



THE TOWN OF  
**Quispamsis**  
ACTIVE TRANSPORTATION PLAN  
FINAL REPORT

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## 0.1 Preface

Quispamsis is a beautiful shoreline town that, although very rural in character, provides modern amenities and an attractive lifestyle to its residents. The **Quispamsis Active Transportation Plan** proposes to integrate a multi-use mobility network into the existing fabric of the Town. Through consultations, street and trail evaluations, as well as a developed understanding of community requirement for in-town destination connectivity, a long-term plan was formed with the integrated network as the final outcome.

The residents of Quispamsis are very clear about the purpose of Active Transportation within their community; street and trail development is to provide meaningful and multi-modal connections that link residential front doors to important civic addresses first, and to adjacent communities second. The system should be designed primarily for youth thus, the safety of young residents is paramount.

The reader of this report will notice that Town youth were consulted in great numbers and weigh heavily in the implementation of this plan. The proposed network of trails and streets make the linkages that youth desire (home, school, parks). The programs support safe and informed use of the network.

Finally, it is very important to remember that Quispamsis is in a state of evolution (from rural to urban). The Town has moved beyond bedroom community to an urban centre within south-east New Brunswick. For this reason, this plan is developed with the understanding that Active Transportation should gently weave into this evolution with both modest physical and cultural change. This plan's success is contingent on instilling long term ideas into a rapidly changing Town.



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## 1.0 Active Transportation for Quispamsis

Simply described, Active Transportation (AT) is any human powered mobility that simultaneously results in improved personal health and a greater appreciation and level of participation in community life. Well implemented AT is obviously inherent in towns and cities that offer safe and comfortable trail and street corridors for both transportation and recreation purposes. In fact, almost all of the most desired North American “addresses” as determined by various media and real estate research sources, are determined by their recreation and lifestyle infrastructure - and this is lead by quality street and trail infrastructure. Places such as Madison (Wisconsin), Boulder (Colorado) and Burlington (Vermont) all have well developed street and trail networks and all benefit from continued growth resulting from this infrastructure. The organization of these infrastructures should be carefully planned and include programming such as the promotion of shared routes and shared-use.

Active transportation, as a community movement, is promoted as a means to increase community and resident health through increased daily outdoor activity. A safe and comfortable network that is well integrated and environmentally responsive supports the continued development of a sustainable community. Cycling is widely considered the primary thrust of AT initiatives. Broadening the scope of the street from a vehicle-primary corridor to an multi-use and inclusive corridor satisfies the transportation-based cyclists' needs.

Cycling is a popular form of recreation in Canada, and in recent years an increasing number of people are realizing the value of

cycling as a mode of urban transportation. Although the bicycle occupies a distant fourth place after the automobile, public transit, and walking as a method of transportation - an increasing number of cities are encouraging bicycle use as an alternative to automobile use. (Transport Canada, 2008) In fact, cycling is the fastest growing transportation method in North America. This increase in levels of bicycle use in Canadian cities results a number of benefits. These include:

- Environmental benefits, through reduced emissions of toxic pollutant and greenhouse gases;
- Health benefits related to higher levels of physical activity, including improved cardiovascular health and lower risk of obesity;
- Health benefits related to the reduction of airborne pollutants, including lower incidence of respiratory diseases;
- Economic benefits, such as reduced household expenditures on transportation costs, reduced work hours lost in traffic jams, and reduced healthcare costs thanks to the effects of regular exercise and reduced air pollution. (Transport Canada, 2008)
- Social benefits with more people on the street increases social interaction, helping to improve safety and contribute to a greater sense of community.

In the North American context, AT is the only form of transportation that satisfies all attributes of a sustainable mobility system. It includes walking, cycling, using a wheelchair (or mobility aids), in-line skating or skateboarding where permitted.



*The primary purpose for Active Transportation, in any place, is to provide mobility choices for everyday activities.*



*Quispamsis is well positioned to incorporate active transportation infrastructure into the existing town network of streets and trails.*

*Minor upgrades to the existing network will result in desirable recreations and transportation venues.*



To date, active transportation has not been a major mode of travel in Quispamsis. Available assets are often raised as the key deterrent yet many of the “bones” of the system are in place (informal trails, street corridors, widened trail lines).

A typical regional commuter cyclist today uses a cycling system nine months a year and a walker uses the system almost daily - year round. Given the numerous benefits of walking and cycling, these modes of transportation should be given a larger role in the Town of Quispamsis.

Walking is the most basic form of transportation, available to most everyone at no cost. Cycling is another sustainable transportation option available to Quispamsis residents; however, street width, slope, traffic speed and view planes need to be addressed to create comfortable corridors.

While walking and cycling are popular forms of exercise, the focus of the new direction for Quispamsis is to give priority to AT in line with the existing street hierarchy. The transportation hierarchy must place AT within equal context of all motorized modes in existing areas and as the primary element in future developing areas.

Thus the goal for Quispamsis is to design and operate a Town in which AT is a meaningful transportation choice for efficient and healthy, social and economic urban interaction. This goal can be achieved by providing well-designed, direct, convenient, safe and comfortable pedestrian and bicycle routes and facilities.

### **1.1 Rationale for Change**

Quispamsis Town Council has indicated support for active forms of transportation through the commissioning of this plan. In

addition, residents have expressed increased concern with pedestrian and cyclist safety.

Extensive research has identified that towns and cities characterized by low-intensity development such as Quispamsis, are usually highly auto dependent and have relatively low utilization of transit, walking and cycling. This is a result of evolution from the rural to urban context and, therefore, will require careful planning to move from one context to another.

Communities supportive of active transportation desire walkable development patterns and are more likely to accommodate a higher proportion of trips via walking, cycling and transit than by private automobile. Transportation plans from other North American cities recognize the larger role AT should have to achieve their goals for sustainability. The interdependence of ‘land-use’ and transportation is at the forefront of contemporary movements such as Smart Growth, New Urbanism, and complete streets and context-sensitive design. All of these movements recognize and celebrate building for the pedestrian.

