R5
Website: www.sportwheels.tv
Email: service@sportwheels.tv

Train Station "Bike & Bean"
5401 St Margaret's Bay Rd.
Tantallon, NS B3Z 2H9

Valley Stove & Cycle
(902) 542-7280
PO Box 1078
Wolfville, NS B0P 1X0

Appendix III. Interview Participants for Stakeholder Consultation

Participant	Affiliation / Contact Information
Dawn Stegen	Rec NS 5516 Phone: 425-1128 Fax: 422-8201 Email: dstegen@recreationns.ns.ca Executive Director of Recreation NS
Wayne McKay	Wayne McKay, mistercaseycat@yahoo.ca (902) 578-8752 VCB; public school teacher; Glace Bay Youth Group leader
Jacques Cote	VCB ACTRAC Sydney CB Pathways for People
Ruth Mitchell	Pictou County Active Communities Coordinator rmitchell@prdc.com
Steve Rafferty	Community Development Co-coordinator Town of Bridgetown
Mark Beaver	CycleSmith, Velo Halifax, NS Randonneurs
Dwight Jones	Town of Amherst
Odette Comeau	Churchpoint. (Yarmouth County Recreation)
Frank Grant	Director Yarmouth Leisure Services P.O Box 152 Yarmouth, NS B5A 4B2 742-8868 (w) 749-1645 (fax) frankg@district.yarmouth.ns.ca www.district.yarmouth.ns.ca/leisure/
Stephanie Sodero	Ecology Action Centre TRAX program
David McCusker	HRM Traffic Demand Manager
Grant Potter	Rec. Director Annapolis Royal
Jack Harding	Trips for Kids Yarmouth Jack and Claire Harding- contact info Trips for Kids - Yarmouth Contact: Jack Harding (902) 740-5208 tfkyarmouth@hotmail.com www.tripsforkids.org/national/ www.geocities.com/tfkyarmouth/home.html
Andrew Fry	Town of Wolfville Staff

Deb Ryan	Annapolis County Recreation
Heather Yule	Tourism Development Officer, NS Tourism, Culture & Heritage Heather Yule P.O. Box 456 1800 Argyle Street, Suite 603 Halifax, Nova Scotia B3J 2R5 Tel: 902-424-4646 Fax: 902-424-0723 Email: yulehdc@gov.ns.ca
Keith McCormick	Annapolis Valley Cycling Club/ Kieran Pathways Society President
Christine Almon	Environmental Analyst, Department of Transportation and Public Works
Cheyenne Dickinson	Ecology Action Centre, Making Tracks Coordinator
John Leefe	Mayor, Queens Regional Municipality

Appendix IV. Velo Cape Breton “Bicycle Friendly” Accreditation Program

