



3.0 CONTEXT

Cycling is a practical, cost effective, environmentally sensitive and healthy mode of transportation for both recreation and utilitarian purposes in communities across North America. It is recognized as an integral part of a community's transportation system in addition to being a viable alternative to automobile use.

The following provides a context for the growth and trends in cycling from a North American perspective, and describes Regional and local initiatives.

3.1 NORTH AMERICAN CYCLING PERSPECTIVE

Across Ontario, recreational cycling is recognized as one of the top three recreational pursuits, having a 20% participation rate and an estimated annual growth rate of 2.3% (Ministry of Citizenship, Culture and Recreation, 1998). In the City of Toronto, approximately 20% of the population cycle for utilitarian purposes, such as getting to work, school, shopping and running errands, while 44% of the population cycle for recreational purposes, including leisure and fitness pursuits (Decima Research Inc., 1999).

The demand for cycling and walking facilities is high in communities across Ontario. Municipalities in the Greater Toronto Area, as well as Ottawa, London, Kingston, Kitchener-Waterloo, Milton and Windsor, to name a few, are actively developing networks to encourage cycling and walking, and to reduce our reliance on the personal automobile.

At the provincial level, the Ontario Trails Council is promoting the integration of community and regional trail systems into a province-wide system to be known as the Ontario Trillium Trails Network. VeloOntario, a new organization promoting the interests of Ontario cyclists, is urging the development of an on-road Provincial Cycling Network. The Waterfront Regeneration Trust is co-ordinating the development and promotion of the Lake Ontario Waterfront Trail, that when complete will stretch 740 km from Niagara-on-the-Lake to Brockville. The Trans Canada Trail Foundation continues to work towards a multi-use recreational trail that spans the entire country. In addition, many other groups and organizations across Ontario are actively involved in the development and/or promotion of on and off-road cycling and multi-use trail facilities.

According to David Foot, author of *Boom, Bust & Echo*, and his American counterparts, significant changes are occurring in recreation as a result of demography. In short, a larger proportion of our population now consists of older yet more active adults looking for different types of recreational opportunities than in the past. The following general trends have been observed, all of which have implications for cycling network development:

- there is a renewed interest in spending "quality time" with family and friends, while pursuing high quality recreational endeavours;



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- staying healthy through active recreational pursuits is viewed as important;
- there is a strong interest in tourism and recreational activities that respect the natural and cultural environments, and also offer educational opportunities; and
- there is a pervasive interest in getaway travel where the goal is to obtain a high quality recreational experience at a reasonable cost.

The promotion of cycling has significant individual, societal, environmental and economic benefits.

3.1.1 Transportation Efficiency Benefits

Cycling and walking are a means of transportation that are efficient, affordable and accessible.

A major American study found that for distances up to 10 km in downtown areas, cycling is the fastest of all modes from door to door.¹ This same study noted that in U.S. cities, 25% of all trips are 1.5 km or less, and over two-thirds are 8 km or less. In the U.S., 20% of all cycling trips involve travel to and from work. This demonstrates the potential for increasing the number of cycling trips.

¹ The National Bicycle and Walking Study, Final Report, 1994.

² Ministry of Transportation of Ontario, Ontario Bikeway Planning and Design Guidelines, pg. 8-34, March 1996.

In Edmonton, a survey of 2400 cyclists in 1989 showed that 75% of the reported bicycle trips were for reasons other than recreation. Almost 20% of the cyclists surveyed rode all year round, indicating that winter cycling is viable.

Road improvements to increase the safety of cyclists can enhance the safety of other road users. For example, the U.S. Federal Highway Administration reports that paved shoulders on two-lane, rural roads have been shown to reduce run-off-the-road, head-on and sideswipe collisions by 30% to 40%. In addition, many municipalities have found that paved shoulders reduce maintenance costs related to shoulder deterioration, grading and snow plowing.

