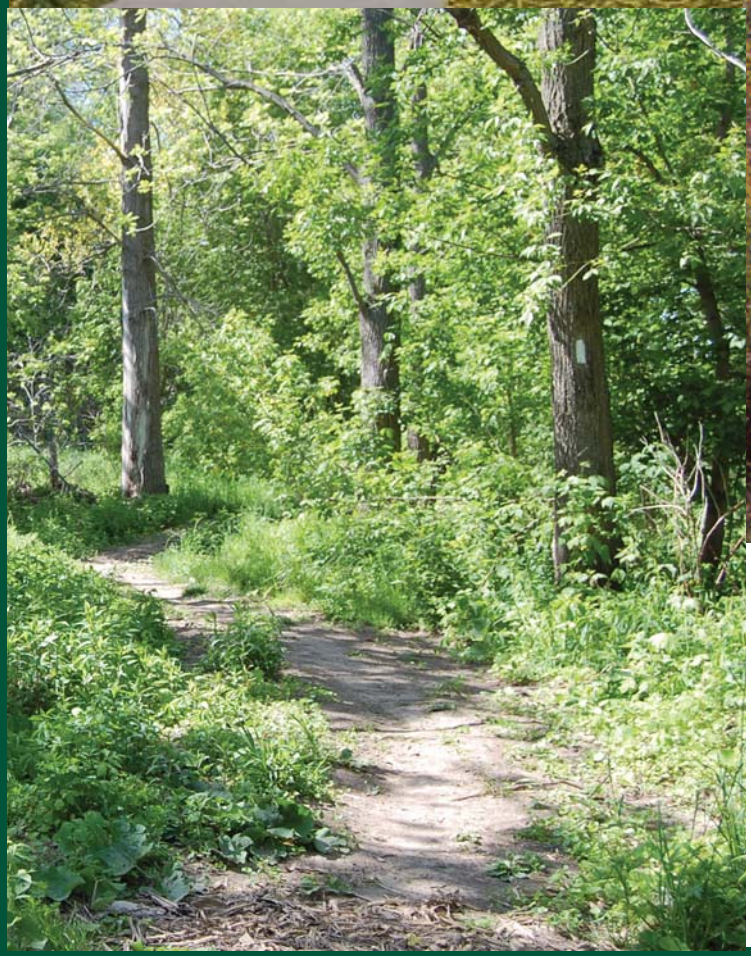
Haldimand County

TRAILS MASTER PLAN and PARTNERSHIP FRAMEWORK STUDY



ACTIVE2010

Ontario

Final Report June 2009

A GRAND EXPERIENCE HALDIMAND COUNTY

Stantec

mbpc Monteith Brown planning consultants

Table of Contents

Table of Contents

Table of Contents

1.0 Introduction

Haldimand County has a unique textural background for the development of an integrated trail system. It is a geographically large and diverse municipality, with several medium sized urban centres and small villages and hamlets separated by expanses of rural land. It is blessed with unique natural and cultural resources that form significant structure and ambiance for the implementation of a wide range of trail opportunities. Rich farmland, towns, villages and hamlets are linked by impressive natural features including the Grand River and Lake Erie shoreline. Bounded by Lake Erie to the south, the region of Niagara to the east, Region of Hamilton to the north and Brant County to the west, Haldimand County has a land area of approximately 1,250 square kilometers, and supports a population of approximately 45,000 residents [(1)] Haldimand County was formed in 2001 through the dissolution of the Region of Haldimand-Norfolk and amalgamation of the three former municipalities namely the Town of Haldimand, Town of Dunnville and City of Nanticoke. The population of Haldimand County is expected to increase slightly by the year 2021 with much of the growth focused around Caledonia, Hagersville and Dunnville. [(2)]

The Haldimand County Trails Master Plan and Partnership Framework Study brings together and expands upon the previous efforts of the three former municipalities in order to provide a framework to create a dynamic, integrated trail system and guide and direct the County towards linking current trails within the Trans Canada Trail system as well as establish a priority plan for trail location, trail development and a partnership plan for community stakeholders. The focus of a trails network will be off-road, multi-use trails, although it is recognized that potential on-road links may be necessary to make critical connections, at least in the short term. The purpose of the plan is to guide and prioritize trail development over the next 10-15 years while encouraging an increased level of cooperation / partnership among key trail groups and organizations, including the County and local partners. Haldimand County has already recognized the benefits of trails connections to adjoining municipalities and this initiative will formalize the Trans Canada Trail commitments as well as examine other potential links in the context of the Ontario Trails Strategy. Haldimand County contains over thirty kilometers of previously registered Trans Canada Trail, though they are not yet developed as formalized active trails [(3)].

1.1 THE NEED FOR A TRAILS MASTER PLAN

Trail systems offer users the ability to enjoy the outdoors, exercise and partake in various passive recreation opportunities that are available year round. This type of recreation opportunity dovetails neatly with the increased interest in the pursuit of healthy outdoor

1. http://www12.statcan.gc.ca/census-recensement/index-eng.cfm
2. Monteith Brown Planning Consultants and the JF Group. Strategic Master Plan for Leisure Services and Facilities, June 2006
3. RFP LS-07-2007 Trails Master Plan, Haldiomand County

activities. The provision of an integrated trail system offers the ability to highlight and promote the County's natural and cultural resources. The recent Strategic Master Plan for Leisure Services and Facilities documents the importance trail systems and the public demand for passive recreational opportunities. In particular, the Lake Erie shoreline and Grand River corridors provide unique opportunities for trail development. These resources offer traditional pedestrian and bicycle opportunities as well as water related opportunities (kayaks, canoes). In addition, there are opportunities to connect with adjacent communities and their existing and future trail resources that broaden the interconnectivity of Haldimand County and its citizens.

Residents throughout the communities of Haldimand County have expressed an interest in high quality recreation facilities close to home. In addition to traditional recreation facilities like swimming pools and sports fields, there is an expectation that the County should have a well designed and connected linear recreational trail system. There is also a growing proportion of the population that would like to travel on foot or by bicycle, or must travel by a mobility-assisted device. They too are looking for a linked linear system. Many municipalities in Ontario have developed trails master plans, and have been taking steps to implement their networks and supporting programs. Haldimand County has been doing the same, but with the disadvantage of not having an overall Master Plan in place to guide important decisions.

Master plans are long-range plans that integrate infrastructure requirements for existing and future land use with environmental assessment principles. They examine the entire infrastructure system as a group of related projects, or an overall system, in order to strategically plan out the future needs of the Municipality. The Haldimand County Trails Master Plan and Partnership Framework Study described in the chapters that follow is a long-range planning document that will guide municipal staff, Council, land developers, agencies and other key stakeholders through the design, implementation and management of a comprehensive multi-use trail system throughout the entire municipality. A trails master plan is an important for many reasons including:

- Providing a communication tool that can be shared among various Municipal departments so that implementation of a trail network can be coordinated with other initiatives related to transportation, recreation, tourism, land use and economic growth throughout the municipality.

- Communicating the Municipality's commitment to public health, active living and intent with respect to an integrated trail system.

- Sending a message to potential residents and business owners that Haldimand County is a desirable place to live, work, and play.

- Providing the basis for communication tools that can be provided to residents with an interest in trails for recreation and utilitarian purposes.

- Providing a vehicle by which points of cultural interest can be connected and highlighted throughout the municipality.

- Communicating and providing the means to support the Municipality's interest in providing viable transportation alternatives that are environmentally friendly and sustainable.

1.1.1 Background and Policy Context

Across North America, the popularity of trails has been steadily increasing, and this trend is expected to continue. Some recent trends in recreation, tourism and transportation contributing to this appeal include:

- A strong interest in tourism and recreational activities that respect the natural and cultural environments and offer educational opportunities.
- Staying healthy through active recreational pursuits.
- A renewed interest in spending "quality time" with family and friends pursuing high quality recreational experiences.
- An interest in "getaway" travel where the goal is to obtain a high quality recreational experience for good value.
- An increased interest in alternative modes of transportation which are well served by integrated trail systems.

In response to these trends, municipalities, agencies and independent organizations are planning, designing, implementing and promoting trail systems to meet the demand. Municipal Economic Development Departments are beginning to understand the economic benefit that well-planned trails systems can bring to their communities. Increased tourist traffic, better quality of life for residents, and the additional amenity that can help attract new commercial and industrial business are just a few of the benefits that trails bring to communities.

Haldimand County is no exception. There is a desire among staff, politicians and residents to develop a community trail system that is integral to the community. The concept of a linked open space system, supporting recreational trails is well documented in long-range plans. The trail theme is introduced in the County's **Official Plan** and reinforced though the **Strategic Master Plan for Leisure Services and Facilities**. The following is a summary of trail related policies and recommendations contained in these important municipal planning documents.

The Official Plan for Haldimand County (2006), adopted in June 2006 contains a number of policies directly related to and that support or complement the development of trails, as evidenced by the following excerpts:

Section 5: Community Building, Part A. Transportation

2) Pedestrian

1. Providing facilities for convenient pedestrian movement is important. The provision of sidewalks on one side of local road and both sides of collector and arterial roads is encouraged wherever practical. Sidewalks will generally be required in conjunction with the development of new roads within urban areas; however, in all instances, requirements for sidewalk construction will be in accordance with the County's design criteria.

2. The County will encourage the development and enhancement of pedestrian trails and bicycle routes within the municipality. Routes which create a linked system between community facilities and major parks and open space or take advantage of the vistas provided by the County's natural features and cultural heritage resources will be considered. Routes that support tourism will generally be encouraged. Where possible, sidewalks will be used to connect urban trail systems.

Section 6: Leisure, Heritage and Culture, Part A. Parks and Open Space

1 *Halidmand County recognizes the importance of providing a full range of parks, open space and recreational facilities for use by residents and as a means of increasing the County's appeal as a tourist destination.*

12 The County supports partnerships, joint ventures and facility sharing with school boards, other institutions and community groups to expand the supply of parks, open space and recreational facilities.

Part D Scenic Routes

1. *Haldimand County's location and scenic assets provide ample opportunities for creating scenic or heritage routes especially within the vicinity of the Grand River and Lake Erie. The Talbot Trail extends from Windsor to Fort Erie along Regional Road No. 3 through the County. The Lake Erie Circle Route and the Heritage Trail are established trails following Highway No. 3 through the entire County. The Grand River Scenic Parkway follows the east side of the Grand River from Dunnville, through Cayuga and Caledonia. These scenic routes draw both local residents and tourists to the scenic areas of the County.*

*2. The County may consider establishing a Lakeshore Trail using existing roads close to the Lake Erie shoreline. Due to the meandering nature and existing conditions of some of the roads located along the lakeshore, the route would be a more leisurely, scenic driving route. Prior to establishing the L*akeshore *Trail an assessment of the road conditions and safety will be undertaken.*

Part E Trail Development

1. *Where appropriate and feasible, Council may encourage the development of a pedestrian and non-motorized vehicular trail system to link open space and park areas within and adjacent to areas of development utilizing such features as existing creek and stream valleys, transportation corridors and other natural corridors.*

2. *Where possible, public parks and open space areas will be connected with other community facilities through a comprehensive trail and walkway system, particularly in the waterfront area.*

Strategic Master Plan for Leisure Services and Facilities (2006)

The Strategic Master Plan for Leisure Services and Facilities notes that the population of Haldimand County is represented by a high proportion of middle-aged adults as well as a large number of youth aged below 19 years. Furthermore, the aging population trend will result in the over-55 age cohort growing faster than any other age cohort and the expectation that this group will place a high priority on more passive high quality recreational activities.[4] The Strategic Master Plan identifies a number of guiding principles, many of which are directly related to, or support the concept of an integrated trail system. These guiding principles include:

Tourism *Promote the beauty of the Haldimand County to others by enhancing the abundant natural amenities, developing an infrastructure capable of providing a pleasurable tourist experience and marketing the opportunities to non-residents.*

Commitment*: Recognize the importance that recreation, leisure and culture play in the quality of life in Haldimand and strive to provide the necessary community and political support to ensure that these services are properly delivered, maintained and enhanced.*

Health and Wellness*: Provide the opportunities for a healthy lifestyle, social interaction and making Haldimand County an attractive place to live through a well managed and high quality parks, recreation and cultural system.*

Connectivity*: Identify and capitalize upon opportunities that would improve physical connectivity between communities (and along the waterfront), such as the establishment of a comprehensive trail network.*

The Strategic Master Plan for Leisure Services and Facilities makes over ninety recommendations, the following of which are specific to trails:

Recommendation 59*. An increasing emphasis on trail establishment is supported by trends and community interest, and a higher priority should be assigned to recreational trail development (particularly trails that connect residential areas to other communities and*

4. Monteith Brown Planning Consultants and the JF Group. Strategic Master Plan for Leisure Services and Facilities, June 2006

destinations such as leisure facilities and the waterfront). They will require additional funds for trail development, enhancement and maintenance.

***Recommendation 62**. In specific circumstances, public access trails can be established on lands not under the control or ownership of the County. The County should establish policies that address concerns relating to the development, long term access agreements, and maintenance of non-municipal lands.*

***Recommendation 63**. Existing and future trails should be appropriately signed, with trail entry or access points identified. Local trails should also be promoted through various means such as publications, brochures, and websites.*

***Recommendation 64.** Development applications should be reviewed by the County with trail and pathway linkages in mind.*

***Recommendation 65.** The strong desire to establish a comprehensive trail system that is connected to major destinations should be made clear in the County's Official Plan, possibly through reference in the Strategic Directions and associated policies.*

***Recommendation 67.** Develop consistent signage for County parks and install signs at each public access point and trailhead.*

1.2 THE STUDY PROCESS

The Haldimand County Trail Master Plan and Partnership Framework is a three-phase study that began in March of 2008. The study was undertaken with the assistance of a project steering committee with representation from County staff and Council. It included the following key steps:

Phase 1- Inventory and Analysis

- Assembly and review of background information pertinent to trail development in the County.
- Field collection of data relating to existing trails and potential trail routes.
- Collection and mapping of data related to potential trail destinations and significant barriers to trail development.
- Developing a vision, objectives and guiding principles for the trail system.
- Through a series of stakeholder sessions, identifying and understanding the needs of various trail users groups, agencies and neighbouring municipalities with an interest in Haldimand's trail system.
- Researching and documenting best management practices for trail design, management and partnership strategies.

Phase 2 - Trail Plan Development Concepts

- Ongoing collection of data in the field.
- Developing a draft network and hierarchy of routes.
- Developing a preliminary implementation plan which included prioritizing trail construction projects and assigning trail development costs using a phased approach.

Phase 3 - Trail Master Plan and Partnership Framework Study

- Refining the master plan trail network and implementation costs.
- Making recommendations for raising awareness of the trail system, encouraging use, promoting trails, and education opportunities related to trails in Haldimand County.
- Developing policy themes related to trail development.
- Making recommendations regarding monitoring and maintaining trails.
- Developing a partnership framework which explores options for funding, implementation and management of the trail system.
- Presenting findings and draft recommendations at a Public Open House in November 2008.
- Incorporating feedback from stakeholders, the public and the project steering committee into the master plan report.
- Presenting the master plan to Haldimand County Council.

1.3 ORGANIZATION OF THE REPORT

The Haldimand County Trails Master Plan and Partnership Framework is a living document and is designed to be flexible and capable of evolving over time. It is intended to maintain and enhance existing programs and infrastructure, while guiding the development and implementation of new trail facilities and programs. The report is organized as follows:

- **Chapter 1** provides an introduction to the study, and establishes the vision, objectives and guiding principles for the development and management of a trail system in Haldimand County.

- **Chapter 2** describes the benefits of trails from the perspective of transportation, health, the environment, tourism and the economy.

- **Chapter 3** describes and summarizes the outcome of public consultation activities undertaken during the study.

- **Chapter 4** describes the master plan trail network.

- **Chapter 5** provides guidelines for trail design.
- **Chapter 6** outlines the implementation strategy, including the build-out of the network, partnership framework, policies and potential programs for promotion of trails in the County.
- **Chapter 7** provides a summary of recommendations.

1.4 VISION, OBJECTIVES AND GUIDING PRINCIPLES

The **Vision** for trails in Haldimand County is:

"A continuous network of trails connecting people and places of interest in Haldimand County"

An important step in realizing this vision is to create a Trails Master Plan that:

- is consistent with, and provides support for other high level County planning policy documents such as the Official Plan and the Strategic Master Plan for Leisure and Recreation Services;
- is compatible with the provincial and national trails movement as articulated in documents such as the Ontario Trails Strategy, the Ontario Bike Plan and initiatives such as the Trans Canada Trail;
- assesses the current status of trails in the County and identifies opportunities for the development of trail links that will ultimately form a cohesive network to connect people with important destinations within communities, that will connect communities and connect the County with its neighbours;
- recommends appropriate trail uses/user groups;
- establishes criteria, methods and details for the design and maintenance of a system of trails that is consistent across the County, yet respects the cultural identity of the individual communities where warranted;
- develops recommendations regarding ownership, maintenance, insurance, policing, and permitted trail use(s);
- assists the County with the development of policies and practices to support the creation of trails in new communities/neighbourhoods and in trails association with new and/or rehabilitation of linear public infrastructure such as roads and utilities;

- includes an implementation plan to describe trail development priorities and costs over the short, medium and long term;
- is supported by a framework strategy that identifies the County's potential trail development and management partners, and outlines the "rules of engagement" for such partnerships.

For the Haldimand County Trails Master Plan and Partner Framework Study a trail has the following definition:

Trail: A designated route that connects one point to another. Trails have different characteristics according to their location, intended use(s) and purpose.

Though it may be preferred to have the entire trail network off-road, it is recognized that this may be difficult or impossible to achieve in some locations over the short, medium or even long term. Therefore, trails will be off-road wherever possible and on-road links will be relied upon where the potential for off-road routes does not exist.

Off-road routes include:

- Multi-use trails in urban and rural areas such as trails through parks, public open spaces, along creeks and rivers, along abandoned railway corridors, and along unopened road allowances.
- Single or restricted-use trails in urban and rural areas such as hiking only trails in woodlands and wetlands.
- Sidewalks in urban areas for pedestrians and some small-wheeled, self-propelled trail users (note that cyclists other than children would be prohibited from using sidewalks)

On-road routes include:

- On-road bicycle lanes and wide shared lanes on busier roads in urban areas.
- Paved road shoulders on higher volume roads in rural areas and on the urban fringe.
- Signed-only routes on quiet urban streets and rural roads.

1.4.1 Guiding Principles

Guiding principles help to define the character of the trail system. The following guiding principles were used to identify trail corridors and missing links that together with existing trails form the trail network. These principles were important for defining the network during the study and are also useful in the future if/when network changes are proposed, new opportunities are identified and when individual trails are entering into the detailed planning and design stage (i.e. where the layout and details of individual trail segments are being designed and constructed). The principles have been grouped around the nine themes described below.

Trails and the trail network should be:

1. **Appealing** - to a variety of trail users, abilities and interests. The trail network should consist of a variety of trail types and trail experiences.
2. **Accessible -** from strategic locations throughout the Municipality. Trails should generally be available to all users and levels of ability. However it is recognized that not all trails will be accessible by all users in all places.
    a. A hierarchy of trail types will be employed to define appropriate uses and cater to different levels of physical ability depending on location.
    b. Generally trails should be multi-use. Where appropriate, special use/single/restricted-use trails may be recommended.
    c. Where appropriate, supportive amenities and facilities such as trailheads with parking, washrooms, benches and bicycle parking, access control (gates/barriers) etc., should be available along trails and at destinations.
3. **Appropriately Located:**
    a. Trail routes will focus wherever possible on off-road routes. On-road routes will be utilized to provide links between off-road routes where other alternatives do not exist. Where on-road routes are required, low volume rural, scenic and/or heritage routes will be selected where possible and practical.
    b. Trails will be located on lands in the public domain. Private lands will only be considered where a mutually acceptable agreement can be reached between the Municipality and the land owner.
    c. Linear corridors such as unopened road allowances, closed roads, transportation corridors, abandoned railway corridors and utility corridors on public lands/with public easements will be sought as important “spines” for the trail system.
4. **Destination Oriented –** linking important destinations such as natural and cultural heritage features, tourist attractions, service facilities, schools, community and neighbourhood parks, commercial areas, conservation areas, provincial parks, municipal waterfronts.
    a. Trail routes should serve the needs of Halidmand’s residents. Route density should generally respond to population density. Therefore it is anticipated that route density will be highest in urban areas.
    b. In addition to serving the needs of Haldimand’s residents, trails should also be considered a valuable tourism asset and catalyst for economic development. Trails should be promoted and publicized, therefore trail routing and marketing should:
        i. include access to popular tourist destinations, and
        ii. be included with strategies/initiatives to promote Haldimand County as a great place to “live, work, play and visit”. This may include a range of media types.

5. **Unimpeded –** and provide connections across major physical barriers such as the Grand River, railways, existing and planned arterial roads and highways.
6. **Expandable -**
    a. Trail routing will consider future opportunities within the municipality, and planning for trails will be an integral part of the land use planning process.
    b. Trail routes will make logical connections to surrounding municipalities, regional, provincial, and national trails.
7. **Environmentally Sustainable:** The trail network should maximize opportunities to provide access to natural features that persist within the municipality and that constitute Haldimand's natural heritage legacy. Natural features include plant and animal life, wetlands, woodlands, valley lands, surface water features and groundwater features. The provision of and location of trails routes should be based on the objective to create a balance between the need to provide recreation opportunities and conserve/ preserve natural heritage. In some locations conservation and /or preservation may take precedence over recreation, thus trails may be limited in some areas and they may be accessible only for research and monitoring.
8. **Properly Designed-** trail routes and designs should minimize users' exposure to potentially hazardous situations. Safety will not be compromised in the interest of minimizing cost.
    a. Current and widely accepted guidelines will be used as the basis for design.
    b. Trails should be routed and designed to minimize or reduce the need for extensive maintenance over and above what is considered normal.
    c. Materials that are sustainable and/or renewable, and sympathetic to the location should be considered wherever practical and possible.
    d. Layout, details and materials may be used strategically to encourage appropriate uses.
9. **Well-managed*:***
    a. Trails will be constructed and maintained to acceptable standards. Facilities will be monitored in an appropriate manner and initial capital costs will not be considered in isolation of long-term maintenance costs.
    b. Signing and other wayfinding elements will be developed as an integral part of the trail system. Wayfinding elements should be designed to be easily recognizable, concise, provide clear directions, inform users about permitted and non-permitted uses and identify locations where access is permitted and/or restricted.

2.0 How do Trails Benefit the Community?

Across Ontario, trail use is recognized as one of the top three recreational pursuits, having a 20% participation rate and estimated annual growth rate of 2.3% (Ministry of Citizenship, Culture and Recreation, in Marshall Macklin Monaghan, 2001). The demand for trail facilities across Ontario is very high. Trail clubs, conservation authorities, municipal and regional governments are all developing networks to encourage walking and trail use for recreation and transportation. At the provincial level, the Ontario Trails Council is working towards the development of the Trillium Trails Network that will serve to promote the integration of community and City trail systems into a province-wide system. Also at the provincial level, the Ministry of Health Promotion has embraced trail use as a convenient, affordable and health-enhancing physical activity. The Ontario Trails Strategy, a program funded through the ministry's Active2010 initiative, is a long term plan which establishes strategic directions for planning, managing, promoting and using trails. At the national level, progress is being made on the Trans Canada Trail, which is a cross-country route of local trails linked with a common theme. When complete, it will be the longest trail in the world, measuring 13,000km from coast to coast. The Trans Canada Trail has received the support of individuals, corporations, charities, trail organizations, agencies, municipal, provincial and federal governments.

It is widely known that significant changes are occurring in recreation as a result of the changing demography of our population. A large proportion of our population is aging and looking for different types of recreational opportunities than were popular in the past. Current Canadian research indicates that people are taking shorter but more frequent vacations closer to home. Walking, cycling, and jogging are among the top ten most popular recreational activities of Canadians, and all trail activities are experiencing substantial annual growth in participation rates. Health professionals are placing a renewed focus on the pursuit of trail activities and seniors groups are forming to participate in a range of trail activities for their social and fitness benefits.

This section describes some of the many benefits that an integrated, well-designed trail system can have on community health, the local economy, the environment and transportation system.

2.1 A ROLE FOR TRAILS IN ACTIVE AND HEALTHY LIVING

In 2001, approximately $2.8 billion was spent on health care due to physical inactivity in Canada, which could be reduced by $280 million if physical activity was increased by 10%.[(5)] Sedentary lifestyles have serious consequences for public health, the most visible of which is the sharp rise in obesity across Canada in recent years. Almost half of Canadians, ages 12 and

5. The Business Case for Active Transportation, The Economic Benefits of Walking and Cycling; Section 4.7.2; Go for Green, March 2004.

over, report being physically inactive and 26% of youth between the age of 2 and 17 years old are overweight or obese (Statistics Canada 2005). About two thirds of Canadians are inactive, resulting in approximately $2.1 billion of direct health care costs in Canada (Canadian Medical Association Journal, Nov. 2000).

Maintaining physical activity in rural areas can be challenging. Although people living in rural areas are generally considered to have a higher quality of life than urban dwellers, rural residents have an increased risk of dying from circulatory and respiratory disease, as well as diabetes (Haldimand-Norfolk Health Unit, 2007). Rural Canadians are also more likely to be overweight or obese. Residents of Haldimand and Norfolk Counties identified the following barriers to activity:

- Sedentary lifestyle
- Country roads unsafe for walking
- Inability to walk to stores, schools, workplaces.

Increased physical activity is known to reduce the risk of coronary heart disease, cancer, and bone loss from osteoporosis, decrease the cost of medical care, decrease workplace absenteeism, and maintain the independence of older adults (Canadian Medical Association Journal, Nov. 2000). The Ontario Ministry of Health Promotion states that only 30 minutes of brisk walking a day are required in order to stay healthy and the most effective fitness routines are moderate in intensity, individualized and incorporated into our daily activities. Providing better access to trails by increasing the number and their distribution in the urban centres of Haldimand County, and establishing direct rural trail connections between communities, may help to encourage higher levels of activity. Furthermore, a more connected network that is easy to follow may help to encourage more local commuting on trails, allowing users to get some of their regular exercise traveling to and from work, or taking children to school and back.

In addition to physical health benefits, there are other good reasons to use trails. Recreational trail use can enhance one's mental outlook and well being, improving self-image, social relationships and increasing self-reliance by increasing a sense of independence and freedom. Trail projects can help to foster partnerships among individuals, government, local business and interest groups. Trails are meeting places, and provide for informal interaction between people from a variety of backgrounds.

There is currently a shift in our public health care system away from protecting people from hazards in the environment to developing healthy environments in which people live. Round table discussions conducted during the development of Active 2010, Ontario's Sport and Physical Activity Strategy highlighted a lack of bike paths and sidewalks in many communities, as well as the car-centric urban planning and land use policies that have shaped the development of new neighbourhoods in Ontario (Ministry of Health Promotion, 2005). Urban sprawl has been directly linked to obesity and physical activity in numerous studies (Williams et al., 2007), prompting health promoters to become more actively involved in the planning and design of Ontario's neighbourhoods. The ability to walk or cycle safely in neighborhoods is integral to being physically active, maintaining a healthy body weight, and increasing social

interaction (Heart and Stroke Foundation of Canada, 2006). The Canadian Medical Association recently adopted a resolution to urge all levels of government to promote active transportation by incorporating active transportation principles in community planning and infrastructure renewal (CMA, 2008).

The following are some other interesting statistics relating health and community design:

- Exercise and health is seen by Canadians as the number one benefit to walking and cycling. Practicality and convenience, and pleasure are also frequently cited benefits (Go for Green National Active Transportation Survey, 2005).
- A 5% increase in the walkability of a residential neighbourhood was associated with 32 more minutes of physically active travel per day and a 0.23% reduction in Body Mass Index (BMI). (Frank, 2006a).
- Individuals who have access to trails increase their recreational activity on average by 44% (Irish Trail Strategy, 2006).
- A study by the Nova Scotia Heart and Stroke Foundation in 2004 concluded that 40% of chronic illness could be prevented by regular physical activity and suggested that urban planning could offer opportunities for increased physical activity by creating walking and cycling alternatives, such as trails, to motorized transportation.

In 2002 the Wellington-Dufferin Health Unit conducted the "The Heart Health Knowledge Attitude and Beliefs Survey" which provided a comparison of attitudes related to heart health between 1998 and 2002. Some of the findings point to the potential health benefit that trails can provide.

Specifically;

- When asked about awareness of strategies to reduce blood pressure, there was an 11% increase between 1998 and 2002 in the number of respondents who indicated that regular exercise is a good strategy to reduce blood pressure. Regular exercise was also the number one response, therefore people are aware of its benefits.
- Lack of time due to work or other activities was noted as the number one barrier for respondents to increase their personal levels of exercise. There was an 11% increase between 1998 and 2002 in respondents noting that time was a barrier to increasing their level of physical activity. Therefore, it could be assumed that providing better access to trails by increasing the number of kilometres of local trails may help to encourage higher levels of activity.

2.2 TRAILS, TOURISM AND ECONOMIC DEVELOPMENT

Trails across North America have created numerous economic benefits and opportunities for the communities that they pass through. Communities benefit from trail development through increases in business activity, and by providing services to an increasing number of trail users. Trails provide benefits to the local economy first during construction through the design, supply and installation of materials, and then 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 6 months per year.

- 70% of all Bruce Trail users report that the trail is their main reason for visiting the area, and they spend an average of $20.00 per visit, per user, within a 10km corridor on either side of the trail.

- Annual expenditures linked to Quebec's trail system known as La Route Verte rose to $95.4 million in 2000, representing 2,000 jobs and $15.1 million in provincial and $11.9 million in federal tax revenues.

- In 2002, Quebec hosted 190,000 bicycle tourists who spent an average of $112 per day and an average of 6.5 nights compared to $52 per day and an average of 3.1 nights spent by other tourists.

- 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 bicycle retail and tourist industry contributes to 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.

- An economic impact study completed for the Eastern Ontario Trails Alliance estimated that after the ten year build-out period of the 520km system, approximately 1600 jobs will be created or sustained, and $45 million in annual economic and tourism benefits will be generated in the communities through which it passes (EOTA, 2006).

- Economic Development Departments have recognized the value of trail systems integrated into commercial and industrial developments. For example, the Hanlon West Business Park in Guelph, Ontario proposes to have a trail system surrounding a central natural heritage feature. This feature is being used to attract new industry to Guelph whose employees will benefit by being able to travel to and from work, and take exercise breaks using local trails.

- In Surrey British Columbia 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. [(6)]

A 2004 comprehensive study investigated the economic benefits of developing trail systems as part of a study to project the economic benefits of developing the Trans Canada Trail. Some of the information collected regarding economic benefits to other jurisdictions include the following:

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

- A study of the "T" Railway in Newfoundland (2002) found that the total annual economic impacts associated with this trail are estimated to be as high as $17.4 million in new income generated, upwards of 850 new jobs and millions of dollars in additional taxation revenue for both the provincial and federal governments.

- A survey of users of the Georgian Trail in Collingwood, Ontario estimated that the direct expenditure associated with the trail users was $5.2 million in 1999.

- The Economic Impact Study for the Allegheny Trail Alliance (1999) found that trail business accounts for more than 10% of annual receipts for a third of business respondents in the region, and that approximately half of all businesses in the area have plans to expand their business as a result.

Tourism related to trails and trail use is burgeoning locally as well. The Bike Train is an initiative that promotes cycle tourism in Ontario and encourages low impact tourism and healthy lifestyles. This innovative sustainable transportation initiative introduced bike racks onboard select VIA Rail departures between Toronto and Niagara Falls in 2007, and was expanded with great success in 2008. In 2009 the Bike Train is further expanding its routes. [7]

Haldimand County's eastern neighbour, the Region of Niagara recognizes the potential value that tourism, and specifically trail tourism can add to the local economies in their area. For the last decade the Region has been pursuing its Master Plan to build trails in partnership with the provincial and federal government, the Niagara Parks Commission, the Municipalities of Niagara-on-the-Lake, St. Catharines, Thorold, Welland, Port Colborne, and Fort Erie. When linked together, the trails form the Greater Niagara Circle Route, a large trail loop approximately 150km in length that follows the Welland Canal, Lake Erie shoreline between Port Colborne and Fort Erie, the Niagara River and the Lake Ontario shoreline between Niagara-on-the-Lake and Port Weller. Construction of the complete parkway and trail system will result in new construction of approximately $50M and could welcome as many as 2.6 million visitors per year who are estimated to add as much as $218M annually to local economies.[8] Niagara's tourism, hospitality, gaming and wine industries are already reaping the benefits resulting from extended visitor stays related to trail based activities, even though the basic trail route has not quite been fully completed yet.

Recently the Regional Municipality of Niagara has partnered with the Regional Niagara Bicycling Committee to release the 2nd edition of their Regional Bicycling Map. This interactive map (http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx) has details of multi-use trails, bike paths and information on all the back roads in the region for the benefit of recreational, tourist and utilitarian cyclists The interactive bicycle map has a web link to the Tourism Niagara website. In addition, the Regional Municipality of Niagara's Bicycle Master Plan identifies a number of links to Haldimand County along the common municipal boundary, adding significantly to the potential for cycling and trail tourism in Haldimand County.

7. http://biketrain.ca/

8. http://www.regional.niagara.on.ca/government/initiatives/gncr/benefits.aspx

2.3 ENVIRONMENTAL AND TRANSPORTATION BENEFITS

Walking, cycling and other non-motorized trail uses are energy-efficient, non-polluting modes of travel, whereas motorized transportation is one of the largest contributors of harmful emissions. The transportation benefits of walking and cycling include reduced road congestion and maintenance costs, less costly infrastructure, increased road safety and decreased user costs. For distances up to 10km in dense, congested urban areas, cycling is often the fastest of all modes of travel.

In Canada, the number of automobiles continues to increase steadily and people are driving greater distances more often. The average car travels 16,000 km/year or about 300 km/week. Limiting the number of kilometres driven by choosing another mode of transportation is by far the best way to reduce air pollution (*Public Health Agency of Canada*). Furthermore, Canadians view environmental quality as an important factor influencing their personal health and the transportation sector is a major source of air pollution in Canada. Transport Canada (2006) identified that urban passenger travel created almost half of the greenhouse gas emission of Canada's transportation sector, which in turn accounts for almost one quarter of Canada's total. Providing infrastructure that supports alternative modes of transportation, such as an integrated trail network for walking and cycling, can reduce vehicle traffic volumes and emissions.

According to the Harvard University School of Public Health, air pollution contributes to the deaths of 60,000 people annually across the United States, and in urban areas with poor air quality, asthma is becoming a more significant health concern. Reducing short distance trips by automobile has the greatest potential for reducing air pollution and energy consumption as evidenced by the following statistics:

- The Worldwatch Institute states that a six kilometre round trip by bicycle keeps about 15 pounds of pollutants out of the air.
- If half the workers in Canada who lived within walking distance of work left their cars at home, their efforts would save 22 million litres of gasoline a year.
- If 5 million Canadians walked or cycled instead of using their automobiles for short trips (averaging 3 kilometres per week), polluting car emissions would be reduced by 30 metric tonnes over a six-month period. (Go for Green, 1994).
- Canadians make an average of 2,000 car trips per year over distances less than 3 km. Surveys show that 66% of Canadians would like to cycle more than they presently do. Seven in ten Canadians say they would cycle to work if there "were a dedicated lane which would take them to their workplace in less than 30 minutes at a comfortable pace".[9]

9. Ontario Trails Strategy, Ministry of Health Promotion, 2005, Province of Ontario.

- When compared to roads, trails are less expensive to construct and maintain, making them an attractive and cost effective component of a balanced transportation system.

- The ecological footprint is a measure of human demands on natural resources such as land, water and air, and is reduced when people choose to travel by walking and cycling. "The greatest contributing factor to a large ecological footprint is carbon intensive fuel supplies for transportation, electricity and heating" (Ontario College of Family Physicians, 2005, p. 20). Cycling and walking have negligible effects on the size of the ecological footprint.

- The average greenhouse gas intensity for light duty vehicles was 295 grams CO_2 per km in 2005. Promoting trail use, especially walking and cycling, can result in significant greenhouse gas emission reductions, approximately 1KT of CO_2 for each 3,500 km of trail use, and compact communities with mixed land use serviced by trails will increase active transportation choices, decrease the need to drive to daily destinations and will decrease the vehicle emissions that contribute to air pollution (CMHC, 2006).

- On-road routes, as a means of connecting off-road trails, can reduce road congestion and maintenance costs. These connections also allow for an increase in trails use for recreational as well as utilitarian purposes.

- On-road paved shoulders in rural areas routes may contribute to increased safety for pedestrians and cyclists, and have also been shown to reduce the number of run-off-the road single vehicle accidents. In addition, paved shoulders can increase a road's lifespan by encouraging vehicles to travel further away from the asphalt edge.

- As demonstrated by studies in Davis, California and Boulder Colorado, there is strong evidence to suggest that if provided with complete networks of high-quality cycling routes, a significant number of people will cycle. With 20% of trips by bicycle, these communities have the highest levels of bicycle usage in North America. This high level of cycling is facilitated by mature networks which include bike lanes on almost all arterial roads and extensive off-road commuter bicycle trails. Residents can simply get on their bicycles with confidence knowing there will always be a safe route to their destination (British Columbia Cycling Coalition Budget Submission, 2007).

- It has been estimated that due to rising gasoline prices, more than 10 million cars – mostly belonging to low income families – will disappear from families in the US in the next five years, and a similar trend is expected in Canada (CIBC World Markets, 2008). Providing safe options for bicycle and pedestrian travel is going to become increasingly important.

3.0 Learning From Haldimand County's Citizens

3.1 INTRODUCTION

A Project Steering Committee provided guidance to the consulting team throughout the study. Meetings were used as a venue to present findings, solicit input and conduct working sessions related to specific aspects of the plan at critical points in the process. The Steering Committee included representation from Haldimand County Council and Staff from Leisure Services Division, Planning and Development, Engineering and Infrastructure Division.

A second and equally important aspect in developing the Haldimand County Trails Master Plan and Partnership Framework was to obtain input from stakeholders and the public. Throughout the course of the study, many suggestions were received regarding the network, maintenance and monitoring, the promotion and encouragement of trails. Where possible and appropriate, suggestions were integrated into the Plan. It became evident in speaking with those who attended public open houses and representatives of various organizations who attended Key Informant interviews that there is considerable interest in the development of a comprehensive trails network in Haldimand County, although there were a number of questions related to the costs, roles and responsibilities pertaining to trail construction and management. Several organizations indicated a strong willingness to assist with various aspects of trail development, such as construction, promotion and maintenance.

3.2 KEY INFORMANT INTERVIEWS

Key informant interviews were used to gather information from representatives of a number of agencies and organizations within and around Haldimand County who had expressed an interest in the development of trails in the County prior to the study being undertaken. A total of 26 individuals were consulted over a 2-1/2 day period. They were organized into 10 groups/sessions of like interest, and represented 20 different organizations/agencies. Sessions were 1.5 – 2 hours in length. Included in the groups were:

- Surrounding municipalities, Six Nations and Conservation Authorities
- The Haldimand-Norfolk Health Unit and CYPRES Active Living
- Local interest groups such as the Grand Valley Trail Association, the Caledonia Cycling Club and the Haldimand Area ATV Club, the Marshall Woodlot, and the Haldimand Agricultural Federation
- Local Service Clubs
- The Haldimand Business Network (via a presentation given at one of their regularly scheduled meetings, which included members of the County's Economic Development and Tourism Division, as well as representatives from some of the County's Business Improvement Associations and Chambers of Commerce)
- Ruthven Park (via phone interview) and the Trans Canada Trail Foundation

Mapping and background information was provided, and participants in these sessions were asked to provide information about the group(s) they represented, their interest in trails, issues, concerns and opportunities related to trails and how their organization might be involved or contribute to the development of trails in Haldimand County. The following are some of the highlights from these sessions grouped around several common themes:

A. Existing Network Resources and Potential Opportunities

- Regional trail connections should be promoted and developed. These will benefit residents, commuters and tourists. Examples include the Lynn Valley Trail from Simcoe to Port Dover and the Simcoe to Waterford trail that will eventually link to Delhi.
- The City of Hamilton would like to see the connection completed into Caledonia and further to Dunnville. Hamilton is about 20km from Caledonia and there is great potential to attract a lot of cyclists on day trips if routes were connected.
- With networks built or in development in municipalities surrounding the County, Haldimand is a missing link.
- There is significant latent cycling activity in Haldimand County, for example there are often large groups of cyclists seen in the southern part of the county.
- Ruthven National Historic Site has over 1500 acres of land with some trails on them including trails on the east side of Rd #54. The Grand Valley Trail links through Ruthven and they support working with other groups to link across their land, and currently have a public washroom on their site that trail users have access to.
- Trail routes should avoid Highway #3.
- Haldimand Road 17 is a scenic road along the north side of the Grand River provides good views to the river. River Road along the south side is also very scenic too, prompting the question. "Should the abandoned rail line between Caledonia and Dunnville be developed as a trail when the river corridor offers such a great. opportunity?" and "Should the Grand River be considered as a water trail?"
- In Six Nations territory there is some interest in trails and a process would have to be created to educate the community about trails.
- Lakeshore Road along the Lake Erie shoreline is a great road for cycling, but there are very few amenities for cyclists, in fact a lakefront trail (along Lakeshore Road/Bluewater Parkway) from Nanticoke to Port Colborne has significant potential as a route.
- A safe route is needed so that children can get to the McLung Road soccer fields northeast of Caledonia.
- Phase 4 of the Rotary Caledonia Riverside Trail stops about just short of County Road #9, as the area is constrained by the river's edge close to the road, steep slopes and guiderails. Though the desire of Rotary Caledonia is to complete the trail to the intersection with County Road #9, assistance from the County is needed to develop this last segment.
- The 275km long Grand Valley Trail passes through Haldimand, 75% of the trail is on-road shoulder. The trail route passes by many cultural assets that are worthy of interpretation.