Based on the findings of the public consultation work (described in upcoming chapters), the proposed road and street palette for AT in Quispamsis will include pedestrian and limited bicycle infrastructure within the existing right-of-way for streets today, and in expanded right-of-ways for evolving streets. The context-specific approach to elements within the road and street right-of-way ensures an appropriate interface with adjacent land uses and special places, and provides comfortable spaces for pedestrians and cyclists whether traveling, stopping or waiting for public transit.

**Activity centres, or nodes,** are areas where special community-based activity is important enough to be considered a primary network destination. As a result, they are convenient places for walking, cycling and taking transit. At nodes, car use is optional because homes, shopping, offices and other services are accessible by the trail and street network, and transit service is frequent. It will be important to ensure public transit stops align with developing nodes.

Quispamsis is an expanding town whose visual character, for the most part, combines rural transportation routes with single family urban densities. This results from the City of Saint John's continued economic growth and expanding adjacent bedroom communities. Quispamsis' rural character and contemporary service districts provide an ideal lifestyle for those who are employed regionally and desire home life within the beautiful Kennebecasis River Valley corridor. Thus, any integration of AT infrastructure into Quispamsis must respect and celebrate this character while expanding the traditional use of the rural route to multi-use corridor.

The Town of Quispamsis commissioned this AT plan to identify appropriate AT routes and an implementation plan to realize the creation of the routes as well as associated education and awareness strategies. This document is broken into three chapters.

- Chapter One provides study background and context leading to a concept for AT development in Quispamsis.
- Chapter Two provides a description of the AT Network and its components.

- Chapter Three provides a strategy and plan for implementing this study.

## 1.2 Project Statement

The Quispamsis Active Transportation Plan proposes a destination-based network of trail and street corridors that broaden transportation options to include health promoting human-powered modes of mobility within the Town.

## 1.3 Consultations

The development of this plan is strongly based within the findings of several consultation types and sessions. Included in this work were several school-based youth workshops, special interest group meetings, individual interviews, and invited public workshops. The following describes the outcomes of these sessions and is presented in a sequential format that leads to the key issues (Section 1.4).

### 1.3.1 Youth Work Sessions

Students at many of the town schools were consulted in varied workshop formats to talk about their daily lives, how they and their families move around town, and what type of infrastructure should be added to their community to improve their lives. As always, the youth spoke sophisticatedly about both themselves and their parents, and identified the following issues that should be addressed in this plan.

#### Youth Issue One - Trails.

At present, youth recreational life is about three things: virtual social interaction, nature based recreation on formal and/or informal trails, and destination parks. Youth have no desire to modify their virtual social interaction tools and methods; however, parks and trails require attention.



*Various resident groups formed the structure of the plan and chose where implementation should begin.*



*Public session work showed that Quispamsis' beautiful rural setting should be enhanced by the inclusion of active transportation infrastructure, not affected by it.*



Quispamsis' rural setting is ideal for nature-based trails; however, this offer is limited. For youth, nature trails are a transportation and recreational movement corridors, as well as a park unto itself. The corridor provides an opportunity to interact with each other and nature within close proximity to home (and is a desired route to school). When questioned about trails as school routes, we learn that youth see the trail as a desirable school route due to the perception that local streets are dangerous for pedestrian use. In any event, the trail is a youth-desired mobility corridor and a preferred option to neighbourhood parks.

### Youth Issue Two - School Routes

Although the Town is becoming increasingly urban, Quispamsis streets are mostly rural in nature. Youth are aware that the transportation network is evolving to a more urban setting (through sidewalk construction and in-ground infrastructure that is replacing traditional drainage ditches); however, the evolution is costly and will take time.

This fact leaves many of the streets that students utilize to walk to bus stops and school without sidewalks that students believe provide a safe walking environment. This presents a problem for schools that must build expensive "kiss and drop" infrastructure for youth that could walk if the primary corridors leading to schools had sidewalks.

A desirable alternative in areas where sufficient corridor is not available to place sidewalk is the previously mentioned trail. Students would prefer trails if available for all-seasons and well maintained. Thus, the recreational trail network becomes a meaningful transportation route for youth.

### Youth Issue Three - Contemporary Recreation

There appears to be a disconnect between youth and parks. The relevance of the Town's parks were tested to determine which should form nodes in the AT plan; however, parks will require modification to ensure a node position (similar to parks in Rothesay or Saint John which are considered important destinations due to available activities).

Although park development is not the focus of this AT plan, future development of important nodes is. Thus, youth have identified a need for contemporary park events such as skateboard and water play activities that provide "stay at home" recreation nodes within Quispamsis.

Youth debated whether these events should be located at Town Hall or the future qplex. The final destination was Town Hall due to its central location and importance as a civic destination for Quispamsis. The qplex is viewed by youth as a regional facility.

#### 1.3.2 Resident Sessions.

Resident sessions were held in interview and workshop formats. This section summarizes the issues found through both methods.

### Resident Issue One - Trail System

As the town evolves from rural to urban, it is becoming evident that an internal and well-linked trail network is required to meet resident desires. This is to be expected in a Town experiencing this evolution and residents are aware of this fact; however, they would like to see this addressed as part of this plan.

Residents have identified nodes that should be connected by trails (Town Hall, qplex, Hampton Road Shopping District, the



*Quispamsis is fortunate to have several built and natural assets that, with minimal intervention, can be utilized to create unique and spectacular multi-modal corridors.*

major parks and schools). Although the best routes were not completely identified, the theme was: natural setting with multi-modal trail surface.

### **Resident Issue Two - Building Safe Streets**

With community growth comes increased traffic load. With busy lives come increased traffic speed. These combine to be a reality for the rural type streets of Quispamsis (and directly conflict with the desire to safely move around the Town by foot or pedal).

The nature of the existing street corridor, for most of the Town, is street, limited granular shoulder and drainage ditch. This is the nature of residential and/or commercial streets and provide limited comfort for those wishing to walk, bike, etc. along busy corridors (streets with 1000 plus cars/day). Streets should be renovated to create good pedestrian and cycling environments. Thus, streets must be considered as inclusive corridors and not asphalt vehicle routes.

### **Resident Issue Three - Programming Safe Streets**

Although the renovation of a street will remedy physical issues, it will not remedy social issues. Thus, a marketing and education program is required to provide residents with an understanding of what a shared-use/multi-modal network is, and how to use it.