The cost to provide bicycle facilities is significantly less compared to the costs for road improvements to accommodate person trips by automobiles. By way of example, the City of Toronto has estimated that the addition of a through traffic lane on an existing road can cost from \$350,000 to \$500,000 per kilometre to design and construct. This widening would provide an additional roadway capacity of approximately 800 vehicles per hour. By comparison, the costs associated with the addition of a 1.5 m bike lane, which can accommodate approximately 2,000 trips per hour², can range from \$5,000 to \$10,000 for a simple restriping. This cost increases from \$35,000 to \$150,000 per kilometre where a road widening is required (exclusive of land acquisition and utility relocation costs).



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With regard to parking, significantly less land is required to park a bicycle compared to a passenger car. Approximately 10 bicycles can be parked in the space required for a single automobile. In addition, the cost of a typical automobile parking space in a parking structure can be over \$10,000 compared to \$125 to manufacture and install a medium security bicycle rack.

Two major surveys conducted in the U.S., one in 1994 (Richelieu Valley Tourism) and one in 1997 (Survey of Delaware Bicyclists) showed that 99% of all respondents said they cycled for recreation, fitness and health, 65% to 90% used their bicycle for touring and vacationing, and 40% to 50% cycled for basic transportation purposes. Many who have had a positive recreational cycling experience try cycling for utilitarian purposes.

The evidence is clear that there are significant transportation efficiency benefits to investing in facilities that will encourage more people to cycle, especially for utilitarian purposes.

3.1.2 Recreation, Health and Fitness Benefits

Cycling and walking enhance fitness and provide an enjoyable, convenient and affordable means of exercise and recreation. The most effective fitness routines are moderate in intensity, individualized, and incorporated into our daily activities. Cycling and walking can both accomplish this, and at the same time provide mobility.

In Ottawa, two-thirds of 1700 commuter cyclists surveyed in 1991 ranked health and fitness as the primary reason for cycling to work.

Cycling and walking can enhance one's mental outlook and sense of well being, improve self-image, social relationships and increase self-reliance by instilling a sense of independence and freedom.

Trails that pass through a variety of neighbourhoods help to unite communities. They act as meeting places, and provide for informal interaction between people from a variety of backgrounds.

The construction, operation, maintenance and promotion of trail projects can help to foster partnerships among individuals, governments, local business and various interest groups. There are many examples of successful private and public-sector partnerships that have emerged as a result of the development of trails across the country, such as the Chrysler Canada Greenway through Essex County.

The focus of our health system is shifting from protecting people from hazards in the environment to developing healthy environments in which people live. Evidence suggests that improved cycling and walking facilities lead to higher participation rates. Increased physical activity such as walking, cycling and other trail related activities would also help in the prevention of chronic disease. Health Canada advises that physical activity has been demonstrated to be the most prevalent modifiable risk factor in the prevention of chronic diseases such as heart disease, stroke,



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type II diabetes, osteoporosis, some cancers, high blood pressure, obesity and depression.

Encouraging people to cycle and walk can reduce urban and suburban dependence on the automobile, a target in healthy cities.

3.1.3 Environmental Benefits

Cycling and walking are energy-efficient, non-polluting modes of travel. Short distance, motor-vehicle trips are the least fuel-efficient, and generate the most pollution per kilometre. These trips have the greatest potential to be replaced by cycling and walking trips as well as integrated walking-cycling-transit trips. Shifting to these modes can reduce ozone depletion, the greenhouse effect, ground-level air pollution, photochemical smog, acid rain and noise pollution.

Research has confirmed that the largest source of greenhouse gas emissions (GHG) in Canada is from transportation. In Canada's 13 largest Census Metropolitan Areas, over three-quarters of the greenhouse gas emissions produced are due to personal transportation, and 97% of these emissions are attributed to private automobiles and light trucks.³ The Canadian National Round Table on the Environment and Economy (NTREE) recommends a number of policies to reduce GHG emissions, as required by the Kyoto Protocol that Canada has now formally signed. These include a CO₂ emissions reduction strategy to pursue attractive and healthy alternatives to motorized vehicles. A

³ Government of Canada, National Round Table on the Environment and Economy, 1998.

land use and smart growth strategy that can make transportation more sustainable over the long term includes improving cycling and pedestrian environments and facilities.