- The Taquanyah Nature Reserve and Ontario Parks such as Rock Point Provincial Park are excellent destinations for trail users.

Trail Planning and Design

- Stone ballast on some of the existing abandoned railway lines is too large in size to ride on, and a finer trail surface material is required.
- Benches, washrooms and shade are needed along the trails. More attention needs to be paid to this in areas where there are a high proportion of seniors nearby.
- Parking lots and trail heads are needed at key trail access points and litter containers need to be included at trail entry points.
- In urban areas the pedestrian trails need to be coordinated with sidewalks in addition to trails in public green space.
- Policies should be developed to require the implementation of proper cycling and trail facilities with new development such as mandatory bike lanes.
- A higher density of trails should be closest to, and within urban areas where there area more users.

Promotion, Partnerships and Management of Trails

- The Haldimand-Norfolk Health Unit understands the benefit of cooperatively promoting trails with the County and would like to continue to develop this initiative (i.e. walking routes/ maps in Community Leisure Guide).
- There is significant value in educating children at a young age about trails so they will grow to respect their value and the value of the environment through which trails pass
- The Economic Development Department could be a potential champion for trails as trails can be added to messages about quality of life in Haldimand County, attracting new residents and new businesses.
- Young children like to walk and cycle. With the current trend towards physical inactivity and obesity, there is a need for people to use trails.
- The local Cycling Club would be willing to participate on a Trails Committee and participate in trail related events.
- The Trans Canada Trail Foundation is focusing on supporting Regional Trail Associations and providing them with knowledge and capacity to take the lead locally. The Foundation now offers seed funding of up to 20% of the overall cost of projects, and the definition for eligibility has recently been broadened. Regional trails committees have proven to be the most successful in rural areas.
- ATV's bring dollars into the community. The Haldimand Area ATV Club (HAAC) is part of Ontario Federation of ATV Clubs and has a growing membership. Membership is required for use of HAAC trails. Unauthorized is acknowledged an ongoing challenge and part of HAAC's mission is to help educate others and curb unauthorized/inappropriate use, through 35 trail wardens to monitor trails. HAAC is also examining methods of working more closely with the Ontario Provincial Police regarding patrols and enforcement. All HAAC trails are currently on private land through

agreements with landowners, and they have their own club insurance which protects members and adjacent private land owners. According to HAAC there is the public perception that ATV and non-motorized trails should be separate, but HAAC feels that they could co-habitate on rail trails and bridge crossings where there is often enough trail width and trail base. HAAC would be interested in becoming part of a regional trails association.

- Trails are the type of project where all service clubs could potentially join together. Financial support from service clubs is unlikely, however donations of time and materials are a possibility.
- The Caledonia Rotary Club noted that during the early part of the development of the Rotary Riverside Trail, there was a lot of opposition but many of the concerns that were raised during the planning and development of the trail have not materialized, and trail impact is "almost non-existent". The general sense is that the more the trail is used the less is the occurrence of undesirable behaviour. Litter along the trail does however continue to be a problem, especially at popular fishing holes where bait containers etc., are often left behind. More garbage containers and more frequent service would be helpful.
- The Federation of Agriculture's primary concerns are with trespass and vandalism on private lands, liability and responsibility for care. They are generally supportive of trails, but good policing will be the key to a successful venture. More people using trails, and trails in visible locations are suggested as ways to reduce vandalism. Trail route should be located in visible places (i.e. along roads) rather than in remote areas (i.e. along abandoned rail lines).

3.3 PUBLIC OPEN HOUSES

Three Public Open Houses were held during the development of the master plan. Open Houses in Dunnville on June 23, 2008 and Caledonia on June 24, 2008 were part of the first phase of the project. This was followed by one in Cayuga on November 25, 2008 as part of the second phase of the project. Issues and opportunities raised generally fit into the following themes (listed in descending order for the number of responses):

- Trail design and routing
- Partnerships and potential partners
- Permitted uses
- Trail lands ownership
- Concerns of, and about, landowners adjacent to trails
- Trail management
- Praise for undertaking the Trails Master Plan
- Promotion of trail system
- Implementation of the Plan and Priorities
- User fees and taxpayer dollars
- Insurance and risk management

- Sponsorships.

Those in attendance at the meetings suggested a number of potential partners for Haldimand County to consider in the development, maintenance, funding, and management of its trail system; though the potential involvement of each of these groups was not sought or confirmed as part of the development of this Master Plan:

- Senior levels of government
- Service Clubs (Kinsmen, Rotary Club, Lions)
- Grand River Conservation Authority
- Niagara Peninsula Conservation Authority
- Six Nations and adjacent municipalities
- Ontario Power Generation
- Esso Nanticoke, U.S. Steel Canada
- School Boards
- Girl Guides, Boy Scouts
- Rowing Clubs, Cycling Clubs, Saddle
- Clubs, ATV Clubs, Snowmobile Clubs
- Grand Valley Trails Association
- Caledonia On The Move
- Ruthven Historical Park
- Stewardship Council, Habitat
- Haldimand, Ducks Unlimited,
- Haldimand & Area Woodlot
- Association, Lower Grand River Trust

The following sections provide highlights of the comments received during each of the Public Open Houses.

3.3.1 Dunnville Memorial Arena and Community Centre

(Study Phase 1: June 23, 2008, 7-9pm), attended by 11 individuals

A. Trail Uses, Design and Network Routing

- There are many low volume rural roads that should be considered, they are accessible and much of the infrastructure already exists.
- If the plan contemplates using abandoned railway lines:
    - we need to know who owns the land
    - we need to allow access for farmers, some need to have direct crossings of the line, some currently use the lines to get to fields (i.e. coming in off the nearest public road then running along the line to get to their fields)
    - should be some consideration of compensation for farmers for the inconvenience (i.e. money, tax relief, fencing, culvert installation)

  - there will be a significant clean-up cost if using the abandoned railway lines, some areas are worse than others, but generally wherever there is easy access from a public road tires and other debris has been dumped
  - Gates along the line that provide farmers only with access to the lands on either side would be an aggravation/inconvenience to them.
- Among attendees there was general agreement on the principle that route density should respond to population density.
- Would a trail along the abandoned railway line be interesting enough to attract users? Maybe a trail should be located along the Grand River, it is more scenic.
- Most of the land along the Grand River is private.
- River Road (south/west side of Grand) is more visually removed from the river, whereas highway 54 is closer, with views to the river, but busier.
- Grand River corridor is the best route, there will likely be more users and more volunteers to take care of it (i.e. volunteers from the southern areas of the County are more likely to participate if the trail is along the Grand River corridor than if a trail is along the abandoned railway corridor north of the river).
- Ducks Unlimited is interested in developing trails along the Creek Restoration Project lands on Robinson Road.
- Horses should be permitted along trails – Haldimand is a rural community
- Don't make trails more accessible to ATV's.

B. Partnerships and Funding, Promotion

- Partnerships - are senior levels of government involved/a possibility?
- Community Volunteers will be essential to trail maintenance.
- Funding of trail development is critical, perhaps a user pay system should be implemented.

C. Trail Management

- What service clubs would maintain the trail in the rural areas?
- Trails should be posted/marked as "Use at your own risk".
- Trails on private land could work (i.e. Bruce Trail model), provided that landowner privacy could be respected, there are commitments to maintenance, and that there is an absolution of liability.
- Why wasn't CN expropriated land turned back to the original landowners. If this were done, then perhaps a lease-back or other arrangement could be made for trail access. This is similar to the Ontario Federation of Snowmobile Clubs (OFSC) model which has been very successful.
- There is not a lot of large industry in Haldimand County, therefore there may be few large industry sponsorships available.

D. General/Other

- The County has made efforts in the past to establish a trail system but it was unsuccessful due to a lack of partnerships.
- Is the County large enough for a formal trail network?

- It was noted that there are several farms with livestock along the abandoned railway line between Dunnville and Caledonia.
- What community groups have been consulted? Dry Lake Saddle Club should be added to the list.
- How far would the average person be expected to walk along an urban or rural trail? Rural trail use may be low. How many people use rail trails (i.e. Trans Canada Trail) in lower population density areas such as rural Saskatchewan. Trails should be more concentrated in the urban areas.
- Unsure if developing a trail system in Haldimand County is a good idea, would have concerns about motorized vehicles passing through private property and would prefer to have ATV and motorbikes not allowed, may provide access to farm equipment.

3.3.2 Haldimand County Caledonia Centre

(Study Phase 1: June 24, 2008, 7-9pm), attended by 24 individuals

A. Trail Uses, Design and Network Routing

- What is the definition of a "multi-use trail"? Are there multiple tiers (hierarchy)?
- Would like to see links to Hamilton and loops for cycling.
- In what way(s) are motorized vehicles involved in the Plan?
- Has the County contemplated where future trails routes would be? Is a trail along the Grand to Dunnville an option?
- Grand Valley Trails Association (GVTA) uses private lands for their footpath – the problem is that when lands are sold, they have to negotiate a new agreement with the new landowner. Placing trails on public lands should be the long-term goal.
- Trails in urban and rural areas should receive different treatments (e.g., surfaces) – will need to be more flexible in rural areas.
- Signage and promotion needs to be consistent; people often ask homeowners adjacent to trail, "Where am I?" Need better signage at cross-streets; mapping might also be helpful.
- Washrooms should be provided every so often along the trail routes
- Trails should link to Ruthven Park this is an established facility that could possibly help with trail promotion. (GVTA has a new agreement with Ruthven park to link into their internal trail system).
- Linking to the Hamilton rail trail is very important – this would be a huge economic impact.
- The rail line at the north end of Caledonia is not an active line – only a small portion of this is used (maybe 100m) for shunting at the nearby plant, could it be used for a trail?
- Should also try to link to the Caledonia Soccer Park off McClung Road.
- Is there a trail link from the bridge in Caledonia to the Rotary Trail? (the GVTA tow path runs along private lands in this area).
- Should try to link into Rock Point Provincial Park.
- There is no safe place to launch a canoe in Caledonia (have to go to York).

- Establishing a water route makes good sense; maybe people would bike one way and canoe the other (water/land loop).
- Most municipalities use motorized vehicles to maintain their trails – this needs to be considered in design.
- Grand Valley Trail should be considered for the network.
- Kilometre markers and fitness stations should be considered – would make the trails more "multi-use".
- Rail lines have an excellent stable base – would be generally low cost to develop them as trails
- Link to Norfolk via a low volume concession road to the Waterford Heritage Trail (Waterford, Simcoe and Port Dover).
- Trails should highlight points of interest in each major centre.
- Flooding can be a barrier to trail development if the trails are located too close to the river.

B. Partnerships and Funding, Promotion

- A good website is essential – eye-catching, but not too much information.
- Caledonia on the Move is willing to participate/assist in some capacity.
- Would the school board be interested in partnering for education and physical activity purposes?
- There is a rowing club trying to get started in Cayuga – maybe they could be a resource if a water trail is pursued?
- Perhaps you could approach Cayuga Speedway and Mosport for sponsorships?
- Was Six Nations contacted?
- A lot of people are moving out of urban Hamilton into the country – there is a growing market for rural trails.
- What about "adopt a trail" or "in memoriam" programs?
- Trails attract businesses to an area, bring value to the community.
- The Haldimand and Area ATV Club (HAAC) is open to working with the County – they want to link to private trails and this will require crossing abandoned rail lines in some areas.

C. Trail Management

- Who would be responsible for trail liability insurance? Would the rates be reasonable?
- People should use trails "at their own risk".
- Also need to consider how people are made aware of the trails in the first place, how the trails are promoted. For example exposure through special events on or along trails is helpful for creating awareness.
- Caledonia on the Move had previously requested trail signage from the County, but this was not carried through.
- Get the sense from the County that they will help groups get started with trail projects but that they don't want the long-term maintenance burden.
- The Rotary club worked hard to build the trail, but is concerned about their ability to maintain it into the future. Playgrounds are often built by service clubs but then they are

turned over to the County – this should be the same expectation for trails. The trails could then also come under the county's insurance policy.
- Need a central organizing body (with funding) to maintain trails; equipment is expensive and manpower is extensive – one large group would do better than several small ones.
- Expect that the County would be responsible for the items that other municipalities are responsible for.
- Would there ever be user fees for trails?

D. General/Other
- Thrilled that the County is preparing a Trails Master Plan.
- Excited to see that the County is being proactive with regard to trail planning.
- Trails don't need to be high-end "Taj Mahals".
- Did CN give the abandoned rail line to the County?

3.3.3 Cayuga Memorial Arena

(Study Phase 2: November 25th 2008, 7-9pm), attended by 47 individuals

A. Trail Uses, Design and Network Routing
- Hiking/equestrian should be allowed, trail should be non-motorized.
- Rail line from York to Caledonia, Rail Line from Canfield to Dunnville (both are part of the same line).
- Remove abandoned railway lines from network, old railway lines run through the middle of farmers' fields and ATV and pickup trucks are driving over crops, around homes and barns as they think the railway is public property.
- Too much on-road, too much on side of road, not much attention or expansion of off road non-motorized use.
- River Road from Caledonia to York and McKenzie Road are noted as designated bike routes. These routes need paved shoulders.
- Would like to see Caledonia's Rotary Riverfront Trail continued to Cayuga if possible.
- What about rest areas/washrooms? Need to have comfortable places for long distance trail users to stop and rest. The Master Plan will not specify the exact location for washrooms and rest areas but through design guidelines information will be provided to the County regarding the types of locations where these should be provided and the design elements that make up a typical rest area for example. Facilities may be basic to start (i.e. portable toilets), and can be upgraded if they become well used.
- Signage that celebrates the pioneer history is needed here.

B. Partnerships and Funding, Promotion
- Pursue funding from Province and Federal Government.
- Engage support from local groups such as Caledonia on The Move, biking groups, hiking groups.
- Seek sponsors (clubs, schools etc.) to fund sections of the trail.

- The Grand Valley Trail Association is an organized group, and established the Grand Valley Trail, we need to take advantage of this opportunity. Grand Valley Trails Association has been working at trails since 1986, it can be difficult to do without a plan.
- Rotary Trail is on the Grand Valley Trail route through cooperative efforts of stakeholders, the public and Council, it was a challenging process but everyone learned a lot and the trail is well used and has been widely accepted.
- Caledonia Cycling group has approximately 40 members and take part in regular group rides, they strongly support a Trails Master Plan.
- Need partnering between planning and recreation departments.

C. Trail Management

- When will a Trails Advisory Committee start? TAC could be an Advisory Committee or Committee of Council, setup of a TAC may be a high priority recommendation in the Master Plan.
- Where will the responsibilities for trail maintenance lie? It will require long term effort from multiple partners. Other communities have relied on shared effort such as volunteer cleanup days.
- Liability to the County could be high if abandoned railway lines are included (i.e. Is there hazardous waste along abandoned railway line, all crossings in fields must be maintained, fencing to protect property must be maintained, all drainage along track must be maintained for fields).
- Protection is a concern. ATVs and trucks are driving over crops damaging machinery and driving up to our home and barns. Abandoned railway lines through the middle of fields is too isolated and a safety issue.

D. Implementation of the Plan and Priorities

(i). General

- Will the plan be staged? How long will it take? How will the network be constructed?
- Are grants available for trails through road and bridge improvements?
- Is there a possibility for trails to be included in infrastructure projects, piggyback trail opportunities with infrastructure development program.
- Has the plan considered the economic/tourism benefits of trails?
- Paved shoulders are not accessible to ATV's.
- Paved shoulders are not great for winter hiking as they get filled up with snow/are not ploughed. Where a winter connection has been identified as critical, off road alternative should be provided.
- Could changes in speed limits along signed routes be an option (e.g. along Indiana Road?)
- 20 individuals in attendance indicated on the sign in sheet that they would be interested in becoming involved as a volunteer or member of a trails committee.

(ii) Short Term Priorities

- Chippawa Trail into Caledonia from Hamilton (part of this trail is complete but it lacks a parking lot at the beginning).

- Would like to see as a first priority a trail across the entire County to serve everyone.
- Rail Trail from Dunnville to York, adding section for Cross Canada Trail (Trans Canada Trail).
- Caledonia to Soccer Fields.
- McLung Road Shoulder to link to River (Rotary) Trail.
- Paved shoulders on River Road and McKenzie Road.
- River Road (both sides) trails or paved shoulders.
- Priority for walking and biking (and separate from the road)
- Horseback use.
- Must be policed, abandoned railway line is too isolated.
- Washrooms are necessary, already using riverbank in front of house.
- Fences and gates to keep ATV and pickups off private property.
- Safety.
- Uniformity in design.

(iii) Medium Term Priorities

- Caledonia to Dunnville Rail Trail.
- Connect Rotary Trail in York to Rail Trail into Dunnville.
- Connect downtown Caledonia with Rotary Trail (not on highway).
- York to Cayuga paved shoulder on south side of River.
- Caledonia to Brantford Trail.
- Prioritize who has the use.
- Maintenance or upkeep.
- Construction and signing.
- Add washrooms to Rotary Trail Caledonia to York.

(iv) Long Term Priorities

- Design.
- Responsibilities of useage.
- Connecting of trails.
- Incorporate Taquanyah Nature Centre (connect with trails on site).
- Pave all shoulders for bike trails.
- Add washrooms.

E. General/Other

- Look at how Trail Master Plan can be incorporated into the Official Plan.
- Can the Trail Master Plan use stronger language around on-road bike lanes? (i.e. the proponent should be required to prove that it is not needed rather than prove that it is needed) include in any road construction, then disqualify. Change terms such as “routinely consider” to stronger language such as “mandatory implementation” so there are no more missed opportunities.
- Since urbanization began in earnest (early 1900’s) “sitting” increased by “leaps and bounds” (schooling, cars, televisions and computers). Fresh air and physical movements decreased).

- We really like the idea of adding the Grand River as a “water trail” and would like to see destinations added (i.e. picnic/rest area at Irish Line – on Municipal Land), and maybe one of the islands. For example Binbrook Conservation Area has one and it is great.
- Very impressed with the progress and look very much forward to be involved with the progress of what I feel is a very worthwhile project.
- Motorized and non-motorized shared use is not a good idea.
- We love the idea of a master. The Trail Master Plan is a great idea.

4.0 The Trail Network

This section describes the current status of trails in Haldimand County. It provides a summary of observations and data collected by the study team regarding existing trails, trail uses and users, destinations and barriers. This information was gathered from existing reports, tourism mapping, and detailed field investigations. In addition, the public provided the study team with input throughout the study regarding the condition of trails, the positive and negative aspects of the existing trail system, and opinions regarding improvements that should be made. As the network was developed, stakeholders and the general public provided opinions about route preferences and construction priorities.

4.1 THE NETWORK DEVELOPMENT APPROACH

An iterative process was used to develop and refine the trail network recommended in the Master Plan. This process included the following steps.

1) *Inventory of Existing Conditions*: using the County's Geographic Information System (GIS) database this included a compilation of digital mapping and background documents for existing or previously planned trails, existing walking routes, future development areas etc. within the County.

2) Develop Network Guiding Principles: Guiding Principles were established (refer also to Chapter 1), which help to translate the vision into the trail hierarchy concept, and the trail design guidelines for the various types of trails in different locations.

3) *Consultation* with the Project Steering Committee, Key Informants and interested members of the public to receive feedback on the network vision, guiding principles, existing trail resources, trail user needs and potential trail routes.

4) *Develop a Network of Candidate Routes* to be examined in the field and considered for inclusion in the recommended.

5) *Network Analysis* which involved studying the County's high resolution aerial imagery and field investigation of potential routes.

6) Recommend Facility Types for each of the on and off-road route segments that together form the comprehensive network.

7) Develop the Phasing Plan for the staged implementation of the trail network.

8) Review and Consultation with the Steering Committee and with the public to receive feedback on the recommended network, facility types and implementation plan.

9) *Finalize the Network, Facility Types and Phasing* based on feedback from the Steering Committee and interested public.

4.2 INVENTORY OF EXISTING CONDITIONS

Preliminary investigations of existing and potential trails were completed using aerial imagery and GIS mapping data provided by Haldimand County. Field work to confirm the status of existing trails, and to identify future trail opportunities and potential connections to adjacent municipalities, was then conducted from June to August 2008.

4.2.1 Existing Trails

Trail routes that were existing at the time the study was undertaken are included as part of the recommended trail network illustrated in **Figures 4-1 through 4-7.** This information was gathered from a number of sources including background digital data, plans for newly constructed and registered subdivisions, information gathered during field reviews, and additional routes identified by County staff, Key Informants and the public. Figures 4-1 to 4-7 also provide a graphic summary of opportunities for, and physical barriers to trail development. The information was organized according to the following categories:

- **Existing Trails or Walkways**; consisting of those routes that are formally recognized by the County as trail and designated walking routes. This includes trails that have been designed and constructed in county parks, and scenic or historic walking routes identified in the urban centres. Examples include the Rotary Riverside Trail in Caledonia, the Townsend Recreational Trail and walkways. Also included within this group are trails on public lands (other than those owned by the County) or private lands where general public access is permitted, or in some cases where access is restricted to certain groups having permission from the land owner. Examples of these include the Grand Valley Trail, Ruthven Park trails, Taquanyah Nature Centre trails, and trails of the Haldimand Area ATV Club (HAAC). Finally, existing public trails in adjacent municipalities which connect to Haldimand County are included in this group, such as the Chippawa Trail in Hamilton and the Wainfleet Trail in Niagara Region.
- **Existing and Proposed On-road Bicycle Routes** includes on-road cycling facilities that were in place or formally approved when fieldwork for the TMP was conducted. There were no existing on-road bicycle routes within Halidmand County when the inventory was conducted and all examples displayed in the map are from adjacent municipalities. These cycling routes could be connected with the Haldimand County Trails Network to form recreational cycling loops within the County.
- **Trail Development Opportunities** include unopened road right-of-ways and abandoned railway corridors under public ownership. Examples of these are 1st Row from Haldimand Road 20 east of Hagersville to 5th Line south of Caledonia, and the abandoned rail line from Caledonia to Dunnville (also the currently designated route of the Trans Canada Trail). Abandoned railway corridors under private or uncertain ownership are displayed in this category, however further study and discussion would be required before identifying public trails in these corridors. Public parks and open spaces also provide opportunities for trail development.

Figure 4 - 1
Inventory: County Wide

Existing Roads, Trails and Trail Opportunities

- Road
- County Road
- Provincial Highway
- Railway
- Existing Trail or Designated Walking Route
- Previously Planned Trail or Designated Walking Route
- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route
- Existing ATV Trail [2]
- Unopened Road Right-of-Way
- Abandoned Railway - Access Uncertain
- Abandoned Railway - Access possible, requires further investigation
- Active Rail Line

County Features

- County Boundaries
- Urban Areas
- Haldimand County Owned Parcels
- Ontario Realty Corp. Owned Parcels
- Conservation Authority Owned Parcels
- Hydro One Owned Parcels
- CNR Owned Parcels
- Development Areas
- Industrial Zoned Properties
- Municipal Parks
- Provincial Parks
- Wetlands and Woodlands
- Lakes and Rivers

- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · mbpc Monteith+Brown planning consultants

Haldimand County

TRAILS MASTER PLAN and PARTNERSHIP FRAMEWORK STUDY

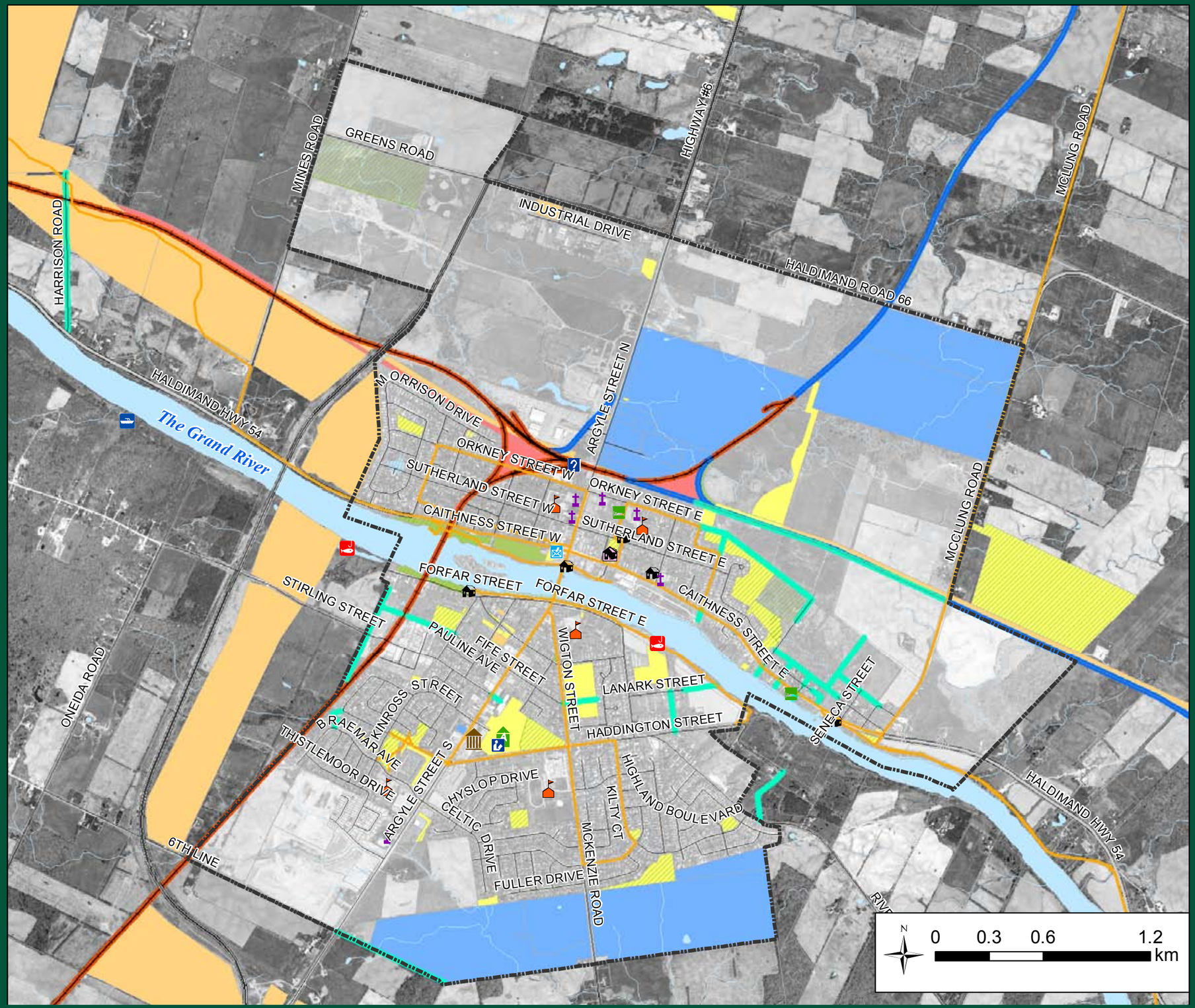


Figure 4 - 2
Inventory: Caledonia

Existing Roads, Trails and Trail Opportunities

- Road
- County Road
- Provincial Highway
- Railway
- Existing Trail or Designated Walking Route
- Previously Planned Trail or Designated Walking Route
- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route
- Existing ATV Trail [2]
- Unopened Road Right-of-Way
- Abandoned Railway - Access Uncertain
- Abandoned Railway - Access possible, requires further investigation
- Active Rail Line

County Features

- County Boundaries
- Urban Areas
- Haldimand County Owned Parcels
- Ontario Realty Corp. Owned Parcels
- Conservation Authority Owned Parcels
- Hydro One Owned Parcels
- CNR Owned Parcels
- Development Areas
- Industrial Zoned Properties
- Municipal Parks
- Provincial Parks
- Wetlands and Woodlands
- Lakes and Rivers

- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · mbpc Monteith+Brown planning consultants

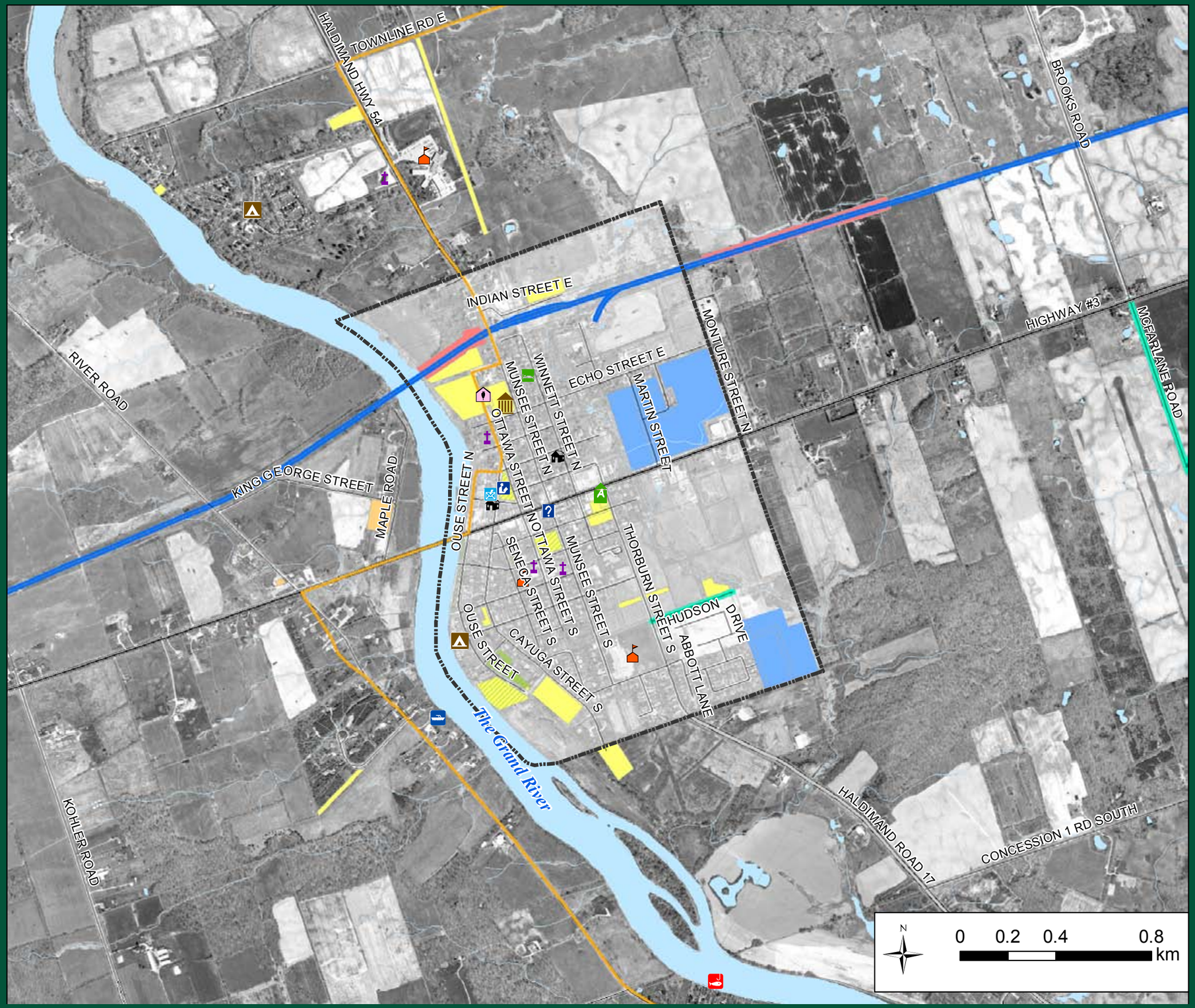


Figure 4 - 3
Inventory: Cayuga

Existing Roads, Trails and Trail Opportunities

- Road
- County Road
- Provincial Highway
- Railway
- Existing Trail or Designated Walking Route
- Previously Planned Trail or Designated Walking Route
- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route
- Existing ATV Trail [2]
- Unopened Road Right-of-Way
- Abandoned Railway - Access Uncertain
- Abandoned Railway - Access possible, requires further investigation
- Active Rail Line

County Features

- County Boundaries
- Urban Areas
- Haldimand County Owned Parcels
- Ontario Realty Corp. Owned Parcels
- Conservation Authority Owned Parcels
- Hydro One Owned Parcels
- CNR Owned Parcels
- Development Areas
- Industrial Zoned Properties
- Municipal Parks
- Provincial Parks
- Wetlands and Woodlands
- Lakes and Rivers

- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · mbpc Monteith Brown planning consultants

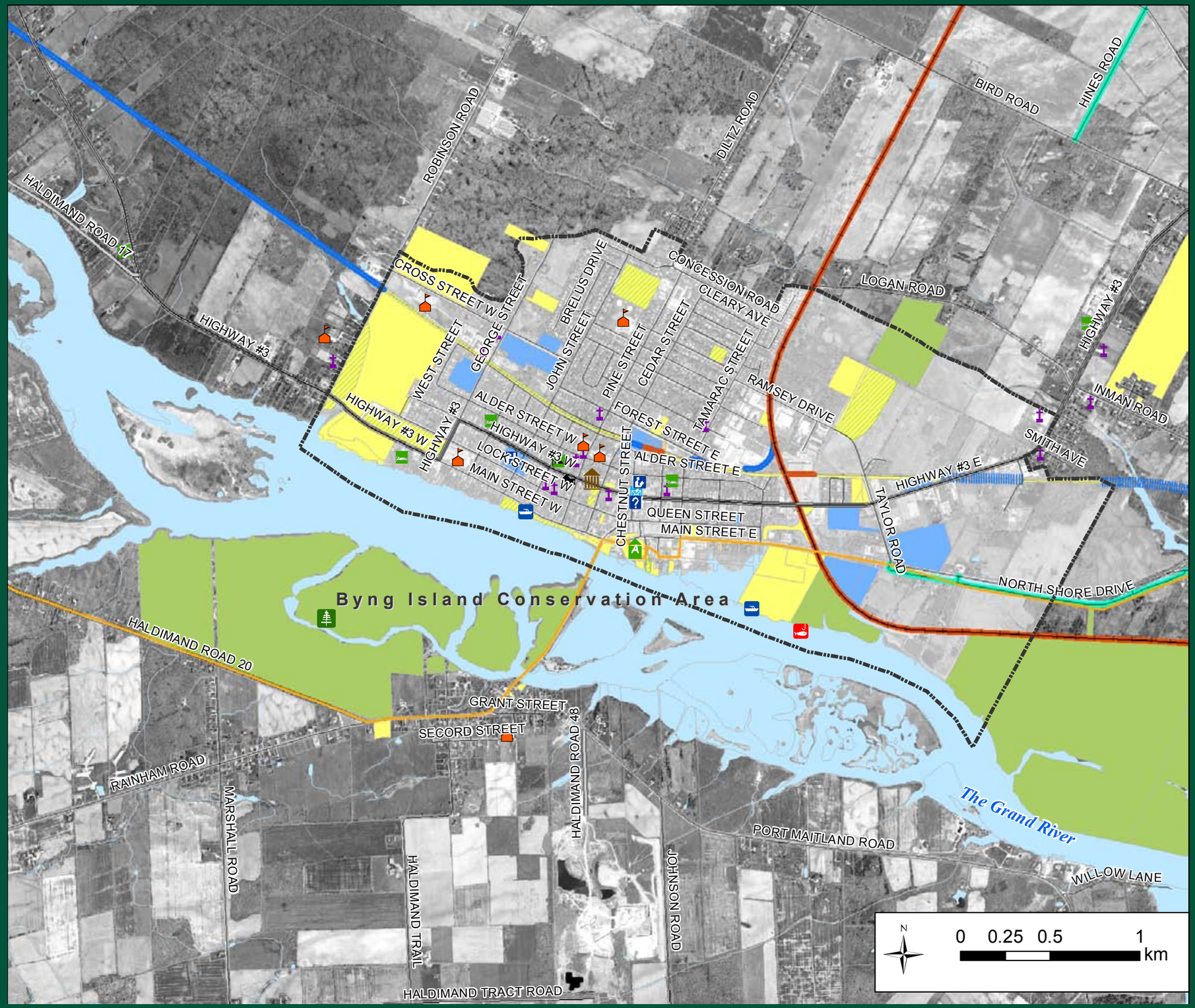


Figure 4 - 4
Inventory: Dunnville

Existing Roads, Trails and Trail Opportunities

- Road
- County Road
- Provincial Highway
- Railway
- Existing Trail or Designated Walking Route
- Previously Planned Trail or Designated Walking Route
- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route
- Existing ATV Trail [2]
- Unopened Road Right-of-Way
- Abandoned Railway - Access Uncertain
- Abandoned Railway - Access possible, requires further investigation
- Active Rail Line

County Features

- County Boundaries
- Urban Areas
- Haldimand County Owned Parcels
- Ontario Realty Corp. Owned Parcels
- Conservation Authority Owned Parcels
- Hydro One Owned Parcels
- CNR Owned Parcels
- Development Areas
- Industrial Zoned Properties
- Municipal Parks
- Provincial Parks
- Wetlands and Woodlands
- Lakes and Rivers

- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · mbpc Monteith+Brown planning consultants

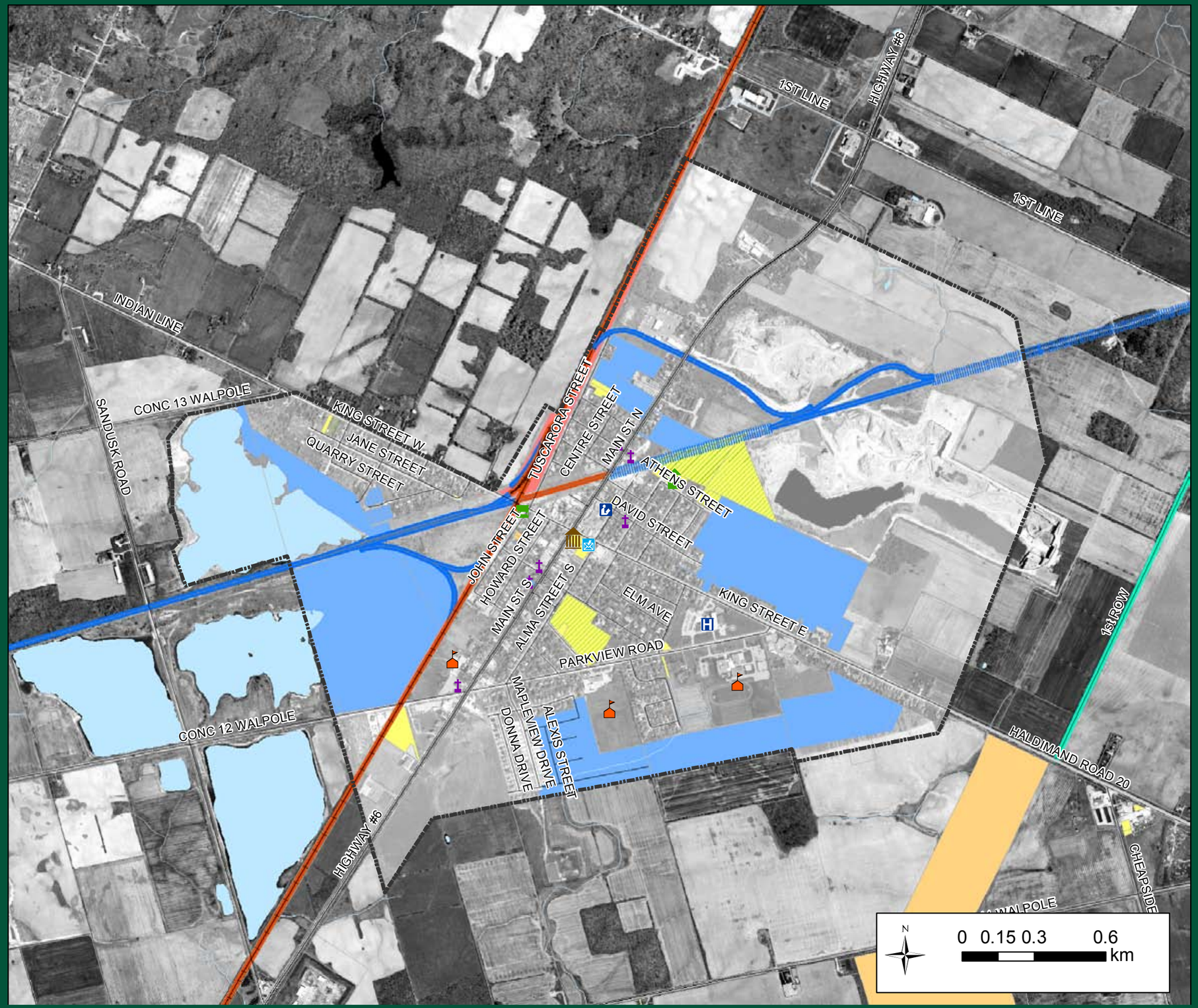


Figure 4 - 5
Inventory: Hagersville

Existing Roads, Trails and Trail Opportunities

- Road
- County Road
- Provincial Highway
- Railway
- Existing Trail or Designated Walking Route
- Previously Planned Trail or Designated Walking Route
- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route
- Existing ATV Trail [2]
- Unopened Road Right-of-Way
- Abandoned Railway - Access Uncertain
- Abandoned Railway - Access possible, requires further investigation
- Active Rail Line