It is important to understand that education is not solely for the car operator. It is for all users of corridors. All require instruction on how to operate and share the corridors. The education creates an understanding that supports physical renovation when complete. Thus, education should occur prior to renovation.

### **Resident Issue Four - Inward Focus**

Any network developed in Quispamsis should provide inward connectivity between important nodes first, and provide connection to adjacent municipalities second. Therefore both the trail and street networks will be formed in a loop style system in the initial development phases with linkages to Rothesay and other areas extending from the edge of the loop in later phases.

### **Resident Issue Five - Utilizing Existing Corridors**

For the most part, the network can utilize existing corridor space such as the informal trail adjacent to the CN Rail line and the available land at the edge of Millennium Drive to create unique AT assets. These represent available and usable assets that can be immediately accessed. Any projects that require corridor creation should be formed as part of expanding neighbourhood areas.

### **Resident Issue Six - Special Features**

Quispamsis is a beautiful community with unique features that this plan must respond to. Several nodes and corridors have a special identity that any AT-based interventions should celebrate and not interfere with. For example, the Gondola Point Road winds along the Saint John River and offers several panoramic views. In this case, any AT infrastructure should be located in a manner that does not impact the nature of the corridor while encouraging safe shared-use of the street. This theme should be carried through all corridor enhancement to ensure character conservation.





*Several local schools as well as School District Six are interested in working with the Town to develop both programs and infrastructure that result in safe recreation-based mobility options for students.*

### **Resident Issue Seven - One System - Four Seasons and Accessibility**

Any network development should consider that many residents require access to the network daily - all year. This includes evening walkers, cyclists, students walking to school, shoppers, wheelchair users and parents with strollers. Thus, capital and operational costs must be balanced to create a sustainable all-season network.

Lighting is also an important component of the AT corridor. Residents understand that in some cases, trails will be difficult to light due to cost. For Quispamsis, lighting is considered both a safety and time of day/use issue. Overwhelmingly, residents believe that no project should be prevented to proceed due to light expense limitations; however, lighting should be included wherever feasible.

Wherever possible, all trails should be designed with slopes less than 7% to ensure accessible use. All 'Americans with Disabilities Act' (ADA) guidelines should be observed during design and construction.

#### **1.3.3 Special Interest**

Several groups and individuals were consulted on a one-on-one basis to solicit ideas and concerns around AT network development in Quispamsis (and the greater Saint John region where relevant). Those consulted are directly involved in their particular field of interest on a daily basis. For example, daily bike commuters, naturalists, mountain bikers, competitive cyclists and runners are included in this group.

It is important to remember that although special interest groups do not directly represent the largest user group

(residents), they do provide direct insight into specific issues relative to their activity. Addressing these issues will benefit the entire system.

The following summarizes the various sessions held with the special interest groups.

#### **Special Interest Issue One - Schoolsheds**

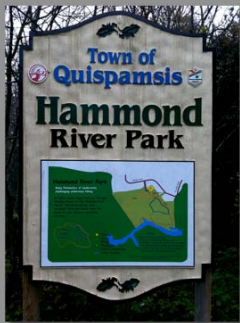
Each of the Town's schools lies within a "schoolshed" that students are drawn from. Within this area, students are encouraged to walk or bike to school (if within 1.5 kilometres from school) or take the bus. School District 6 would like to expand the pedestrian boundary to increase student health through walking; however, corridor safety is a perceived problem. Thus, part of the AT network should include primary corridors that link neighbourhoods to schools with sidewalks, trails and bike paths.

Accomplishing this will require both physical and programming activities. The Town can work with School District 6 to develop programs such as the "walking school bus" or "bike to school" initiatives. These are fun, healthy and inexpensive ways to get students active.

#### **Special Interest Issue Two - AT as Tourism**

Quispamsis and the greater Kennebecasis Valley region offer excellent cycling routes in a beautiful and moderately challenging setting for both recreational and competitive athletes. The appropriate identification and promotion of these routes (to be accessed from various gateway nodes) will provide regional cyclists with a cycling destination for "greet and ride" events.

*Civic assets such as the Town Hall provide key destinations (nodes) for an active transportation network. With*



*minimal improvements, the Hammond River Park will become both a local and regional node in the network.*



### Special Interest Issue Three - Regional Connectivity

Although the primary purpose of this plan is to develop a localized AT network, connectivity to regionally identified corridors should be included for those wishing to move beyond the municipal boundary for varied reasons such as commuting.

The primary opportunity within this issue is connectivity to trail and street efforts in Rothesay as well as commuter cycling connectivity along the Hampton Road corridor into Saint John.

### Special Interest Issue Four - Important Places

For this AT plan, several important places (nodes) were identified as important destinations with two singled out for improvements that integrates the node into the network. These are:

**Town Hall.** This is an important civic address that should be renovated to include AT infrastructure (signage and bike racks). This site should also include expanded recreation offerings such as waterplay and a skateboard/bmx facility (as identified through consultation). These projects will increase node appeal and ensure the sustainability of the address as civic.

**Hammond River Park.** This is a naturally beautiful site with slopes and ground materials that provide an ideal setting for mountain biking. At present, this is not a formally available activity in Quispamsis. The location of the park makes this facility both a destination park and gateway to the tourism cycling routes.

**The qplex.** This is a wonderful new facility that has significant regional draw. For this purpose, the facility must become a major node within the AT network. Thus, arterial level street and

trail systems should directly link to the facility's site. Also, trail systems should be formed around the site to support the facility's draw for recreational reasons.

## 1.4 Key Physical Issues

With an understanding of resident issues and desires, all Quispamsis streets and trails were evaluated relative to their readiness for AT adaption. Although not all streets will require some form of renovation, all will be considered multi-use streets within the context of a hierarchal plan.

'Appendix A' of this report provides an overview of the street and trail network with description of corridor type and dimensions. The following issues should be considered when developing the network. Again, it is important to remember that the Town is in rural to urban evolution and all of the issues are to be expected in this context.

### Physical Issue One - Trail Type & Connectivity

The present trail system is not contiguous and requires upgrade to function as a multi-use corridor. New trails will be required to form a contiguous system and, in most cases, corridor space is available. Where space is lacking, on-street linkages will be required.