Bicycles take up fewer resources in their production, maintenance and storage than motor vehicles, thereby reducing the demand on materials and energy resources. Encouraging bicycle use and reducing the dependence on the automobile is also consistent with current Provincial Policy initiatives regarding "Smart Growth".

3.1.4 Economic Benefits

Following significant investment in bicycle facilities, cities in industrialized countries have experienced dramatic increases in the level of cycling. For example, Copenhagen experienced a cycling increase of 50% in five years, while both Eugene, Oregon and Toronto experienced an increase of 75% (New York City Bicycle Master Plan, 1997).

A significant economic benefit associated with more people cycling is directly related to savings to the health care system when chronic diseases are prevented through an increase in physical activity. According to the Canadian Diabetes Association, type II diabetes alone is estimated to cost the Niagara Region \$135 million annually. The burden of illness due to cardiovascular disease in Ontario is \$5.5 billion annually.⁴ These figures do not take into account the additional cost to taxpayers of the

⁴ Heart and Stroke Foundation of Ontario.



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many other chronic diseases that can be prevented through physical activities such as cycling and walking.

A more active population can, in turn, reduce the cost of medical care, decrease workplace absenteeism and help to maintain the independence of older adults, thereby reducing the cost of institutional care.

There is ample evidence that trails provide significant economic benefits for adjacent landowners and local businesses. Trails provide benefits to the local economy during both construction and operation. Trail construction results in direct benefits such as jobs, including the supply and installation of materials. Following construction, benefits emerge in the form of expenditures by trail users. A few examples include:

- trails in New Brunswick employ around 1500 people for an average of six months per year;
- 70% of users of the Bruce Trail cite the trail as the main reason for visiting the area. They spend an average of about \$20.00 per user per visit within a 10 kilometre corridor on either side of the trail;
- the Riverwalk is considered the anchor of the tourism industry in San Antonio, Texas and contributes \$1.2 billion annually to the local economy;
- in 1988, users of the Elroy-Sparta Trail in Wisconsin averaged expenditures of \$25.14 U.S. per day for trip-related expenses for a total of over \$1.2 million annually;

- more than 600,000 Americans took a bicycle vacation in 1985, and when travelling in a group, spent \$17 per day camping or \$50 per day staying in motels. Cyclists travelling alone spent an average of \$22 per day camping or \$60 per day staying in motels;
- in Ontario, the Eastern Ontario Trails Alliance estimated that at the end of a 10 year build-out period, 320 kilometres of their system, constructed at a cost of \$5.4 million will generate approximately \$36 million in *annual* economic benefits in the communities through which it passes, and create or sustain over 1100 jobs; and
- in Surrey B.C. a recent study compared the impact to single-family property values over 20 years for properties that bordered a greenway or trail versus properties that did not. The study found that introducing a greenway in four Surrey neighbourhoods increased property values bordering the trail by 1% to 10%, and did not result in any measurable increase in crime.⁵

In a 1991 study, the Minnesota Department of Transportation (DOT), found there are significant savings by increasing the number of bicycle miles travelled as a substitute for car travel.⁶ As illustrated in **Figure 3.1**, Minnesota estimated that the economic benefit, in terms of savings per mile travelled by bicycle instead of

⁵ City of Surrey, Greenway Proximity Study, 1980-2001.

⁶ Minnesota Department of Transportation, Plan B The Comprehensive State Bicycle Plan – Realizing the Bicycle Dividend, 1991.



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by car, could range from \$0.31 to \$1.13 per bicycle mile travelled.

Figure 5
Estimated Savings Per Bicycle Mile Travelled (BMT)
 (substituted for car travel)

Out of pocket savings to individual consumers:	\$.18-\$.58*/BMT
Highway capital investment savings potential:	\$.08-\$.33/BMT
Tax and other general public savings: (eg air quality, oil imports, congestion)	
Reduced oil imports:	\$.01-\$.07/BMT
Reduced trade deficit:	\$.01-\$.01/BMT
Noise reduction:	NA
Recreation value:	NA
Greenhouse effect:	NA
Air pollution:	\$.01-\$.10/BMT
Oil spills:	NA
Congestion:	\$.02-\$.04/BMT
Health/fitness:	NA
Subtotal:	\$.05-\$.22/BMT
Total potential savings:	\$.31-\$ 1.13/BMT

* Based on car operating costs of \$.21 - .61 per mile, and bicycle operating costs of \$.03 per mile.
 Sources: Appendix D
 NA: not currently available

Figure 3-1: Estimated Savings Per Bicycle Mile Travelled, Minnesota DOT.