County Features

- County Boundaries
- Urban Areas
- Haldimand County Owned Parcels
- Ontario Realty Corp. Owned Parcels
- Conservation Authority Owned Parcels
- Hydro One Owned Parcels
- CNR Owned Parcels
- Development Areas
- Industrial Zoned Properties
- Municipal Parks
- Provincial Parks
- Wetlands and Woodlands
- Lakes and Rivers

- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · Monteith Brown planning consultants

Haldimand County

TRAILS MASTER PLAN and PARTNERSHIP FRAMEWORK STUDY

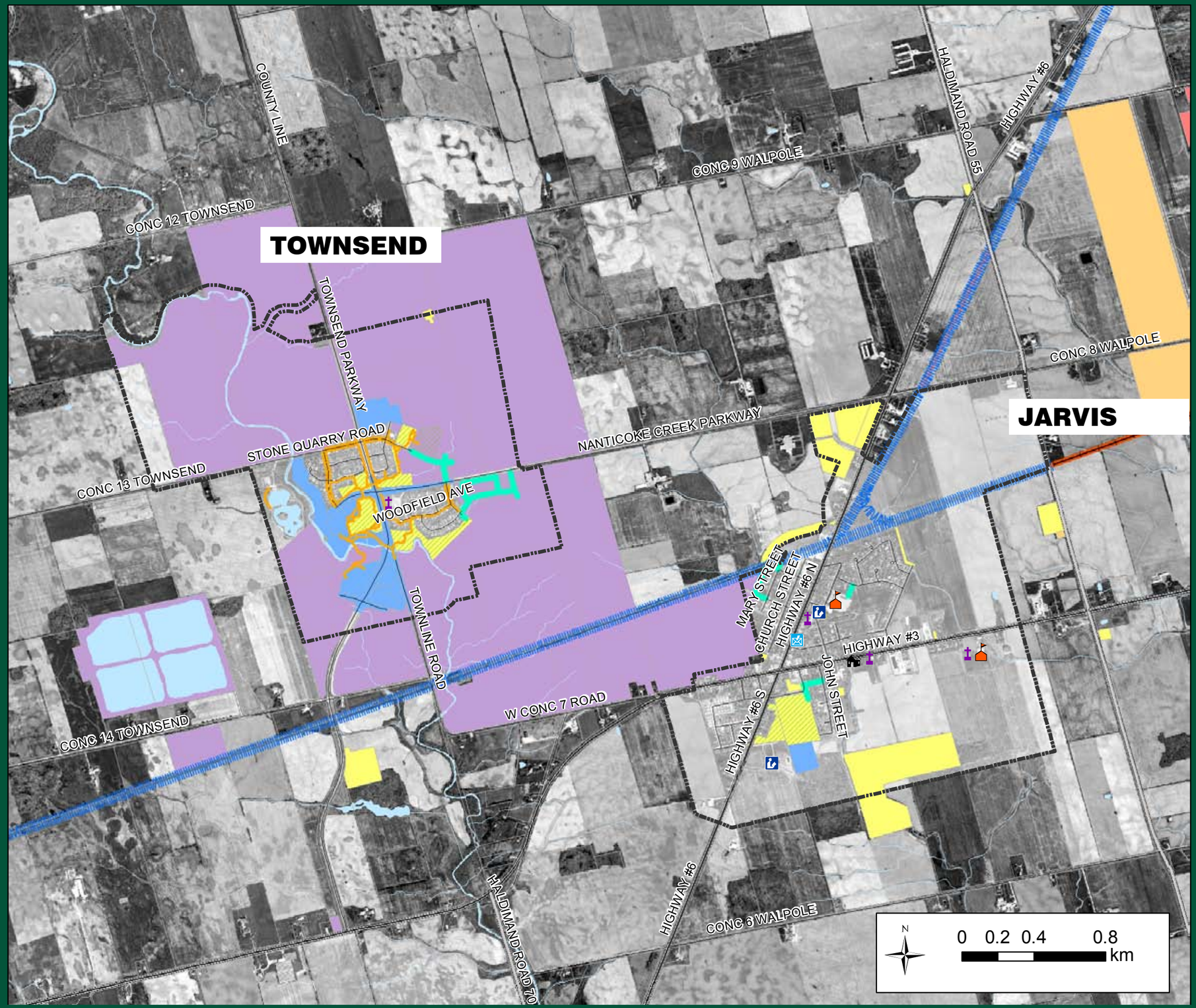


Figure 4 - 6
Inventory: Jarvis and Townsend

Existing Roads, Trails and Trail Opportunities

- Road
- County Road
- Provincial Highway
- Railway
- Existing Trail or Designated Walking Route
- Previously Planned Trail or Designated Walking Route
- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route
- Existing ATV Trail [2]
- Unopened Road Right-of-Way
- Abandoned Railway - Access Uncertain
- Abandoned Railway - Access possible, requires further investigation
- Active Rail Line

County Features

- County Boundaries
- Urban Areas
- Haldimand County Owned Parcels
- Ontario Realty Corp. Owned Parcels
- Conservation Authority Owned Parcels
- Hydro One Owned Parcels
- CNR Owned Parcels
- Development Areas
- Industrial Zoned Properties
- Municipal Parks
- Provincial Parks
- Wetlands and Woodlands
- Lakes and Rivers

- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · mbpc Monteith+Brown planning consultants

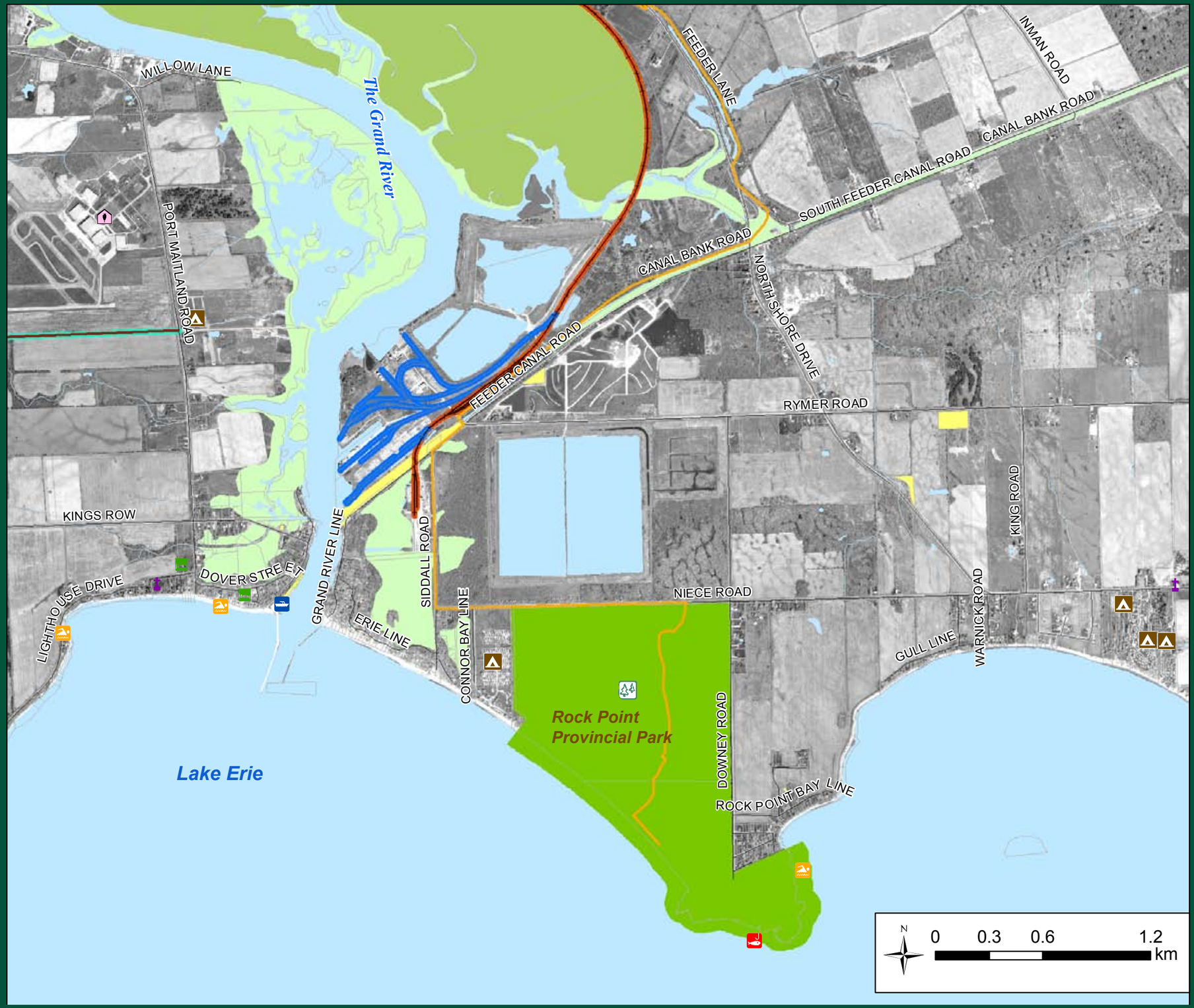


Figure 4 - 7
Inventory: Port Maitland Area

Existing Roads, Trails and Trail Opportunities

- Road
- County Road
- Provincial Highway
- Railway
- Existing Trail or Designated Walking Route
- Previously Planned Trail or Designated Walking Route
- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route
- Existing ATV Trail [2]
- Unopened Road Right-of-Way
- Abandoned Railway - Access Uncertain
- Abandoned Railway - Access possible, requires further investigation
- Active Rail Line

County Features

- County Boundaries
- Urban Areas
- Haldimand County Owned Parcels
- Ontario Realty Corp. Owned Parcels
- Conservation Authority Owned Parcels
- Hydro One Owned Parcels
- CNR Owned Parcels
- Development Areas
- Industrial Zoned Properties
- Municipal Parks
- Provincial Parks
- Wetlands and Woodlands
- Lakes and Rivers

- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · mbpc Monteith Brown planning consultants

- **Trail Development Barriers** are natural and constructed features that create a physical impediment to the development of an interconnected trail system. The active railway from Nanticoke through Hagersville and Caledonia, the active railway from Port Maitland through Dunnville to Welland, Highways 3 & 6, the Grand River its main tributaries are the most significant barriers to trail development in Haldimand County.
- **Other legend items include:**
  - Lands in public ownership including parks and open spaces.
  - Areas/sites of natural interest such as Taquanyah Nature Centre, Byng Island Conservation Area, and Selkirk Provincial Park.
  - Major parks and open space such as LaFortune Park and the Caledonia Soccer Park.
  - Beaches, campgrounds, fishing access and boat launches.
  - Elementary and secondary schools.
  - Significant cultural destinations/landmarks such as museums, public libraries, the downtown core, churches and heritage buildings.

4.3 THE TRAIL NETWORK CONCEPT

To accommodate the wide range of expectations of trail users throughout the County, a hierarchy of trails is envisioned as an organizational structure for the proposed network. The concept of a trail hierarchy builds on Guiding Principle # 2 presented in Chapter 1 and as follows:

"Accessible - *from strategic locations throughout the Municipality. Trails should generally be available to all users and levels of ability. However it is recognized that not all trails will be accessible by all users in all places.*

> *c. A **hierarchy of trail types** will be employed to define appropriate uses and cater to different levels of physical ability depending on location.*
>
> *d. Generally trails should be multi-use. Where appropriate, special use/single/restricted-use trails may be recommended.*
>
> *e. Where appropriate, supportive amenities and facilities such as trailheads with parking, washrooms, benches and bicycle parking, access control (gates/barriers) etc., should be available along trails and at destinations."*

Guiding Principle # 3 **Appropriately Located** states that

"Trail routes will focus wherever possible on off-road routes. On-road routes will be utilized to provide links between off-road routes where other alternatives do not exist. Where on-road routes are required, low volume rural, scenic and/or heritage routes will be selected where possible and practical."

In areas where there is extensive linear public open space the development of continuous off–road multi-use trails to serve a wide range of users may be possible and in some cases

achieved with relative ease. However, in some locations, especially older neighbourhoods in urban centres, public open space other than land within the road right-of-way is limited. In these areas it may be difficult if not impossible to achieve an exclusively off-road multi-use trail network to serve all users. Therefore pedestrians and small-wheeled users in urban areas are directed to use sidewalks, and cyclists are expected to use roads, as they are prohibited from using sidewalks. In appropriate locations it may be possible to create off-road multi-use trails within boulevards or short sections of sidewalk appropriately signed for "shared use".

The trail network concept or hierarchy consists of three levels:

- a county-wide system;
- a local system; and
- a special-use system.

The intent of the hierarchy is to create a variety of trail types to serve the variety of users and levels of experience. It is important to note that the trail system is not intended to be "all things to all users in all locations", meaning that some trails may not be accessible to all user groups in some locations. The following describes a concept for the hierarchical organization of off and on-road components of the network. The trail network concept is illustrated on **Figure 4-8** and **Table 5.6,** and **Section 5.10** provide further details regarding trail characteristics and design guidelines for different types of settings.

4.3.1 County-wide Routes

The county-wide trails act as the "skeleton" of the network offering opportunities to move throughout the County along major corridors that provide the principle access between urban centres, connections/gateways to Haldimand's neighbours and links to/from major origins and destinations within urban centres. The primary system consists of off-road trails where possible and on-road bicycle routes where links are needed. The county-wide system is expected to accommodate:

- higher volumes of use, particularly near urban centres;
- trail user traffic that may be more destination-oriented than those using local or special-use trails;
- the widest range of trail users;
- links to major destinations such as community centres, schools, significant commercial nodes, municipal and provincial parks, conservation areas, and significant tourist destinations;
- connections to neighbouring municipalities.

Characteristics:

Off-road facilities

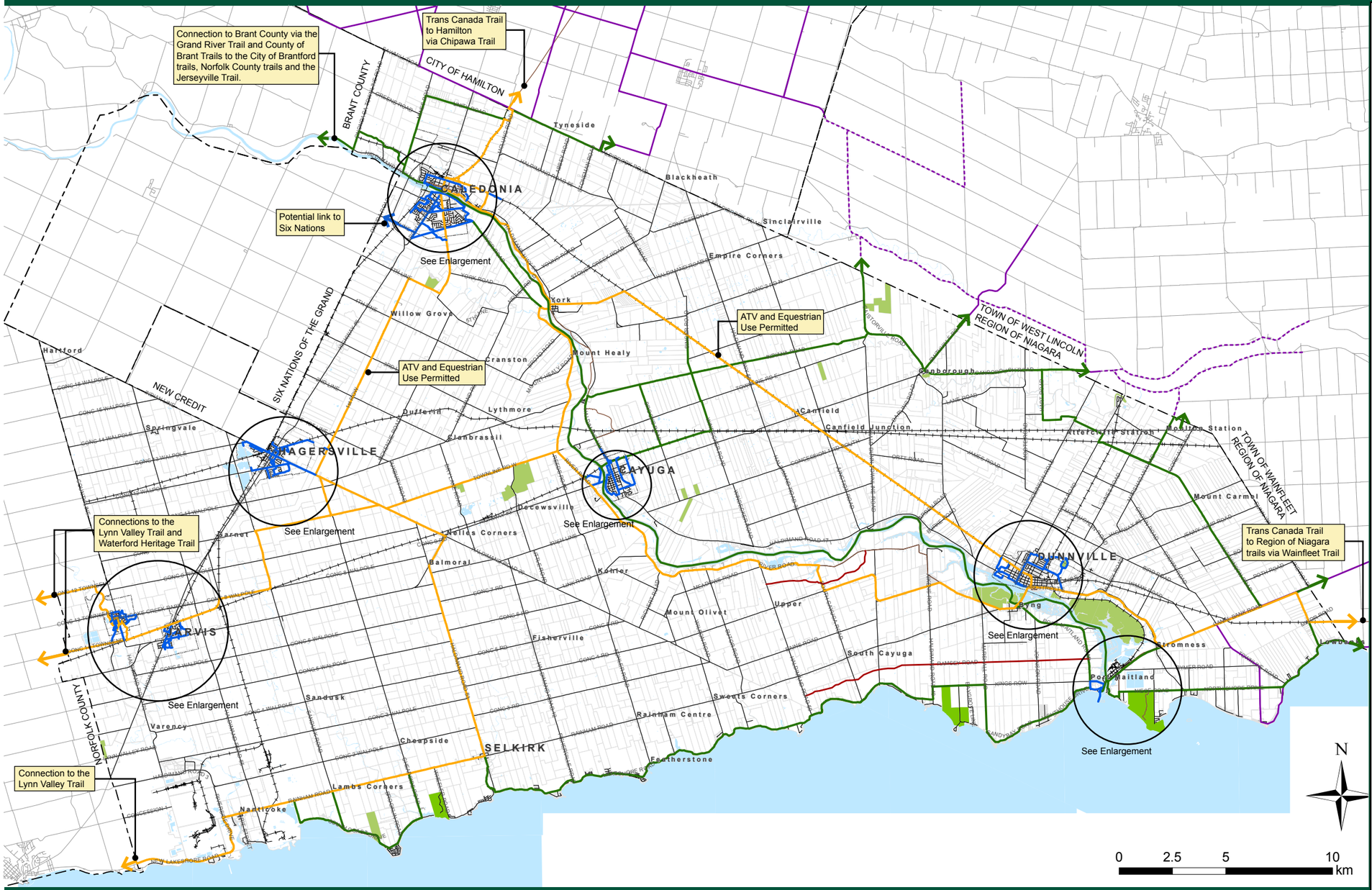


FIGURE 4 - 8
Trail Network Concept

Existing Trails

- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route [2]
- Existing ATV Trail

Proposed Trail Network Hierarchy

- Proposed County-wide Route
- Proposed Local Route
- Proposed Special Use Route

County Features

- County Boundaries
- Road
- County Road
- Provincial Highway
- Railway
- Municipal Parks
- Provincial Parks
- Lakes and Rivers
- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Fishing Access
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices
- Post Office

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · Monteith+Brown planning consultants

- depending on volume, type use and location, some sections may be hard surfaced and considered for year round maintenance;
- would be designed to accommodate multiple uses such as cycling, walking, users with mobility-assisted devices, strollers, small wheeled uses such as skateboarding, in-line skating and scooters (where appropriate), cross country skiing (where possible and appropriate);
- would prohibit motorized activity, with the exception of key links in rural areas which may be shared with members of the Haldimand Area ATV Club;
- where use is the highest, these trails would typically offer the highest density of trailside amenities including benches, signing, washrooms, and trail access nodes (staging areas);
- may include boulevard trails and shared-use sidewalks in appropriate locations.

On-road facilities

- would typically consist of delineated bike lanes or wide-shared lanes on urban arterials and collectors, and paved shoulders on rural roads;
- where traffic volume and speed is low, signed routes are sufficient;
- would be maintained as part of road maintenance procedures.

4.3.2 Local Routes

The local system links with the county-wide system, creates access to local points of interest and offers neighbourhood or community recreational loop opportunities.

The local system will be designed to accommodate:

- moderate to high volumes of use;
- trail traffic that tends to be more locally oriented; and
- connecting routes for users wanting to access the primary system.

Characteristics:

O*ff-road facilities*

- would typically consist of a compacted granular surface;
- may include hard surfacing in some locations;
- would be designed to accommodate multiple uses such as cycling, walking, and running;
- other uses such as mobility-assisted devices/strollers, skateboarding, in-line skating and scooters will be accommodated where possible and appropriate;
- would typically prohibit motorized and equestrian uses;

- would offer a moderate density of trailside amenities including benches, signing, and trail access nodes (staging areas);
- may include boulevard trails and shared use sidewalks in appropriate locations.

On-road facilities

- may include delineated bike lanes and wide-shared lanes where warranted by roadway characteristics;
- would typically consist of signed routes on low volume, low speed roads;
- would include scenic cycling route on rural roads (with or without paved shoulders depending on roadway characteristics);
- would be maintained as part of road maintenance procedures.

4.3.3 Special-use Routes

The special-use trail system includes routes in locations that cater to specific uses, and/or requiring a special design treatment due to site conditions (i.e. ecological sensitivity). They are directly connected to local and, in some cases, county-wide routes. These routes may have a local neighbourhood focus, but more often are a destination for specific user groups, and are typically found in rural locations. The special-use system consists of only off-road trails and will typically be designed to accommodate:

- single or restricted use, such as hiking in a sensitive natural area, long-distance cycling along rural roads, or canoeing the Grand River;
- lower volumes of use;
- components of the special-use system may not all be linked, potentially including "stand-alone" loops or solitary trail segments for specific purposes.

Off-road facilities

- typically are narrower (0.75m to 1.5m) and consist of a natural earth or woodchip surface, but may also include wider trails specially designed to meet the requirements of a given location. For example, a wide boardwalk along the edge of a wetland that is a popular spot for birdwatching;
- hard surfacing with appropriate trail hardeners only where necessary;
- would be designed to accommodate single or limited uses such as hiking only. Other uses such as mobility-assisted devices/strollers, skateboarding, in-line skating and scooters are typically restricted by the nature of trail alignment, width and surface type;
- motorized uses would be restricted, equestrian uses may be restricted depending on location;

- typically would offer a low density of trailside amenities including benches, signing, and trail access nodes (staging areas). Site/route specific interpretive signing programs may be implemented where deemed appropriate;
- typically employs "low-tech" design techniques that are appropriate for the location and volume of use, but may also include specially designed structures such as boardwalks that are sympathetic with the location;
- includes minor nodes at junction points that typically include bicycle parking, and information signage to inform users of permitted and restricted uses.

Special-use trails are usually narrower than both county-wide and local trails, in an effort to keep the facility in scale and context with the area through which they pass. This creates a challenge from a maintenance point of view as is it not possible to travel these routes with much of the equipment the County is likely to currently have. Local partners will be invaluable in assisting with maintenance of special-use trails.

On-road facilities

- would typically consist of signed recreational/scenic cycling routes on low volume, low speed rural roads.

4.4 THE RECOMMENDED TRAIL NETWORK AND IMPLEMENTATION PRIORITIES

Figures 4-9 through **4-15** depict the recommended trail network, facility types and implementation priorities across the County. **Table 4-1** provides a summary of network facilities by type and length for both the short term (2010-2015) and long term (beyond 2015). The estimated costs of developing the network and other details related to implementation are discussed in **Chapter 6** of this report. Infrastructure priorities were assigned based on a logical build-out of the network over time, input by the Steering Committee and public, and field observations with the following objectives in mind:

- Developing or enhancing the trail network in urban areas, and in specific locations where a greater number of users are anticipated.
- Establishing main corridors between the County's largest urban centres.
- Making or completing key connections that form part of regional, provincial or national trail system.
- Making connections between existing facilities in locations where the completion of a small missing link results in the creation of a large section of trail.
- Providing trail connections to important community destinations such as schools, community centres and recreation complexes, major sports fields, key points of interest.
- Developing loops urban areas.

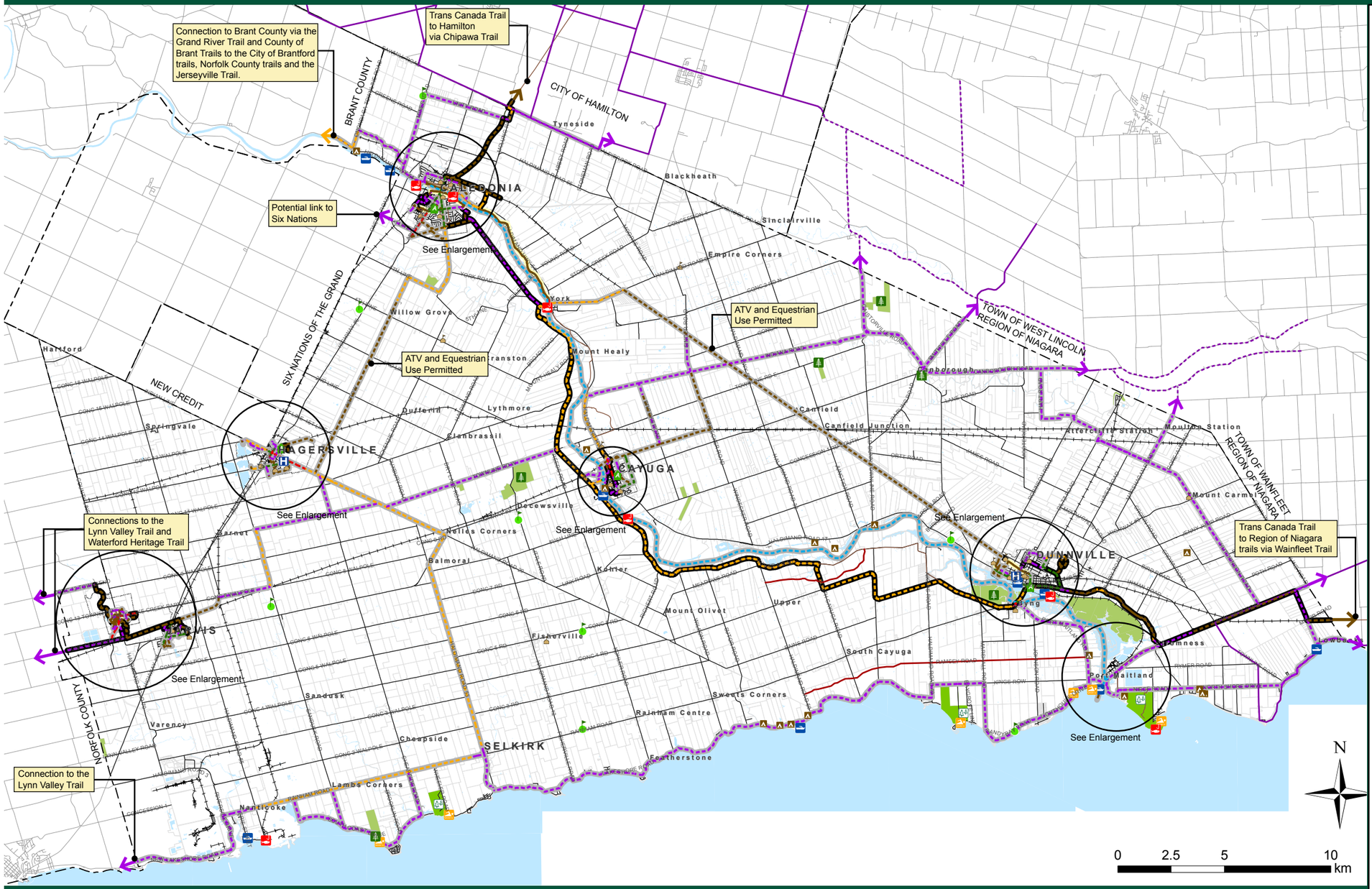


FIGURE 4 - 9
Recommended Trail Network and Implementation:
County Wide

Existing and Proposed Trail Facilities

- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route
- Existing ATV Trail [2]
- Existing Multi-use Trail or Designated Walking Route
- Proposed Multi-use Trail
- Proposed Bike Lane
- Proposed Wide Shared Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Canoe Route

Proposed Implementation Phase

- Existing Route
- Short Term (0 - 5 years)
- Long Term (6 - 20 years)

County Features

- County Boundaries
- Road
- County Road
- Provincial Highway
- Railway
- Municipal Parks
- Provincial Parks
- Lakes and Rivers

- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Fishing Access
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices
- Post Office

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · Monteith Brown planning consultants

Haldimand County

TRAILS MASTER PLAN and PARTNERSHIP FRAMEWORK STUDY

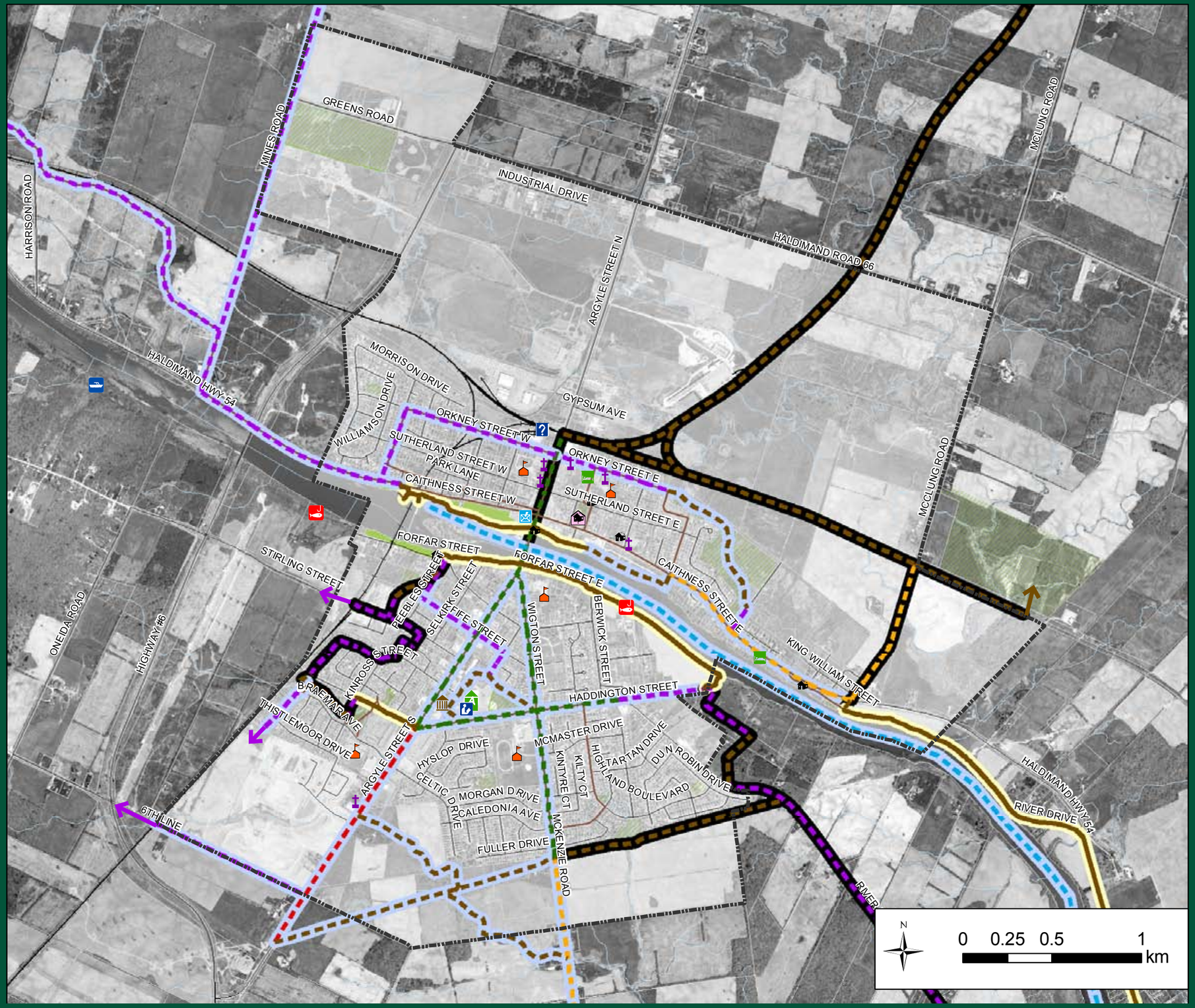


FIGURE 4 - 10
Recommended Trail Network and Implementation:
Caledonia

Existing and Proposed Trail Facilities

- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route
- Existing ATV Trail [2]
- Existing Multi-use Trail or Designated Walking Route
- Proposed Multi-use Trail
- Proposed Bike Lane
- Proposed Wide Shared Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Canoe Route

Proposed Implementation Phase

- Existing Route
- Short Term (0 - 5 years)
- Long Term (6 - 20 years)

County Features

- County Boundaries
- Road
- County Road
- Provincial Highway
- Railway
- Municipal Parks
- Provincial Parks
- Lakes and Rivers

- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Fishing Access
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices
- Post Office

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · mbpc Monteith•Brown planning consultants

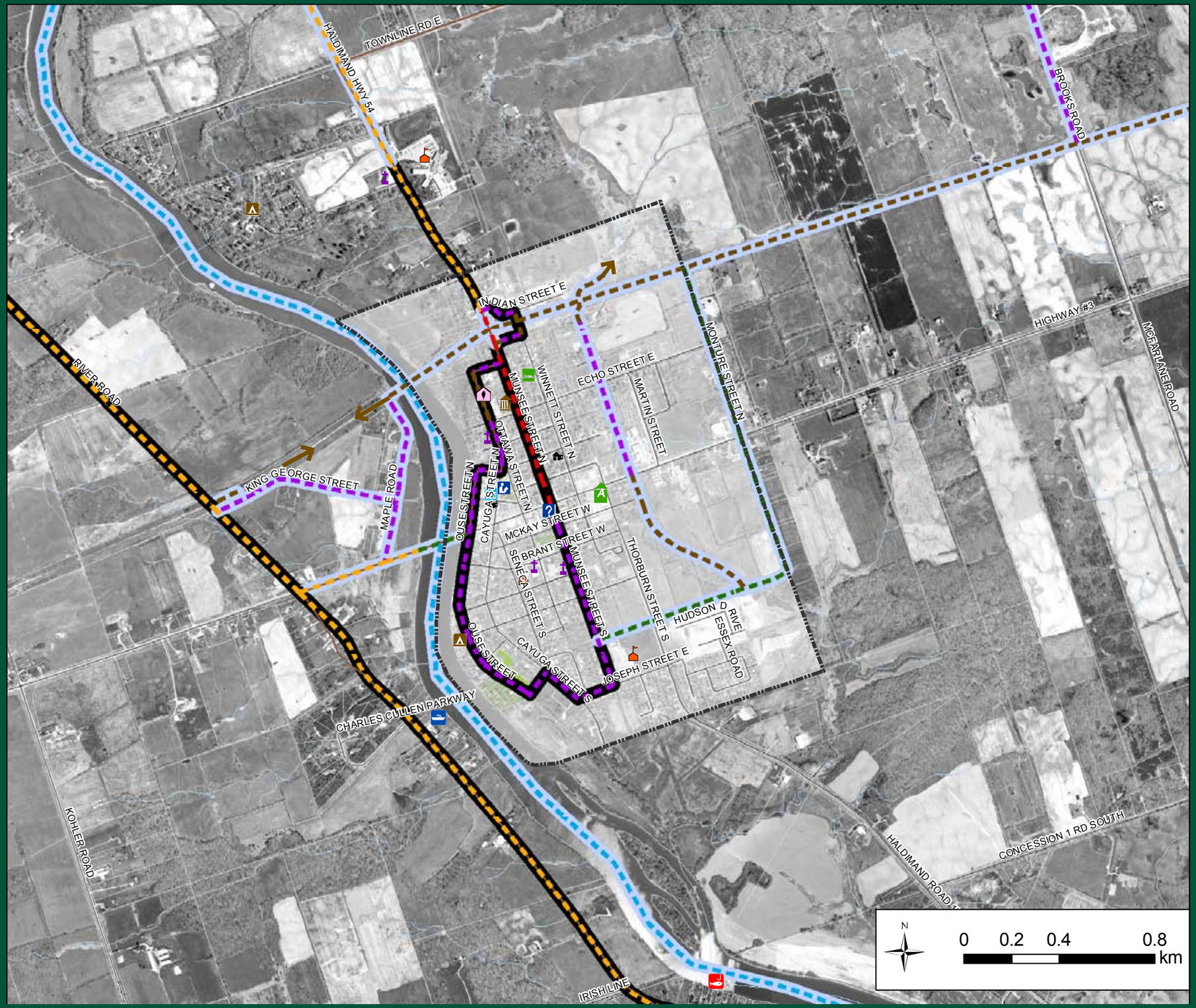


FIGURE 4 - 11
Recommended Trail Network and Implementation:
Cayuga

Existing and Proposed Trail Facilities

- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route
- Existing ATV Trail [2]
- Existing Multi-use Trail or Designated Walking Route
- Proposed Multi-use Trail
- Proposed Bike Lane
- Proposed Wide Shared Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Canoe Route

Proposed Implementation Phase

- Existing Route
- Short Term (0 - 5 years)
- Long Term (6 - 20 years)

County Features

- County Boundaries
- Road
- County Road
- Provincial Highway
- Railway
- Municipal Parks
- Provincial Parks
- Lakes and Rivers

- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Fishing Access
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices
- Post Office

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · mbpc Monteith • Brown planning consultants

Haldimand County

TRAILS MASTER PLAN and PARTNERSHIP FRAMEWORK STUDY

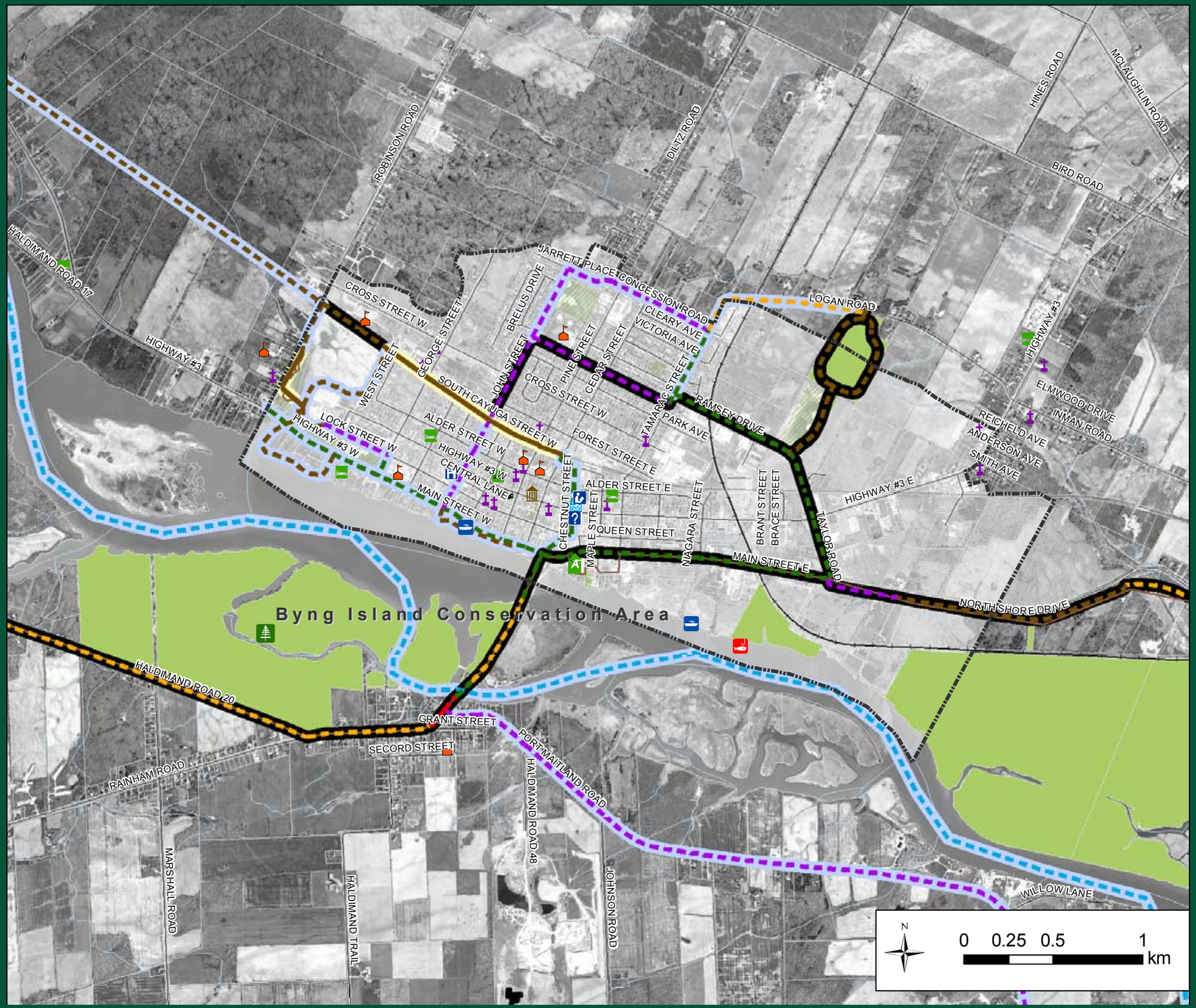


FIGURE 4 - 12
Recommended Trail Network and Implementation:
Dunnville

Existing and Proposed Trail Facilities

- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route
- Existing ATV Trail [2]
- Existing Multi-use Trail or Designated Walking Route
- Proposed Multi-use Trail
- Proposed Bike Lane
- Proposed Wide Shared Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Canoe Route

Proposed Implementation Phase

- Existing Route
- Short Term (0 - 5 years)
- Long Term (6 - 20 years)

County Features

- County Boundaries
- Road
- County Road
- Provincial Highway
- Railway
- Municipal Parks
- Provincial Parks
- Lakes and Rivers

- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Fishing Access
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices
- Post Office

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · mbpc Monteith•Brown planning consultants