### Physical Issue Two - Street Sections

Most of the Town's streets are rural in nature (with sheet drainage and ditches). Some of these streets will require renovation to work within the context of this plan; however, this work should only occur on the primary corridors to preserve the rural character of residential streets because, after all, character is why many residents choose to live here.

### Physical Issue Three - Barriers

Four apparent barriers to AT development include land ownership, the natural slope in varied areas of the town, the CN rail line and the Gondola Point Arterial (Route 119).

- Several locations identified in this plan will cross privately held property. The Town will need to acquire easements from owners to ensure the proposed network is completed.
- Unbuilt areas with steep slope can be resolved by “cutting the contour” and utilizing street linkages that cross over ridges.
- Existing streets have slopes along the length of the street that exceed recommended TAC standards. Many of these streets are drained by ditches that create steep edges.
- The CN line represents a barrier that can be converted to a linkage by developing the edge of the corridor with a multi-use trail.
- The Gondola Point Arterial will remain as a barrier to crossing that should be addressed for future safety reasons. Several towns experience pedestrian crossing problems with developing areas adjacent to arterial highway routes. In some cases, casualties have occurred.

This plan addresses this issue and proposes locations and crossing types that should be considered as developing areas of the town expand and mature. Thus, monies can be allocated from increased tax base to assist with cost.

### Physical Issue Four - Growth and Phasing

This plan addresses areas of the Town that are identified as growth districts for AT inclusive development. This includes both infill and edge areas where municipal servicing is scheduled to

expand into new zones. Thus, this plan will have a long term implementation strategy that begins to place AT programming and infrastructure on the Town today, and evolves to a fully integrated system (based on the town's ability to pay for future projects as tax revenue grows).

### 1.5 Active Transportation Concept

The development concept for AT in Qusipamsis includes the gentle infusion of appropriate infrastructure(s) into the present evolution of the Town's street and trail system. In the early stages of implementation, AT infrastructure is not to be placed for active transportation purposes only. It is to be placed to promote the notion of shared street and trail use while supporting the long-term goal; **broadened transportation option for residents.**

The concept plan is comprised of the following three elements (that meet the desires and needs of residents);

#### 1.5.1 Hierarchal Network

The AT network must be comprised of Local, Collector and Arterial streets, and trail corridors. The Local streets are neighbourhood-based streets that are presently comfortable for residents. Collector streets provide mobility from neighborhoods to the Arterial streets while the Arterial streets provide linkage to important Qusipamsis destinations first, and to the greater region second.

The trail network is to be a multi-use and nature-based system of corridors that link residents to all of the same destinations as streets.

#### 1.5.2 Education and Marketing



*Many Qusipamsis streets are steeply sloped and/or have ditches that will require upgrades to allow the placement of AT infrastructure.*

Infrastructure alone can not create a safe and comfortable system. Programs must inform street and trail users that the corridors are for a broad range of users, and that the safety and comfort of all users must be considered.

The education and marketing concept for this AT plan must include starting with youth to foster cultural change for future generations of residents.

### 1.5.3 Evolution.

Like the education and marketing concept, physical AT change is cultural and must be infused into the Town's evolution to ensure success. Pushing AT infrastructure into the present street and trail system would be costly and therefore, unfeasible. Thus, this plan proposes to infuse AT infrastructure into plans for future street upgrades. Thus, the process is evolutionary with minimal cost.

Trail development can begin immediately and is considered very important to residents. This can include upgrades to trail systems at present parks and expansion of existing corridors.



*Several good existing education programs provide precedent models for a program for Quispamsis.*

## 2.0 Active Transportation Tools for Quispamsis

The previous chapter identified key physical issues that must be addressed in this plan. This chapter reviews various tools that can be utilized to address these issues. Although not all of these tools will be utilized during the implementation of this plan, all are presented to provide a broad base of knowledge that may be important in the future.

Both promotional and physical tools will be required to properly implement this plan. The promotional tools will include initiatives to promote the safe and shared use of both designated and non-designated streets and trails while the physical tools include the built amendments that support this shared-use where required.

This chapter reviews these and terminates with a list of chosen tools for Quispamsis.

### 2.1 Promotion and Safety

There are many educational programs supporting active transportation initiatives in Canada and other countries around the world. While the approach varies, most endorse the same ultimate goals: increased safety and awareness, increased physical activity, increased community involvement and reduced vehicular use (for both safety and environmental impact).

This plan proposes to promote safe and shared street use at the youth level. The fact that Quispamsis is evolving from a rural to urban town means that both cultural and physical changes must occur. These changes will take time and this report recommends

that the cultural change start now - with the youth. Thus, a new youth-based culture will evolve as physical change occurs.

'Appendix C' of this report provides information relevant to developing a program for Quispamsis. Several examples of successful initiatives are described thus, the Town can pick and choose elements from each that directly relate to the desired program type for Quispamsis.

#### 2.1.1 Key Recommendation

The Town of Quispamsis should work with School District 6 and the Rothesay Regional Police Force to develop a specific program based on the initiatives described in 'Appendix C'. Each of these programs utilize delivery packages that are available. Together, the Town, the Rothesay Regional Police Force and the School District can acquire funds through various grant programs to hire a summer coordinator to develop and deliver a hybrid package and program. The program should be delivered in a joint partnership including the Town, the policing authority and the School District. Prior to developing this partnership, the Town should develop a terms of reference for the program and meet with other partners to refine and implement.

### 2.2 Technical Devices - Streets

Although active transportation is based within a variety of human-powered mobilities, the bicycle is often the focus of shared street use due to the inherent conflicts of combined street use, and the fact that spatial characteristics such as slope, viewplane, etc. designed for the cycling environment work well for the pedestrian environment. Thus, this section of the report will provide technical devices primarily for the bike with preliminary device data for the pedestrian. Inherent in the



*The existing street network provides an ideal starting place for placing information that suggests that Quispamsis roads and streets are shared-use.*

planning and design of this master plan is the fact that walking and other forms of human-based mobility are largely accounted for within the development of good street corridors and trail systems.

### 2.2.1 Pedestrian Devices

The prioritized consultation ideas indicated that the sidewalk, granular trail and asphalt multi-use pathway are the desired pedestrian devices.