Trail systems can have varied levels of attraction for tourists. They can be travel destinations in themselves, encouraging visitors to extend their stay in the area or enhancing business and pleasure visits. By increasing the “level of tourist draw”, travellers can be expected to stay longer, resulting in an additional night's lodging and meals, a major direct new benefit to local businesses.

A 1997 survey of Canadian tourists active in the outdoors showed that 30% of Ontario tourists cycled on at least one occasion while on vacation. The Ontario Ministry of Transportation reported that touring cyclists spend an average of \$130 per day in Ontario, and the bicycle retail and tourist industry contributes a minimum of \$150 million a year to the Ontario economy. Bed and breakfast

operators between Ottawa and Kingston report that the majority of their business is from touring cyclists. Cyclists in Vermont spend an average of \$180 US per day, the same amount expected of someone travelling by car.

Section 4.4 of this report details the results of a bicycle tourism and market assessment undertaken as part of this study for the Region of Niagara.

Bicycle manufacture, sales and repairs, as well as bicycle tourism, recreation and delivery services contribute to the economy with little to no public investment or subsidy. The Worldwatch Institute reported in 1987 that 1.2 million bicycles were produced in Canada compared to 0.8 million automobiles. The small size of the bicycle results in infrastructure costs for bikeways and bicycle parking that are 1/10th to 1/20th of that required for comparable facilities for automobiles.

3.2 PREVIOUS REGIONAL NIAGARA INITIATIVES

The following provides a brief overview of various Regional initiatives that have addressed cycling in Niagara.

3.2.1 Regional Niagara Policy Plan

The Regional Niagara Policy Plan is the Official Plan for the Region. Originally adopted in 1973 and since modified on several occasions, this Plan provides the long-range planning framework to manage physical growth, development and conservation.



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Cycling objectives and policies are concentrated in two sections of the Policy Plan: Transportation plus Economic Development and Tourism.

The Transportation section articulates the Region's direction for the development of a comprehensive cycling network. In summary, the policies address the implementation structure associated with the Regional Niagara Bicycling Committee, funding as well as general planning and design guidelines.

The Economic Development and Tourism section articulates the Region's support of the Greater Niagara Circle Route and related trails, which will link the Niagara River with the Welland Canals. In summary, the policies address the preferred programming, promotion, funding and phasing of the trail as well as mechanisms to ensure its attractiveness.

Overall, the Region's Policy Plan provides reasonably sound direction for the development and promotion of cycling in Niagara. The objectives and policies in the Transportation section separate objectives for "transportation", which predominantly address the practical movement of goods and people, and "cycling". Cycling, and transportation in general, is not addressed in much detail in the Region's overall strategy for development and conservation, although it should be noted that recent reports, such as Smart Growth in Niagara and Niagara's Transportation Strategy, establish an integrated Regional framework that includes transportation and cycling.

3.2.2 Regional Bicycling Study

The Regional Bicycling Study is the predecessor of this Master Plan. Adopted in 1995, the study laid the foundation for the existing 125+/- kilometres of on and off-road cycling facilities.

The Regional Bicycling Study is directed toward:

- increasing opportunities for utilitarian, touring and recreational cycling;
- enhancing safety and convenience for cyclists, pedestrians and motorists;
- encouraging economic development; and
- contributing to the overall quality of life in the Region.

The report provides both general and specific policy recommendations, the latter grouped by "the four E's" – engineering, education, enforcement and encouragement. Some of the major recommendations of the Regional Bicycling Study include:

- establishing the Regional Niagara Bicycling Committee;
- phasing the development of the network in keeping with approved capital budgets;
- promoting cycling through various programs;
- supporting the concept that "every road is a cycling road"; and
- encouraging the provision of end-of-trip cycling facilities.