Haldimand County

TRAILS MASTER PLAN and PARTNERSHIP FRAMEWORK STUDY

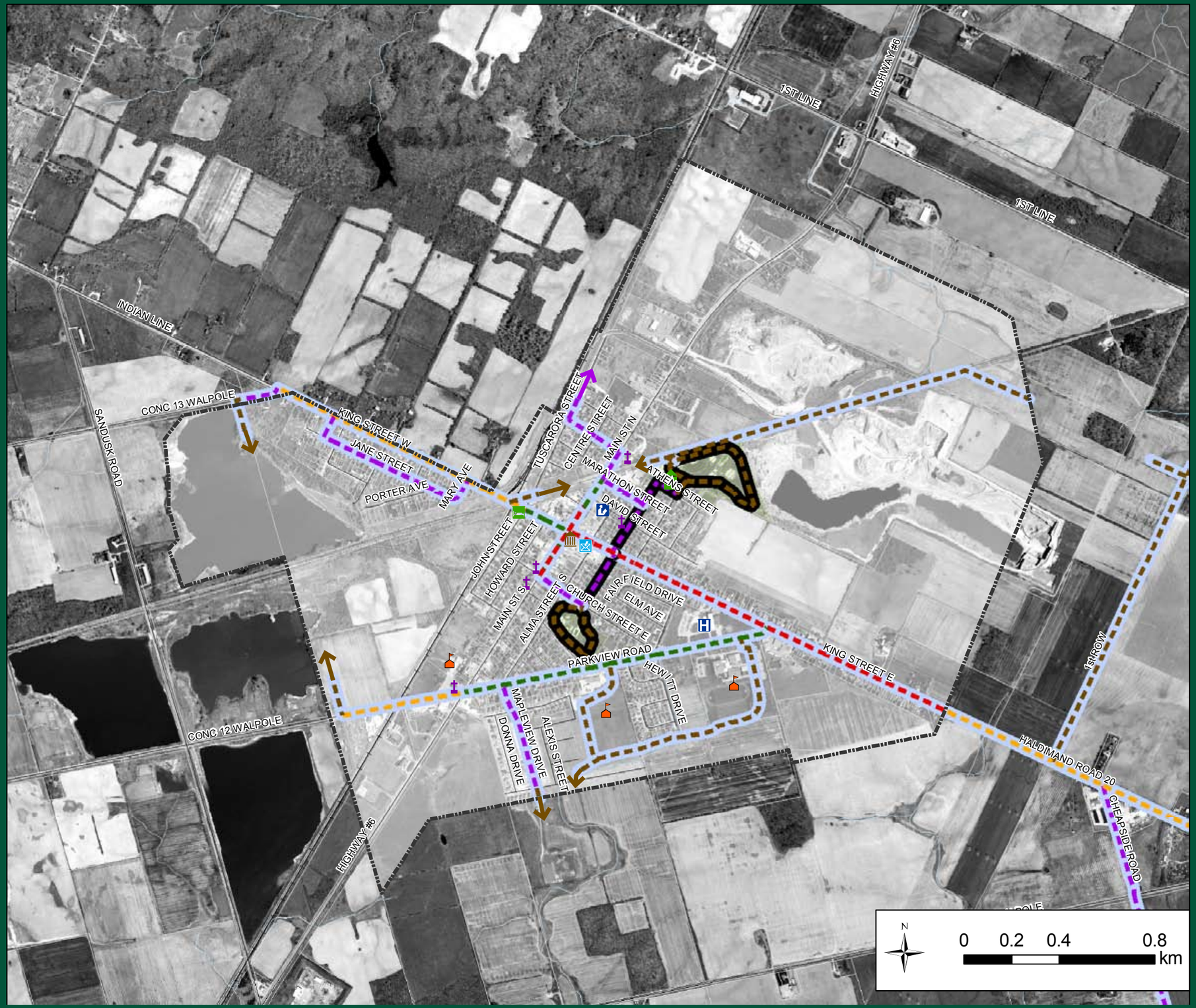


FIGURE 4 - 13
Recommended Trail Network and Implementation:
Hagersville

Existing and Proposed Trail Facilities

- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route
- Existing ATV Trail [2]
- Existing Multi-use Trail or Designated Walking Route
- Proposed Multi-use Trail
- Proposed Bike Lane
- Proposed Wide Shared Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Canoe Route

Proposed Implementation Phase

- Existing Route
- Short Term (0 - 5 years)
- Long Term (6 - 20 years)

County Features

- County Boundaries
- Road
- County Road
- Provincial Highway
- Railway
- Municipal Parks
- Provincial Parks
- Lakes and Rivers

- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Fishing Access
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices
- Post Office

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · mbpc Monteith+Brown planning consultants

Haldimand County

TRAILS MASTER PLAN and PARTNERSHIP FRAMEWORK STUDY

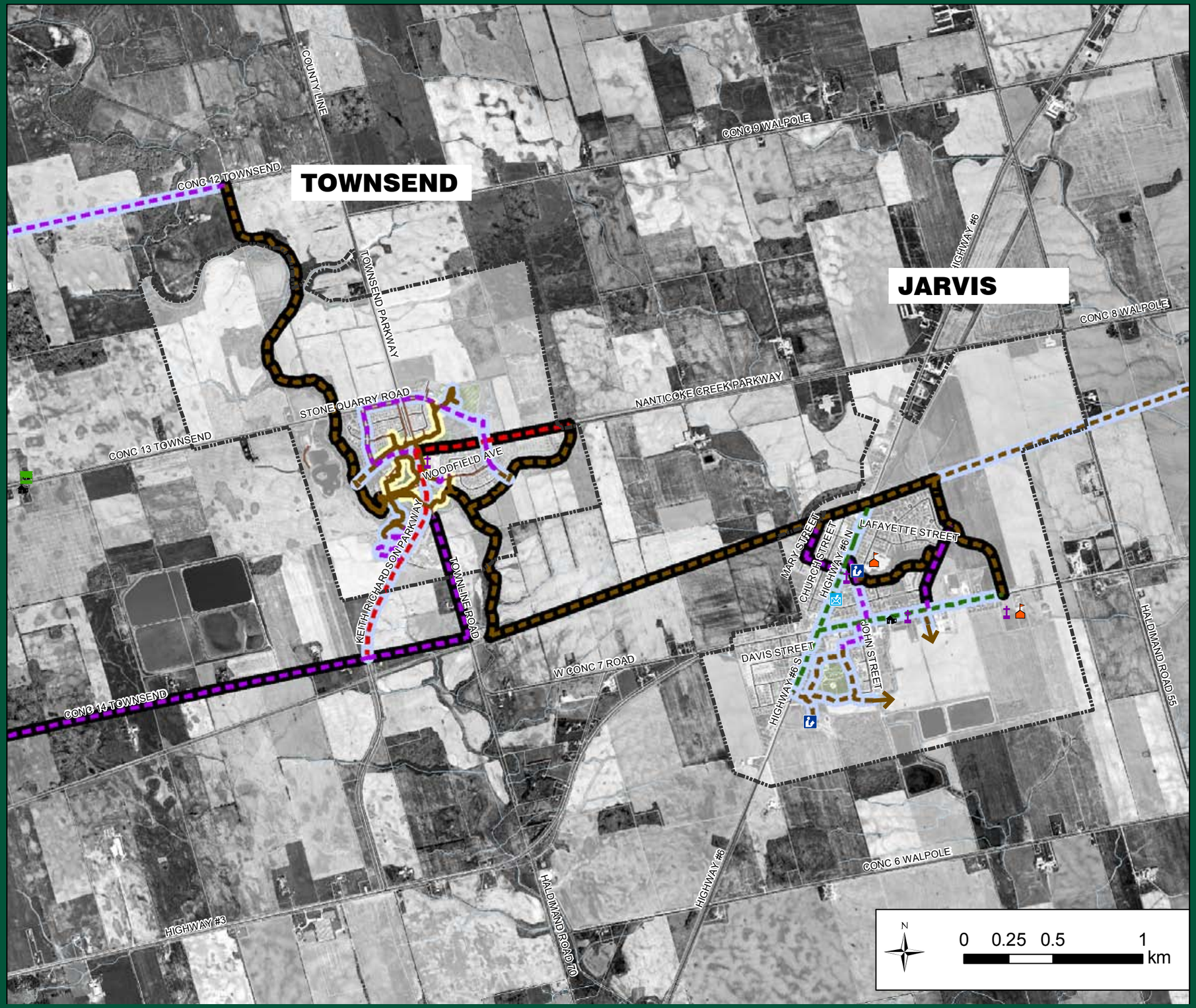


FIGURE 4 - 14
Recommended Trail Network and Implementation:
Jarvis and Townsend

Existing and Proposed Trail Facilities

- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route
- Existing ATV Trail [2]
- Existing Multi-use Trail or Designated Walking Route
- Proposed Multi-use Trail
- Proposed Bike Lane
- Proposed Wide Shared Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Canoe Route

Proposed Implementation Phase

- Existing Route
- Short Term (0 - 5 years)
- Long Term (6 - 20 years)

County Features

- County Boundaries
- Road
- County Road
- Provincial Highway
- Railway
- Municipal Parks
- Provincial Parks
- Lakes and Rivers

- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Fishing Access
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices
- Post Office

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · mbpc Monteith•Brown planning consultants

Haldimand County

TRAILS MASTER PLAN and PARTNERSHIP FRAMEWORK STUDY

FIGURE 4 - 15
Recommended Trail Network and Implementation:
Port Maitland Area

Existing and Proposed Trail Facilities

- Existing On Road Bicycle Route [1]
- Proposed On Road Bicycle Route
- Existing ATV Trail [2]
- Existing Multi-use Trail or Designated Walking Route
- Proposed Multi-use Trail
- Proposed Bike Lane
- Proposed Wide Shared Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Canoe Route

Proposed Implementation Phase

- Existing Route
- Short Term (0 - 5 years)
- Long Term (6 - 20 years)

County Features

- County Boundaries
- Road
- County Road
- Provincial Highway
- Railway
- Municipal Parks
- Provincial Parks
- Lakes and Rivers

- Conservation Area
- Provincial Parks
- Tourist Information
- Accommodation
- Golf
- Campground
- Beach
- Boat Launch
- Fishing Access
- Arena
- Schools
- Libraries
- Heritage Properties
- Museums
- Place of Worship
- Hospitals
- County Offices
- Post Office

Notes

1 - City of Hamilton Bike Routes: http://map.hamilton.ca/Static/PDFs/Public%20Works/PhotoShop%20- %20Rural%20Bikeways%20Map%20-%20March2008.pdf
Regional Niagara Bicycling Map: http://www.regional.niagara.on.ca/exploring/cycle/bikemap.aspx
Regional Niagara Bikeways Master Plan: http://www.regional.niagara.on.ca/government/initiatives/Bikeway-Master-Plan-Study-.aspx
2 - Haldimand Area ATV Club, for illustrative purposes only. Please contact HAAC for details.

Haldimand County · Stantec · mbpc Monteith • Brown planning consultants

- Scheduling implementation with planned County capital road and servicing projects where possible so that on and off-road facilities are constructed as part of new road construction or road reconstruction.

Table 4-1 Summary of network lengths by type and phase.

	Off-Road		On-Road[2]				Totals
	Trail[1]	Water Route	Bike Lane	Paved Shoulder	Wide Shared Lane	Signed Route	
Existing	94 km	0 km	0 km	0 km	0 km	0 km	94 km
Short Term (2010-2015)	33 km	0 km	2 km	38 km	4 km	21 km	98 km
Long Term (Beyond 2015)	58 km	52 km	5 km	50 km	13 km	191 km	369 km
Totals	185 km	52 km	7 km	88 km	17 km	212 km	509 km

Notes
1. Off-road trails are multi-use and all user groups can be accommodated with a single facility.
2. On-road routes include (I) bicycle facilities on the road as cyclists are not permitted to ride on sidewalks except in limited circumstances, and (ii) existing sidewalks for pedestrians and other similar users.

The following sections describe the details of the recommended route alignments and implementation priorities.

4.4.1 Figure 4-9 – Recommended Trail Network and Implementation: County-Wide

The recommended trail network consists of direct connections between the urban centres and connections to key destinations and existing trails in adjacent municipalities. Key routes displayed include:

- An off-road connection between Caledonia and Dunnville along the existing Rotary Riverside Trail, across Haldimand Road 9, and down along the abandoned rail corridor into Dunnville. This route will connect to the Wainfleet Trail in Niagara Region and the Chippawa Trail in the City of Hamilton. The abandoned rail corridor between Haldimand Road 9 and the Dunnville is part of the designated route of the Trans Canada Trail within the County. Lands within this corridor are currently being held "in trust" by the Trans Canada Trail Foundation, pending the decision to, and the development of an agreement with Haldimand County.

- An off-road connection between Hagersville and Caledonia using First Row, 4th Line and McKenzie Road.

- Two corridors that are proposed for shared-use between non-motorized uses and a motorized use, specifically the membership of the Haldimand Area ATV Club (HAAC); these corridors include First Row between Haldimand Road 20 and 4th Line, and the

abandoned rail corridor on the north side of the Grand River between Haldimand Road 9 and the Dunnville western urban limit.

- An on-road route between Caledonia and Dunnville along River Road, west of the Grand River.
- An on-road route connecting Jarvis and Townsend with Hagersville and Caledonia via low-volume rural roads and 1st Row. At its western end, this route will connect into Norfolk County to join the Lynn Valley Trail and Waterford Heritage Trail.
- A scenic on-road cycling route generally following the north coast of Lake Erie from Lowbanks to Port Maitland, northwest into Dunnville, across the Grand River, south to the Lake Erie Coast, westerly along the coast to Selkirk, along Rainham Road, then along New Lakeshore Road into Port Dover.
- A water route on the Grand River from the downstream side of the dam in Caledonia to Lake Erie.
- Several scenic cycling routes throughout the County, generally on roads with lower traffic volumes.
- Connections to the surrounding municipalities with on-road cycling routes that are directly linked to routes in the surrounding municipalities that are currently existing, and/or are identified as future routes in their municipal master plans.
- An off-road multi-use trail connection to the City of Hamilton via the Chippawa Trail (also the designated Trans Canada Trail route).
- An off-road multi-use trail connection to Niagara Region via the Wainfleet Trail (also the designated Trans Canada Trail route).

The priorities for implementation are:

- An on-road route between Caledonia and Dunnville along River Road, west of the Grand River as this will also serve to attract touring cyclists travelling within and through the County. Note that the Master Plan recommends the addition of paved shoulders for this link. However, staff should determine if this can be achieved in the short term as part of road improvement works. If the addition of paved shoulders is not feasible within the short term, staff should examine the opportunity to provide a signed route in the interim (adding bicycle route signs and “Share the Road” signs).
- A combined on and off-road route connecting Jarvis and Townsend with existing trails in Norfolk County.

- Completing the connection between the south limit of the Chippawa Trail (Trans Canada Trail) and Caledonia.

- Further research into land titles and conditions along the designated Trans Canada Trail route (abandoned rail line), making the decision to take ownership and begin the process of managing the resource should Council deem that this is appropriate.

4.4.2 Figure 4-10 – Recommended Trail Network and Implementation: Caledonia

The trail network proposed in Caledonia is a combination of on and off-road routes which will connect neighbourhoods with schools, community facilities, major parks and the downtown core. The network reinforces popular existing trails along the Grand River, and will provide new trails in parks and natural areas as future neighbourhoods are developed. Key routes displayed on the map are:

- A combined on and off-road loop from downtown southward on Argyle Street, along the hydro corridor to River Road, and north on trails to meet the existing riverfront trail.

- An off-road connection from Argyle Street along the abandoned rail line to the Caledonia Soccer Park off McLung Road.

- A quiet loop walking or cycling loop through the neighbourhoods on the north side of the Grand River.

The priorities for implementation are:

- Developing a trail in the hydro corridor from River Road to McKenzie Road and connecting to the existing riverfront trail.

- A loop in the southwest connecting neighbourhoods with the existing riverfront trail.

- A connection from downtown and the Rotary Riverside Trail to the Caledonia soccer park.

4.4.3 Figure 4.11 – Recommended Trail Network and Implementation: Cayuga

The trail network proposed in Cayuga is primarily along existing streets with off-road trails proposed as new neighbourhoods are developed. The proposed network will link businesses, community facilities, parks and schools. Key routes displayed on the map are:

- Bike lanes or paved shoulders from downtown to Cayuga Secondary School, with an off-road at-grade crossing of the abandoned rail line.

- A trail connection over the Grand River using the existing railway bridge.

- A quiet walking route along Ouse Street.

The priorities for implementation are:

- On-road cycling route to Cayuga Secondary School.
- Walking loop along Ouse Street and Munsee Street.

4.4.4 Figure 4.12 – Recommended Trail Network and Implementation: Dunnville

The trail network proposed in Dunnville uses on-road routes to cross town and provides off-road routes within major parks and natural areas. Schools and neighbourhoods are connected to local businesses and recreational facilities via the existing rail trail/park, signed routes on quiet streets or designated bike facilities on busier roads. Key routes displayed on the map are:

- An off-road loop in the future north-east sports park with on-road connections from Taylor Road, Ramsey Drive and Logan Road.
- Neighbourhood walking loops north and south of South Cayuga Street.
- Wide shared lanes on Main Street and across the bridge to allow cyclists to safely access the downtown.

The priorities for implementation are:

- An off-road trail loop through the future north-east sports park, with on-road connections to Main St and the rail trail/park.
- Upgrade the Grand Valley Trail route from Byng Island Conservation Area through Dunnville toward Rock Point Provincial Park, and connecting with the existing Wainfleet Trail (Trans Canada Trail) via a route along the Feeder Canal.

4.4.5 Figure 4.13 – Recommended Trail Network and Implementation: Hagersville

The trail network proposed in Hagersville is a combination of on and off-road routes connecting neighbourhoods with schools, recreational facilities and the downtown core. The network will provide new trails in parks and natural areas as future neighbourhoods are developed. Key routes displayed on the map are:

- Bike lanes or wide shared use lanes through the downtown along King Street and Highway 6/Main Street.
- Proposed off-road trails near the aggregate pits (with future land development) and in future development areas around the existing Parkview Road schools.
- Proposed off-road trail loops in Grant Kett Memorial Park and Lions Park, connected by a signed walking or cycling route along Sherring Street.

The priorities for implementation are:

- Connect Grant Kett Memorial Park and Lions Park.
- Provide off-road walking loops in both parks.

4.4.6 Figure 4.14 – Recommended Trail Network and Implementation: Jarvis and Townsend

The trail network proposed in Jarvis provides safe travel through existing neighbourhoods using off-road trails in parks and public open space and signed routes on quiet streets. On-road bicycle facilities are also proposed to improve access to and through the downtown on Highways 3 and 6. An off-road link will connect Jarvis and Townsend, and continue westward on quiet rural roads into Norfolk County to join the existing Lynn Valley Trail and Waterford Heritage Trail. The existing trail network in Jarvis will be enhanced and strengthened with additional on and off-road connections in new development areas.

Key routes displayed on the map are:

- An off-road trail loop in Jarvis Lions Park with an on-road connection across Highway 3 to the school and library. An improved crossing of Highway 3 is required.
- An off-road connection between Jarvis and Townsend along the abandoned rail line and existing footpath beside Nanticoke Creek.
- Additional off-road trails in Townsend to complement the existing trail network.
- A signed recreational cycling route along Concession 14 to connect with the Lynn Valley Trail and Waterford Heritage Trail.

The priorities for implementation are:

- A detailed assessment of existing trails in Townsend to determine which sections of trail require remedial repairs and to develop a strategy to systematically upgrade the entire trail network to meet the guidelines recommended in this Plan.
- A signed on-road connection to Norfolk County along Concession 14 (to link the Waterford Heritage Trail).
- A combined on and off-road walking loop in Jarvis using the abandoned rail line, public open space around the school and library, and quiet neighbourhood streets west of Main Street.

4.4.7 Figure 4.15 – Recommended Trail Network and Implementation: Port Maitland Area

The trail network in the Port Maitland area consists primarily of scenic cycling routes that are part of the overall network for Haldimand County. Key routes displayed on the map are:

- A terminus for the Grand River water route at the public boat launch off Port Maitland Road.
- A local loop on the west side of the Grand River using Port Maitland Road, Dover Street and Kings Row which provides access to the public boat launch and beach at the mouth of the Grand.
- A local route on the east side of the Grand River using Feeder Canal Road, Grand River Line, Becky Line, Erie Line, and Siddall Line.
- A route along Feeder Canal Road which provides interpretive access to the abandoned Canal lock near the intersection of Feeder Canal Road and Siddall Line.
- A route along Niece Road which provides access to Rock Point Provincial Park.
- A Mouth of the Grand Route using Haldimand Road 3, Feeder Canal Road, a water route/water taxi from the mouth of the Feeder Canal to the public boat launch on the west side of the River, and Port Maitland Road north into Dunnville.

The priorities for implementation are:

- Completing the connection to the existing Wainfleet Trail (Trans Canada Trail) via a route along Canal Bank Road.
- Enter into discussions with the Region of Niagara about including the route along Canal Bank Road and Feeder Canal Road to the confluence with the Grand River as part of their Welland Canal trail system.
- Using Niagara Region's Port Robinson Ferry as a model, investigate the potential to provide a seasonal water taxi (private entrepreneurial opportunity) from the terminus of the Feeder Canal to the public boat launch on the west side of the Grand River.
- Work with Ontario Parks to develop trail connections into Provincial Parks (Rock Point east of Port Maitland and James N. Allen west of Port Maitland).

Recommendations:

4-1 Implement the Haldimand County Trails Network as illustrated and described in the Haldimand County Trails Master Plan and Partnership Framework Strategy. (Ongoing)

4-2 Include the Recommended Trail Network as a schedule(s) in the Haldimand County Official Plan. (with next Official Plan Update)

5.0 Trail Design Guidelines

5.1 INTRODUCTION

A well-designed and properly maintained trail system is a critical part of the users' experience and enjoyment. The quality of design and level of maintenance may play a part in a trail user's decision to make a return visit at a later date. Trails that have been thoughtfully designed and constructed also perform better over their lifespan, are easier to maintain and may result in few concerns or issues of liability. The better the quality of the trail design and construction, the more attractive it will be to users, the more it will be used, and the longer it will be before requiring upgrades.

The purpose of these guidelines is to assist trail planners, designers and managers in making informed decisions. The guidelines provide general information about trail users and their needs. Information included is based on currently accepted design practices in North America, and ongoing research and experience gained during the years of trail implementation. The guidelines are not intended to be prescriptive, rather they are suggested guidelines which should be treated as a reference to be consulted during the development and construction of the trail network. They are not meant to be inclusive of all design considerations for all locations, nor are they meant to replace "sound engineering judgment". These guidelines are not intended as detailed solutions to specific problem areas, rather the application of these guidelines in the development, implementation, and operation of individual sites will require specific consideration of a number of factors including public safety, local and/or provincial jurisdiction requirements, building codes and by-laws.

A number of the individual guidelines indicate "minimum" and "preferred" conditions or dimensions for proposed trail alignments and facilities. "Minimum recommended" conditions typically reflect a situation that might be considered minimally acceptable in terms of safety and level of service. These are usually based on a lower anticipated level of use than those anticipated for "preferred" conditions. "Preferred" reflects conditions that typically serve a broader range of uses and a greater number of trail users. Achieving the preferred condition or treatment may also provide a longer service life span.

Recommendations:

5-1 Adopt the trail design guidelines presented in Chapter 5 of the Haldimand County Trails Master Plan and Framework Strategy as the basis for the design of trails in the County. (Ongoing)

5-2 County Staff responsible for trail design (on and off-road) should be encouraged to remain current with best industry design practices. (Ongoing)

5.2 TRAIL USERS AND THEIR NEEDS

Trail users come in a variety of shapes and sizes, with a wide range of age and levels of physical ability, and have a their own sense of what the trail experience should be, which in part depends on the type of use they are interested in or what user group they consider themselves to be a part of. A "one size fits all" design approach does not apply to trails, and it is important to try and match the trail type and design with the type of experience that is desired, while at the same time achieving a predictable and recognizable quality and consistency in the design to enhance the experience, enjoyment and safety for a wide range of trail users and add value to the communities through which trails pass.

When developing and applying guidelines, it is important to consider the characteristics and preferences of potential users. In Haldimand County the potential user groups include pedestrians, cyclists, in-line skaters, users with mobility aids, all of which are self-propelled, and All-Terrain Vehicles (ATV), snowmobiles and equestrians, which are propelled. Propelled uses tend to be more localized and are recommended to be restricted to several key corridors in Haldimand's rural area.

The following sections briefly describe each of these user groups, how they tend to use the trails and key design parameters/needs that should be considered when designing trails.

5.2.1 Pedestrians

For the purposes of the Haldimand County Trail Master Plan and Partnership Framework, pedestrians include:

- Walkers;
- Hikers; and
- Joggers and runners.

5.2.1.1 Walkers

Walking is a basic activity and a freedom that is enjoyed by most people, therefore guidelines that facilitate walkers must be considered in any trail design. When thinking about walkers, planners and designers should also consider the needs of walkers with baby strollers or walking aids, or other equipment, and walkers in pairs or in groups. A study conducted by Environics International on behalf of Go for Green (1998) reported the following top five reasons for walking in Canada:

- Exercise / health (62%);
- Pleasure (30%);
- Practicality / convenience (24%);

- Environmental concern (10%); and
- Saving money (9%).

Walkers represent a wide range of interests and motives such as leisure, relaxation, socializing, exploring, making contact with nature, meditation, fitness, or dog walking. It is also important to consider pedestrians who walk for utilitarian of transportation purposes. Utilitarian walkers tend to be more urban-focused, with trips focusing on shopping and errands and walking to work and school. Where no sidewalks are provided and there are no shoulders (in urban and/or rural areas), the Ontario Highway Traffic Act allows pedestrians to walk on the edge of the roadway, facing oncoming traffic [10] and signs warning motorists of the potential to encounter pedestrians are recommended. Ninety-five percent of all pedestrian trips are less than 2.5km in length (Transportation Tomorrow Survey, in Hamilton Cycling Master Plan 1996)[11], though it is reasonable to expect that some walkers who are out for exercise/health/fitness purposes might make trips that are between 5 and 10km in length.

5.2.1.2 Hikers

Hikers often challenge themselves to cover long distances and are willing to walk on sections of rural roadway shoulder considered less safe or less interesting by the majority of leisure walkers. Trail planners should assume that there may be pedestrian users even along remote roads despite the fact that the frequency may be very low. Some of the characteristics of the hiker group include:

- They may take day trips up to 30 km in length, tend to be more self sufficient than leisure walkers, and may expect fewer amenities.
- They may be more keenly interested in natural features and often are attracted to challenging terrain and rural areas.
- They are often adept at map reading.

5.2.1.3 Joggers and Runners

Although the motive for runners and joggers is primarily fitness and exercise, their profile may be more closely aligned with distance hikers than leisure walkers. They tend to be accomplishment oriented and often enjoy the trails at higher speed and over distances between 3 and 15km or more. They will often avoid hard surfaces such as asphalt and concrete and prefer to run on granular, natural (earth) and turf surfaces as they provide more cushioning effect for their joints.

10. Ministry of Transportation (MTO), 1990.

11. http://www.myhamilton.ca/NR/rdonlyres/3654FE08-9A49-4D7D-9595-23D3557BB77A/0/ShiftingGears.pdf

5.2.2 Cyclists

The mechanical efficiency of bicycles allows users of all ages to travel at higher speeds and over longer distances than pedestrian uses. Some bicycles, including the "mountain" or "hybrid" can travel easily over stonedust and gravel surfaces, whereas narrow-tired touring and racing bicycles typically require asphalt or concrete surfaces.

Distances covered vary widely from a few kilometers to well over 100, depending on the fitness level and motivation of the individual cyclist. Although cyclists have the right to access the extensive existing public roadway system, with the exception of the 400 series and major highways, many inexperienced cyclists feel unsafe sharing the road with automobiles. Some do not have the experience, desire or skill level to ride in traffic, and often note that they are more comfortable on multi-use trails. Those cyclists that travel the longer distances are more likely to focus a significant portion of their route on the roadway network, and often seek out quieter, scenic routes over busier roads.

Bicycles are designated as a vehicle under the Highway Traffic Act (HTA) and as such are required to obey all of the same rules and regulations as automobiles when being operated on a public roadway. The Ministry of Transportation (MTO) and the Transportation Association of Canada (TAC) have developed guidelines for the design of on-road facilities and signing for on-road-bike systems. On-road cyclists generally travel 0.5-1.0m from the curb or other obstruction because of the possibility of accumulated debris, uneven longitudinal joints, catch basins, steep cross slopes. Although the average travel speed for a cyclist on a trail is in the range of 15-20km/hr and on a road 18-30km/hr, speeds in excess of 50km/hour can be attained while descending on roads and sometimes on hard surfaced trails. Where appropriate, posting speed limits on trails is encouraged to discourage fast riding and aggressive behaviour. Cyclists other than young children should be discouraged from cycling on sidewalks because of potential conflicts with pedestrians and dangerous conditions resulting from driveways and intersections. Many municipalities have enacted by-laws to prohibit sidewalk cycling.

5.2.3 In-Line Skaters, Skateboarders and Non-Motorized Scooter Users

In-line skating, skateboarding and the use of non-motorized scooters are becoming increasingly popular among all age groups, particularly in urban areas. Although in-line skaters may have more in common with cyclists than pedestrians when considering travel motive and speed, they are not considered vehicles by the Ministry of Transportation for Ontario (MTO) and some municipalities have responded by enacting by-laws to clarify their local situation. No obvious solutions have emerged, and no standards have been widely adopted. In some municipalities, in-line skaters, skateboarders and scooter users have been prohibited from using either roadways or sidewalks by local by-laws.

This user group prefers a very smooth, hard surface, and loose sand, gravel, twigs, branches, fallen leaves and puddles can be significant hazards. Being avid users of hard-surface off-road facilities they may travel some distance to reach a facility that suits their needs. Though skateboarders and scooter users can quickly become pedestrians by dismounting, they too are

vulnerable to the effect of grades (both up and downhill) and require ample manoeuvering space. An inability to come quickly to a complete stop can be a significant concern for all but the most experienced users in this group. Long or steep hills with limited visibility may be viewed as either challenging or terrifying depending on an individual's level of experience.

5.2.4 Equestrians

Trail riding on horseback is most desirable in quiet, wildland settings, however there are occasions when equestrian users require access to public roads, trails and road right-of-ways. Furthermore, under Ontario's Highway Traffic Act, equestrians are permitted on provincial roads, although many municipalities place restrictions on equestrians in urban areas. Safety is a significant consideration when horses must mix with motorized vehicles and other trail users. Trail width should accommodate a shy distance of 0.6m, to allow for uneasy horses to move to one side of the trail, and pull-out sections should be regularly located to allow for passing of other equestrians or other trail users. Visual barriers such as vegetation or solid fences are also recommended where trails are adjacent to roadways or areas of high activity, such as sports fields where the motion may alarm the horse.

Where bollards are used to limit trail access, it should be noted that mounted riders generally cannot pass through bollards spaced less than 1.5m apart, unless bollards are less than 0.9m in height. This spacing allows ATV users to access trails as well. In areas where ATV use is to be restricted, but equestrian use permitted, a "step-over" gate design can be used (refer to section 5.11 for further details.

For the purpose of the Haldimand County Trails Master Plan, equestrian use will be permitted on some County-Wide trails to provide connections between major communities and to private equestrian trails. The provision of recreational trails with varied terrain will generally be the responsibility of private equestrian clubs and landowners, working independently or in collaboration with Haldimand County.

5.2.5 All Terrain Vehicles (ATV)

Rapidly expanding recreational ATV use in Ontario has created an increased demand for trails. While many ATV clubs develop their trail networks on privately owned land, there are occasions when access to public trails and road right-of-ways is desired, bringing ATV users into conflict with other trail users. Safety of all trail users is of particular concern, as ATVs can reach high speeds on straight and flat trail sections. Nevertheless, with proper design to reduce ATV travel speeds, and adequate enforcement of trail regulations, it is possible for non-motorized and motorized trail uses to coexist. In Haldimand County ATV use will be permitted on some County-Wide trails to provide connections between major communities and to private Haldimand Area ATV Club (HAAC) trails. Specifically, this master plan recommends that:

- First ROW between Haldimand Road 20 and 5th Line, and

- the abandoned rail corridor (Trans Canada Trail) between Robinson Road and Haldimand Road 9 be designed to include ATV use.

The provision of other recreational ATV trails will be the responsibility of HAAC, working independently with private landowners and/or in collaboration with Haldimand County. As part of the development of their organization, HAAC has followed the Ontario Federation of Snowmobile Club's management model which includes a requirement for membership to use their trails and a user code of conduct which they work diligently to enforce. They have also demonstrated an interest in working collaboratively with other trail user groups in Haldimand County.

Speed limits should be posted along all trails where ATV use is permitted. At 40km/h, an ATV rider has a sight stopping distance of approximately 34m, thus all potential hazards, including trail intersections, should be signed at least 34m in advance. Slower speeds can be encouraged by including curves, grade changes and trail narrowing, although these design features should be accompanied by signage indicating that the ATV rider should reduce speed. The trail surface should be hard and smooth, with no rocks or roots protruding more than 7.5cm, no depressions larger than 0.6m wide or 15cm deep, and trail clear width should be a minimum of 0.6m beyond the edge of the trail bed. To allow safe passing of other trail users, pull-out sections of at least 8m in length should be added at regular intervals along the trail.

An additional characteristic of ATV's to consider when designing shared trails is weight of the vehicle. The combined weight of an ATV and rider can exceed 350kg, which has the potential to result in significant wear on the trail bed and surface. In abandoned rail corridors where the rail bed is in place, the trail bed can be assumed to be capable of supporting the weight of an ATV, however the trail surface should be sufficiently hard and stable to resist deformation and erosion, and it should be inspected regularly so that any deformations can be repaired promptly.

Similar design guidelines should be applied to snowmobile use in winter, on trails where ATV use is permitted.

5.3 ACCESSIBILITY AND TRAILS

The Accessibility for Ontarians with Disabilities Act (ODA) states that "The people of Ontario support the right of persons of all ages with disabilities to enjoy equal opportunity and to participate fully in the life of the province."[12] Approximately one in eight Canadians suffer from some type of physical disability. Mobility, agility, and pain-related disabilities are by far the most common types, each accounting for approximately 10% of reported disabilities nationally.[13]

[12] Ontarians with Disabilities Act, 2001.

[13] Social Development Canada, 2004, p. 2.

Within the ODA, Bills 118 and proposed Bill 125 recognize the need to provide for accessibility standards, improve opportunities and facilitate the removal of barriers in order to enable persons with disabilities to fully participate in the life of the province.[14] Where possible and practical, trails should be designed for users of all abilities. It must be recognized however, that not all trails throughout the entire network can be designed to be fully accessible, and the decision regarding level of accessibility to be provided can be based in part, on anticipated level of use and location. For example it is appropriate to design accessible trails along key urban corridors and attractions, whereas trails in remote rural areas may not need to be fully accessible unless they are associated with a significant destination or attraction.

Universal Trail Design is a concept that takes into consideration the abilities, needs, and interests of the widest range of possible users. Universal Trail Design refers to planning and developing a range of facilities that can be experienced by a variety of users of all abilities. Steep slopes for example are one of the most significant barriers for those with physical disabilities. Designing trails to be within the threshold (8.3%) for universal access will not only overcome this significant barrier but it will help to reduce the potential for erosion of the trail surface.

The basic principles of Universal Trail Design can be summarized as follows:

- **Equitable use**: provide opportunity for trail users to access, share and experience the same sections of trail rather than providing separate facilities.
- **Flexibility in use**: provide different options for trail users in order to accommodate a variety of experiences and allow choice.
- **Simple, intuitive and perceptible information**: whether conveying trail information through signage, maps or a web site, communicate using simple, straightforward forms and formats with easy to understand graphics and/or text.
- **Tolerance for error**: design trails and information systems so as to minimize exposure to hazards, and indicate to users any potential risks or challenges that may be encountered.
- **Low physical effort**: trails may provide for challenge but should not exceed the abilities of the intended users; where appropriate, rest areas should be provided.

14 Ontarians with Disabilities Act - Bill 118 and 125, 2001.

- **Size and space for approach and use**: trails and amenities should provide for easy access, comfort and ease in their usage.

The following are some additional considerations for making existing and new trails accessible:

- Trail designers should consult the most current standards available in Haldimand County through the Haldimand County Accessibility Advisory Committee (HCAAC).

- Where it has been determined that full accessibility is appropriate, the accessibility representative should be consulted during the detailed design process to ensure that the design is appropriate.

- Where the trail requires an accessibility solution that is above and beyond what is normally encountered, a representative of the HCAAC should be consulted early on in the process to determine if it is practical and desirable to design the specific trail to be fully accessibility.

- Work collaboratively with the HCAAC to consider develop signage to clearly indicate trail accessibility conditions, which allow users with mobility-assisted devices to make an informed decision about using a particular trail prior to travelling on it.

5.4 PERSONAL SECURITY AND TRAILS

To the extent that it is possible, trails should be designed to allow users to feel comfortable, safe, and secure. Although personal safety can be an issue for all, women, the elderly, and children, are among the most vulnerable groups. Principles of Crime Prevention Through Environmental Design (CPTED) should be considered and applied to help address security issues concerning trail use, particularly in locations where trails are lightly used, isolated or in areas where security problems have occurred in the past.

Some specific trail design strategies that other jurisdictions have employed include:

- Providing good visibility by others by having routes pass through well-used public spaces.

- Providing the ability to find and obtain help utilizing signage that tells uses where they are along the trail system.

- Providing signs near entrances to isolated areas can be used to inform users that the area is isolated and suggest alternative routes.

- Providing “escape” routes from isolated areas at regular intervals.

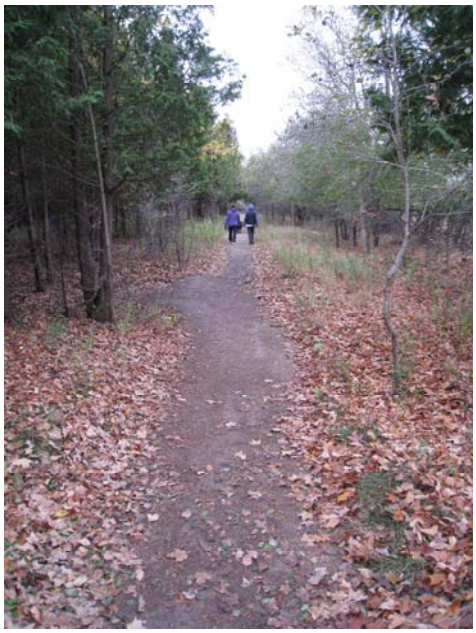
- Maintaining sight lines and sight distances that are appropriately open to allow good visibility by users.

- Providing trailhead parking in highly visible areas.
- Minimizing routing close to features that create hiding places such as breaks in building facades, stairwells, dense shrubs and fences.
- Designing underpasses and bridges so that users can see the end of the feature as well as the area beyond.

5.5 TRAILS IN NATURAL AREAS AND ENVIRONMENTAL BUFFERS

Trail users often seek natural areas such as woodlots and wetlands where they can find some relief from the urban environment. Natural areas provide opportunities to enjoy and interpret nature, and to pursue some trail activities that are not possible in more traditional parks. In many cases, trails are compatible with natural areas, in some cases they are not. Creating the balance between providing public access and the need to conserve and/or protect the resource itself can be a difficult goal, especially in situations where there is a large population of residents nearby or surrounding the feature. Where trails are to be located in natural areas it is important that they be located and designed appropriately and that the area be monitored for the effects of inappropriate use and/or overuse. If trails are not carefully planned, designed, constructed and maintained in these areas, users will create their own trail routes sometimes in sensitive locations where it would be preferable not to have trails in the first place. Proper planning, design and construction of trails, coupled with public education can go a long way to achieving the balance between use and protection.

Trail in a natural area buffer, Guelph, ON



Inappropriate location for trail, leading to trail widening, Markham, ON

In some cases trails (and people) should not be in natural areas. Vegetation communities that are highly sensitive to disturbance, narrow, constrained wildlife corridors, critical breeding and wintering habitat are examples situations/locations where it may not be appropriate to include trails. When designing trails nearby sensitive natural heritage features general considerations for alignment and design should include:

- Route or reroute the trail to avoid sensitive and/or critical habitats, and this should be supported by an education campaign (i.e. signing, brochures etc.) explaining the management decision to exclude trails from the area.
- Use previously disturbed areas where appropriate and possible.
- Close and rehabilitate trails that are inappropriately located.
- Interpret sensitive species away from their location to avoid deliberate or unintentional disturbance and damage.
- Consider and evaluate alternative routes and design treatments.
- Balance the effect of alternatives.
- Maintain natural processes.
- Limit accessibility.
- Incorporate habitat enhancements.
- Complement and highlight natural features.

Where trail routes are being proposed within environmental buffers surrounding sensitive natural heritage features, it is important to consider if characteristics of the buffer (width, slope etc.) are capable of supporting the development of a trail such that the intended function of the buffer is not compromised.

5.6 TRAILS IN UTILITY CORRIDORS AND ABANDONED RAILWAY RIGHTS OF WAY AND UNOPENED ROAD ALLOWANCES

Pipeline and hydro corridors, municipal water, storm and sanitary sewer lines are examples of linear corridors that provide excellent opportunities for trail development and should be considered for the development of trails in Haldimand County. Utility lines in urban areas often have a substantial easement, and in many cases are used informally for trail access as they tend to provide direct, uninterrupted connections to a variety of destinations over a long distance. In rural areas the ability to provide trails in utility corridors is usually more limited as the easement may be much narrower. In the case of hydro corridors, the easement may be limited to an area around the base of the towers.