**Sidewalks** generally follow parallel to the street and are typically included in the roadway corridor. Designed for pedestrian use, sidewalks act as route connectors, or alternatives to trail pathways. They are generally 1.2 - 1.8m wide depending on the amount of pedestrian traffic and frequency of use.

Winter maintenance of pedestrian sidewalks is important in many Canadian cities. Keeping sidewalks free from snow and ice in winter is a challenge. In addition to benefiting pedestrians, cleared walkways ensure a smooth transition at crossing points (to assist wheelchair and walker users, or those pushing strollers).

Priority should be given on clearing major pedestrian corridors first after a snowstorm. Areas would include places with higher pedestrian traffic, such as shopping and business districts, and walkways leading up to bus stops, bridges and overpasses.

**The granular path** is to be a 2.5m wide nature-based trail extending through greenway sections. The multi-use pathway is a 2.5m wide asphalt path specifically chosen for the QR Line

project (extending along the CN rail line in a manner that links the Rothesay Arena site to the qplex).

Where possible, all of these devices will follow the dimensional aspects of the cycling devices and are to be incorporated into the various street and pathway systems indicated in upcoming sections of this report.

### 2.2.2 Cycling Devices

In general, a bicycle portion of an Active Transportation system can be divided into two main components: the street system and the multi-use trail system.

The street system includes the network of roadway surfaces or carriageways, and adjacent sidewalks and their respective transportation corridor elements including above ground infrastructure (i.e. signage, lighting, etc). Within the street system, there are several types of active transportation routes including: bicycle lanes, shared routes, bicycle paths and pedestrian sidewalks.

There are several factors to consider in determining the proper location of street-based bicycle routes. All of these factors must be considered in unison to ensure the resident desired safe and comfortable routes. These are:

**Potential Use** - the facility should be located along a route where use can be maximized.

**Directness** - The bicycle route should serve activity centres along a direct course. If the route is not located along a desired line it will be viewed as inconvenient and as such not be used to



*Several of Quispamsis' primary streets presently border the asphalt surface. Future streets should include sidewalks with grass setbacks to increase the perception of safety and to create a "green" corridor inclusive of all users.*

its full potential. This factor is less important on recreational routes.

**Access** - Consideration should be given to the provision of sufficient access points. The more frequent and convenient the access points the more the facility will be used.

**Available Width** - For an on-street bicycle route, the overall roadway width must meet or exceed minimum criteria for both motorists and cyclists.

**On-Street Parking** - The density of on-street parking must be considered. Areas with light on-street parking is desirable in order to reduce the chance of cyclist and vehicular accidents.

**Delays** - Because bicycle travel is an inherently slower mode of transportation, consideration must be given to ease of traffic flow and avoid routes with frequent traffic stops.

**Traffic Volume and Speed** - For on-street bicycle routes the speed and volume of vehicular traffic is important. Commuting cyclists generally travel on arterial streets to minimize delays however where this is not possible, due to inadequate lane width or high traffic speed an alternate, parallel street may be used.

**Grades** - Steep grades on bicycle routes should be avoided in order to maximize the number of users. Most cyclists cannot negotiate steep uphill grades.

**Surface Quality** - An on-street bikeway should be established only where pavement can be brought up to a reasonable standard. Manhole and utility covers should be flush with their

surrounding surface grade and railway crossings should provide for safe bicycle crossing.

**Maintenance** - Ease of maintenance is important in locating bicycle routes. A route may be underused and underutilized if the route is not easily accessible by maintenance staff.

**Aesthetics** - Scenic and visual aspect is important in locating a recreational bikeway.

### 2.2.3 The Bike Lane

In North America, the bike lane is the preferred street-based device. This is a lane reserved for cyclists and are established along streets, adjacent to the curb, with no parking, between the parking lanes and the outer (right-hand) traffic lanes on streets, their pavement forming a continuity with that of the roadway, and separated from the roadway by either painted lines or a physical barrier. Physical barriers are generally not recommended due to safety issues and snow removal. The bike lanes are usually located on streets with a vehicular traffic speed of 50km/hr or less and are typically unidirectional, in other words, cyclists ride in the same direction as the cars on the adjacent lane. Bike lanes may also be off-road, separated from the roadway with their own corridor.

Bike lanes are narrow, typically between 1.2 - 1.8m wide on the carriageway and reserved exclusively for bicycles. In some cases, the width of the bicycle lane is paved with a different material or painted to have a different colour than the vehicular lanes. The lane is identified using roadway markings (diamonds, bicycle symbol and shared use arrows) and signs posted on the edge or above the road.



*The bike lane and its markings are ideal for arterial and/or collector streets where extended corridor and all-season cycling is encouraged.*

On a typical local collector street that has on-street parking, the roadway has the following spatial dimensions:

- Roadway 3.0 - 3.5m in width/lane
- Bike lane 1.5 - 1.8m width
- Parking lane 2.1 - 2.5m width
- An overall corridor width of 13.2 - 15.6m

Where on-street parking is not permitted the bike lane is constructed to the right of the vehicular traffic lane. The width is usually 1.5 - 1.75m, but can be increased to 2.0m if bicycle traffic is heavy (more than 1,500 bikes/day). On a street without a curb, the minimum bike lane is 1.2m wide.

The key advantage of bicycle lanes is that they are inexpensive to implement. At minimum, they require only that a line or two parallel lines be painted along an existing roadway where width permits. In some cases, existing lanes may need to be moved slightly or removed to make room for the bicycle lane. Even then, the costs associated with removing old lane markings and repainting new ones are likely to be modest.

The main disadvantage of bicycle lanes is that, in the absence of a physical barrier between them and the vehicular lanes, they are prone to being encroached upon by automobiles. Where there is on-street parking, automobiles will cross the bicycle lane when entering and exiting the parking lane, creating a potential hazard for cyclists. Whether or not there is on-street parking, motorists might park or double-park their vehicle in the bicycle lane, forcing cyclists into the traffic lanes.



*The Town of Rothesay have identified shared-routes that are marked with both street and post signage.*

Another second but equally important disadvantage is the fact that bicycle lanes are not statistically proven to provide a safer cycling environment. The bike lane artificially proposes to create a safer street environment for vehicles that, by law, are permitted to co-operate within the same surface. This, as well as the fact that existing Quispamsis local street road widths are narrow, result in limited encouraged use of this tool for Quispamsis (except where regional linkages to existing bike lanes ensure regional connectivity).