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3.2.3 Try-Cycle

The Try-Cycle report, prepared by the Regional Niagara Bicycling Committee, evaluates the Regional bicycle network and identifies low cost facilities to implement in the short term. The report was prepared in 2000 by two undergraduate Brock University students, under the direction of the RNBC. The Try-Cycle report provides an assessment of 37 cycling routes throughout the Region, and makes various recommendations to improve cycling along these routes. In addition, the report recommends improved signage of the bikeway network, a re-examination of the network approach to implementing cycling facilities and a clearer budgetary reporting mechanism.

The Try-Cycle report provided useful input to the field investigations undertaken as a part of this study.

3.2.4 Smart Growth in Niagara

The Smart Growth in Niagara report articulates principles to substantially increase the capacity of existing urban areas without expanding urban boundaries. Prepared in 2001, this report serves as a background document for the on-going Regional Policy Plan review.

The Smart Growth report lends strategic support to cycling. The transportation section articulates the principle of promoting “pedestrian, bicycle and transit friendly communities”. The same section also establishes the policy of including “alternative methods of transportation for any new-large scale development through the installation of bicycle lanes, sidewalks and bus

stops, and fully integrating non-auto based linkages into an overall greenway system”.

3.2.5 Interim Retrofitting Cycling Guide for Niagara Region

The Interim Retrofitting Cycling Guide for Niagara Region report was prepared in 2000. The report addresses design guidelines for cycling facilities and the structure of the Regional Niagara Bicycling Committee.

The design guidelines identify lane widths for urban and rural Regional roads, and recommend alternative routes be considered where a bicycle facility cannot be safely accommodated.

The discussion on the Regional Niagara Bicycling Committee concludes that a broader cross-section of stakeholders would improve the effectiveness of the Committee and its relationship with staff.

Both of these issues are examined further in the latter sections of this plan.

3.2.6 Niagara’s Transportation Strategy

Niagara’s approved Transportation Strategy report, adopted by Regional Council June 2002, provides framework to guide the development and expansion of transportation systems in Niagara. The Bikeways Master Plan is included under this umbrella.

The transportation strategy is reflected in eight strategic directions. A summary of these include:



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1. Improve travel and commuting within Niagara;
2. Support planned economic growth and land use development;
3. Enhance community lifestyles and quality of life;
4. Provide environmental stewardship;
5. Improve travel and commuting between Niagara and the surrounding areas;
6. Support international trade;
7. Enhance accessibility to tourism and recreational destinations; and
8. Provide citizens in Niagara with a choice of ways to affordably access places of employment, education, social, recreational and essential services.

An integrated system of bikeways is considered a fundamental initiative supporting five of these eight directions, which are items 1, 3, 4, 7 and 8 from the above list. The specific objectives established for bicycle and pedestrian systems are:

- develop a comprehensive plan for both on and off-road bicycle paths and trails to meet the needs of both residents and tourists in Niagara;
- integration of bikeways and trails provided by the Region, the area municipalities and parks authorities to provide a seamless biking and hiking experience in Niagara;

- promotion to increase the use of cycling and walking as viable alternatives to the automobile for shorter distances and certain types of trips; and
- establish a priority and staging plan to expand the existing system in a logical and effective manner.

As an umbrella document guiding transportation systems in Niagara Region, Niagara's Transportation Strategy report addresses cycling in a strategic manner. This includes recognizing the benefits of both recreational and utilitarian cycling.

3.3 LOCAL INITIATIVES

In addition to those cycling initiatives at the Regional level, a number of local municipalities are addressing bicycle planning. For example, the City of St. Catharines, the Town of Lincoln and the City of Niagara Falls have completed cycling studies. The Town of Fort Erie has developed their own cycling facilities and, in addition, the Towns of Thorold, Welland and Port Colborne have partnered with the Region in developing the Greater Niagara Circle Route. Although to date the City of Niagara Falls has the only "local" Cycling Advisory Committee, it is expected that other local municipalities will soon establish similar committees.

Connecting and building this exciting infrastructure and engaging local residents through committees, organizations and clubs to champion these efforts will be critical to the success of this Regional plan.