A number of municipalities have recently adopted practices and policies whereby emergency service access must be provided to manholes along utility corridors for emergency access. For example the City of London now provides emergency service access to sanitary sewer lines running through their valley lands, and these routes are also used as main or trunk trails throughout the city. Bridges over waterways are designed to accommodate pedestrian traffic and in some cases lightweight service vehicles.

Trail in hydro corridor, Chatham, ON

Abandoned railways and unopened road allowances are potentially valuable municipal assets and present an opportunity for trail development. In addition, they may provide linear corridors for future transportation links (roads, future rail, light rail and transit). Furthermore, easements can be leased to utility companies for underground transmission lines thus helping to offset the cost of owning, operating and maintaining a multi-use trail on the abandoned rail bed.

5.7 CREATING NEW TRAILS IN ESTABLISHED NEIGHBOURHOODS

There is no question that it can be challenging to implement trails in established neighbourhoods, even if the intent to do so has been clearly documented in strategic master plans. It is sometimes difficult to obtain public opinion related to specific trail segments at the strategic planning stage and it is not until a project reaches the implementation stage that residents who perceive themselves as being directly affected become more involved and vocal. Real and perceived concerns over increased traffic/access to their rear yards, invasion of privacy, the increased potential for vandalism and theft are often cited as key concerns.

Site tour with a trails working group to examine alternatives for adding new trails in an established neighbourhood

One aspect of a program to overcome this challenge is to engage residents in an open, iterative consultation process in the earliest possible stages of the project. In some cases, the most vocal opponent can become the greatest supporter if the process provides an effective avenue to address concerns. Some keys to success include:

- Notifying adjacent landowners early in the process and taking the time to understand and respond to their concerns. This should include an invitation to provide their input into the process (i.e. participation in design charettes, site tours to understand options for alignment, understand specific concerns, to design materials and privacy features).
- Emphasizing the benefits of trails for their neighbourhood and community, including themselves and their children.
- Emphasizing successful examples and effective solutions where similar problems were overcome.

As part of the detailed design process, it is recommended that the County consider further consultation with key stakeholders, agencies and adjacent landowners when major trail routes identified in the master plan network are being considered for implementation.

5.8 TRAILS AND NEW DEVELOPMENT

The planning of the trail system is seen as a critical component of the land development process. Community trails are an integral part of the urban fabric and are a key component of the recreation asset and transportation system. New developments must be planned for the efficient movement of people for recreation and utilitarian purposes. This includes not only roads and sidewalks, but also trails that must make connections among neighbourhood destinations and the broader county wide trail network. To achieve this objective, appropriate policies are required in the County Official Plan. Planning staff should review the Official Plan with a view towards developing appropriate policy/wording that can be included in a future Official Plan Amendment.

Developers should be expected to work through an iterative process with County staff, beginning early in the planning stages to create a trail network within their development area

that reflects the intent of the Haldimand County Trails Master Plan and Partnership Framework Study. The County should provide developers with information about the network, desired connections and design expectations as part of building a positive working relationship. Ideally, trails in new development areas should be constructed prior to or concurrently with the construction of other infrastructure and buildings. Where trail construction will not take place until a later date, there is often conflict as residents claim that they were not aware of plans for trail construction even if this intention has been clearly indicated in municipal planning documents. Developers and builders shall be required to be proactive about notifying prospective buyers where trails are to be located at the time they are selling lots. Providing information at sales offices, including information in sales packages and erecting signs in locations where trails are to be constructed may help to alleviate difficulties at a later date. A mandatory requirement for developers and builders to be forthcoming with information regarding future trails could be included as a condition of approval in subdivision and/or site plan agreements.

Trail/pedestrian access created along the riverfront with infill development Guelph, ON

It is expected that proposals for new development areas (both greenfield and infill) will contain routes that reflect the density, variety, hierarchy and character that is consistent with rest of the network proposed in this master plan. Specifically this implies the planning, design and implementation of off-road trails and on-road links that:

- Overcome physical barriers.
- Make appropriate connections to important destinations.
- Enhance connections to the existing or planned system of trails surrounding the subject development area.
- Are sensitive to, and/or highlight inherent qualities of the natural and cultural landscape features within the development area.

A careful examination of a variety of factors including topography and drainage, slopes, soil conditions, plant and animal communities, microclimate and human comfort, historic/cultural resources, public education opportunities, significant views and vistas should be part of the process to integrate trails in new developments.

5.9 GENERAL TRAIL DESIGN PARAMETERS

Careful consideration should be given to the physical, aesthetic and environmental requirements for each trail type. In many instances physical design criteria related to operating space, design speed, alignment and clear zones are often governed by the needs of the fastest, most common user group on the majority of the trails, that being the cyclist. Therefore, many of the physical design criteria outlined in the following sections are recommended in relation to cycling. This is not to say that all trails need to be designed to meet the requirements for cyclists, however when multi-use trails are being designed it is prudent to use parameters for the cyclist. When considering single or specialty uses such as mountain biking, the generalized parameters outlined below may not apply and designers should work directly with the user group and/or design manuals that are specific for that use.

Trail user operating space is a measurement of the minimum personal space that a trail user requires to safely and comfortably walk, ride or roll along the trail, depending on their mode of travel. This space also includes room required for side to side body motion used to maintain balance and generate momentum as is the case for some user groups such as cyclists and in-line skaters. **Table 5.1** outlines minimum and preferred operating space for different uses.

Table 5.1 Trail user Operating Space

Operating Condition by trail user type	Minimum (metres)	Preferred (metres)
Single wheelchair user	1.2	1.5
Two pedestrians traveling side by side in the same direction	1.5	2.0
Single ATV user	2.4	3.0
Single cyclist	1.2 (in constrained locations)	1.5+
Single in-line skater	2.3	3.0
Single one equestrian	3.0	3.6
Two cyclists passing each other while traveling in opposing directions	3.0	3.0+
Two wheelchairs passing each other while traveling in opposing directions	3.0	3.0+

Horizontal clear distance is the space beside the trail bed that should be kept clear of protruding objects.

Vertical clear distance is the space above the head of the user while using the trail (i.e. walking or mounted on their bicycle etc). **Table 5.2** provides minimum and preferred horizontal and vertical clear distance.

Table 5.2: Horizontal and Vertical Clear Distance

Clearance Condition	Minimum (metres)	Preferred (metres)
Horizontal clearance to stationary objects	0.6	1.0m or greater
Vertical clearance to stationary objects	2.5	3.0 (3.5 min for equestrians)

Slope refers to both the measured fall over a given distance and both the centerline (**longitudinal slope**) and perpendicular to the centerline (**cross slope**). **Table 5.3** provides recommended guidelines for longitudinal and cross slope.

Table 5.3 Longitudinal and Cross Slope

Longitudinal Grade or Slope	
0 to 3%	Preferred
5%-10%	Provide additional trail width where trail segments are greater than 100m in length Introduce level rest areas every 100 to 150m of horizontal distance Consider design strategies such as switchbacks Install signing to alert users of upcoming steep grades Avoid grades over 5% for off road trails. Where steeper slopes are necessary "trail hardening" should be considered Note: 12:1 (horizontal distance or run: vertical distance or rise), or 8.3% over a distance of 9.0m is the maximum permissible slope for meeting accessibility standards. Level landings or rest areas are required as a minimum every 9.0m where the slope exceeds 8.3%.
Greater than 10%	Consider the use of structures such as steps, step and ramp combinations, stairways Consider locating the trail elsewhere
Cross slope	
0.5 to 2%	Minimal, acceptable on hard surfaced trails, may not provide adequate drainage on granular surfaced trails
2 to 4%	Preferred range for both hard and granular surfaced trails
Greater than 4%	Avoid wherever possible as excessive cross slopes can be difficult, and potentially dangerous for some levels of physical ability and certain user groups, as create difficulty maintaining balance, especially among user groups with a high centre of gravity.

Design speed is used to determine trail width, minimum curve radius, horizontal alignment and banking or superelevation to ensure that trail users have adequate space and time to safely approach and navigate sharper curves along the trail.

Cycling is the critical user when designing off-road trails for self-propelled users as they have the highest average travel speed. Design speeds for recreational cyclists are generally considered adequate for all self propelled trail users including pedestrians, in-line skaters, skateboarders, scooter users and those using mobility devices such as wheelchairs. The average recreational cyclists can maintain speeds of 18-25 km/h on some trails and most roads, while utilitarian and fitness-oriented cyclists usually travel at higher speeds (25 to 30km/h on some trails and most roads. . For granular surfaced off-road trails, a design speed in the area of 30km/h is usually adequate, whereas a minimum of 35km/h should be considered for hard surfaced trails. On descents with steeper grades, the design speed should be increased to 50km/h and consideration should be given to some additional trail width to increase maneuvering space. Cautionary signing should be used to warn of upcoming steep grades and sharp curves.

The minimum radius of a curve on an off-road cycling facility depends on the bicycle speed, super-elevation and coefficient of friction between the bicycle tires and the cycling facility surface. **Table 5.4** for suggested outside radii for a range of design speeds and superelevation rates.

Table 5.4 Trail Curve Radii

Design speed (km/h)	Coefficient of Lateral Friction	Suggested radius (m) where superelevation = 0.02m/m	Suggested radius (m) where superelevation = 0.05m/m
25	0.30	15	14
30	0.28	24	21
35	0.27	33	30
40	0.25	47	42
45	0.23	64	57
50	0.22	82	73

Source: Transportation Association of Canada, 1999.

The upcoming revision to the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, expected to be published in late 2009 or early 2010 will be recommending that the general design speed should be 22km/h for multi use trails where cycling is the highest speed user group. Based on research, 22km/hr represents the 85th percentile for speed. The slightly lower design speed will allow for slightly smaller curve radii and potentially less construction impact as compared to trails requiring larger radii.

When horizontal curves are sharp (i.e. a very small radius), widening should be considered to compensate for the tendency of cyclists to track toward the outside of the curve. **Table 5.5** provides additional widening requirements for curves on trails where the radii are less than the recommended minimum for the design speed selected.

Table 5.5: Additional trail widening on outside of curves	
Radius (m)	Additional widening (m)
0-7.5	1.2
7.5 - 15	0.9
15 – 22.5	0.6
22.5 - 30	0.3

Where propelled uses such as ATV's are being considered, a higher design speed should be used, and speed limits should be clearly posted and users should be expected to abide by the posted limits. As noted in earlier in this chapter propelled uses such as ATV's should be permitted on several key corridors where sight lines are generally good, and where corridor width is sufficient. In some locations a separate trail bed for the propelled uses or an ample shared trail bed can be provided.

5.10 TRAIL TYPES

5.10.1 Off-road Multi-use Trails

Major or main trails are designed to accommodate the widest spectrum of users. They are wider, and may have an asphalt or granular surface. Minor or secondary trails are generally narrow and follow the topography more closely than main trails. **Table 5.6** provides recommended guidelines for trail width and surface treatments for Major and Minor trails according to location. Intended trail uses should be considered when selecting trail surface as some surfaces tend to exclude certain uses.

Table 5.6 Suggested trail dimension and surface type according to location[3]		
Trail Location	Major /Main Trail	Minor /Secondary Trail
	Recommended/Preferred Guideline [1]	Recommended/Preferred Guideline*
Urban Core Area (i.e. riverfront promenade)	3.0-3.5m wide, hard surface (asphalt, concrete, unit pavers) compatible with urban design objectives. Note: some surface textures may be difficult for persons with wheelchairs and walkers to use. Consider application of a centerline marking on hard surface trails to articulate user positioning for bi-directional flow.	Not applicable
Major County Wide Destination (i.e. Major Park, Community Centre , Civic complex, urban rail trails, trails in utility corridors)	3.0-3.5m wide, hard surfaced (typically asphalt), especially for routes/loops to accommodate small wheeled users and urban rail trails where they pass through core areas and major county wide destinations. Use granular surface where deemed appropriate. Consider width and turning radii of service access vehicles when designing trails in utility corridors. Consider application of a centerline marking on hard surface trails to articulate user positioning for bi-directional flow.	2.4-3.0m wide granular surface Hard surfaced only where requested by residents and warranted, or for maintenance concerns.
Minor parks and Stormwater Management Areas with Trails	2.4-3.0m wide granular surfaced. Hard surfaced when/where requested by residents and warranted, or for maintenance concerns.	2.4m wide granular surface.
Natural Area Buffers, Rural Areas, including rail trails in rural areas	2.4m wide granular surface. Consider trail hardening for maintenance concerns (only use asphalt or soil bonding agents). Avoid using asphalt in treed areas where excessive root damage may occur during installation and/or roots may cause premature heaving of asphalt.	1.5m wide granular surface. Trail hardening for maintenance concerns only-use soil bonding agents.
Woodlots and Conservation Areas[2] (urban and rural areas)	2.4m wide granular surface.	1.5-2.0m wide woodchip surface. May be granular or smooth earth surface where universal access is desired.
Wetlands: includes Treed Swamps, Marshes, Shrub Thickets/ Meadow Marshes, Marshes (urban and rural areas)	2.0-2.4m wide granular surface, boardwalk or other surface considered to be compatible with site conditions. May be up to 3.5m (boardwalk) in cases of high use if it is compatible with location.	1.5 m boardwalk or other suitable elevated trail bed.

Notes:

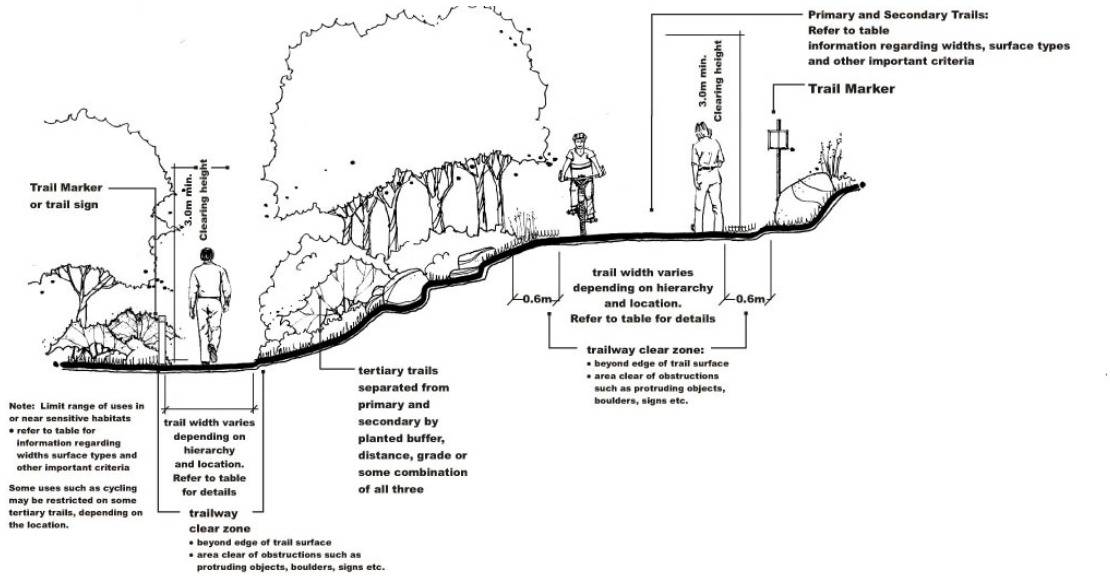
1 = Recommended widths to achieved where possible. Some variation from width and surface type will be applied on a site by site basis when considering local environmental constraints and/or access needs for universal access.

2 = For trails on lands that are owned or managed by other agencies (i.e. Conservation Areas and Provincial Parks), trail designs will require their approval prior to implementation.

3. = Fences should be installed (i.e. chain link fence) to delineate private property boundaries where trails pass between private properties such as a walkway between 2 residential lots. Fences should be considered where trails are located in close proximity to property lines in urban areas (i.e. chain link fence), and in rural areas (i.e. wire fence) as required.

In some areas, where trail use is high and adequate space exists, it may be appropriate to provide physically separated trails within the same corridor to create opportunities for faster traveling users as well as slower traveling users. Where this design treatment is appropriate, separation of the major trail from the minor trail can be created by distance, grade, or planted buffers. Signs to identify permitted uses for each trail should be used to communicate intent and ensure the integrity of the separated system. Trails in utility corridors, abandoned rail corridors, and unopened road allowances are prime opportunities to develop separated trails.

Typical Multi-use and Hiking/Walking Only Trail



There are a number of options for trail surface materials, each with advantages and disadvantages related to cost, availability, ease of installation, lifespan and compatibility with various trail users groups. **Table 5.7** provides a summary of the most commonly used trail surfacing materials along with some advantages and disadvantages of each. There is no one trail surface material that is appropriate in all locations, and material selection during the design stage must be considered in the context of the anticipated users and location. Asphalt is the most commonly used hard surface and stonedust/“screenings” is likely the most widely accepted granular surface.

Table 5.7 Comparison of trail surfacing materials		
Type	Advantages	Disadvantages
Concrete	Smooth surface, can be designed with a variety of textures and colours, providing flexibility for different urban design treatments. Long lasting, easy to maintain.	High cost to install. Requires expansion joints which can create discomfort for users with mobility aids. Must be installed by skilled tradespeople. Is not flexible and cracking can lead to heaving and shifting, sometimes creating large step joints.
Unit Pavers	Relatively smooth surface, available in a variety of patterns and colours to meet urban design needs. Long lasting, can be easily repaired by lifting and relaying.	High cost to install. Users with mobility aids may find textured surface difficult to negotiate. Must be installed by skilled tradespeople.
Asphalt	Smooth surface, moulds well to surrounding grades, and is easily negotiated by a wide range of trail user groups. Relatively easy to install by skilled trades. Patterned and coloured surface treatments are available, however patterning in surface may be difficult for some user groups to negotiate.	Moderate-high cost to install. Must be installed by skilled tradespeople. Has a lifespan of 15-20 years depending on the quality of the initial installation. Poor base preparation can lead to significant reduction in lifespan. Cracking and "alligatoring" occurs near the edges, grass and weeds can invade cracks and speed up deterioration. Must be appropriately disposed of after removal.
Granular Materials	Pit Run: Mixed granular material "straight from the pit" containing a range of particle sizes from sand to cobbles. Excellent for creating a strong sub base, relatively inexpensive.	Not appropriate for trail surfacing.
	'B' Gravel: Similar characteristics to Pit Run with regulated particle size (more coarse than 'A' Gravel). Excellent for creating strong, stable and well drained sub bases and bases. Relatively inexpensive.	Not appropriate for trail surfacing.
	'A' Gravel: Similar characteristics to 'B' Gravel, with smaller maximum particle size. Excellent for trail bases, may be appropriate for trail surfacing of rail trails in rural areas and woodlots. Easy to spread and regrade where surface deformities develop.	Subject to erosion on slopes. Some users have difficulty negotiating surface due to range in particle size and uneven sorting of particles that can take place over time with surface drainage.

	Clear stone: Crushed and washed granular, particles of uniform size, no sand or fine particles included. Excellent bedding for trail drainage structures and retaining wall backfilling, if properly leveled and compacted, makes an excellent base for asphalt trails.	Not appropriate for trail surfacing.
	Stone fines (Screenings): Mixture of fine particles and small diameter crushed stone. Levels and compacts very well and creates a smooth surface that most trail users can negotiate easily. Easy to spread and regrade where surface deformities develop. Inexpensive and easy to work with. Widely used and accepted as the surface of choice for most granular surfaced trails.	Subject to erosion on slopes Manual wheelchair users have reported that stone shards picked up by wheels can cause injuries to hands. May not be suitable as a base for hard surfaced trails in some locations.
Mulches and Wood Chips	Bark or wood chips, particle size ranges from fine to coarse depending on product grade, soft under foot, very natural appearance that is aesthetically appropriate for woodlot and natural area settings. Some user groups have difficulty negotiating the softer surface, thus woodchips can be strategically used to discourage some uses such as cycling. May be available at a very low cost depending on source, and easy to work with.	Breaks down over time, therefore requires "topping up". Source of material must be carefully researched to avoid unintentional importation of invasive species of plants and insects.
Earth/Natural Surface	Native soils existing in situ. Only cost is labour to clear and grub out vegetation and regrade to create appropriate surface. Appropriate for trails in natural areas provided that desired grades can be achieved and that soil is stable (do not use avoid organic soils).	Subject to erosion on slopes. Different characteristics in different locations along the trail can lead to soft spots. Some user groups will have difficultly negotiating surface.
Soil Cement, and soil binding agents	Soil Cement: A mixture of Portland Cement and native/parent trail material. When mixed and sets it creates a stable surface that can be useful for "trail hardening" on slopes, particularly in natural settings. Soil Binding Agents. A mixture of granulars and polymers that create a solid, yet flexible surface that may be appropriate for "trail hardening" on slopes in natural areas. Limits volume and weight of materials to be hauled into remote locations.	Useful for specific locations only. Soil binding agents tend to be expensive and have been met with mixed success.
Wood (i.e. bridges and boardwalks)	Attractive, natural, renewable material that creates a solid and level travel surface. Choose rough sawn materials for deck surfacing for added traction.	Requires skill to install, particularly with the substructure. Gradually decomposes over time, this can be accelerated in damp and shady locations, and where wood is in direct contact with soil. Expensive to install.

5.10.1.1 In-Boulevard Multi-use Trails

For the purposes of the Haldimand County Trail Master Plan, the term boulevard is used to generally refer to the space between the rear face of the curb and edge of the right of way along a public roadway, and the in-boulevard multi-use trail is a specially designed trail facility that is located in the boulevard space.

Boulevards vary dramatically from one location to the next depending on characteristics such as width, utilities, adjacent land uses and traffic volumes along the road, and the rights and obligations of different user groups change depending whether or not they are using the trail or the road. The following example is used to illustrate this point. A cyclist traveling on the road has the same right-of-way as a motor vehicle when intersecting private driveways (vehicles entering on to the road must yield to those travelling along it). On the other hand, the same cyclist using an in-boulevard multi-use trail must yield to a vehicle crossing the trail at private driveways, making every driveway a potential conflict point. When the in-boulevard multi-use trail intersects with side streets, the cyclist is required to stop, dismount and walk across the intersection unless the intersection has been specifically designed an approved for a multi-use trail crossing.

The installation of the in-boulevard multi-use trail should be considered carefully on a site-by-site basis. The following are some general situations where the application of a boulevard trail may be considered:

- Urban arterial, collector or rural roads where there is ample right of way between the edge of the road (curb for urban cross section and shoulder for rural cross section) and the limit of the right of way to maintain a minimum separation between the road and the trail.

- To provide connections between important destinations or a link within a route that is predominantly off-road and parallel route(s) exist nearby, in which case it can be assumed that there may be a higher proportion of inexperienced users on the route.

- Where there are open sight lines and relatively few obstacles in the boulevard space that can't be easily relocated to accommodate the trail.

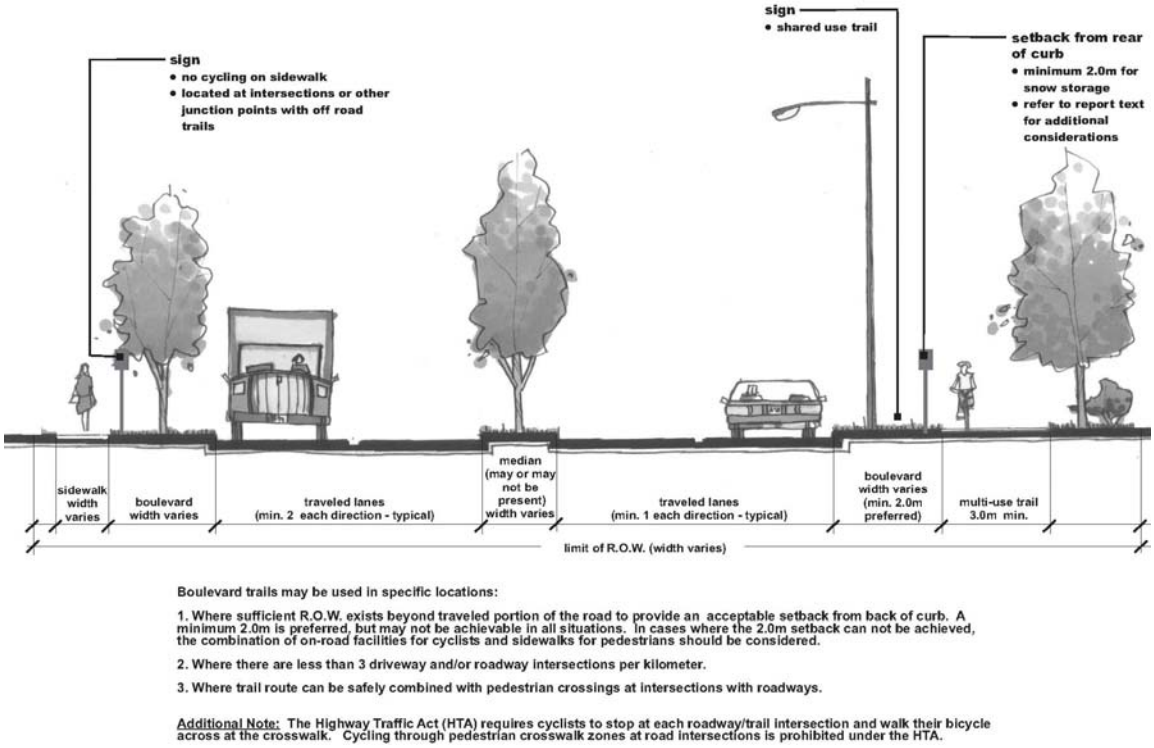
- Along corridors where there are limited commercial or residential driveway crossings. **Table 5.8** provides some threshold guidelines that have been applied in other jurisdictions in Ontario.

Table 5.8 Driveway crossings thresholds for Boulevard multi-use trails	
Number of driveway crossings / intersections per km	Guideline Recommendation for Boulevard multi-use Trail
0-3	An ideal application for In-boulevard multi-use trail.
4-10	Consider applying on-road paved shoulders or bike lanes, where other conditions noted above can't be met.
Greater than 10	In- boulevard trail not recommended. Pedestrian trail users should be directed to follow sidewalks, bicycle lanes should be installed on-road for cyclists.

When implementing an in-boulevard multi-use trail the following design elements should be considered:

- A setback from the curb is required to provide space for snow storage, to provide an adequate clear zone from site furniture and utility poles and in some cases street tree plantings.
- Signing in advance of, and at roadway intersections to inform cyclists to stop, dismount and walk across intersections as required by the Highway Traffic Act, or a suitable crossing design to permit cyclists to legally ride through intersections after stopping but without dismounting.
- Stop or yield signs (decision on a site-by-site basis) at driveways, depending on the number of driveways and the distance between each.
- A treatment at road intersections to separate "lanes of traffic" in each direction. The treatment must be spaced adequately to allow for the passage of bicycles with trailers.
- Open site lines at intersections with driveways and roadways.
- A centre yellow line on trail to separate directions of travel (for hard surfaced trails-optional) and to guide riders overtaking pedestrians and slower moving riders.
- Curb ramps at driveways and roadway intersections.

Typical In-Boulevard Multi-use Trail



Boulevard trails may be used in specific locations:

1. Where sufficient R.O.W. exists beyond traveled portion of the road to provide an acceptable setback from back of curb. A minimum 2.0m is preferred, but may not be achievable in all situations. In cases where the 2.0m setback can not be achieved, the combination of on-road facilities for cyclists and sidewalks for pedestrians should be considered.

2. Where there are less than 3 driveway and/or roadway intersections per kilometer.

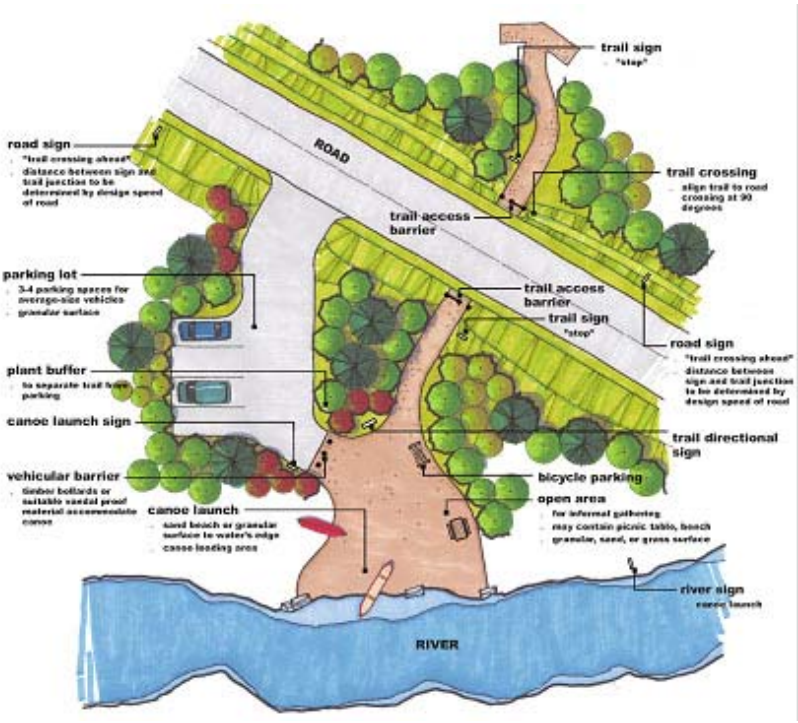
3. Where trail route can be safely combined with pedestrian crossings at intersections with roadways.

Additional Note: The Highway Traffic Act (HTA) requires cyclists to stop at each roadway/trail intersection and walk their bicycle across at the crosswalk. Cycling through pedestrian crosswalk zones at road intersections is prohibited under the HTA.

When new roads are being built or existing roads are being reconstructed, the alignment of the centre line of the road within the right-of-way should be examined where the Haldimand County Trails Master Plan and Partnership Framework Study recommends an off-road connection. For example, when a road is being reconstructed from a two lane rural to a three or four lane urban cross section and the potential for a boulevard trail has been identified, an offset road centreline within the road right-of-way can provide additional boulevard space on one side. This will provide more space for the development of the boulevard trail and/or increased separation distance between the road and the trail. Where boulevard trails are implemented on one or both sides of a road, it is reasonable to assume that they can perform the same function as the sidewalk, therefore it is may not be necessary to install both a trail and sidewalk on the same side of the road. The boulevard trail should be clearly signed (i.e. multi-use trail/shared use signage) so that users are aware that the segment is multi-use and not pedestrian only.

5.10.2 Water Trails

Elements of a water trail staging area/canoe launch



The Grand River is a significant navigable waterway in Haldimand County with national Heritage River status, partly because of its important role in pre-colonial and modern development of the community. The Grand is rich cultural and natural heritage features and is deserving of an integral part of Haldimand County's trail system. Few if any improvements are required in the waterways themselves to make them suitable for use as water based trails, apart from the removal of overhead obstructions such as low hanging branches and underwater hazards such as snags. Any removals/modifications of the river corridor will require the approval of the Grand River Conservation Authority. Much of the land on either side of the waterway is private, and as such public access will be limited. Signage along the river banks to inform users of appropriate locations for land access and public property should be placed in highly visible locations, and cautionary signs should be used to mark potential hazards such as structures with low headroom. Currently there are public boat launches in a number of locations throughout the municipality that can be used as access points for water based trails.

5.10.3 On-road Routes

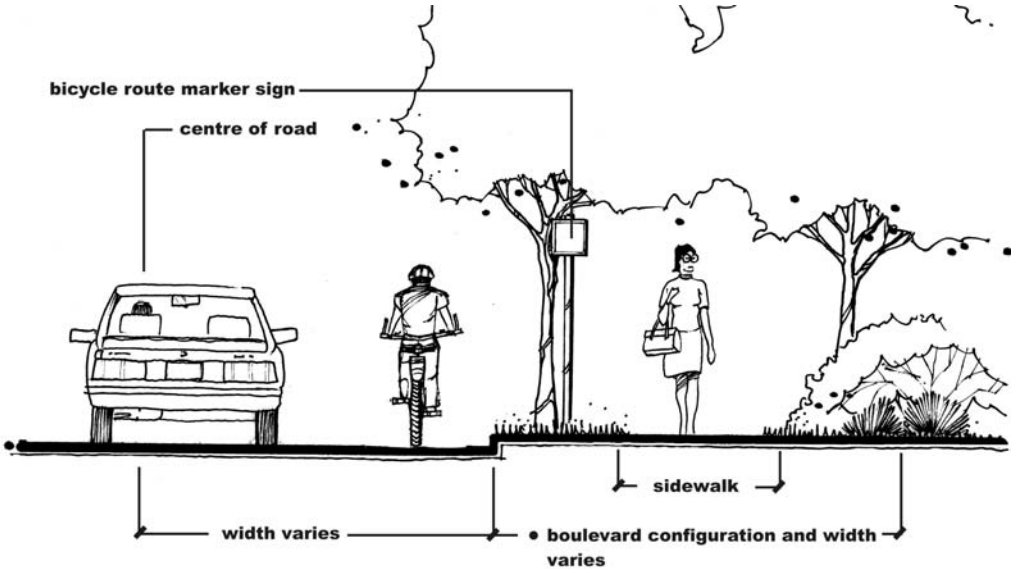
One of the objectives of the Haldimand County Trails Master Plan is to develop a trail network that is off-road wherever possible. In some cases this will be impossible in the short, or even long, term. In the rural countryside and parts of the urban centres such as the older residential

neighbourhoods public open space is confined to road rights-of-way and centralized parks. Where public land (other than the road right-of-way) is not available and access agreements for trails on private lands are not feasible, it is necessary to provide connecting links using the road network. Where this is the case, pedestrians and other small-wheeled users (strollers, in-line skaters, users with mobility-assisted devices etc.) are expected to use sidewalks in urban areas and road shoulder in rural areas, whereas cyclists are expected to use the road.

In Haldimand County a number of options exist for on-road cycling routes including bicycle lanes, paved shoulders, wide curb or shared lanes and signed routes. In addition to the commonly encountered situations to which relatively simple guidelines can be applied, there are often situations where the proper design requires a bicycle system design specialist who is familiar with not only the common guidelines, but also with innovative techniques that have been successfully applied elsewhere.

5.10.3.1 Signed Routes

Typical On-road Signed Route

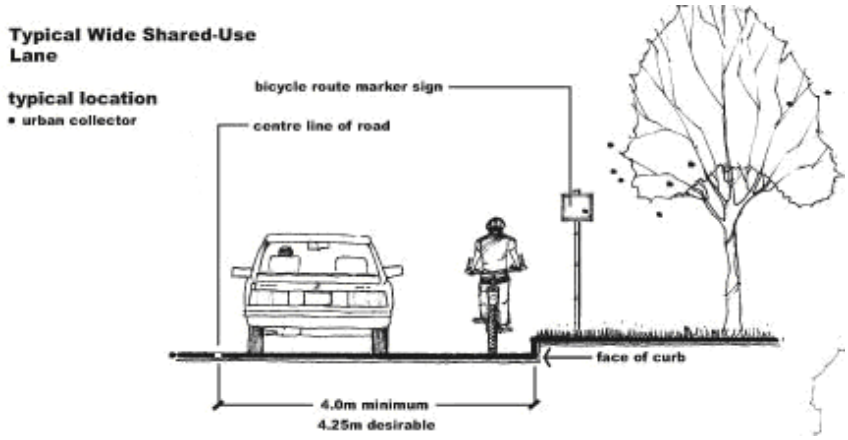


Signed bike route on a low volume street in London, ON

Signed routes are typically found along roads where traffic volumes and vehicle speeds are low. Typical of quieter residential streets (low volume and low speed), core urban areas (higher volume and low speed) and lower order rural roads (low volume and moderate speed), cyclists can share the road with motor vehicles and there is no need to create a designated space for cyclists. Signs located at intersections and at regular intervals in rural areas help trail users find their way. Along signed routes where the street is very narrow, "share the road" signs can also be erected to encourage cooperative behaviour between cyclists and motorists.

5.10.3.2 Shared use Lanes

Typical Wide Shared-use Lane

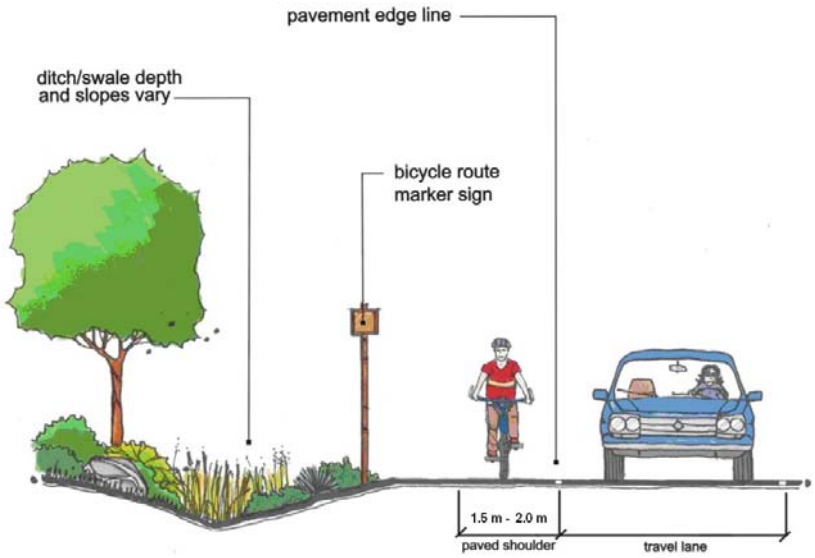


Wide Shared Use Lane, Ottawa, ON

Wide shared use lanes, sometimes also referred to as wide curb lanes are used on roads where vehicle speeds or traffic volumes are higher than those associated with signed routes (i.e. arterial and collector roads). Where necessary or desirable, the shared use arrow or "Sharrow" can be painted on the road at regular intervals to inform road users to expect cyclists, and to assist the cyclist in understanding the preferred location to travel.

5.10.3.3 Paved Shoulders

Typical Paved Shoulder



Paved shoulders provide a space for cyclists on rural cross-section roads (with shoulders, no curb and gutter). Pedestrians can use paved or granular shoulders where necessary (traveling in a direction facing traffic). Paved shoulders are typically recommended on rural cross section

roads where traffic volume and speed are high. Poor sight lines and high truck volume are additional situations where paved shoulders should be considered.

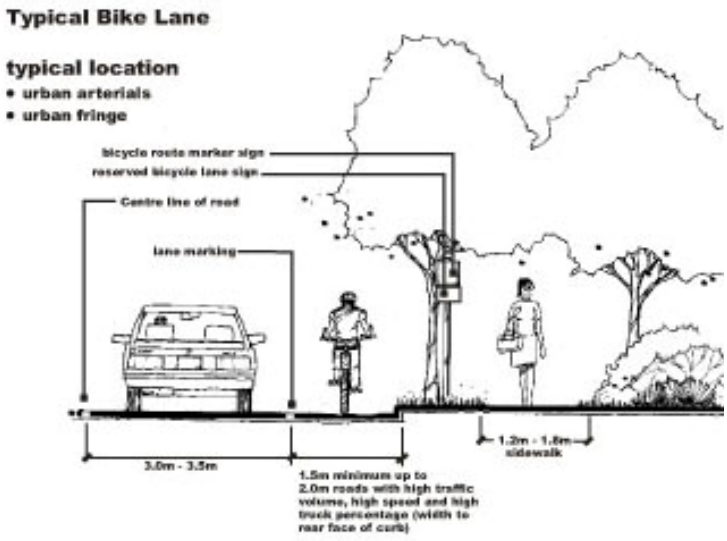
Research indicates that paved shoulders can also reduce erosion and long-term maintenance costs of the road, extend pavement life, and reduce the potential for single vehicle run-off-the-road accidents. Some jurisdictions such as the Region of Niagara and City of Ottawa have recently approved policy to pave rural road shoulders on all rural roads when they are resurfaced or reconstructed.

5.10.3.4 Bike Lanes

Bike lanes are typically located on urban cross-section roads (with curb and gutter) to create a physical space reserved for cyclists. In many municipalities, persons who use mobility-assisted devices also use this space. The diamond symbol and bicycle symbol painted on the pavement, in addition to roadside signs are useful on higher volume and higher traffic roadways. In areas where on-street parking is permitted, continuing the bike lane is the ideal method where space permits. Where road right-of-way widths are limited, where narrowing or removing traffic lanes is not feasible, and/or where the relocation or removal of parking is not an option, the bike lane must be properly terminated, which includes proper signage.

Bike Lane along a collector road, London, ON

Typical Bike Lane



5.10.3.5 Evaluating Existing Roadways

Trail planners and designers should conduct an inventory of the existing conditions found along sections of a roadway right-of-way before they determine which routing and design options are most appropriate. **Table 5.9** lists factors for evaluating existing roadways that can be used as a reference when confirming facility type at the detailed design stage. Although there is no formula or calculation that can be applied to come up with the definitive answer, and not all factors apply in all locations the group of factors is generally arranged in descending order of importance. Sound "engineering judgment" must also be applied when deciding on the most appropriate facility type.