#### 2.2.4 Shared Routes

Shared routes consist of streets on which bicycles are required to share the carriageway with motorized vehicles; there is no portion of the street surface reserved only for bicycles. Generally, shared routes are designated on local, residential streets with a low volume of vehicular traffic, or streets that are simply too narrow to fit dedicated bicycle lanes or a bicycle track. Shared routes are sometimes also designated on arterial roads that have wide curb lanes or a wide paved shoulder.

The creation of a shared route can entail merely adding signage and street markings to an existing sufficiently calm residential street or a sufficiently wide arterial road at minimal cost. However, where traffic is not deemed sufficiently calm, the creation of a shared route may require a variety of traffic calming interventions designed to limit the volume and speed of vehicular traffic. In this case, the cost can be considerable.

In the case of a shared route bike lanes should adhere to the following general spatial dimensions:

- Roadway 3.0 - 3.7m in width/lane depending on traffic speed and volume.



- Paved shoulder (for bikes) 1.0 - 1.8m width. Widths greater than 1.8m is not recommended because the shoulder may be perceived to be another vehicular lane. Both shoulders must be paved in order to prevent cyclists from riding against the flow of traffic. If the shoulder is a bikeway signs should be posted identifying them as such.
- An overall corridor width of 8.0 - 11.0m depending on speed and traffic volume.

### 2.2.5 The 'Sharrow'

The intended purpose of the marking is to indicate to both cyclists and drivers of the intended area of bicycle travel on a roadway. The symbols raise awareness to both cyclists and motorists of the correct positioning in the lane. This intent holds for all applications.

The Transportation Association of Canada (TAC) recommended design consists of two white chevron markings, with a stroke width of 100mm spaced at 100mm, placed ahead of the bicycle symbol stencil. Note that, at present, no consideration exists for potentially adjusting the stencil elongation based on roadway speed. Also note that some jurisdictions have used stencils with a thicker stroke width. This pavement marking is typically installed on the right side of the curb lane at 200m intervals (TAC 1998)

## 2.3 Technical Devices - Pathways

Unlike bicycle lanes, pathways are multi-use and are fully separate corridors, separate from motorist through the use of a strong physical barrier or space. They are typically designed for cyclists but also, in the case of multi-use paths, useable by other

wheeled vehicles, such as in-line skaters, scooters and wheelchairs.

Bicycle paths are usually either grade separated or separated from the traffic lanes by means such as a concrete median or a row of bollards. Unlike bicycle lanes, which are usually subject to the same traffic signals as automobiles, bicycle paths are sometimes equipped with dedicated signals at intersections that provide a priority cycle or an exclusive cycle for bicycles. The bike paths are at least 1.5m in width per lane and are separated by a minimum median width of 0.5m or more. In the case of a multi-use pathway, a minimum width of 3m typically with 1m wide shoulder and painted roadway lines to designate the separation between traffic flow and/or type of use.

This section presents design-based considerations that should be considered in placing infrastructure in existing and future street and trail corridors.

### 2.3.1 Design Speed

The design speed is used to determine the bikeway's geometric characteristics primarily the width, minimum curve radius and banking. The typical recommended design speed for an off-road bike path is 30km/hr. Design speed may be slower than 30 km/hr where there is a high volume of pedestrian traffic however it should never drop below 20km/hr. An on-road bike lane is directly related to the speed of vehicular traffic which is usually at least 50km/hr. (Velo 2005)



*The "Sharrow" is a painted street graphic that incorporates the bicycle and directional arrow to indicate the shared nature of chosen corridors.*

### 2.3.2 Design Grades

There is no strict rule to determine the maximum slope of a bike path however guidelines can be determined based on the cyclists climbing capability and the speed that they can reach without effort on descent.

Grades of 4% or less, generally do not pose a problem. A bikeway can include short grades of 10-15% but beyond these extremes the acceptability of the grades depends on their length and incline. On a grade of 6% or more, it takes a break of only a few seconds for a rider to lose enough speed to become unbalanced. Grades should therefore be limited to 8%. This also reduces the speed of descent which can reach 50km/hr or more.

The following table describes typical designs speeds as a function of path slope:

Grade/Slope (%)	Length (m)		
	25-75	75-150	150+
3-6	35	40	45
6-9	40	50	55
9+	45	55	60

Generally speaking, bicycle paths offer cyclists a higher level of perceived safety and can potentially induce more bicycle use than shared routes and bicycle lanes (Dill and Carr, 2003). Riding along a pathway without the worry of conflict with vehicle traffic can be a relaxing and enjoyable experience; however, the potential problem arises at traffic intersections and some commentators have argued that they do not necessarily offer

higher levels of real safety, given that most bicycle-automobile collisions occur at these intersections, which users of bicycle paths must still share with motorists.

The main disadvantage of bicycle paths is that they can be expensive to build and maintain. However they can also be used as multi-use trails for various other seasonal activities including cross country skiing or snowshoeing.

Montreal is the only municipality to have used this type of bicycle infrastructure extensively. Construction of the new 3.5 km bicycle track through downtown Montreal, completed in late 2007, cost \$3.5 million. As the track replaced approximately 250 parking spaces, the city has also lost \$1.7 million worth of annual parking revenues (Dobbin, 2007).

However, apart from the Claire-Morissette track, most of the recently added bicycle routes consist of bicycle lanes rather than tracks. The exception was made for de Maisonneuve Blvd. because it was feared that bicycle lanes would be too prone to encroachment by cars, given frequent occurrences of double parking in downtown Montreal (Jolicoeur, personal communication). These potential problems notwithstanding, there is empirical evidence showing that bicycle lanes reduce conflict between bicycles and motorized vehicles and improve both cyclists' perceived and real levels of safety (FHWA, 1995; Landis, 1998; Van Houten and Seiderman, 2005). Among other findings, it has been observed that bicycle lanes make motorists more aware of cyclists. It has also been noted that when bicycle lanes are added to streets with on-street parking, cyclists tend to ride further from the parked cars, reducing the risk of collision with an open car door (Van Houten and Seiderman, 2005).