Table 5.9: Factors and considerations useful in evaluating roadways for potential multi-use trails and bicycle routes

Primary Factors	Considerations	Secondary Factors	Considerations
1. Location	• Rural roadway right-of-way • Urban roadway right-of-way • Not within a public roadway right-of-way	1. Length of the section	• Less than 50 m • 50 m to 5.0 km • Greater than 5.0 km
2. Function	• Provincial highway • Arterial road • Collector road • Local road • Residential street • Park road • Semi-public road • Parking lot	2. Pedestrian facilities and amenities	• Curbs, sidewalks • Boulevards, trees, benches (for each side of road), • Transit stops and shelters
3. Posted and observed motor vehicle operating speed	• Less than or equal to 60 km/h • Greater than 60 km/h	3. Turning potential and crossing opportunities	• Traffic lights, crosswalks, number of lanes, traffic sensors, medians, centre refuges, curbs, crossing interval, turning lanes
4. Traffic volume (per lane)	• Less than 1,000 AADT (Annual Average Daily Traffic) • 1,000 to 3,000 AADT • Greater than 3,000 AADT	4. Driveways - number of commercial or residential	• Number of crossings per km
5. Traffic mix - trucks, buses, streetcars, RVs	• Less than 6% of AADT • 6%to l2%of AADT • More than 12% of AADT	5. Topography	• Slopes less than or equal to 5% • Slopes greater than 5%
6. On-street parking	• One side of the roadway • Both sides of the roadway	6. Scenic interest	• Proximity or relationship to natural areas, scenic views and vistas, points of interest
7. Intersections	• Number and complexity	7. Sidewalk or trail obstructions	• Constrictions due to walls, utility poles, etc.
8. Sight lines / visual environment	• Road bends, hills, pedestrian activity and crossings, tight urban scale, road signs, utility poles, shrubbery, walls, night lighting	8. Opportunities for regeneration	• Naturalized plantings, wildlife habitat
9. Roadway width and surface conditions	• Number of lanes, width of lanes, pavement type, edge condition, railway crossings, sewer grates	9. Access to public transit	• Interregional Transit • Municipal transit
10. Cost of recommended improvements	• High • Medium • Low	10. User security	• Lighting, emergency telephones, "remoteness"
Primary factors should be used to establish the basic form and "minimum recommended" or "preferred" width of the proposed route.		Secondary factors are less important on their own but in combination with one another may increase or decrease the level of improvement required.	

5.11 TRAIL CROSSINGS

A significant challenge when implementing a trail system is how to accommodate trail users when crossing roads. In the case of highways, arterial and busier collector roads, options generally include:

- Grade separated crossings (bridges and underpasses including both shared and pedestrian/trail only facilities).
- Directing users to cross at an existing signalized or stop-controlled intersection.
- The mid-block pedestrian signal or Intersection Pedestrian Signal (IPS).
- The mid block pedestrian island or refuge.

5.11.1 Grade Separated Crossings

Often a bridge, underpass or tunnels are the only way to cross significant barriers such as creeks and rivers, railways and multi-lane highways. Grade separated crossings are costly to design and install, therefore retrofitting existing structures and including trail access with the design of new structures (i.e. associated with roadway improvements) should be considered at every opportunity.

5.11.1.1 Bridges

Trail bridge, St. John's, NFLD

Where possible, the trail network should make use of existing bridges, including pedestrian bridges, vehicular bridges and abandoned railway bridges in appropriate locations. In cases where this is not possible a new structure will be needed and the type and design of a structure needs to be assessed on individual basis. The following are some general considerations for trail bridges:

- In most situations the prefabricated steel truss bridges is a practical, cost effective solution.
- In locations where crossing distances are short, a wooden structure constructed on site may be suitable.
- Railings should be added if the height of the bridge deck is more than 60cm above the surrounding grade, and railings should be

designed with a “rub rail” to prevent bicycle pedals and handlebars from becoming entangled in the pickets.

- When considering barrier free access to bridges, an appropriate surface and slope should be used on trail approaches, a threshold should be used to transition between the approach and the deck, and bridge decking should be spaced sufficiently close to allow easy passage by a person using a mobility-assisted device.

- Decking that is oriented perpendicular to the path of travel is preferred over decking running parallel, as the latter is more difficult for use by wheelchairs, strollers, in-line skates and narrow tired bicycles.

5.11.1.2 Underpasses and Tunnels

Designing trails through underpasses and tunnels can be challenging because of the confined space. Where feasible, it is suggested that trail widths through underpasses be equal to or greater than that of the approaching trail.

- The minimum recommended underpass or tunnel width for a multi-use trail is 3.6m. Where the structure exceeds 18m in length, in high traffic and/or urban areas the width should be increased to at least 4.2m.

- For shorter length underpasses, a vertical clearance of 2.5m is usually sufficient recommended.

- Abutments should be appropriately painted with hazard markings.

- For longer structures a vertical clearance of 3.0m should be considered. If service and/or emergency vehicles are to be accommodated within the underpass, an increase in vertical clearance may also need to be provided.

- Underpasses and tunnels can be a security concern and also present maintenance challenges. To address these issues, tunnels should be well lit with special consideration made to security, maintenance and drainage. Approaches and exits should be clear and open to provide unrestricted views into and beyond the end of the structure wherever possible.

- Offensive graffiti and debris should also be removed promptly and regularly.

- Ideally, the transition between the trail and underpass crossing should be level and barrier-free. In cases where the underpass is lower than the general surrounding grade, ramps should be used to make the transition between the two elevations.

5.11.2 Intersection Pedestrian Signals

Intersection Pedestrian Signal and pedestrian refuge along a divided arterial road in, Guelph, ON

The Intersection Pedestrian Signal (IPS) provides a device to assist pedestrians crossing major streets and is a more positive and effective pedestrian crossing device than a pedestrian crossover (PXO). It is also significantly less expensive to install and maintain compared to a full traffic signal. Although widely used in Western Canada, the IPS is relatively new in Ontario.

The IPS includes:

- Standard traffic signal indications to control traffic on the major street.
- Standard pedestrian "Walk" and "Don't Walk" indications, activated by push buttons, for pedestrians wishing to cross the major street.
- Stop signs for vehicles approaching the intersection from the minor/side street.

The IPS system is distinctly different from a standard traffic signal in two ways:

- The traffic signal poles and pedestrian indicators are all located on one leg of the intersection and pedestrians are only permitted to cross at that location.
- The traffic approaching from the side streets is controlled by a STOP sign, as opposed to a traffic signal.

Vehicles approaching from the side street will be permitted to turn onto the main street only when it is clear and safe to do so, yielding the right-of-way to both pedestrians crossing the main street as well as vehicles traveling along the main street.

5.11.3 Pedestrian Refuge Islands

Pedestrian refuge island along a residential collector road, Guelph, ON

Pedestrian refuge islands are medians that are placed in the centre of the roadway separating opposing lanes of traffic. They allow trail users to cross one direction of traffic at a time, with a location in the centre of the roadway to wait for a gap in traffic for the other direction. They are well suited for roadways with four or more lanes since the cognitive requirements to select a gap in traffic traveling in two directions in multiple lanes is considerably higher than that required for cross two lanes of traffic.

Guidelines for the typical design elements for a pedestrian refuge island are as follows [(15)]:

- Islands are typically a minimum of 6m in length.
- Island width should be at least 1.8m, but 2.4m is preferred to accommodate wheelchairs in a level landing 1.2 m wide plus 0.6 m wide detectable warning devices on each side. The 2.4m width will also accommodate bicycles in the refuge.
- Curb ramps are provided to allow access to the roadway and island for wheelchair users, and detectable warning devices (0.6m in width) are required at the bottom of the curb ramps.

15. Traffic Engineering Council Committee TENC-5A-5, *Design and Safety of Pedestrian Facilities: A Recommended Practice of the Institute of Transportation Engineers*, Institute of Transportation Engineers, Washington, D.C., March 1998.

- The pathway on the island is constructed of concrete, not asphalt. The visually impaired can better detect the change in texture and contrast in colour supplemented by the detectable warning devices to locate the refuge island.

- Appropriate tapers are required to diverge traffic around the island based on the design speed of the roadway.

- The pathway on the island can be angled so that pedestrians are able to view on-coming traffic as they approach the crossing.

- Illumination should be provided on both sides of the crossing.

- Signage associated with the pedestrian refuge island includes “Keep Right” and “Object Marker” (see TAC signage manual) warning signs installed on the island facing traffic, and “Pedestrian Crossing Ahead” warning signs installed on the roadway approaching the crossing. “Wait for Gap” warning signs can be installed on the far side of the crossing and on the refuge island if pedestrians are failing to cross in a safe manner.

- Crosswalk markings are not provided unless the crossing is at an intersection controlled by signals, stop, yield or controlled by a school crossing guard.

- Railings on the island to control pedestrian access are generally not recommended because they are a hazard in potential collisions and some pedestrians may be tempted to walk in front of or behind the island to avoid the railings, a less safe refuge location than on the island itself.

5.11.4 Minor Road

In the case of lower volume, lower speed roads a trail crossing can be achieved with fairly simple and low cost design elements.

Trail crossings of minor roads should include the following:

- Creation and maintenance of an open sight triangle at each crossing point.

- Trail access barriers.

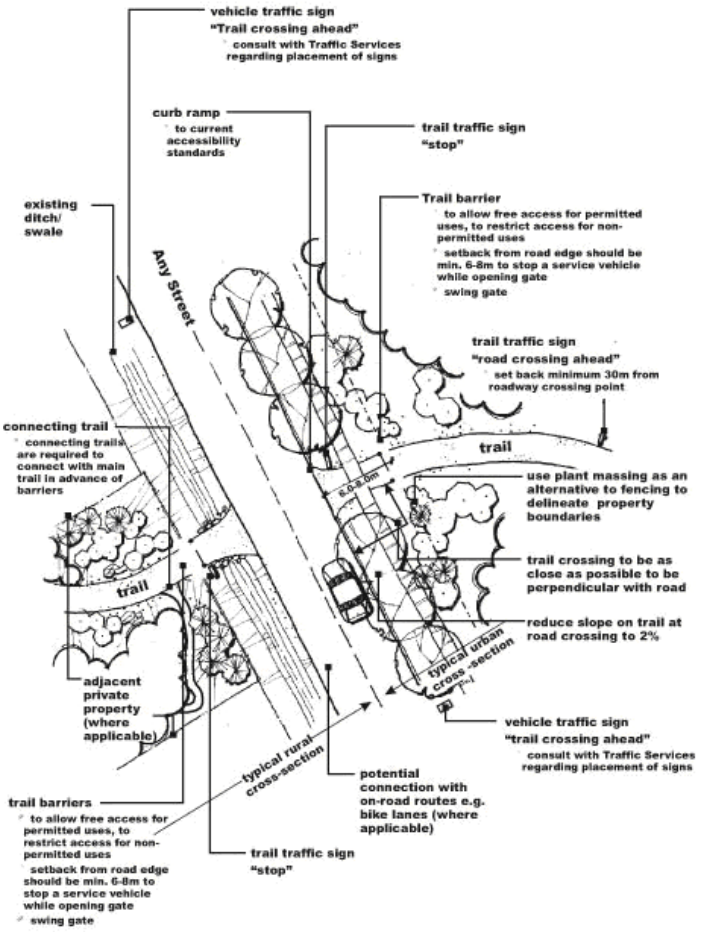
- Signing along the roadway in advance of the crossing point to alert motorists to the trail crossing.

- Signing along the trail to alert trail users of the upcoming roadway crossing.

- Alignment of the crossing point to achieve as close to possible a perpendicular crossing of the roadway, to minimize the time that trail users are in the traveled portion of the roadway.

- Curb ramps on both sides of the road.

Typical Trail Crossing of a Minor Road



In some locations signing on the trail may not be enough to get trail users to stop before crossing the road. Under these circumstances or in situations where the sightlines for motorists are reduced and/or where there is a tendency for motorists to travel faster than desirable, the addition of other elements into the trail crossing may be necessary. Changing the trail alignment may help to get trail users to slow and stop prior to crossing. Changes to the streetscape may also provide a cue and traffic calming effect for vehicles.

5.11.5 Farm Crossings of Abandoned Rail Lines

In rural areas where abandoned rail corridors are being considered for multi-use trails, owners of farming operations who have property on both sides of the corridor and/or are using a portion of the corridor to gain access to their fields are sometimes apprehensive when plans are made for trails as they see this important access being restricted or discontinued. Where site specific

concerns are identified it is important for trail designers and managers to work with the adjacent landowner(s) to develop a mutually beneficial solution. Successful solutions have been developed elsewhere in Ontario and have included:

- Post and wire fencing along both sides of the corridor in the section of concern.
- Lockable wire or metal gates in locations that serve the landowner's needs, with a lock that remains in the possession of the landowner.
- Access ramp(s) to reach the trail bed, which may already be in place and require only minor improvements such as grading, culverts or drainage.
- Trail widening where the machinery must cross and/or along the length of the segment that the owner may be required to travel on the trailbed (in the case of a diagonal or offset crossing).
- Cautionary signs to warn trail users in advance of the crossing point or zone that the machinery needs to use the trailbed.
- Signs at trailheads to forewarn trail users that they may expect to encounter farm machinery crossing or using the trail, and that this may be more frequent during certain times of the year.

5.11.6 Trail Access Barriers

Access barriers are intended to allow free flowing passage by permitted trail user groups, and prohibit access by others. Barriers typically require some mechanism to allow access by service vehicles and emergency access. Depending on site conditions, it may also be necessary to provide additional treatments between the ends of the access barrier and limit of the trail right of way to prevent bypassing of the barrier altogether. Each access point should be evaluated to determine if additional treatments are necessary. Additional treatments can consist of plantings, boulders, fencing or extension of the barrier treatment depending on the location. There are many designs for trail access barriers in use by different trail organizations, some are more successful than others. Two general types of barriers include the bollard and the swing gate.

5.11.6.1 Bollards

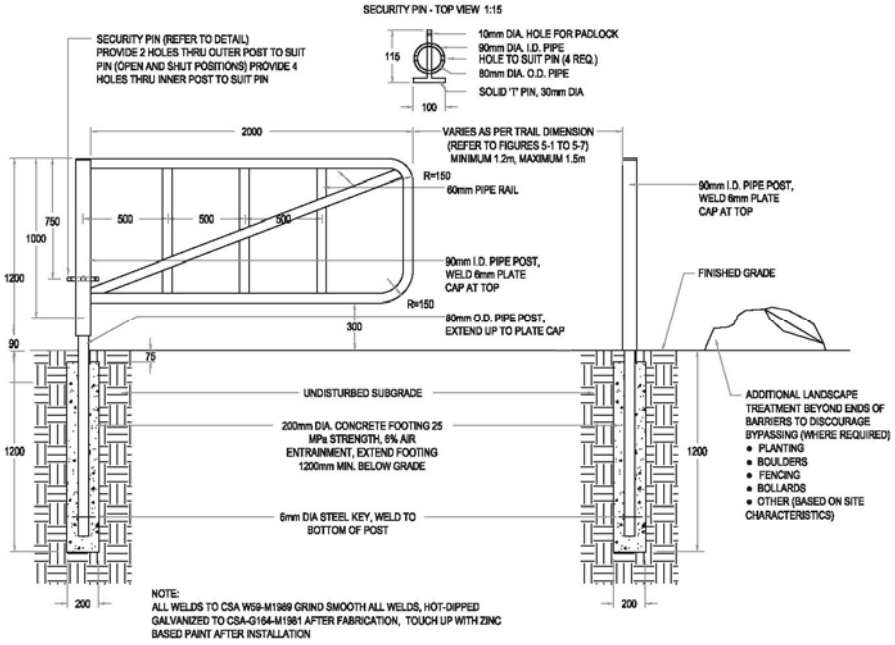
The bollard is the simplest and least costly barrier, and can range from permanent, direct buried wood or metal posts, to more intricately designed cast metal units that are removable by maintenance staff. An odd number of bollards (usually one or three) are placed in the trail bed in order to create an even number of "lanes" for trail users to follow as they pass through the barrier. Although the removable bollard system provides flexibility to allow service vehicle access, they can be difficult to maintain as the metal sleeves placed below grade can be damaged by equipment and can become jammed with gravel and debris from the trail bed.

5.11.6.2 Swing Gates

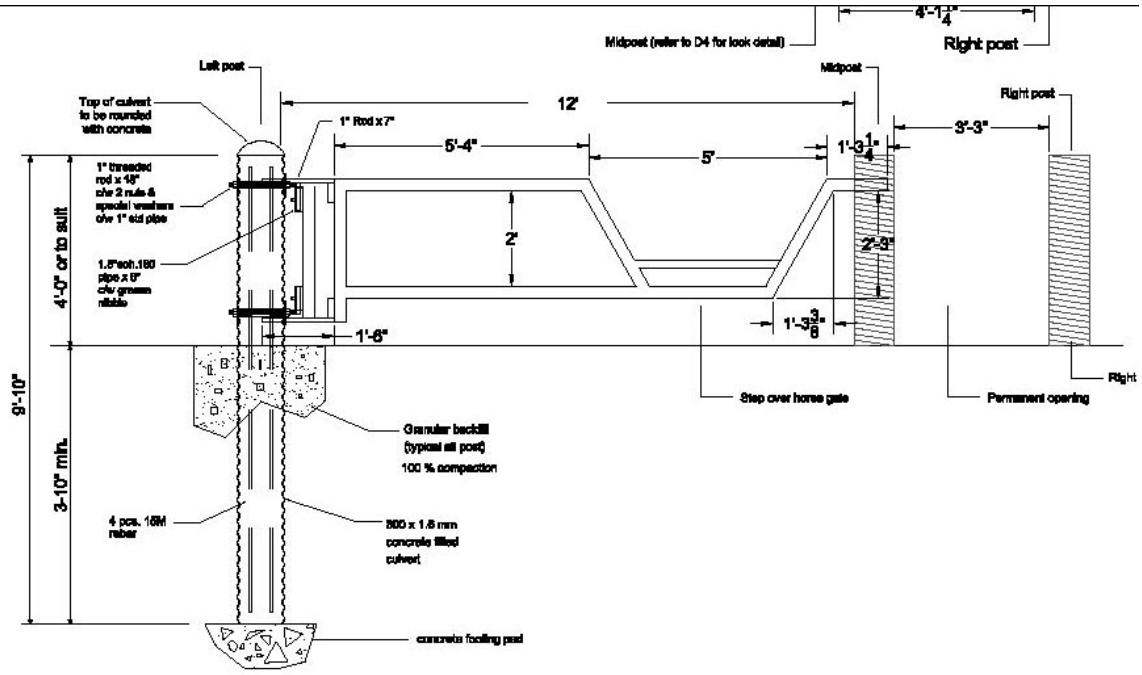
The single swing gate combines the ease of opening for service vehicle access, with the ease of passage of the bollard. Gates also provide a surface/support for mounting signage. The offset gate is similar to the single swing gate, except that barriers are paired and offset from one another. Although they can be effective in limiting access by unauthorized users and can be easily opened by Operations staff, some groups including cyclists, especially cyclists pulling trailers and wheelchair users can have difficulty negotiating the offset swing gate if the spacing between the gates is not adequate.

In urban areas the single swing gate is recommended for most applications. In some locations bollards may be sufficient. In rural locations a more robust single swing gate should be used.

Urban Swing Gate Detail, City of Guelph, ON



Rural Swing Gate Detail, Grand River Conservation Authority



5.12 TRAIL STRUCTURES FOR OFF-ROAD TRAILS

5.12.1 Switchbacks and Stairs

5.12.1.1 Switchbacks

Pedestrian, motorized and some self-propelled users are capable of ascending grades of 30% or more whereas some users are limited to grades of less than 10%. A Switchback is one method of traversing a steep grade yet maintaining the ability for wheeled users to travel up and down the slope. When properly constructed, water is removed from the trailbed at regular intervals, reducing its erosive power. Switchbacks are constructed with turns of approximately 180 degrees and are used to decrease the grade of the trail. Typically they require extensive grading and are recommended only in locations where construction activity will not cause excessive disruption to the surrounding environment.

5.12.1.2 Stairs

Trail stairway carefully installed among trees on a steep slope in Jordan, ON

For very steeply sloped areas where there is inadequate room to develop a switchback and/or other fully accessible solution, it may be necessary to construct a stairway. In these situations the site should be carefully studied so that the most suitable design can be developed. The following are some considerations for stairway design:

- Develop a series of short stair sections with regularly spaced landings. For long slopes, provide landings at regular intervals (e.g. every 8-16 risers) and an enlarged landing at the mid-way point complete with benches to allow users the opportunity to rest.
- On treed slopes, lay the stairway out so that the minimum number of trees will be compromised or removed.
- Use slip resistant surfacing materials, especially in shady locations.
- Incorporate barriers on either side of the upper and lower landing to prevent trail users from bypassing the stairs.
- Provide a gutter integrated into the stairway for cyclists to push their bicycles up and down (where it is appropriate to include bicycles).
- Provide signs well in advance of the structure to inform users that may not be able to climb stairs.

5.12.2 Elevated Trailbeds and Boardwalks

Boardwalk, St. John's, NFLD

Where trails pass through sensitive environments such as marshes, swamps, or woodlands with a large number of exposed roots, an elevated trailbed or boardwalk is usually required to minimize environmental impacts. If these areas are left untreated, trail users tend to walk around obstacles such as wet spots, gradually creating a wider, often braided trail and trampling surrounding vegetation.

The turnpike and low profile boardwalk, are two relatively simple yet effective methods for secondary and special use (i.e. hiking only) trails. The turnpike is a low tech, low cost method that works very well in areas where organic soils are encountered. Various geosynthetic products have also been successfully used to overcome difficult soil conditions. The United States Department of Agriculture (Forest Service) has evaluated many products and design applications in the construction of trails in heavily used parks and on backcountry trails[16].

Low profile boardwalks have been successfully employed by trail managers across Ontario. In some cases the simple construction method provides a great opportunity for construction by supervised volunteers where precast "deck blocks" have been used for the foundation of the boardwalk. Where the trail is in a high profile location, where it is necessary to provide a fully accessible trail, or where the trail surface must be greater than 60cm above the surrounding grade, a more sophisticated design and installation is necessary. This is likely to include engineered footings or abutments, structural elements and railings. Where applications of boardwalks and other structures are being contemplated near wetlands and waterways, regulatory agencies such as the Conservation Authorities should be consulted to determine if:

- the development of a trail is permitted;
- if approvals are required; and
- where approvals are required, what parameters must be satisfied by the design.

16 (http://www.fhwa.dot.gov/environment/fspubs/00232838/).

5.13 TRAIL LIGHTING

Lighting the entire trail system is not recommended, however there may be some locations where attractions and facilities such as major urban parks or heavily used routes to major destinations where lighting might extend the hours of use and enjoyment by the community and visitors. The decision whether or not a trail should be lit needs to be made on a site specific basis. Where it has been determined that lighting is appropriate, the quality and intensity should be consistent with prevailing standards for the setting being considered.

Trail Lighting Along an Urban Trail , Guelph, ON

Very few municipalities make the decision to light their entire trail system for a number of important reasons, including:

- The cost of initial installation can be prohibitive. Some general budget figures reported exceed $40,000 per kilometer not including power supply.
- A tendency for vandals to target light bulbs, and staff time and material cost to properly monitor, maintain lamp fixtures and replace broken and burned out bulbs on an ongoing basis.
- Excessive energy consumption.
- Excessive light pollution, especially in residential rear yards and adjacent to natural areas (though this can be controlled with proper shielding).
- Potential detrimental effects on flora and fauna, especially with light pollution in natural areas such as woodlots.
- The potential false sense of personal security created by lighting in the nighttime environment which is related to the inability of the human eye to adapt to the high contrast resulting from brightly lit and dark shadowed areas adjacent one another.

5.14 TRAIL SIGNAGE

The design and construction of the network should incorporate a hierarchy of signs each with a different purpose and message. This hierarchy is organized into a “family” of signs with unifying design, graphic elements, materials and construction methods. The unified system becomes immediately recognizable by the trail user and can become a branding element. Consistent with this approach is the correct use of signage, which in-turn reinforces the trail’s identity.

Signage is a critical element of the trail network and serves many important functions including:

- Providing instruction regarding traffic operations (for both motorists and trail users).
- Providing information regarding safety while traveling (i.e. maximum travel, upcoming hazards, junctions and crossings).
- Advertising the network to attract new users.
- Orienting and guiding trail users as they travel throughout the network, which can also be used as reference points for Emergency Services personnel.
- Providing information about the routes, nearby services and trail–related events.
- Informing users of their responsibilities while on the network.
- Providing interpretation of local historical, cultural, natural and other resources.

Good signing systems have common characteristics, including:

- Clearly, concisely and consistently communicate information related to identification, direction, regulation and operation of the trail.
- Informing but not distracting trail users and detracting from the visual quality of overall trail experience.
- Graphics and internationally recognized symbols instead of excessive text to overcome language barriers.
- Visibility at night through the use of reflective materials especially in locations where low light and night use is anticipated.
- A design that is aesthetically long lasting, in-scale and visually integrated with the landscape without creating unnecessary clutter.
- High quality, durable (including resistance to ultraviolet radiation), vandal resistant quality materials and finishes.

Haldimand County is made up of a number of urban communities and a large rural area each with their own identity. Local identity has evolved over time, in some cases the result of the architecture, landscape, land use, cultural history and residents. Trail themes can add a local flavour to individual trails or loops, creating an overall unique quality to the trail network. It also provides an additional opportunity and incentive for neighbourhood associations and interest groups to become unified as partners in developing and maintaining the trails throughout the entire municipality.

Other jurisdictions have taken this approach using a variety of methods including:

- Adding a distinct trail name or additional logo plate while maintaining other common design elements of the signs.
- Creating neighbourhood/district gateway nodes.
- Creating distinct interpretive themes for different neighbourhoods.

Currently, trail signage is not included in the County's sign by-law. Consideration should be given to having it included so that important messages contained on signs such as the "Code of Conduct" for trail users can be enforced where necessary.

5.14.1 Sign Types

Generally the family of signs includes:

Trailhead sign, St. John's, NFLD

Orientation and trailhead signs, which are typically located at key destination points and major network junctions. They provide orientation to the network through mapping, other appropriate network information as well as any rules and regulations. Where network nodes are visible from a distance, these can be a useful landmark. In some municipalities, orientation signing has also been used as an opportunity to sell advertising space. This not only provides information about local services that may be of interest to trail users, but it may also help to offset the cost of signs and/or trail.

Rules of the trail sign, Rondeau Provincial Park, ON

Route marker and trail directional signs, which should be located at regular intervals throughout the network and at intersections. The purpose of route marker signs is to provide a simple visual message to users that they are on an official network route.

"Rules of the Trail" signs, which should be posted public access points to clearly articulate which trail uses are permitted, regulations and laws that apply, as well as trail etiquette, safety and emergency contact information. Reminder signs may be needed at some locations such as "Please Stay on the Trail" and "Yield to Slower Trail Users". At trailheads, this information can be incorporated into trailhead signs. In other areas, this information can be integrated with access barriers.

Regulatory signs, which are required throughout the system. Where traffic control signs are needed (stop, yield, curve ahead etc.), it is recommended that recognizable traffic control signs be used (refer to the Ministry of Transportation for Ontario's (MTO) *Manual of Uniform Traffic Control Devices,* 1996).

Interpretive Sign, Guelph, ON

Interpretive signs, which should be located at key trail features having a story to be told. These features may be cultural, historical, or natural. Interpretive signs should be highly graphic and easy to read. They should be located carefully in highly visible locations to minimize the potential for vandalism.

5.15 TRAILHEADS AND GATEWAYS

Major trailheads areas are generally proposed for important community destinations such as community centres. Because of their high visibility and proximity to other recreation facilities, they help to raise the profile of the trail system, and some of the necessary facilities and amenities may already be present or located nearby. In some locations it may be possible to share parking and washrooms with other community facilities or other partners (i.e. school boards for parking, conservation authority for parking and washroom facilities). A well-designed trail staging area typically incorporates the following elements:

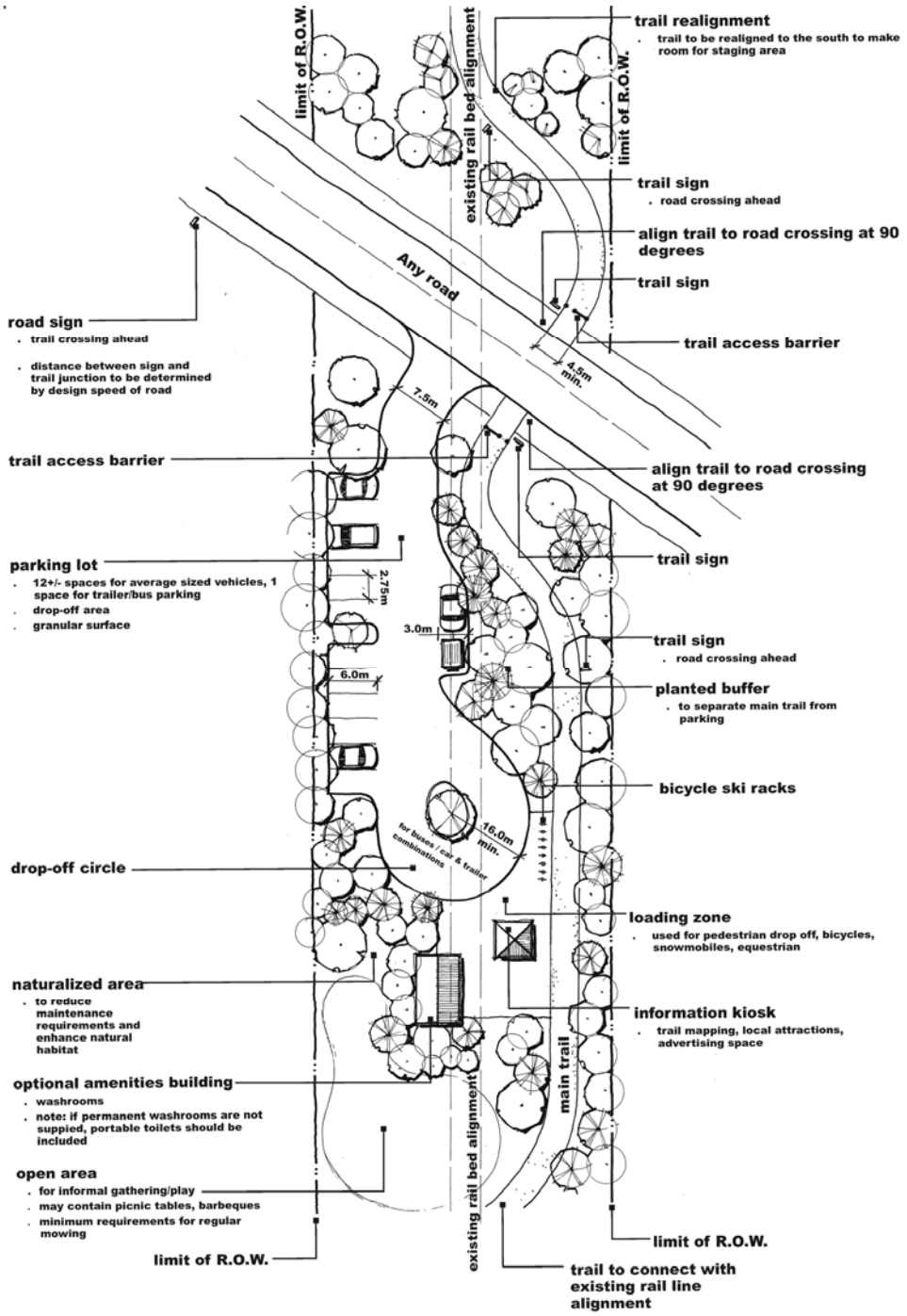
- Regular and accessible (handicapped) parking with an appropriate number of spaces in relation to the anticipated level of use of the nearby trail, with the flexibility to increase the number of spaces where warranted by future demand.
- Easy access to and from the trail and appropriate trail access barriers.
- Ample room to load and unload equipment.
- Secure bicycle parking facilities.
- Waste receptacles.
- Lighting (may or may not be included, depending on location and site context).
- Signing.

- Washrooms where feasible and practical.
- Seating and or picnic/informal activity space (more often associated with a major trailhead).
- A food concession and/or other entrepreneurial facilities (i.e. canoe rentals, bicycle rentals) depending on the size and setting.

Trail gateway, Dresden, ON

A trail gateway is articulated with a sign indicating to the trail user that they have entered Haldimand County. This is the first opportunity to introduce the Haldimand County trail logo and character of the trail system as expressed through the design of the sign and the trail gateway. In cases where the trail gateway is located in a rural setting it may be limited to simply a sign. Where the trail gateway is in an urban setting, or in a prominent location (such as the Trans Canada Trail) a more elaborate treatment may be desirable.

Typical Trailhead



5.16 TRAIL AMENITIES

5.16.1 Seating and Rest Areas

Seating provides the opportunity to pause along the trail at points of interest or just to rest. Young children, older adults and those with disabilities will need to rest more frequently than others. Benches are the most common form of seating, but walls of appropriate height and width, large flat boulders, and sawn logs are some alternatives depending on the trail setting. Where seating/rest areas are planned, the design should consider a 1m wide level area with a curb or other appropriate wheel stop for mobility-assisted devices. Staging areas, trail nodes and heavily used trails typically require a higher density of seating opportunities. For heavily used trails it is reasonable to provide some form of seating at approximately 500m intervals.

Rest area along the Trans Canada Trail, Guelph, ON

5.16.2 Waste Receptacles and Washrooms

Waste receptacles should be located at regular intervals and in locations where they can be easily serviced. Mid block crossing points, staging areas, trail nodes and in association with other site amenities such as benches and interpretive signs are ideal locations. They must be monitored and emptied on a regular basis to prevent unsightly overflow.

Washrooms must be provided along the trail. Typically, they are located at major trailheads and where possible make use of existing facilities (i.e. at community centres and in major parks). As trail use continues to increase, and as the network becomes denser, it may be necessary to provide additional facilities. Where this is necessary, they must be placed where they can be easily accessed for maintenance and surveillance. Many trail groups have used portable washrooms prior to installing permanent facilities, which provides the opportunity to determine the most appropriate location before the investment is made in design and construction of permanent facilities.

5.16.3 Bicycle Parking

Adequate bicycle parking facilities at key locations throughout the network will allow trail users to confidently secure their bicycles while pausing along the trail, enjoying nearby attractions, reaching their destination, or taking a trail journey on foot. Key locations include trailheads, major trail nodes and lookouts. Proper bicycle parking facilities should also be considered where multi-use trails intersect with pedestrian-only trails. The provision of bicycle parking facilities in these locations along with signing explaining the reasons for restricting bicycle use will help to discourage cycling on unsuitable trails, reinforce trail etiquette and encourage the proper use of the trail system.

Bicycle parking, Burlington, ON

Generally bicycle parking devices/facilities should:

- Enable the bicycle to be securely locked to the device without damaging the bicycle, and be easy to use without the need for detailed instructions.
- Be securely fastened to a mounting surface to prevent the theft of a bicycle attached to a rack. Another alternative is to create a bicycle rack that is large enough that it cannot be easily lifted or moved from its position with bicycles attached.
- Be placed as close as possible to the trail facility that it serves, but not in a location where they would inhibit trail user flow.
- Be placed along key trail routes, connections and other destinations where cyclists are expected to frequent.

- Be placed in public view, where they can be viewed by passers-by, trail attendants, fellow workers, etc..
- Be arranged so that parking maneuvers will not damage adjacent bicycles.
- Be sheltered from inclement weather, where possible and practical.

5.17 TRAIL ACCESS AND ACTIVE CONSTRUCTION ZONES

Planning for the safety and movement of trail users through construction zones is as important as planning for vehicular movement, and should be considered an integral part of the construction staging and traffic management plan for any project. The Institute of Transportation Engineers' (ITE) manual for *Design and Safety of Pedestrian Facilities* [(17)] and the American Association of State Highway and Transportation Officials' (AASHTO) *Guide for the Planning. Design and Operation of Pedestrian Facilities* [(18)] provide guidelines for the development, management and monitoring of pedestrian walkways through construction zones. The *Ontario Traffic Manual Book 7: Temporary Conditions* provides guidelines and requirements in the Ontario context used municipalities.

Planning for the safe passage of trail users through or beside active construction zones may vary depending on the proximity of the route to the active construction zone, the type and duration of construction and the volume of pedestrian traffic expected. Three important principles must be considered in the development of an appropriate plan:

- Separate trail users from conflicts with work site vehicles, equipment and operations.
- Separate trail users from conflicts with the main flow of vehicular traffic moving through, around or along side the work site.
- Provide trail users with a safe, accessible and convenient route that duplicates as nearly as possible the most desirable characteristics of sidewalks or pathways.

The designated route must not be used for storage of construction equipment, materials, or vehicles. Furthermore, stopping or parking of work vehicles beside the temporary route should be discouraged as this may indirectly encourage the movement of workers, materials and equipment across the pedestrian path of travel. Crossings of the temporary route should be minimized. Where construction accesses must cross the path of travel, signals, flag persons or police officers should be considered as a means to control movements. This is most important in high volume trail zones and near locations that children and seniors frequent.

17. Donaldson. G.A., in *Design and Safety of Pedestrian Facilities: A Recommended Practice of the Institute of Transportation Engineers*, March 1998.

18. American Association of State Highway and Transportation Officials. *Guide for the Planning, Design and Operation of Pedestrian Facilities*, July 2004.

Daily inspection of the temporary route is required. Modifications should be made to adapt to changes in the nature of the construction site, to further direct trail user movement where the route is not functioning as planned or where unanticipated conflict points are observed.

5.18 TRAIL CLOSURES AND REHABILITATION

From time to time it will be necessary to temporarily close sections of trails or entire routes to public access. Situations such as inundation by water, culvert washout or general trail construction are typical reasons for temporary trail closures. As these situations arise, users must be informed well in advance of the closure. If the closure is planned advance notices should be placed at all access points for the affected section(s). In the event of an emergency closure, notices must be placed at these locations immediately following the discovery of the problem. Signing and temporary barricades, notification in community newspapers, on local radio stations and the Haldimand County website are possible methods of informing users of about temporary trail closures.

Temporary trail closure, St.John's, NFLD

Permanent trail closures may also be required at some point in the life cycle of the trail, especially in the case of trails in woodlots and other natural settings. It is important when closing a trail to rehabilitate the landscape to match the surrounding conditions, inform trail users that it has been closed, and to provide reasons for the closure.

Depending on the location, appropriate rehabilitation measures in natural/naturalized settings may include:

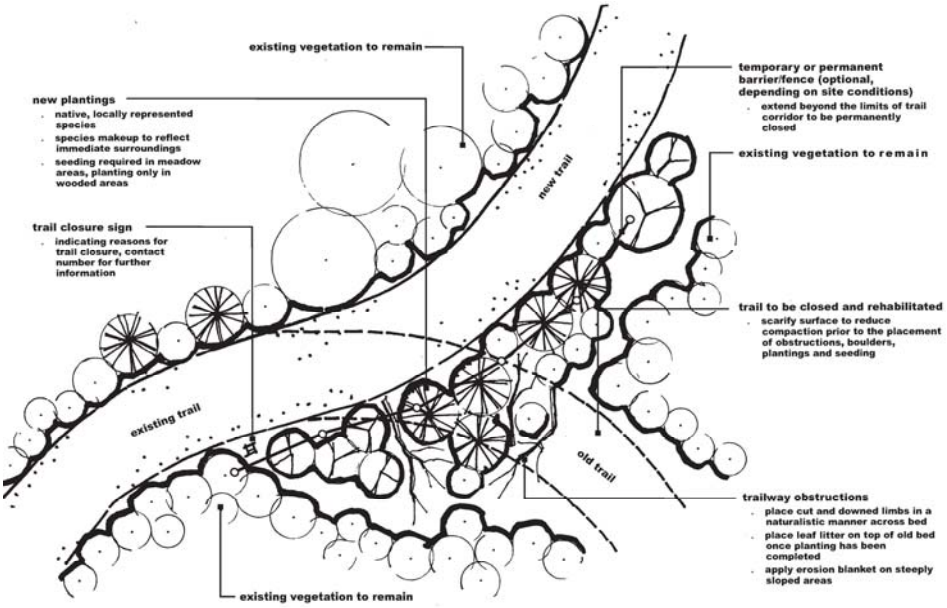
- Slope stabilization, using engineered material and methods for severely eroded slopes.
- Terracing, using locally collected low-tech materials for eroded slopes of moderate and low severity.
- Live staking using locally collected cuttings from appropriate species.
- Plantings with appropriate native species (may include plants salvaged from nearby sites that will be cleared for development, roadway widening etc.).

- The application of erosion blankets and mulches, and/or seeding with mixes that are appropriate for the site in which they are to be applied.

- Scarification of the surface of the trail to be closed and covering it with forest litter (leaves, branches, and limbs) in a naturalistic manner which can help to reinforce the message that the trail is closed, reduce erosion, and supply nutrients to plants during establishment.

- Erecting signage describing the closure to inform users of the conditions and “Water Me” signs for newly planted trees.

Considerations for trail rehabilitation



6.0 The Implementation Plan

6.1 INTRODUCTION

The Haldimand County Trails Master Plan and Partnership Framework should be adopted by Council as the long-term strategy to guide decision making related to trail development for the County. This Plan has been designed to be flexible so that the County and its partners can adapt to changes, constraints, available budget resources and opportunities as they arise. This chapter outlines a strategy for implementing the recommendations of the Plan in two phases, a short term phase representing the first 5 years (2010 to 2015) and a long term strategy for the years beyond 2015.

The Haldimand County Trails Master Plan and Partnership Framework Study is not intended to be a static document. Though its purpose is to plan into the future, it must be recognized priorities change over time and opportunities may also arise that were not known at the time this plan was prepared. The timing and details related to implementation, particularly the location of recommended routes and trail types can and should evolve through community consultation and detailed technical studies where appropriate. While making adjustments to meet changing priorities and opportunities, it is also that the intent and direction established through the development of the Plan is respected when changes are being contemplated. Therefore, it is it is important that:

- The validity of each route is confirmed when it is being considered for implementation. Where it is determined that a particular route is no longer valid, or is impossible to achieve, a parallel route performing the same network function should be selected.

- Trail routes, trail crossings and in particular on-road cycling routes are considered during the Environmental Assessment process for municipal infrastructure projects.

- Input is solicited from various City departments through a coordinated communication process to ensure that all needs are being considered and balanced among one another.

- The performance of the facilities are being regularly monitored throughout their lifecycle so that improvements in trail routing, design and maintenance can evolve as new information is generated about the trails.

- The Haldimand County Trails Master Plan and Partnership Framework is updated on a regular basis, at least every five years.

The Implementation Plan has four main components:

- **The Network** - which includes the construction and maintenance of the physical infrastructure.

- **Policies** – which become the basis for initiatives and practices at the municipal level to ensure that trails are given proper consideration during the day-to-day business practices.

- **Partnernships** (The Partnership Framework)- which identifies the importance and benefits of, and strategies related to working collaboratively within the municipal structure, but also with the variety of organizations with an interest in trails.

- **Supportive Programs** – which include some of the potential options to encourage and promote trail use Haldimand County residents and visitors alike.

Each of the four components is discussed in the sections that follow.

Recommendation:

6-1 That the Haldimand County Trail Master Plan and Partnership Framework be formally updated through a public process at least every five years (On-going)

6.2 THE NETWORK

6.2.1 Rationale for Network Priorities

Figures 4-9 to 4-15 (see Chapter 4) illustrate the proposed phasing plan for the network. The approach used to establish priorities for the implementation of the various routes in the proposed network considered the following strategies:

1. Where possible take advantage of and work in tandem with planned road and linear utility reconstruction projects.
2. Consideration of Project Team, Steering Committee and public opinions regarding priorities.
3. Construct routes in new development areas as construction progresses (shown generally in the short term for known development areas).
4. Close gaps in the existing network.
5. Provide spine connections between main urban centres.
6. Build where user demand is anticipated and higher cyclist volumes are expected (includes key corridors and/or key destinations).
7. Attempt to provide an equitable distribution of routes/facilities among each of Haldimand's urban centres, and create loops within each of the centres that improve access to key destinations such as recreation complexes centres and schools.

Strategy No. 1 is fundamental to the implementation strategy and is based on known and/or documented forecasts, which change from time to time and require annual Council approval. Therefore, it is important that those responsible for monitoring and scheduling the network implementation reconfirm capital forecasts on a regular basis. Typically the most cost efficient way to implement new on-road trail infrastructure which requires physical road modifications or pavement marking adjustments is to implement these changes at the time a road is being resurfaced or reconstructed. Although this will allow the County through economies of scale to make the most efficient use of its budget for new trail infrastructure, it will also mean that not all routes implemented will initially have the desired facility type along the entire length of the proposed route.

6.2.2 Further Considerations for Determining Priorities

In addition to the general strategies employed in developing the network priorities for the Master Plan, there are a number of other criteria that staff can use on annual or on-going basis to compare potential routes for implementation priority. These include:

Off-road and On-road Routes

- Group(s) or organization(s) have a demonstrated interest in forming a partnership with the County to develop the trail route and are willing to contribute to its development and/or on-going maintenance.
- Funding and/or in-kind donations of labour and materials are available for the project.
- The proposed route makes and important connection between existing facilities in locations where the completion of a small missing link results in the creation of a large section of trail.
- The proposed route creates a direct connection to important community destinations such as schools, community centres and recreation complexes, major sports fields, key points of interest.
- The proposed route provides a connection to a significant destination that has a network of trails (i.e. conservation area).
- The proposed route is part of a safe walking and/or cycling route to area schools (Active and Safe Routes to School) (http://www.saferoutestoschool.ca/).
- The proposed route creates or completes a loop within a neighbourhood or town that with its completion might help to encourage more residents to walk or cycle more for exercise.
- Developing the proposed route or facility is part of a strategy to demonstrate a commitment to a particular trail and manage an existing problem (i.e. unauthorized parking, dumping etc).

- The proposed route links a new development area with the existing trail network development.
- Providing higher weighting to those links that provide links to generators that have the high potential to increase trail user participation, particularly in the urban areas. Some possibilities include:
    - Within 500m of an area with a high population of seniors.
    - Within 500m of a commercial shopping node.
    - Near a formalized (i.e. legal/registered) daycare facility.
    - Geographic area/neighbourhood with a higher percentage of the population dependant on modes of travel other than personal automobile.
    - Within 500m of a structure/crossing of a significant physical barrier to trail continuity.
- The proposed route provides an opportunity to link directly with surrounding municipalities, regional, provincial or national trails.
- There are no other potential parallel routes nearby that offer and equal or better level of service.
- The proposed route provides the opportunity to serve a broad sector of the population (range of user groups and levels of mobility).
- The proposed route provides an outstanding opportunity to educate users about the natural, and cultural attributes of the County.
- The proposed route is linked to, or directly associated with a specific tourism or economic development initiative, and in developing it will increase the potential for significant economic benefit.
- The proposed route provides opportunities to improve or enhance terrestrial or aquatic communities that might not otherwise be possible or as effective if trails were not to be included.

Specific to on-road cycling routes:

- If roadway platform width is sufficient but existing pavement width is inadequate, the implementation should be scheduled with road resurfacing or widening.
- Where platform width is not sufficient to accommodate the recommended facility type, and implementing an interim solution (i.e. signed route) is not feasible because of roadway characteristics such as traffic volume, speed, percent trucks etc., the route should be identified as a longer term priority tied to roadway reconstruction.

- If pavement width is adequate and implementation is related to adding pavement markings, co-ordinate implementation with the County's pavement marking program and consider fast tracking those roads that are identified in the Network.
- Acquiring additional lands to expand the right-of-way for the sole purpose of implementing a recommended bikeway is not necessarily the best and most efficient use of public funds, however, this may be the only long-term option, if no alternative emerges.

Recommendation:

6-2 County staff responsible for building the on and off-road trail network should use the criteria identified in the Haldimand County Trails Master Plan and Partnership Framework to inform decision-making related to setting priorities for implementation. (On-going)

6.2.3 Construction Costs

Table 6-1 provides a summary of estimated unit costs for the construction of the trail network. These are based on averages obtained from recent construction projects across Ontario and were used to develop an opinion of probable cost to construct the trail network illustrated in the Master Plan. It also includes a guideline unit cost for individual items that may be required on a site specific basis. Unit costs (in 2009 dollars) are based on the following assumptions:

- The unit costs assume typical or normal/average conditions for construction. For example, unit prices for off-road trails assume good soil conditions, an average requirement for grading.
- Cost estimates for on-road bikeways assume bi-directional facilities (i.e. one way on both sides of the road).
- Estimates do not include the cost of property acquisitions, utility relocations, driveway/entrance restorations, permits or approvals for construction.
- Costs associated with major site-specific projects such as bridges, railway crossings, retaining walls and stairways are not included in the for a specific segment of the network.
- Annual inflation, which includes increased cost of labour, materials, fuel etc., is not included in these costs. Professional services and/or staff time for detailed design and applicable taxes are also additional.
- All applicable taxes are additional.

Table 6-1 Unit Price Schedule

PART A. ON-ROAD BIKEWAY NETWORK

ITEM	UNIT	UNIT PRICE 2008 DOLLARS[1]	COMMENTS/ASSUMPTIONS Note: Unit prices for linear meter are for both sides of a road unless otherwise noted (applies to on-road routes only).
1. Retro-fit existing road with bike lanes (line painting)	linear metre	$13	Repaint only (includes removal of existing lines, repainting of lane markings, addition of bike lane symbol every 200m, addition of bike lane road signage)
2. Add 1.5m Bike Lane as part of the construction of a new road	linear metre	$205	Cost of additional asphalt and markings - road project pays for curbs, CB leads, road pavement structure
3. Add 1.5m Bike Lane as part of an existing road scheduled for widening/reconstruction	linear metre	$505	Cost of additional asphalt and markings - road project pays for existing pavement removal, curbs, CB leads, road pavement structure
4. Add 1.5m Bike Lane on existing road as part of a separate/stand-alone project	linear metre	$605	Cost of additional asphalt and markings, curbs, CB leads, road pavement structure all borne by cycling project
5. Add 1.5m Paved Shoulder when existing road is scheduled of resurfacing	linear metre	$55	Cost of additional asphalt over existing granular base and granular shoulder, includes 80mm depth of asphalt
6. Pave existing gravel road	linear metre	$140	Upgrade existing rural gravel road to a bituminous surface, 6.0m hard surface width
7. Add 1.5m Paved Shoulder as part of a separate/stand alone project	linear metre	$80	Cost of additional asphalt over existing granular base and granular shoulder, includes 80mm depth of asphalt
8. Retro-fit existing road with wide-shared use lane (on typical road with 1 lane each direction)	linear metre	$7	Repaint only (includes removal of existing lines, repainting of lane markings, addition of sharrow symbol every 75m, addition of share the road signage)
9. Retro-fit existing road with wide-shared use lane (on typical road with 2 lanes in each direction)	linear metre	$13	Repaint only (includes removal of existing lines, repainting of lane markings, addition of sharrow symbol every 75m (durable paint), addition of share the road signage)
10. Widen Curb Lane as part of the construction of a new road	linear metre	$70	Cost of additional asphalt 0.5m and markings - road project pays for curbs, CB leads, road pavement structure
11. Widen Curb Lane as part of a road scheduled for widening/reconstruction	linear metre	$220	Cost of additional asphalt and markings - road project pays for existing pavement removal, curbs, CB leads, road pavement structure
12. Widen Curb Lane as part of separate/stand-alone project	linear metre	$300	Full reconstruction cost for road widening by 0.5m for both sides
13. On-road signed route in rural area	linear metre	$0.4	Assumes one "bike route" sign each side per kilometre in rural areas (2 signs total), assumes cost to supply and install each sign = $200.00. Does not include allowance for other route signing systems (i.e. street blade signing, route map/orientation signing)
14. On-road signed route in urban area	linear metre	$2	Assumes five "bike route" signs each side per kilometre in urban areas (10 signs total), assumes cost to supply and install each sign = $200.00 Does not include allowance for other route signing systems (i.e. street blade signing, route map/orientation signing)
15. Replace catch basin covers with bicycle friendly model	each	$260	Price varies by municipality and supplier
16. Construct Median Refuge	each	$20,000	Average price for basic refuge with curbs, no pedestrian signals
17. Construct neighbourhood traffic circle	each	5,000-60,000	Prices vary depending on conditions and complexity. $10,000 used as benchmark for typical for master plan costing
18. Construct Pedestrian activated traffic signal (IPS)	each	$80,000	Varies depending on number of signal heads required
19. Repaint/Restripe urban roadway	linear metre	$12	Line removal and repainting average 4 lane road
20. Traffic Signs - On-road	each	$200	Per Ontario Ministry of Transportation specifications

Table 6-1 Unit Price Schedule continued

PART B. OFF-ROAD PATHWAY NETWORK

ITEM	UNIT	UNIT PRICE 2009 DOLLARS[1]	COMMENTS/ASSUMPTIONS
1. Major rough grading (for multi-use pathway)	cubic metre	$25	
2. Clearing and Grubbing	square metre	$2	
3. Grading and compacting path bed	square metre	$1	On an abandoned railway line, rails and ties already removed and off-site. Includes leveling and packing after leveling (3.0m wide)
4. Culvert Railings	linear metre	$100	Basic wood post and rail style railing
5. Install new culverts	linear metre	$75-160	Price range applies to 400mm diameter CSP up to 600mm diameter CSP
6. Fencing	linear metre	$55	
7. Construct new granular surface trail on abanonded railway corridor	linear metre	$40	Includes basic allowance for items 1-6 noted above. Assumes 1 basic roadway crossing every 5km on average. 3.0m wide granular surfaced pathway
8. Construct new granular surface pathway	linear metre	$112	Normal site conditions (3.0m wide)
9. Construct new asphalt trail	linear metre	$114	Normal site conditions (3.0m wide)
10. Upgrading granular trail to tar and chip	linear metre	$12,000	Includes 1 coat primer and 2 coats surface (areas requiring "trail hardening"-3.0m wide)
11. Upgrading existing granular trail	linear metre	$70	Price includes some upgrades to base (3.0m wide), and adding asphalt
12. Construct Concrete sidewalk	linear metre	$75	1.5m wide concrete sidewalk, one side of street only. Price for sidewalk only under normal site conditions, does not include utility pole relocations, retaining walls, excessive grading beside sidewalk etc.). Recent local tender prices equate to $60-90/linear metre.
13. Construct pedestrian overpass of major arterial/highway	each	750,000-2.0M	Requirements and design vary widely, use price as general guideline only
14. Trail/Road transition (at grade mid-block crossing, at grade crossing at signalized or unsignalized intersection)	each	5,000-7,000	Typically includes 2 gates, warning signs, curb cuts an minimal restoration (3.0m trail)
15. At grade railway crossing	each	$65,000	Flashing lights, motion sensing switch (C.N. estimate)
16. Below grade railway crossing	each	$500,000	3.0m wide, unlit culvert style approx 10 m long for single elevated railway track
17. Multi use subway under 4 lane road	each	$1,200,000	Guideline price for basic 3.3 m wide, lit

NOTES:

1. Unit Prices reflect 2009 Dollars, based on projects in southern Ontario. They do not include the cost of property acquisition, utility relocations, or major roadside drainage works unless noted

2. Installing on-road cycling facilities as a separate stand-alone project is generally not recommended. Unit prices are provided for comparison purposes only.

3. Bolded and underlined unit prices are typically used to estimate network costs for the Implementation Plan . Other unit prices are provided for reference.

As each trail segment becomes a priority for construction, a more detailed assessment as part of the design process will be required to determine site-specific conditions and design details. Detailed cost estimates can then be developed from this work.

6.2.4 Construction Costs By Phase

The construction of trails in Haldimand County requires significant capital investment. As discussed in Chapter 2 of this report, investing in trails has significant individual, societal, environmental, economic and health benefits that will begin to be realized well in advance of the completion of the network.

The capital cost construction estimates to build the recommended network are based on field evaluation and existing conditions from a master plan viewpoint. As such, these estimates cover the basic cost of installing the facility and do not include costs associated with site-specific major improvements and/or site amenities. **Table 6-2** provides an estimated construction cost by phase for the off and on-road components of the network.

6.2.5 Other Sources of Funding for Implementation

In addition to general tax revenues, there is an array of options for cost-sharing in the development of the on and off-road trail network.

New Development:

- On-road facilities on new roads in new subdivisions should be funded and built by Developers as part of subdivision agreements.
- Developers of new residential and commercial subdivisions should be encouraged through the planning process to construct new off-road pathways and connections to the proposed network.
- On-road facilities on existing arterial and collector roads in growth areas that are to be widened to accommodate growth, may be funded through Development Charges.

The County should also pursue outside funding opportunities. Outside funding sources made available over the last few years for cycling, pedestrian and trail related projects is at or near an all time high, and it is expected that this trend will continue. Outside funding opportunities include:

- Federal / Provincial Gas Tax.
- Transport Canada's MOST (Moving on Sustainable Transportation) and ecoMobility (TDM) grant programs.

- Federation of Canadian Municipalities Green Municipal Fund; The Federation of Canadian Municipalities has established the Green Municipal Fund, which supports the implementation of innovative environmental projects. Trail projects may be eligible if partnered with other transportation planning and management related initiatives in Haldimand County.

- Federal / Provincial infrastructure stimulus funding.

- Ontario Ministry of Environment Community Go Green Fund (CGGF).

- Ontario Ministry of Transportation Demand Management Municipal Grant program.

- Partnership funding with other agencies such as the Haldimand-Norfolk Health Unit for initiatives related to health promotion and promoting active lifestyles.

- The Communities in Action Fund available through the Ontario Ministry of Health Promotion for programming and promotional initiatives related to health/active living/active transportation.

- The Canada-Ontario Infrastructure Program.

- Ontario Trillium Foundation that was recently expanded in response to the money collected throughout the Province by casinos.

- Human Resources Development Canada program that enables personnel positions to be made available to various groups and organizations. For example, the Ontario Trails Council has been able to hire two people under this program.

- Corporate Environmental Funds such as Shell and Mountain Equipment Co-op that tend to fund small, labour-intensive projects where materials or logistical support is required.

- Corporate Donations may consist of money or services in-kind, by large and small businesses.

- Potential future funding that might emerge from the Province in rolling out the Ontario Trails Strategy.

- The Trans Canada Trail Foundation which as recently broadened the range of projects that qualify for funding and has increased their level of contribution to projects that qualify.

- Service Clubs such as the Lions, Rotary and Optimists have assisted with a number of high visibility projects at the community level.

- Projects built in conjunction with other agencies (Grand River Conservation Authority, school boards, post-secondary institutions).

- Built via servicing agreements. For example, trails built along hydro corridors, sanitary sewer and water mains can also serve as access routes for regular service and emergency repairs.

- Built via volunteers.

- Private citizen donations/bequeaths.

- Fundraising programs and/or sponsorship of individual trail items ("Buy-a-bench, Buy a metre of trail" etc.).

Recommendations:

6-3 The County should commit to the allocation of annual capital budgets to the construction of trail infrastructure. (On-going)

6-4 In addition to investing capital budgets for the construction of trail infrastructure, the County should pursue outside sources for the development and maintenance of the trails. (On-going)

Table 6-2 Summary of network implementation costs by type and phase.

	Off-Road				On-Road[2]								Total Cost
	Trail[1]		Water Route		Bike Lane		Paved Shoulder		Wide Shared Lane		Signed Route		
Existing	94 km	$920,272	0 km	$0	0 km	$0	0 km	$0	0 km	$0	0 km	$0	$920,272[3]
Short Term (2010-2015)	33 km	$3,251,222	0 km	$0	2 km	$65,997	38 km	$2,116,680	4 km	$30,723	21 km	$23,852	$5,488,474
Long-Term (Beyond 2015)	58 km	$5,240,018	52 km	$20,727	5 km	$97,884	50 km	$2,751,330	13 km	$93,512	191 km	$97,912	$8,301,383
Totals	185 km	$9,411,512	52 km	$20,727	7 km	$163,881	88 km	$4,868,010	17 km	$124,235	212 km	$121,764	$14,710,129

Notes
1. Off-road trails are multi-use and all user groups can be accommodated with a single facility.
2. On-road routes include (I) bicycle facilities on the road as cyclists are not permitted to ride on sidewalks except in limited circumstances, and (ii) existing sidewalks for pedestrians and other similar users.3
3. Total Cost for existing refers to upgrades required on approximately 13km of existing trail.

6.2.6 A Five-Step Network Implementation Process

The Haldimand County Trails Master Plan and Partnership Framework is not intended to be a static document. The timing and details related to implementation, particularly the location of recommended routes and facility types should and will evolve through community consultation and technical review during the implementation. At the same time, however, the extensive effort that established the overall direction for the network should be respected when modifications are being contemplated.

The following 5 step process is a step-by-step mechanism to confirm the feasibility of each route recommended in this report at the time implementation is proposed. It will assist County staff from affected departments to work together, to share information and to facilitate the implementation of the Plan. Each part of the network implementation process is described in the following sections.

Part I: Preliminary Review

The first step in implementing segments of the network is to identify and communicate opportunities. As such, County infrastructure projects including the capital roads forecast should be monitored. When a project involving a corridor or road proposed for a route identified in the Master Plan is advanced to the planning stage, or an opportunity to establish a new route not identified in the Master Plan comes forward, staff responsible for the implementation of the Master Plan network should undertake a preliminary review. This review should:

- Compare the timing of the project to the short and long term implementation priorities identified in the Haldimand County Trails Master Plan and Partnership Framework.
- Assess whether the nature of the project may permit implementation of the recommended facility type in a cost effective manner.
- Inform the project lead and affected departments whether or not a feasibility assessment should be undertaken to confirm the feasibility and costs for implementing the proposed route as part of the subject project.

The key aspect of this initial part is communication. Staff from various departments should report all upcoming projects that may involve or impact a trail route identified in the Master Plan.

Part II: Feasibility Assessment

If a network route is confirmed through the preliminary review process (Part I), a brief feasibility assessment should be undertaken, which includes the following:

- Confirm the feasibility of the route based on a review of the Master Plan and supporting route selection and planning and design criteria, as well as other relevant information.

- For on-road segments, collect or confirm current roadway characteristic information including Average Annual Daily Traffic volumes, collision data and the commercial vehicle percentage.

- Conduct a field check for both on and off-road route segments to identify any other issues that should be considered and to measure sight line distances (if applicable).

- Determine if further public consultation should be conducted.

- Undertake a functional design for the segment and estimate implementation costs, including construction and signing.

- Prepare a cost/benefit analysis statement. This "statement" should comment on the following:

    - The timing for implementing the proposed pedestrian or cycling facility;

    - Costs and efficiencies achieved;

    - Identify any less costly alternatives and how they may fit within the intent of the overall network plan, and this may include alternative parallel routes that meet the intent of the Master Plan;

    - A recommended course of action.

Part III: Detailed Design, Tender and Implementation

Once a determination has been made to proceed the necessary detailed design should be completed. In the case of on-road routes, this step is typically done as part of the detailed design for capital roads project, such as a road widening and does not require additional resources. The final step involves tendering the project (if not undertaken by the Town in-house) and then construction / implementation. It is also possible that following detailed design the decision is made not to proceed with the facility or preferred facility type because of the cost, other constraints that arise through the detailed design process or based on direction from Council. If this occurs, the network should be updated and an alternative route should be proposed.

Part IV: Monitoring Phase

Once facilities have been constructed, their design and use should be monitored to ensure they function in the manner intended. When necessary, the facilities should also be upgraded and maintained to ensure continued safe use.

Part V: Official Plan

The fifth part of the implementation process includes updating the Official Plan to account for changes in policy and network routes.

Recommendation:

6-5 County staff should review and adapt as necessary the proposed five-part process tool for guiding the implementation of the trail network identified in the Haldimand County Trails Master Plan and Partnership Framework. (Short Term)

6.2.7 The Network Management Tool

The proposed network for the Haldimand County Trails Master Plan and Partnership Framework was developed using the Town's Geographic Information System (GIS) base. This digital GIS based network map provided to the Town as part of this study can also be used as a facility management tool. A database is associated with the map information and includes a number of different attributes. For example, the network has been divided into segments, each specifying a length of the segment and the facility type proposed, as well as the phase in which the route and facility is proposed to be implemented.

During the implementation process, Town staff can use this tool to assist in confirming the feasibility of routes, facilities and the proposed schedule (Short or Long Term) for implementation. The GIS Tool can also be used to track and document new segments as they are implemented. Updating the facilities component of the network on a regular basis will significantly reduce the effort and cost to update the entire Master Plan at the appropriate time. If the Town chooses, this GIS information, with some programming, could also be posted on the Town's website in an interactive map format, and could become a useful communication tool for the public and developers.

Recommendation:

6-6 County staff should maintain and annually update the GIS based Network Management Tool developed as part of the Haldimand County Trails Master Plan and Partnership Framework and use this tool to assist in asset planning and management. (On-going)

6.2.8 Network Maintenance and Risk Management

Even though multi-use trails are separated from the roadway, they still may legally fall under the definition of a "highway", since bicycles, one of the key user-groups on the trail system are legally defined as vehicles. This is important as it implies that off–road multi-use trails can be subject to the considerations related to risk management and user safety as "highways". It also illustrates the importance of adhering to design and construction guidelines, as this will provide the greatest legal protection. Aside from proper design and operation of on and off-road trail

facilities, the County should take steps to address potential hazards associated with these facilities including accidents, theft, vandalism, and other problems. The following general strategies for reducing risk are suggested to help minimize the liability associated with providing designated trail facilities:

- Avoid describing or promoting specific routes or trails as "safe" or "safer" than alternatives. It is generally preferred for facility users to assess their capabilities themselves and make their own choices about selecting one route over another.

- Improve the physical environment, increase pubic awareness of the rights and obligations of trail users and improve access to educational programs in order to demonstrate that efforts are being taken to reduce the likelihood of accidents.

- Select, design and designate facilities in compliance with the most current prevailing standards, where they exist. For example regulatory signs, as identified by the MTO Manual of Uniform Traffic Control Devices, should be used for regulatory signing of an on-road cycling network.

- Ensure that designs comply with applicable laws and regulations (e.g. Ontario Highway Traffic Act and current County by-laws).

- Maintenance operations should conform to acceptable standards. If a hazard cannot be removed, it must be isolated with barriers or notified by clear warning signage.

- Monitor the physical conditions and operations of roadways and trail facilities on a regular basis. All reports of hazardous conditions received should be promptly and thoroughly investigated. Written records of monitoring and maintenance activities should be kept.

- Maintain proper insurance coverage.

Approaching Trail Maintenance

Many jurisdictions have formalized programs to plan and construct trail systems, however the number that have programs for trail maintenance is lower. In 2004, telephone interviews were conducted with approximately a dozen southern Ontario municipalities to determine the overall scope of their trail maintenance, to learn about significant issues and priorities and to gain an understanding of basic costs for trail maintenance[19]. The following are some highlights:

- Very few maintain their trails in winter. Of those that do, none reported maintaining all of their trails in winter. Generally winter maintained trails included only asphalt trails and

19 Municipal Trail Maintenance Survey. Telephone interviews conducted by Stantec, 2004

those that are heavily used, or are main connections serving utilitarian purposes such as connections to schools and main bicycle/pedestrian commuter routes.

- Several reported having defined maintenance standards for trails, based on trail type. Many of those that did not currently have standards reported that they were working towards them.

- Most have a call in/hot line for areas requiring emergency repairs, or areas where garbage containers are heavily used. None of the hot lines were trail specific, most often they were included with a parks or even municipal-wide hotline for parks, roads, infrastructure etc..

- In most cases, respondents felt that they could do a better job at trail maintenance, but were limited by resources (staff resources/budget and time).

- Most reported conducting an annual safety audit, in most cases this was included as part of their annual safety and security audit for parks, playgrounds and recreation facilities.

- Many noted that proactive or preventative maintenance, especially with regard to trail surface condition, signing, trash and vandalism was a key success factor.

- Most use trail patrols or supervisors conducted a regular (i.e. as often as weekly) review to assess conditions, prioritize maintenance tasks and monitor known problem areas.

- Some use maintenance logbooks to set out a schedule of tasks, priorities, standards to be achieved and method of tracking that the work has been completed. This method of tracking was also noted as useful for being able to predict which locations would require the highest level of maintenance.

- In most cases, parks crews performed trail maintenance as part of their regular park maintenance role. Where extensive maintenance programs were reported, additional seasonal labour was added to the workforce (often summer students). For some cases volunteer “adopt-a-trail” programs were identified as useful for basic trail cleanup and monitoring.

- Trail maintenance is generally handled under Parks Operations budgets, sometimes tracked as a separate trail maintenance budget, but most often grouped in with other parks maintenance budgets.

- Trail maintenance costs range depending on the type of trail and location. Costs to maintain highly urbanized trails ranged from $2000-$4000/km per year, whereas costs to maintain rural trails (including rail trails) were significantly lower, ranging from less than $100/km year to $350/km per year. Tasks covered as part of these estimates included trail drainage, storm channel and culvert maintenance, grading and minor topping up of

trail surfaces, minor pothole repair, sweeping and clearing of debris, trash removal, mowing of clear zones, minor surface repairs and repairs to trail fixtures/furnishings.

Specific Maintenance Considerations and Timing

- Asphalt surfaces on trails have a life span of approximately 15-20 years.
- Trails that were installed in 1980's and earlier are now having to be reconstructed and in the process are generally being widened to meet higher levels of experienced today. Wider trails are also better for preventing damage to trail edges by municipal service vehicles, as vehicle wheels are less likely to roll over and break trail edges and less likely to create ruts in the soil beside the trail.
- Trails that were properly constructed at initial installation had the fewest maintenance issues. Proper subgrade excavation, adequate base and proper drainage were noted as keys to trail longevity.
- Many reported that erosion is a big challenge and that "trail hardening" with asphalt on sloped trails is the best way to prevent further erosion. Some reported trying other soil binding compounds for trails on slopes and reported only moderate success with these alternative materials.
- Mowing grass along edges of trails is performed on a regular basis. Depending on trail location this may be weekly, biweekly, monthly or infrequently throughout the growing season. The width of the mown swath generally varies from 0.5m to 2.0m depending on the municipality and location. Mowing helps to keep clear zone open and can also help with the invasion of weeds into granular trail surfaces.
- Several have trained their operators to be more observant while mowing and to take note of problem areas along the trails.
- Garbage pickup is performed on a regular basis (i.e. 10 day cycle), with receptacles located at the ends of trail segments where they can be easily accessed for service vehicles.
- Tasks performed on a seasonal basis include culvert cleanout and trail side pruning.
- Grading/grooming the surface of granular trails is generally performed once per year or as required after heavy storm events in areas prone to erosion.
- Tasks performed every 3 to 5 years cycle include refurbishment of signs, cleaning and refurbishment site furnishings.
- Tasks performed on an as-required basis include moving or marking obvious hazards within 24 hours of their identification, inspection/monitoring of trail areas prone to

damage following heavy storms, repairs to vandalized items, minor repairs to structural elements such as bridges, trail surfaces, railings, benches, gates and signs.

- Major renovation or replacement of large items such as bridges, kiosks, gates, parking lots, and asphalt trail surfaces was generally described as a 10-20 year replacement item.

6.2.8.1 Maintenance Plan Template

The general objectives of a trail monitoring and maintenance plan are to:

- Provide safe, dependable and affordable levels of service.
- Preserve infrastructure assets.
- Protect the natural environment.
- Enhance the appearance and health of the community.
- Provide a reference framework against which to measure performance.
- Provide the basis of a peer review that is comparable with other municipalities.
- Provide citizens and Council with a reference for expectations.

The first step in implementing a maintenance and management program is to determine its scope. Trail plans, maps, inventories, trail logs, traffic count information and condition surveys are all valuable sources of information for developing maintenance management systems.

Table 6-3 outlines typical trail maintenance activities that Haldimand County should consider as part of the development of a trail maintenance program that is tailored to suit the County's needs. Tasks have been grouped according to the frequency with which they would typically be performed:

- Immediately (within 24 to 48 hours);
- Regularly (weekly/biweekly/monthly);
- Seasonally;
- Annually;
- Every 3 to 5 years; and
- Every 10 to 20 years.

Table 6-3 Maintenance considerations for off-road trails

Immediate (within 24 hours of becoming aware of the situation through a "hotline", email, other notification or observation)	• As a minimum, mark, barricade and sign the subject area to warn trail users, or close the trail completely until the problem can be corrected. • Remove vegetation and/or windfalls, downed branches etc., where traffic flow on the trail is being impaired or the obstruction is resulting in a sight line issue. Remove hazard trees that have been identified. • Repair or replace items that have been vandalized or stolen/removed. This is especially important for regulatory signs that provide important information about trail hazards such as road crossings, steep grades, sharp curves. • Removal of trash in overflowing containers or material that has been illegally dumped. • Repair of obstructed drainage systems causing flooding that poses a hazard to trail users or that is resulting in deterioration that poses an immediate safety hazard. • Monitor trail areas and structures that are prone to erosion after severe summer storms and repair as required. • Repairs to structural elements on bridges such as beams, railings, access barriers and signs.
Regularly (weekly / biweekly / monthly)	• Trail patrols/inspections should review the trail conditions (as often as weekly in high-use areas), to assess conditions and prioritize maintenance tasks and monitor known problem areas. • Mow grass along edges of trails (in open settings only). Depending on trail location this may be done weekly, biweekly or monthly and the width can vary according to the location (typically 0.5 to 1.0m). This helps to keep the clear zone open and can slow the invasion of weeds into granular trail surfaces. Not all trails will have mown edges. In woodland and wetland areas, pruning and brushing is typically the only vegetation maintenance to be undertaken. • Regular garbage pickup (10 day cycle or more frequent for heavily used areas). • Restock trailhead information kiosks with brochures as needed. • Repair within 30 days or less, partially obstructed drainage systems causing intermittent water backups that do not pose an immediate safety hazard, but that if left unchecked over time will adversely affect the integrity of the trail and/or any other trail infrastructure or the surrounding area.
Seasonally	• Patching/minor regrading of trail surfaces and removal of loose rocks from the trailbed. • Culvert cleanout where required. • Top up approaches to bridges. • Planting, landscape rehabilitation, pruning/beautification. • Installation/removal of seasonal signage.
Annually	• Conduct an annual safety audit. This task is not necessarily specific to trails and may be included with general annual safety audits for parks, playgrounds and recreation facilities. • Evaluate support facilities/trailside amenities to determine repair and/or replacement needs. • Examine trail surface to determine the need for patching and grading. • Grading/grooming the surface of granular trails, and topping up of wood chip trails. • Pruning/vegetation management for straight sections of trail and areas where branches may be encroaching into the clear zone. This task is more of a preventative maintenance procedure. Cuttings may be chipped on site and placed appropriately or used as mulch for new plantings. Remove branches from the site unless they can be used for habitat (i.e. brush piles in a woodlot setting), or used as part of the rehabilitation of closed trails. Where invasive species are being pruned and/or removed, branches and cuttings should be disposed of in an appropriate manner. • Inspect and secure all loose side rails, bridge supports, decking (ensure any structural repairs meet the original structural design criteria). • Aerate soils in severely compacted areas.
Every 3 to 5 Years	• Cleaning and refurbishment of signs, benches and other trailside amenities.
Every 10 to 20 Years	• Resurface asphalt trails (assume approximately every 15 years). • Replace or reconstruct granular trails (assume approximately every 15 years, but this may not be necessary if adjustments/repairs are made on an annual basis). • Major renovation or replacement of large items such as bridges, kiosks, gates, parking lots, benches etc.
Note. A trail maintenance log should be used to document maintenance activities. The log should be updated when features are repaired, modified, replaced, removed, or when new features are added. Accurate trail logs also become a useful resource for determining maintenance budgets for individual items and tasks, and in determining total maintenance costs for the entire trail. In addition, they are a useful source of information during the preparation of tender documents for trail contracts, and to show the location of structures and other features that require maintenance.	

Although it may represent some additional time or cost, it has often been demonstrated that simply reorganizing existing maintenance priorities can contribute significantly to an effective maintenance program for an on-road cycling network. **Table 6-4** outlines key maintenance considerations for on road routes.

Table 6-4 Maintenance considerations for on-road routes

Distortions in the road surface that may pose a potential hazard for cyclists	Bumps or depressions causing ponding of water on at least one third of the width of the trail surface, or cycling surface where on-road links form the network connection; Drop-offs at the edges of pavement greater than 5cm in height over a horizontal distance of 20m. Vertical discontinuities greater than 2.5cm; Cracks (especially those running parallel to the path of travel) greater than 5cm wide by 2.5cm deep by 2.5cm long; Potholes greater than 10cm in diameter and 2.5cm in depth
Street Sweeping and Debris Removal	Sand left over from winter road maintenance and leaves allowed to accumulate in bike lanes can be hazardous to cyclists. Sweeping crews should be instructed to pay particular attention to the right edge of the road along designated bikeways. Another useful strategy is to organize the spring sweep so that roads with bike lanes and routes are swept first, recognizing the potential hazard to cyclists of not doing so.
Snow Plowing	On-road routes should be cleared as part of the regular removal and de-icing of roadways. A priority-shift to include roads with bike lanes and routes that serve major origins/designations should be considered.
Catch basin covers	Service covers and roadway edges are often the first place where cracking, heaving and breakup of asphalt occurs. A 2cm vertical ridge and a 1cm groove paralleling the direction of travel can be hazardous to cyclists. The condition of road surfaces particularly near the curb and at corners/intersections is one of the most common complaints about on-road cycling facilities. Patching and pavement overlay procedures may have to be increased to meet these tolerances within the traveled portion of the bikeway.
Signing and Pavement Marking	Maintain on-road route and regulatory signs in the same manner that other roadway signs are maintained. Renew lane markings and symbols at the same time that other roadway lane markings are renewed.

6.2.8.2 Winter maintenance of off-road trails

Currently in southern Ontario, very few municipalities maintain their off-road trails during winter months. For those municipalities that do offer winter maintenance services on trails, generally only certain routes are maintained, and these tend to be primary routes that serve a commuter function to key destinations such as routes to schools. The following are some criteria that are being used in other jurisdictions and could be useful in determining priorities for winter maintenance of the off-road trail network.

Trail Function and Location

- The trail's role in the overall transportation network and community connectivity (primary vs. secondary function).

- The trail does not provide an alternate route to an existing winter maintained sidewalk/trail.
- The trail provides direct pedestrian access to residential/commercial/recreation areas.
- Determine if the trail is integral to the overall network in that it provides a primary link for the community to schools, public facilities such as recreational centres and to other pedestrian generators such as senior's homes, shopping and commercial establishments.
- The trail does not provide an alternative to parallel or comparable facility(ies) already receiving winter maintenance such as a sidewalk network.
- The trail is not solely a convenient short cut. Consideration needs to be given to the length of the detour required if the trail is not available for use. Although each case should be considered on an individual basis, 500m can be considered as a threshold guideline.
- The trail connects dead end streets or cul-de-sacs where alternative routes do not exist.
- Consideration for neighbouring land use(s) and how this relates to pedestrian origins, destinations and pedestrian generators.
- Consideration given to sidewalks/trails that have historically received winter maintenance, but which have not yet been formalized.

Trail Design and Condition

- The trail should be constructed to a minimum standard including:
- Adequate surface drainage to prevent ponding of water on the trail surface.
- Minimum width (e.g. no less than 3.0m for multi-use trails).
- The trail has an asphalt surface (this factor may not apply if a snowblower is used instead of a plow).
- Adequate access for maintenance equipment (snowplow and sweeper).
- There should be no danger adjacent to the trail, such as a steep drop off.

Recommendation:

6-7 Using the Maintenance Plan Template as a starting point, County staff should develop a trail maintenance plan that is tailored to meet the County's needs, and is supported by an appropriate budget.

6.3 TRAIL POLICY DEVELOPMENT

Another important component of supporting trails within Haldimand County is through the development of policies to address how developing and operating a trail system is interwoven with day-to-day business at the County level. In addition to the network and other elements of the master plan, policies help define and communicate the County's intent regarding trails. During the development of the Haldlimand County Trail Master Plan and Partnership Framework study, a number of potential policy ideas were generated. The following is a list of potential areas or ideas that should be considered in the development of new policies for trail development and operation in Haldimand County. They are organized under four key themes:

- Management and Administration of the Plan;
- Planning and Design;
- Communications; and
- Maintenance and Operations.

Theme 1. Management and Administration of the Plan

1. Adopt the Trail Master Plan as the basis for the systematic implementation of an integrated community trail network in Haldimand County.
2. Where required, use additional detailed studies to further develop designs for trail alignments and related amenities.
3. Detailed route design will involve a consultation process with adjacent landowners and local neighbourhoods where consultation is deemed appropriate by County staff.
4. Implement the trail network in a phased fashion, over time.
5. Wherever possible create trail links in association with land development, and municipal infrastructure improvement projects as this can result in significant cost savings. Projects may also be implemented based on changing construction opportunities or specific trail related demand.
6. Review and update the Master Plan on a regular basis (i.e. every 5 years) to re-establish or re-allocate priorities, generally update the findings of the current project, take advantage of opportunities that may arise, and to ensure that the plan remains current with prevailing industry approaches and standards.
7. Provide a leadership role at the County level for the implementation and management of the trail system.

8. Seek opportunities to establish partnerships with other agencies and organizations for the development, management and promotion of the trail system, which includes both trail infrastructure and supporting initiatives and programs.

9. Provide appropriate staff resources to oversee the implementation and management of trails.

Theme 2. Planning and Design

1. Examine and update the County's land-use policy and regulations to require developers to provide trails as part of their projects, and so that these trails link appropriately with the trail network illustrated in the Haldimand County Trails Master Plan and Partnership Framework Study.

2. Ensure that all retired road and railway rights-of-way and other linear corridors are given adequate consideration for their usefulness as part of the trail network, future transportation corridors and utility corridors before being sold or "no interest" is declared. If these corridors are sold or released, attempt to maintain a public easement wherever possible.

3. Include appropriate references to the Trail Master Plan in future updates of the Official Plan and other long range planning documents including those that deal with land use, environmental and transportation planning issues.

4. Have staff review the Planning Act as it relates to parkland dedication, with a view towards determining if, and under what circumstances the provision of trails can be included as part of parkland dedication.

5. Provide sidewalks where none currently exist along streets in urban areas that are part of the recommended trail network.

6. Examine and update the County policy related to acquisition and/or easement along waterfronts to ensure that linear, publicly accessible corridors can gradually be assembled over time along key waterfronts.

Theme 3. Communications

Internal Communication

1. Establish an interdepartmental team and communication process so that opportunities to realize the implementation of trails as part of other infrastructure projects are not overlooked.

2. Report to Council annually on the successes and challenges in implementing the trail system and supporting initiatives and programs.

3. As part of day to day business practice, recognize that trails are for more than just recreation, and that they have environmental, transportation, health and economic benefits.

External Communication

1. Establish and maintain lines of communication with other agencies and surrounding municipalities to keep abreast of trail initiatives at a regional level.

2. Evaluate the benefits of membership in the Ontario Trails Council, with a view towards making a decision regarding membership.