*Some exiting Quispamsis trails exceed desirable slope. These should be marked as "steep" to ensure user awareness.*

## 2.4 Traffic Calming

Methods to calm vehicular traffic make it possible to correct excessive speed brought about by street geometry or traffic pressures. The goal is not to limit traffic but to reduce traffic speed in order to make the traffic more compatible with other uses of the street, particularly walking and cycling.

A variety of methods can be employed in order to reduce traffic speed make streets safer for non-vehicular movement. Each situation is unique and consideration must be given to local conditions. However several general techniques have been applied to many North American cities and they include:

### 2.4.1 Narrowing traffic lanes

By narrowing the traffic lanes to minimum design standards it can reduce vehicle speed. This can be achieved by constructing bicycle lanes or angle parking. In this case only additional road markings is required. Another method, which requires more extensive roadwork, is by widening sidewalks or adding a median.

### 2.4.2 Confine the View

A narrow, tree lined roadway, framed with buildings that are two or more stories can will cause motorists to slow down. A roadway that is wide, without a border of buildings, or trees and wide open vistas tends to encourage speed (i.e. highways). A sense of an enclosure can be attained by reducing street setbacks, planting street trees at regular intervals and allowing for taller buildings to be constructed. Ultimately this will serve to reduce the visible horizon which is probably the most effective way of reducing speed. A person's sense of free movement is lessened when visibility is confined to a space less

than perceptually required to move quickly. This will be an important traffic calming tool for Quispamsis.

### 2.4.3 Utilizing TAC Standards

Several methods can be used to reduce speeds and visibilities on streets and at intersections. The Transportation Association of Canada (TAC) provides various tools and their respective dimensions for a variety of applications (intersections, varying street widths, etc.). These guidelines should be followed for liability purposes. 'Appendix D.7' of this report provides background material for this purpose.

## 2.5 Technical Devices - Trails

The trail or "green system" includes the network of park trails, and their respective greenway corridors and infrastructure. Quispamsis has an opportunity to develop this within the context of existing stretches of continuous or in-continuous greenway. Future development areas can be built with the greenway as its primary structure.

### 2.5.1 Trails Types and Dimensions

A municipality's network of on-street bicycle and pedestrian routes can be complemented and completed by a system of off-street routes. In most cases, these are routes that run through parks and through greenways (green corridors). They can also include routes running along operational rail corridors.

Trails come in two basis varieties; multi-use granular or multi-use asphalt pathways. In some cases, a narrow footpath can be utilized where cost and environmental restriction of desire dictates.



*Tree planting at the edge of roadways is probably the most effective way to reduce corridor traffic speed. This is also a good way to involve school and community groups in Town improvement projects.*

Trail dimensions are typically 1.5 - 2.5m wide surfaces. Slope, speed, etc. guidelines should match those for bicycle pathways.

The design of greenway trails should take into account the characteristics of the various activities to be accommodated and their geographic location. These features may influence the trail's design (trail width, overhead clearance, curves, and grades) and its physical characteristics (trail surface material, signage, and carrying capacity of the structures.).

Trails that follow a waterbody side corridor should have a minimum setback of 25m from the watercourse depending on the provincial or local government required setbacks.

## 2.6 Amenities

### 2.6.1 The Bike Rack

Bicycle racks are needed to provide secure and convenient bicycle parking opportunities. At the same time, bicycle racks can help ensure that bicycles do not interfere with pedestrians and do not block building entrances. They can also help prevent damage to fences, street signs, and trees, which cyclists are likely to use where bicycle parking is insufficient.

The basic requirements for good bike racks:

- Simple design and obvious function.
- Designs should provide stability with two points of contact with the frame in a horizontal plane to prevent the bike from falling.
- Racks allow frame and wheels to be locked using either standard type of locking device (U-lock or cable lock).

- Easy access - the bike can roll into the rack without entanglement with street furniture, other bikes or without lifting over rack elements.
- Cost Effective - well-designed bike racks will allow for maximum bike storage in a small area.

Racks are permanently anchored with tamper-proof fasteners and attractive as street furniture and treated to resist weather and environmental conditions.

**Short-term** facilities are needed where cyclists expect to stay from a few minutes to an hour or more such as a shopping mall, retail shops and restaurants. **Long-term** facilities are needed where the stay may be several hours to days such as schools, universities, workplaces, or multi-unit residential dwellings.

In general, parking should be accessible to and from and/or visible from their immediate destination. Racks should be no more than 15m from the entrance of their destination (although more flexible with long term bicycle parking areas). Racks that are further will often be ignored in favor of a nearby fixed object.

Racks that are protected from inclement weather are favored but not required. Building overhangs can be employed as well as free-standing or purpose-built shelters will add appeal to any facility and increase the use of the racks.

Racks should be oriented to maximize their efficiency. Installing racks parallel to the street with sufficient clearance from curb edges and building walls to allow for bicycles to be parked on either side of the rack. Space is also needed for people exiting their vehicles where on-street parking is allowed.



*The bike locker provides bike-safe storage for cycles in urban and civic zones.*

The rack area is an area where more than one rack is installed. Aisles separate the racks and the aisle is measured from tip to tip of bike tires across the space between racks. The minimum separation between aisles should be 1.2m. This allows enough space for one person to place one bike. In high traffic areas where there are many users parking or retrieving their bike at the same time an aisle width of 1.8m is recommended.

**Long-term** bicycle parking should ensure safety and security, have ease of access and access control, have end of trip amenities, such as showers and lockers and have signage to locate facilities that are not clearly visible from the street. Distance from the destination is more flexible but should not be more than 50m from the building access point.

Bicycle lockers are an option for long term parking that are secure, provide weather protection, and can store additional bicycle gear. Bicycle lockers may offer more flexibility in designing facilities where large spaces are available. Individual or cluster of lockers can be used outdoors or installed in parking garages, at workplaces or residential developments.