3. Recognize trail partners and donors in an appropriate manner.

4. Develop a trail map and signage strategy.

5. Establish a public trail advisory committee.

6. Develop an information link on the County website for information about trails in Haldimand.

7. Support community events and activities that encourage more participation/use of trails.

8. Develop a distinctive logo/brand for trails in Haldimand County that can be used at every appropriate opportunity for trail-related design, signing, promotion and events.

Theme 4. Maintenance and Operations

1. Monitor and care for trails by developing appropriate maintenance strategies and programs, and by allocating sufficient resources. Examine the role of partnerships in developing trail management and maintenance strategies.

2. Establish a trail hazard reporting program.

3. Routinely consider and accommodate the needs of trail users in all transportation projects including the design of new roadways, bridges and underpasses, and crossings of barriers (waterways, railways, existing and future highways etc.).

4. Routinely consider and accommodate the needs of trail users in transportation services and practices such as active construction zones and traffic management plans for public rights-of-way.

Recommendation:

6-8 County staff should use the policy themes identified in the Haldimand County Trails Master Plan and Partnership Framework as the basis for developing official policies related to trails in the County. (Short Term)

6.4 ESTABLISHING AND MANAGING PARTNERSHIPS

Planning, designing, constructing and managing a County-wide network trails requires a significant, on-going commitment that would be a daunting task for any single organization. In today's climate of "doing more for less", it will be necessary for other groups with a vested interest in trails to contribute to their development and management. This section of the report highlights the findings of the Partnership Framework Study; a companion document to the Trails Master Plan that is intended to become the guide to establishing relationships with community and volunteer groups interested in constructing and/or maintaining trails within Haldimand County. The Partnership Framework is intended to:

- Clarify the expected roles and responsibilities of potential partners (e.g., trail groups, service clubs, health promotion organizations, etc.) and the County.
- Acknowledge the rights of volunteer organizations (to perform specific activities for the benefit of the trail system);
- Outline volunteer management guidelines and consideration.
- Assist with the implementation of the County's Trails Master Plan.

While the Trails Master Plan addresses needs and priorities related primarily to infrastructure (e.g., routing, design, costs, etc.), the Partnership Framework deals largely with the coordination and management of off-road trails (on-road routes are excluded as these are a municipal responsibility), including aspects such as:

- land ownership and trail governance;
- construction, maintenance, monitoring and enforcement;
- communication and promotion;
- funding; and
- insurance liability and risk management.

Although the purposes of the Trails Master Plan and Partnership Framework Study are different, both documents address a common subject and there is some degree of overlap. For example, the Trails Master Plan for Haldimand County contains a number of recommendations in relation to trail partnerships, which help to form a foundation for this Study. These include:

- Provide a leadership role at the County level for the implementation and management of the trail system.
- Seek opportunities to establish partnerships with other agencies and organizations for the development, management and promotion of the trail system, which includes both trail infrastructure and supporting initiatives and programs.
- Provide appropriate staff resources to oversee the implementation and management of trails.

A key input to the development of recommendations regarding partnerships was research on past and current best management practices within Ontario with respect to eight issues:

1. land ownership;
2. trail governance;
3. costs and funding;
4. construction;
5. maintenance;
6. monitoring and enforcement;
7. communication and promotion; and
8. insurance liability and risk management.

An important output of the Partnership Framework is the delineation of responsibilities (e.g. lead vs. supporting role). **Table 6-5** lists key areas of responsibility and recommendations a role for a Trails Advisory Committee, the County, and trail partners.

Table 6-5 Trail partnerships and management: Key areas of responsibility.			
AREAS OF RESPONSIBILITY ● = *Lead Agent (or equally shared responsibility)* ◖ = *Supporting Agent*	Trails Advisory Committee	Haldimand County (staff)	Partnering Organization(s)
Trail Management			
Trail Planning, Prioritization and Design	◖	●	◖
Insurance and Risk Management Plans		●	◖
Establishment of Trail Use Guidelines	●	◖	
Establishment of Agreements	◖	●	
Conflict Resolution	●	●	
Volunteer Coordination and Training	◖		●
Monitoring and Enforcement (in concert with local police)		●	●
Trail Funding			
Capital Funding for Trail Construction (County grant process)		●	●
Fundraising	◖		●
Grant-writing (to senior level governments and agencies)	◖	●	●
Capital Funding for on-road routes		●	
Trail Construction			
Trail Construction (with County grant and fundraising)		●	●
Internal Trail Signage (i.e., on trail)		●	●
External signage (e.g., on road)		●	
Trail Maintenance			
Regular Trail Maintenance (e.g., spring and fall clean-ups), minor repairs, and associated funding	◖	●	●
Major Trail Maintenance (e.g., projects requiring heavy equipment), litter disposal, maintenance of trails within County Parks, and associated funding		●	
Regular Inspections		●	◖
Trail Promotion			
Trail Promotion	◖	●	◖
Funding relative to promotion, coordination, insurance coverage, and external signage		●	

6-9 The County should use the Partnership Framework Strategy to guide the development of partnerships with various agencies and organizations that have an interest in, and the ability/resources to contribute to the planning, implementation and management of trails in Haldimand. (On-going)

The following sections elaborate on several of the key aspects of the Partnership Framework not already described in earlier chapters of this report. **Appendix A** contains the Partnership Framework Study for additional reference.

6.4.1 Establishing A Trail Advisory Committee

To ensure that the implementation plan moves forward, one of the first steps following the completion of the Haldimand County Trail Master Plan and Partnership Framework, is to establish a Trails Advisory Committee. The Haldimand County Trails Advisory Committee is envisioned as a Committee of Council that would represent and oversee trail interests on behalf of residents and trail interest groups across the county. This committee would be led by a staff coordinator, and based on the successes that other communities have had by employing a staff person dedicated to the coordination of trail, active transportation and cycling initiatives, it is recommended this type of position be considered for Haldimand County.

A Trails Committee should include representation from key municipal departments and Council (similar in makeup to the Steering Committee for the development of the Master Plan), and the Terms of Reference for a Trails Advisory Committee should include the following:

- Provide advice to Council on the implementation of trail network improvements and new projects.
- Provide input on trail issues and opportunities in Haldimand County.
- Remain abreast of, and communicate regularly with other regional, provincial and national trails and active transportation organizations.
- Work in collaboration with Haldimand County's neighbours in establishing and maintaining interregional trail connections.
- Assist with establishing annual priorities for implementation.
- Assist with the pursuit of funding opportunities and grant applications.
- Assist with the development and delivery of educational and promotional programs and events.
- Monitor the implementation of the Master Plan.
- Provide representation for the variety of trail user groups and other stakeholders they represent and in doing so disseminate information to trail related groups.
- Identify and assist with the development of partnerships for implementation and management of the trail system.
- Assist with the organization of, and participate in trail action and event days such as trail cleanups.

- Assist with public relations and promotional programs where appropriate.
- Prepare and deliver an annual report to Council regarding the past year's successes and challenges, along with an action plan for the coming year.

Staff should confirm a preferred structure for a Trails Advisory Committee. The result of this work should be a Draft Terms of Reference and business plan which should describe, among other items:

- the mission/vision for the committee;
- the committee structure;
- requirements for membership and term of membership;
- meeting schedule;
- decision-making process and code of conduct for members;
- the protocol for internal and external communication; and
- the process for developing and delivering an annual report to Council on the past years activities and priorities for the coming year.

Recommendation:

6-10 A Trails Advisory Committee of Council should be established. As a first step, staff should determine the appropriate structure and Terms of Reference for the committee. (Short Term)

6.4.2 Supporting Partnerships and Trail Programs

Before the network build-out is complete, and once it is complete, trails will require on-going support so that they can become and remain vital component of the recreation system, are well used and enjoyed by residents and visitors.

Two key elements to supporting trails include:

- **Promoting trails** to raise awareness and encourage more user participation, seek participation in trail building, annual programs and events, awareness and encouragement, and to recognize those who have contributed directly or indirectly to the development of trails.
- **Educating users** about the proper use of trails through public service campaigns, trail signing, information on trail etiquette, cooperative programs with agencies to deliver messages about trail use, teaching skills related to specific trail user groups.

6.4.2.1 Partnering with Private Businesses

Employers can play a role in influencing decisions made by their employees regarding how they travel to and from work every day. Corporate policies and operations can encourage or discourage certain travel choices. Over the past several years there have been numerous examples of municipalities assisting employers (particularly large employers such as hospitals) in developing programs that business owners can deliver to their employees. For example, as part of the Region of Waterloo's Transportation Demand Management initiatives, partnerships have been developed with several large employers to offer a range of travel options. This has resulted in programs to develop commuter cycling routes, the encouragement of traveling groups, the provision of parking and end of trip facilities, and the development of training programs for employees who are interested in using the trail system and/or active modes of transportation to get to work.

Recommendation:

6-11 County staff should explore the opportunity to develop partnerships with private businesses for the purposes of encouraging employees of those businesses to use trails and cycling routes as part of their method of travel to and from work. (Short Term)

It is very important to recognize the efforts of private business when that partner with the County on initiatives related to the development and use of the trail system. Recognition through the media for efforts that encourage more trail use is a very positive way of showing partners that their contribution is greatly appreciated. Furthermore, media recognition is a simple and cost-effective way to raise awareness and encourage use. Where contributions are made that improve conditions of the trail, such as the provision of trail amenities, creation of links across private properties, the County should consider recognition of the effort. This can be done with donor signs and plaques that are tastefully designed and carefully located. There are already a number of potential partners that have expressed a sincere interest in improving the trail system in Halimand County. Many trails across the country have been built this way.

In addition to recognizing those individuals and businesses that make a contribution to the development of actual trail routes, some municipalities have developed incentive programs to recognize businesses that, through their actions indirectly encourage more user participation on trails. For example, the City of Toronto hosts an annual "Bicycle Friendly Business Awards" program, which recognizes businesses that have made considerable effort to improve their facilities for cyclists through things that may be as simple as providing high quality and conveniently located bicycle parking. Winners are presented with a plaque and are recognized in the local media for their participation.

Recommendation:

6-12 Individuals, businesses and organizations who contribute to the development of trails should receive recognition for their efforts. The County should explore potential avenues for recognizing contributors. (Short Term)

6.4.2.2 Partnering with Other Agencies

Opportunities exist for the County to develop partnerships with businesses and other agencies that provide services to a large sector of the population. The Haldimand Norfolk Health Unit is deliver important messages on healthy living choices and active living. As demonstrated though their participation in the Key Informant inteviews, there is a strong interest in partnering with the County in promoting trails and trail use as a healthy lifestyle choice. Partnerships with agencies can include jointly produced promotional or educational literature in magazines, materials distributed through offices, materials on or linked to corporate/agency websites.

Partnerships with agencies can also include co-participation in annual events related to trail use. Events such as the Terry Fox Run and other fundraisers, and events such as Ride to Work Week, the Clean Air Campaign and Earth Day are natural matches. Allowing time for key staff to contribute to the organization of these events that use the trails is a simple, cost effective way to spread the word about using the trail system. The Manulife Ride for Heart in Waterloo and the Tour de Grande in Cambridge for example, attract thousands of cyclists to one-day fundraisers that use trails extensively, providing visibility through extensive media coverage at essentially no cost to the owners of the trail.

Almost all of Haldimand County's municipal neighbours and the local Conservation Authorities are making strong efforts to develop and promote trails. Niagara Region is developing and aggressively promoting an extensive trail and scenic cycling network, the Niagara Peninsula Conservation Authority and Grand River Conservation Authority build and operate trails on their lands, Norfolk County, Brant County, the City of Hamilton and Six Nations have expressed an interest in trails and some are working diligently at developing their own networks with a view to making regional connections. Working closely with these agencies, Haldimand County could become a partner in region-wide efforts to promote an interconnected trail system as a destination.

Recommendation:

6-13 The County should explore opportunities to develop partnerships with agencies as a method of spreading the word about trails and encourage trail use across Haldimand. (Short Term)

6.4.2.3 Education, Outreach and Awareness

Interpretive programs and signs, brochures, either self guided or as part of a wider natural and cultural heritage education program, offer endless opportunities to raise awareness about the privilege of using trails. More importantly, the need to educate users about their obligations as responsible trail users is an integral part managing the network. Posting signs is a useful way to get messages out to trail users and can be a good tool for building positive relations where neighbours have raised concerns about trail use. Public Service campaigns, information signs and interpretive signs are also useful ways to send messages to trail users and neighbours that

the County is aware of particular concerns, that situations are being monitored and actions are being taken.

Trail maps are one of the most overlooked opportunities to spread the word about trails. Maps inform users where the routes are, plus they provide an opportunity to educate trail users through messages such as “rules of the trail” and trail user etiquette. Though expensive to produce initially, maps can be updated with the release of new additions as the system grows, making the initial investment pay for itself over time. The GIS Network Management Tool prepared as part of this project is an excellent starting point for the development of a trail user map and can be easily updated as the status of various trails changes over time. Many other municipalities have produced local trail maps and have used a variety of techniques such as selling advertising space to offset the cost of production and distribution, and partnering with graphic design companies to develop and produce maps. The expertise of a number of Haldimand County’s municipal neighbours could be drawn upon as they have developed trail user maps, some are hard-copy and some are interactive on-line.

Recommendations:

6-14 The County should investigate the development and production of a trail user education and outreach campaign that could include trail signs, brochures, public service messages and trail maps. (Short Term)

6.4.2.4 Trail Ambassadors

Many municipalities have successfully implemented trail ambassador programs. This program involves teaming a staff leader with summer students who attend events and functions organized by private businesses and agencies, camps and related recreation programs, where they promote the use of the trails and in some cases teach certain skills such as cycling. In addition, ambassadors ride the routes and trails, hand out trail brochures, provide assistance to users, and monitor the condition of facilities.

Trail patrols travel the entire trail system on a regular basis and can be trained to take note of, and report observations related to trail surface conditions, vandalism, user-conflicts, environmental degradation and overgrown vegetation to Parks Operations staff. In addition, the ambassadors are available to the public and can gather important data on user satisfaction, and can educate trail users about proper trail etiquette.

A trail ambassador program is more typical of a mature, urban trail system. As the trail system in Haldimand continues to grow and mature, the County should explore the merits of a trail ambassador program. In the interim, training park maintenance staff (including seasonal staff) to carefully observe and take note of trail conditions as part of their day-to-day maintenance role is an effective way to assist Parks Operations in keeping track of trail conditions.

Recommendation:

6-15 As the trail system in Haldimand continues to grow and mature, the County should explore the merits of a trail ambassador program. (Long Term)

7.0 Summary of Recommendations

Chapter 4

4-1 Implement the Haldimand County Trails Network as illustrated and described in the Haldimand County Trails Master Plan and Partnership Framework Strategy. (Ongoing)

4-2 Include the Recommended Trail Network as a schedule(s) in the Haldimand County Official Plan. (with next update to Official Plan)

Chapter 5

5-1 Adopt the trail design guidelines presented in Chapter 5 of the Haldimand County Trails Master Plan and Framework Strategy as the basis for the design of trails in the County. (Ongoing)

5-2 County Staff responsible for trail design (on and off-road) should be encouraged to remain current with best industry design practices. (Ongoing)

Chapter 6

6-1 That the Haldimand County Trail Master Plan and Partnership Framework be formally updated through a public process at least every five years. (Ongoing)

6-2 County staff responsible for building the on and off-road trail network should use the criteria identified in the Haldimand County Trails Master Plan and Partnership Framework to inform decision-making related to setting priorities for implementation. (Ongoing)

6-3 The County should commit to the allocation of annual capital budgets to the construction of trail infrastructure. (Ongoing)

6.4 In addition to investing capital budgets for the construction of trail infrastructure, the County should pursue outside sources for the development and maintenance of the trails. (Ongoing)

6.5 County staff should review and adapt as necessary the proposed five-part process tool for guiding the implementation of the trail network identified in the Haldimand County Trails Master Plan and Partnership Framework. (Short Term)

6.6 County staff should maintain and annually update the GIS based Network Management Tool developed as part of the Haldimand County Trails Master Plan

and Partnership Framework and use this tool to assist in asset planning and management. (Ongoing)

6-7 Using the Maintenance Plan Template as a starting point, County staff should develop a trail maintenance plan that is tailored to meet the County's needs, and is supported by an appropriate budget. (Short term)

6-8 County staff should use the policy themes identified in the Haldimand County Trails Master Plan and Partnership Framework as the basis for developing official policies related to trails in the County. (Short Term)

6-9 The County should use the Partnership Framework Strategy to guide the development of partnerships with various agencies and organizations that have an interest in, and the ability/resources to contribute to the planning, implementation and management of trails in Haldimand. (On-going)

6-10 A Trails Advisory Committee of Council should be established. As a first step, staff should determine the appropriate structure and Terms of Reference for the committee. (Short Term)

6-11 County staff should explore the opportunity to develop partnerships with private businesses for the purposes of encouraging employees of those businesses to use trails and cycling routes as part of their method of travel to and from work. (Short Term)

6-12 Individuals, businesses and organizations who contribute to the development of trails should receive recognition for their efforts. The County should explore potential avenues for recognizing contributors. (Short Term)

6-13 The County should explore opportunities to develop partnerships with agencies as a method of spreading the word about trails and encourage trail use across Haldimand. (Short Term)

6-14 The County should investigate the development and production of a trail user education and outreach campaign that could include trail signs, brochures, public service messages and trail maps. (Short Term)

6-15 As the trail system in Haldimand continues to grow and mature, the County should explore the merits of a trail ambassador program. (Long Term)

Haldimand County

Appendix A
Partnership Framework Study (for the Trails Master Plan)

May 2009

Monteith•Brown planning consultants

Stantec

TABLE OF CONTENTS

A. OVERVIEW

Haldimand County is in the midst of developing a Trails Master Plan, the purpose of which is to identify trail network priorities, design standards, policy requirements, and cost estimates. A comprehensive Trails Master Plan has been a goal of the County's for some time and will assist in harmonizing trail development and management strategies and priorities amongst Haldimand's three former municipalities.

This Partnership Framework Study is a companion document to the Trails Master Plan that will serve as a guide in establishing relationships with community and volunteer groups interested in constructing and/or maintaining trails within Haldimand County. Specifically, this report is intended to:

- clarify the expected roles and responsibilities of potential partners (e.g., trail groups, service clubs, health promotion organizations, etc.) and the County;
- acknowledge the rights of volunteer organizations (to perform specific activities for the benefit of the trail system);
- outline volunteer management guidelines and consideration; and
- assist with the implementation of the County's Trails Master Plan.

While the Trails Master Plan addresses needs and priorities related primarily to infrastructure (e.g., routing, design, costs, etc.), the Partnership Framework Study deals largely with the coordination and management of off-road trails (on-road, signed routes are excluded as these are a municipal responsibility), including aspects such as:

a) land ownership and trail governance;
b) construction, maintenance, monitoring and enforcement;
c) communication and promotion;
d) funding; and
e) insurance liability and risk management.

Although the purposes of the Trails Master Plan and Partnership Framework Study are different, both documents address a common subject and there is some degree of overlap. For example, the (draft) Trails Master Plan for Haldimand County contains the following recommendations in relation to trail partnerships, which help to form a foundation for this Study:

- Provide a leadership role at the County level for the implementation and management of the trail system.
- Seek opportunities to establish partnerships with other agencies and organizations for the development, management and promotion of the trail system, which includes both trail infrastructure and supporting initiatives and programs.
- Provide appropriate staff resources to oversee the implementation and management of trails.
- Establish a public trail advisory committee.

- Monitor and care for trails by developing appropriate maintenance strategies and programs, and by allocating sufficient resources. Examine the role of partnerships in developing trail management and maintenance strategies.

Both the Trails Master Plan and Partnership Framework Study should be interpreted as a set and not as separate, unrelated documents.

B. COMMUNITY CONSULTATION

To date, the consultation programme for the Trails Master Plan has been comprised of a series of key informant interviews and three open house community forums. The following is a summary of key results relative to this Partnership Framework Study.

Open Houses

Three open houses were held in Haldimand County (Dunnville on June 23, 2008; Caledonia on June 24, 2008; and Cayuga on November 25, 2008) to stimulate community discussion regarding trails in the County. Issues raised by attendees at the first two sessions included:

- Trail design and routing (37% of comments);
- Partnerships and potential partners (14%);
- Permitted uses (9%);
- Trail lands ownership (9%);
- Concerns of, and about, landowners adjacent to trails (5%);
- Trail management (5%);
- Praise for undertaking the Trails Master Plan (5%);
- Promotion of trail system (4%);
- User fees and taxpayer dollars (3%);
- Insurance and risk management (3%); and
- Sponsorships (2%).

Those in attendance at the meetings suggested a number of potential partners for Haldimand County to consider in the development, maintenance, funding, and management of its trail system; the potential involvement of each of these groups has not been sought or confirmed:

- Senior levels of government
- Service Clubs (Kinsmen, Rotary Club, Lions)
- Grand River Conservation Authority & Niagara Peninsula Conservation Authority
- Six Nations and adjacent municipalities
- Ontario Power Generation
- Esso Nanticoke, U.S. Steel Canada
- School Boards
- Girl Guides, Boy Scouts
- Rowing Clubs, Cycling Clubs, Saddle Clubs, ATV Clubs, Snowmobile Clubs
- Grand Valley Trails Association
- Caledonia On The Move
- Ruthven Historical Park
- Stewardship Council, Habitat Haldimand, Ducks Unlimited, Haldimand & Area Woodlot Association, Lower Grand River Trust

Key Informant Interviews

Key informant interviews gathered information from eight groups. A presentation was also made at a Haldimand Business Network meeting, providing a venue for members of the County's Economic Development and Tourism Division, as well as representatives from some of the County's Business Improvement Associations to provide feedback regarding the importance, possibilities, and benefits of trails to Haldimand County.

Interest in involvement in the future development or coordination of Haldimand County trails was expressed by:

- Haldimand-Norfolk Health Unit, Dunnville Health and Wellness, and Haldimand Community Support Centre each expressed a desire to participate in trail promotion
- Dunnville Health and Wellness would consider more coordination, especially through promotion and volunteer management
- Caledonia Cycling is willing to do a spring cleaning of trails and would sit on a committee; other groups such as the Haldimand Area ATV Club also indicated similar participation

Consultation Summary

It is evident in speaking with the general public and various community organizations that there is considerable interest in the development of a comprehensive trails network in Haldimand County. Although there are several as yet unanswered questions relating to the costs, roles and responsibilities pertaining to trail construction and management, several organizations indicated a strong willingness to assist with various aspects of trail development, promotion, maintenance, etc. Firm partnership commitments were not sought at this stage, nor is it appropriate to consider this without the benefit of an approved Master Plan and implementation procedures (such as this partnership framework).

C. BACKGROUND RESEARCH & BEST PRACTICES

A review of existing trails literature was conducted to provide background information on past and current activities and practices within Ontario, including information produced by municipalities, trails organizations, and related associations.

Furthermore, discussions were held with various Ontario trail organizations regarding 'best practices' for the development and long-term maintenance of trails.

A brief analysis of this research is provided below with respect to eight issues:

1. land ownership;
2. trail governance;
3. costs and funding;
4. construction;
5. maintenance;
6. monitoring and enforcement;
7. communication and promotion; and
8. insurance liability and risk management.

1. Land Ownership

While the ideal is public ownership of trail lands, this is not always a possibility in all communities, as the *Ontario Trails Strategy* has cited concerns about long-term access to private lands as a challenge for the trails community.

In reality, many trails, either out of necessity or historical design, cross private lands (which may be owned by private citizens, businesses, or conservation authorities) at certain points. In these cases, partnerships must be struck with landowners regarding permitted uses, insurance and maintenance, among other items depending upon the unique situation.

There are a number of methods through which private lands may be utilized for trails, ranging from "an informal agreement (sometimes called a 'handshake agreement'), to formal written permission, to a license agreement, to a perpetual trail easement" (*National Trails Training Partnership, 2007*). These varying levels of formality allow both the trail organizations and the landowner to decide how secure the long-term use of the land will be for the trail system. The downside to all of these methods is that the trail lands are at risk of sale at any given time, beyond the control of the trail organizations. The organizations contacted for this report stated that 'handshake agreements' are most common with private citizens, while more formal agreements may be put in place with businesses, municipalities, and conservation authorities.

A secondary issue is the need to communicate openly and consistently with those that own land adjacent to the trail lands. These landowners will likely be concerned about potential issues of vandalism, loss of privacy, trespassing, garbage, noise, etc. prior to the construction of the trail. However, addressing these worries and providing examples of other satisfied landowners may allay concerns until such time that the landowner has his or her own positive experience with the completed trail. For example, as a pre-emptive action, British Columbia's Ministry of Agriculture and Lands suggests creating buffers in the form of fencing or vegetative screens (not paid for by the landowner) or space to ensure adjacent lands are respected. This element

of design can foster positive relationships between trail organizations, the municipality, and adjacent landowners.

2. Trail Governance

The primary issues related to trail governance seem to be coordination between municipal and voluntary interests and communication among all stakeholders. To manage these relationships, British Columbia's Ministry of Agriculture and Lands suggests that it is crucial to provide one key contact person within the trail management team to which the public and landowners can direct concerns, first during the construction period, and then regarding trail maintenance and operation.

The Ministry and several organizations contacted for this report also suggest the creation of a Trail Advisory Committee that includes representatives of trail organizations, government, landowners (e.g., County, Conservation Authorities) and interested members of the community (including major user groups and volunteers). This committee is usually responsible for providing knowledge and feedback into the design and construction processes, and may need to manage conflicts between various stakeholders. The Trail Advisory Committee may serve as the gatekeeper of funds and prioritizes projects requiring funding. The committee will also coordinate trail operations system-wide, as specific portions of the trail may be maintained by different interests. The collective specialized knowledge provided by its members allows the committee to serve as the primary decision-making body with respect to the development and design of the trail. In addition, the Trail Advisory Committee can provide a forum for receiving input into all aspects of trail planning and operations. When forming such a Committee, the clear delineation of roles and responsibilities of the County, trail organizations, and any partners should be the first step in establishing governance.

Experience has shown that trail organizations (which are different from Trail Advisory Committees as they are typically responsible for trail construction and/or maintenance) often form organically through grassroots involvement by citizens. For example, the Thames Valley Trail Association in London began with three University of Western Ontario students and about 50 interested local residents. The roles of trail organizations may vary, but generally include advocating for the trail, coordinating membership activities, trail maintenance, and aspects of promotion, funding, and trail building (Spence, 2008). Trail organizations often represent geographical areas or sections of the trail, which may lead to the development of groups representing interests within the different communities of Haldimand County. Trail organizations, through representation on the Trail Advisory Committee, are likely to be crucial contributors to the Committee's expertise, regulations, and recommendations.

3. Costs and Funding

Trail organizations are generally volunteer-led, but a certain level of both capital and operational funding is required for a trail system to succeed. Research indicates that the primary funding sources to be considered are government (municipal, provincial, and federal), service clubs, local businesses and corporations, environmental foundations, individual donations, and even door-to-door fundraising.

Capital costs are often prohibitive for voluntary organizations without some level of assistance in grant writing and financial contribution by the municipality, which may be included in any framework to ensure consistency throughout the financial partnership. One of the groups contacted regarding best practices suggested that the trail organizations request seed money from the municipality to get started.

The *Ontario Trails Strategy* recognizes that funding for trails is limited and not necessarily secure over the long-term. Long-term operational funding needs, not just initial capital costs, must be considered in fundraising and budgeting. These costs might include maintenance, building future infrastructure (e.g., washrooms, bridges, etc.), signage replacement, and insurance, among other items. Economic sustainability of a trail system is often reliant upon municipal funding, fundraising by the trail organizations, and grants. Due to the fact that fundraising and grants are not always consistent, some communities have established line items associated with trail organizations in municipal budgets.

4. Construction

Upon finalization of the preferred trail routes, adjacent landowners and the general public should be clearly informed of the stages within the construction process. Volunteer groups offer access to willing and able builders, but the lack of construction expertise and difficulties coordinating different groups may lead to a longer construction period. However, the use of volunteers is a cost-efficient way of building trails and can be a catalyst for future stewardship opportunities as those involved in the construction may feel a sense of ownership over the trail.

Other options for construction presented by British Columbia's Ministry of Agriculture and Lands are parks staff and private contractors. Each of these groups would provide a greater level of experience than that of most volunteer groups, but the cost associated with using any private company must be weighed against more intrinsic issues like stewardship and long-term involvement in the trail. Well-designed and well-built trails are the easiest to maintain. The appropriate method of construction should be carefully considered by the County and trail organizations to ensure all parties are satisfied and the quality of the trail is the top priority.

The inclusion of trail organizations and their volunteers at every stage of the process must be given great consideration as a method of maintaining long-term interest and connection with the trail system.

5. Maintenance

Trail maintenance is an area in which an agreement between the trail organizations and the municipality must be distinctly defined regarding roles and responsibilities. The vast majority of trails have volunteers involved in some facet of maintenance, even though some form of regular maintenance is carried out by municipal staff (e.g., garbage pick-up, projects requiring heavy machinery, etc.). Trail organizations may organize groups to conduct trail cleanups (spring and fall). Several municipalities perform the following activities on an ongoing basis: mowing grass, grooming, garbage pickup, and sign refurbishment and the costs associated with these items are recognized as standing municipal budget items to ensure continual funding. The responsibility for regular trail inspections varies by community, but the posting of a municipal phone number for users to report problems is a common approach.

Trail maintenance plans should be established as part of a formal agreement prior to construction. These plans should include guidelines for trail inspections and evaluations. Walking patrols by volunteers may be most effective in dealing with issues including respect on the trails, hazard trees, and vandalism; police, other emergency services, and user groups should be involved at an early stage to handle non-permitted uses and speed limits. Trail maintenance responsibilities (e.g., mowing; fall and spring clearings; hazard tree cutting; etc.) should be clearly outlined and details provided to all partners. Consistent maintenance not only improves the user-experience, but also is a preventative measure against erosion and trail damage.

6. Monitoring and Enforcement

The primary manner of monitoring trail regulations is through the use of signage, patrols and trail ambassadors. Following design considerations, the next major step to a safe and well-managed trail is to provide guidelines and regulations for trail users to follow (e.g., access, permitted uses, routes, respect, etc.), much of which is to be defined by the County's Trails Master Plan.

Trail patrollers or ambassadors will "travel the entire trail system on a regular basis and can be trained to take note of, and report observations related to trail surface conditions, vandalism, user-conflicts, environmental degradation and overgrown vegetation to Parks Operations staff" (Guelph Trail Master Plan, 2005, p.70). Trail organization volunteers are often a good fit for this role as they can serve as ambassadors for something (the trail) that they believe in enough to donate their time. Different user groups will require different rules and may require different forms of monitoring. Many organizations suggest including emergency departments (e.g., police, ambulance, fire) in the list of stakeholders with which trail organizations should partner, which may allow for greater enforcement of speed limits (where applicable), for example. Foot patrols could be more beneficial with regards to vandalism, respect, and overall conditions of the trail.

7. Communication and Promotion

The solicitation of input from the public, adjacent landowners, user groups, and other stakeholders is of paramount importance in the trail planning process.

When first approaching landowners adjacent to potential trail lands, the Alberta TrailNet Society found that "it's important not to bring in someone in a suit who gathers everyone together and tells them how wonderful it will be to have a trail go by their house. It needs to be a grass roots effort" (2000, p.11). Local citizens who are passionate about the trail are paramount to successful promotion of opportunities, particularly during the buy-in stage of planning. One group that provided input into best practices provides trail landowners (e.g., private residents and businesses that own sections of the trail) with copies of its quarterly newsletter to keep the landowners informed of trail activities. Landowners are also notified of route changes near their land and signage is provided on the trail near their land to remind users that the trail they are on traverses private lands and the related rules of conduct.

Trail organizations are generally responsible for the coordination of the promotion of the trail, but other partners may, through their own outlets, echo the trail organizations' efforts. The inclusion of partners in the activity of trail promotion may reduce the financial and time constraints often faced by volunteer groups, including trail organizations. The Bruce-Grey Trails Network suggested involving tourism-affiliated organizations in the promotion of trails as a destination, as well as the local Health Unit to promote the benefits of active transportation and other physical, emotional, and psychological benefits of trails. However, caution should be taken to ensure that messages are consistent and accurate.

The methods of promotion recommended by organizations canvassed were word-of-mouth and flyers/posters at public institutions (particularly libraries). It may also be beneficial to engage local media in the promotion and coverage of special events (e.g., public information sessions), remembering that local television media may have a limited audience. The scheduling of informational meetings should be scheduled in the autumn and winter whenever possible, as attendance is likely to be higher because those who might be interested in stewardship of trails are more likely to be enjoying the outdoors in the nicer weather.

The *Ontario Trails Strategy* outlines the need for easily accessible information as a major challenge facing the trails community. Landowners, user groups, and other interested parties should be able to access information regarding routes, reporting procedures, scheduled hikes, permitted uses, and mapping (at a minimum) in one central online location. As previously mentioned, it is also important to have one contact person (possibly as a liaison to the Trails Advisory Committee) to serve as a conduit for feedback and information with landowners, to ensure they are adequately heard and respected.

8. Insurance, Liability and Risk Management

The municipality and trail organizations must work together to ensure that the trails and its users are sufficiently insured prior to trail construction. Several trail groups have recommended that trail organizations become members of the Ontario Trails Council and Hike Ontario as they offer access to insurance coverage for member organizations; and that it provide insurance coverage for volunteers (including transportation to trail cleanup), property, and separate insurance for Directors and senior volunteers.

The partnership agreement must also make certain to have adequate risk management procedures in place. The Bruce-Grey Trails Network provides a list of key elements that should be included in a risk management plan:

- Development of a risk management policy statement
- Standardized trail construction and maintenance
- Monitoring of trail conditions
- Prompt repair of trails
- Hazards marked and trail re-routed or closed
- Training of staff and volunteers
- Waivers of liability and acceptance of risk
- Signage
- Accident and incident reports
- Land use agreements with landowners
- Insurance

Further, key steps of the risk management process include: identification, evaluation, treatment measures, and implementation. In addition to municipal and organizational risk management policies, the *Municipal Act*, *Occupiers Relief Act*, *Line Fences Act*, and *Highway Traffic Act* are among the provincial legislation that must be considered. Trails in rural areas may require more specific risk management policies due to the remote location and potential hazards (e.g., farm equipment, livestock, etc.).

Other examples of risk management practices include meeting governmental and industry requirements regarding, especially during trail construction (e.g., CSA approved steel toe work boots worn on site, etc.). Once the trail is open for use, trail conditions must be monitored regularly and uniformly (e.g., standard trail status report forms should be filled out by each monitor and submitted to a central person who can check for accuracy and consistency). Upon receipt of a report of a maintenance issue on the trail, every effort should be made to address the situation as promptly as possible to avoid further complaints or injuries. Furthermore, although difficult, efforts should be made to have users sign waivers of liability whenever possible (e.g., when purchasing memberships or attending guided hikes); this does not remove the right for a user to sue upon injury, but does represent an aspect of due diligence on the part of the trail operators. Signage and notices outlining the inherent risk involved in using the trails are also important steps to take to ensure that public users recognize their responsibility for their own safety in using the trail.

D. RECOMMENDATIONS

Based on the foregoing, the following recommendations should be considered by Haldimand County when establishing and managing partnerships relating to the trails network:

General

1. Provide a leadership role at the County level for the implementation and management of the trail system.

2. Seek to establish trails on public lands wherever possible. Use of private lands may be considered in cases where no other viable alternative exists. For trails on private lands, long-term formal lease agreements addressing public access and risk management shall be established.

Staffing

3. Provide appropriate municipal staff resources to oversee the implementation and management of trails projects and partnerships. The establishment of one key contact person in the Community Services Department is recommended; however, additional resources may be required to coordinate trail development and assist with major trail maintenance projects (e.g., Planning and Economic Development Department, Public Works Department).

Communications

4. When designing, constructing, and maintaining trails, communicate with user groups (e.g., snowmobilers, hikers, cross-country skiers, etc.), adjacent landowners, and the general public early and often (particularly when applicable segments or corridors move upward in the priority for construction). This notifying adjacent landowners and holding a public meeting prior to trail construction.

Trails Advisory Committee

5. Establish a Trails Advisory Committee as a committee of County Council, charged with advising Council on matters, issues, and policies pertaining to trails. The purpose of the Trails Advisory Committee is to make decisions regarding trail planning, priorities, design, usage guidelines, conflict resolution, and funding, within the perspective of a County-wide trails system. Committee composition should include municipal (Council and Staff), stakeholder, and public representation.

Funding

6. Costs for trail construction and major capital repairs/replacement shall be shared between the County and trails organizations on an equal 50/50 basis, with work not commencing until all funds are collected. Capital funding from the County to trails organizations shall be allocated through an annual grant application process, with the Trails Advisory Committee acting as the steward.

7. Establish appropriately-resourced long-term capital and operating "municipal" funding programs for the County's portion of trail construction, maintenance, expansion, and infrastructure (e.g., washroom facilities, gates, fencing, etc.).

8. For capital development projects, trail organizations must make considerable efforts to secure "non-municipal" funding from senior government grant programs (with trails organizations taking the lead and with County staff assistance and support), local fundraising and sponsorships, and other non-municipal sources.

Trail Building & Maintenance

9. Trail construction shall be the primary responsibility of volunteer trails organizations, in coordination with the Trails Advisory Committee and with assistance (where required) from the County. It is not necessary to utilize the County's tendering/contracting guidelines for capital projects led by the trails organizations (but made possible through a partial County grant). Trail design and construction practices must meet approval of the Trails Advisory Committee and take into consideration usage of consistent signage (for all trails across the County).

10. Day-to-day trail maintenance and regular inspections shall be the primary responsibilities of volunteer trails organizations; the County will provide secondary assistance, such as addressing major maintenance issues (on an annual or coordinated basis) and providing garbage cans at trailheads.

Liability & Risk Management

11. The County and trail organizations shall attain membership with the Ontario Trails Council in order to access information and tools related to trail creation, development, preservation, trail management, and risk management.

12. The County shall secure insurance for all trail construction and trail use on public or leased lands; this insurance would also cover trail building by local organizations.

Partnerships

13. Maintain open dialogue with and seek opportunities to work with neighbouring municipalities (Norfolk and Brant Counties, Six Nations, City of Hamilton, Region of Niagara) and local conservation authorities regarding potential linkages to internal and external trail networks, sharing of best practices, trail promotion, and other partnership opportunities.

14. Actively seek opportunities to establish partnerships with agencies and community organizations for the development, management, and promotion of the trail system.

15. When entering into a partnership regarding trail development and/or management, establish mutually agreed upon roles and responsibilities for the County and the partnering organization in a formal partnership agreement. Roles and responsibilities may differ from one agreement to the next, depending on the abilities and resources of the parties involved. The following delineation of responsibilities is recommended, but may be used as a point of departure for future negotiations.

AREAS OF RESPONSIBILITY ● = *Lead Agent (or equally shared responsibility)* ◖ = *Supporting Agent*	Trails Advisory Committee	Haldimand County (staff)	Partnering Organization(s)
Trail Management			
Trail Planning, Prioritization and Design	◖	●	◖
Insurance and Risk Management Plans		●	◖
Establishment of Trail Use Guidelines	●	◖	
Establishment of Agreements	◖	●	
Conflict Resolution	●	●	
Volunteer Coordination and Training	◖		●
Monitoring and Enforcement (in concert with local police)		●	●
Trail Funding			
Capital Funding for Trail Construction (County grant process)		●	●
Fundraising	◖		●
Grant-writing (to senior level governments and agencies)	◖	●	●
Capital Funding for on-road routes		●	
Trail Construction			
Trail Construction (with County grant and fundraising)		●	●
Internal Trail Signage (i.e., on trail)		●	●
External signage (e.g., on road)		●	
Trail Maintenance			
Regular Trail Maintenance (e.g., spring and fall clean-ups), minor repairs, and associated funding	◖	●	●
Major Trail Maintenance (e.g., projects requiring heavy equipment), litter disposal, maintenance of trails within County Parks, and associated funding		●	
Regular Inspections		●	◖
Trail Promotion			
Trail Promotion	◖	●	◖
Funding relative to promotion, coordination, insurance coverage, and external signage		●	

E. TEMPLATE AGREEMENT

As part of this Study, a template agreement has been provided using examples drawn from other communities and trail organizations. It is anticipated that this template agreement (or a variation thereof) will be used in supporting formal partnerships for trail development between local volunteer organizations and the County (or designate).

F. REFERENCES

The following table contains a listing of information sources that were of assistance to developing this Partnership Framework document.

Author	Title	Date
British Columbia Ministry of Agriculture and Lands	A Guide to Using and Developing Trails in Farm and Ranch Areas	2002
Bruce Grey Trails Network	Trail Building Tool Kit	2003
City of Guelph	Guelph Trail Master Plan	2005
Ministry of Health Promotion	Ontario Trails Strategy	2005
National Trails Training Partnership	Various articles	2007-2008
Projects for Public Spaces	Various articles under Public/Private Partnerships	2008
Spence, Kirsten	Regional Trails Committees	2008
Strong-Watson, Linda	Report on Two Successful Rural Trails	2000
The Trails, Walkways & Bikeways Subcommittee	Town of Essex Trails, Walkways & Bikeways Plan	2003
Huronia Trails and Greenways	Personal Communication	October to December 2008
Thames Valley Trail Association		
Lynn Valley Trail		
Ontario Trails Council		