Bike racks with lockers is a unique system that incorporates a small locker into the bike rack hardware, and provides options for cyclists to lock frame and wheels and store their helmets and backpack. These systems should be located in a high visibility, secure area and can be supplemented with weather protection. (Luton, 2005)

### 2.6.2 Rest Facilities

Rest areas and street furniture enhance both the practicality and general enjoyment of the trail or pathway. Preferred locations are where areas where cyclists and/or pedestrians are

naturally to stop such as river banks, or lookouts, near existing services such as restaurants or retail/commercial areas, and sunny, sheltered areas.

Rest areas should be 1.5m minimum from the edge of a trail or pathway and clear enough that it can easily be seen from a distance. Rest areas with bike racks, trash receptacles, and/or washroom facilities, and benches can be installed. Benches should be in-ground or surface anchored in concrete and sheltered from the wind, if possible. Benches should be located approximately 300 - 500m along greenway trail routes where possible. The ground under and adjacent to the bench should be covered with a hard material such as compacted crushed stone or concrete pad for a distance of at least 0.3m around the base of the bench. Benches should be constructed of treated wood, galvanized steel, concrete, or recycled plastic and be able to resist severe weather conditions and vandalism and be a contemporary design.

### 2.6.3 Route Signage

Route signage has two purposes:

1. to provide clear, concise, and direct information to the cyclist regarding direction or information that will make their trip easier;
2. to promote the shared use of streets.

Thus, two types of signs are possible:

**Promotional Signage.** These are signs specifically designed and created to promote the shared use of streets while demonstrating the municipality's involvement in AT. In areas



*Route signage that indicates the shared-use character of chosen corridors can include both regulatory and marketing images to ensure the message is delivered.*

where a municipality struggles with meeting TAC guidelines for the previously described slope, width, criteria, etc., the promotional sign informs all users of the corridor that the street is to be multi-use. 'Appendix D.2' provides chosen sign types for Quispamsis (as well as general specifications).

**Standard/Regulatory Signs.** These are signs that fall within the TAC guidelines for standardization of road panel type and locations. Although these are not specific to a municipal unit, they do provide helpful dimensional guidelines.

**Uniformity in design.** This is essential to ensure that the route signs are understood and respected. Sign color, dimensions, and reflection should comply with TAC or local standards. Please see 'Appendix D.4' for examples of TAC signage.

**Sign Placement.** Generally, signs are installed on the right side of the bikeway or pathway. In certain cases signs may be placed on channelized islands or overhead or on the left side of the pathway in the case of a sharp right curve.

Warning signs are placed in advance of the area to which they apply. Stop and regulatory signs should be placed as near as possible to the regulation area in effect.

All signs should be installed to face the approaching traffic. At curved alignments, the angle of placement should be determined by the course of the approaching traffic.

Signs should be placed so that the distance between the edge of pathway the sign edge is not less than 2.0m or nor more than 4.5m

Signs in urban and suburban areas should be mounted at a height of 2.0m-3.0m above the the near edge of the pathway.

Specific guidance on choice of size, installation and other details is provided in the 'Bikeway Traffic Control Guidelines for Canada', TAC 1998.

## 2.7 Key Recommendations

For Quispamsis, the following palette of physical tools is recommended for use in AT plan implementation. These are to be considered in unison, and not as "pick and choose" elements.

### 2.7.1 Bike Lane

The bike lane is to be placed on Hampton Road when, and if, Rothesay extends bike lanes to the Rothesay/Quispamsis border.

Bike lanes should not be promoted for other Town streets due to lack of corridor width or slope issues that exceed TAC guidelines.

### 2.7.2 The Sharrow

As mentioned several times, Quispamsis is a town evolving from the rural to urban context. Thus, the street network often falls outside of TAC standards for width, slope, radius relative to speed, etc. requirements for inclusion of regulation cycling infrastructure. Walking is possible within the existing setting however, the rural street widths do not provide a safe environment.

Streets that are identified as AT Routes in Quispamsis should include the placement of the sharrow within the dimensional guidelines described in this document.

### 2.7.3 The Pedestrian and the Street

For liability reasons, the bicycle is the primary focus of this section, however, the pedestrian is not lost in this context. As an extension of the sharrow, all routes designated as AT Routes are to include walking infrastructure (sidewalk or shared-use path). This ensures the multi-use nature of the corridor while providing an environment for the program elements described in the previous section.

### 2.7.4 The Multi-Use Path and Trail

Existing trails in Quispamsis do not meet the width standards described in this section. These should be modified to ensure this prior to extending the trail network. Also, where possible, multi-use asphalt pathways should be placed adjacent to existing roadways or within independent corridors to provide both recreational and transportation opportunities.

### 2.7.5 Signage & Bike Racks

Because Quispamsis is new to the notion of AT, and due to the fact that not all streets fall within desirable TAC guidelines, the proposed signage system should be hybrid. This would include the creation of a local-specific sign designed to promote the shared-use of Quispamsis streets that is combined with TAC-based warning, regulatory, as well as guide and information signage. These are to be placed based on their setting.

### 2.7.6 Traffic Calming

There are probably two relevant opportunities for traffic calming in Quispamsis. First, the Town can develop a plan around the notion of reducing the horizon on existing streets that are rural in nature. Second, the Town can include traffic calming tools when revising streets or creating new streets.

The application of traffic calming must be developed on a street-by-street basis. Each setting requires solutions relevant to the setting.

## 2.8 Bringing it all Together in Quispamsis

All of the previous elements come together to form a hierarchal plan for Active Transportation in Quispamsis. The proposed street-based hierarchy includes Local, Collector and Arterial streets. The Local streets do not require any treatments whereas the Collector and Arterial streets require amendment to meet resident desires.

Like the street network, the trail system is hierarchal and is based on the Greenway concept for environmental and recreational connectivity. The proposed network (see Active Transportation Master Plan - next page) illustrates a complete network of streets and trails for the existing Town.

The network serves to connect important civic addresses throughout the Town first, and the greater region second. All connectivity begins at residents' front doors and is based on the notion that residents move through the hierarchy to the important destinations determined through public consultation. Although streets may share the same hierarchal designation, they may not share the same sectional detail. In fact, specific street sections will be based on right-of-way characteristics, existing surface dimensions and community desires. The next chapter describes the street type and general sectional detail for the various street and trail types.



*The multi-use path is probably the most popular AT infrastructure component due to its ability to function as both a recreational and transportation asset.*



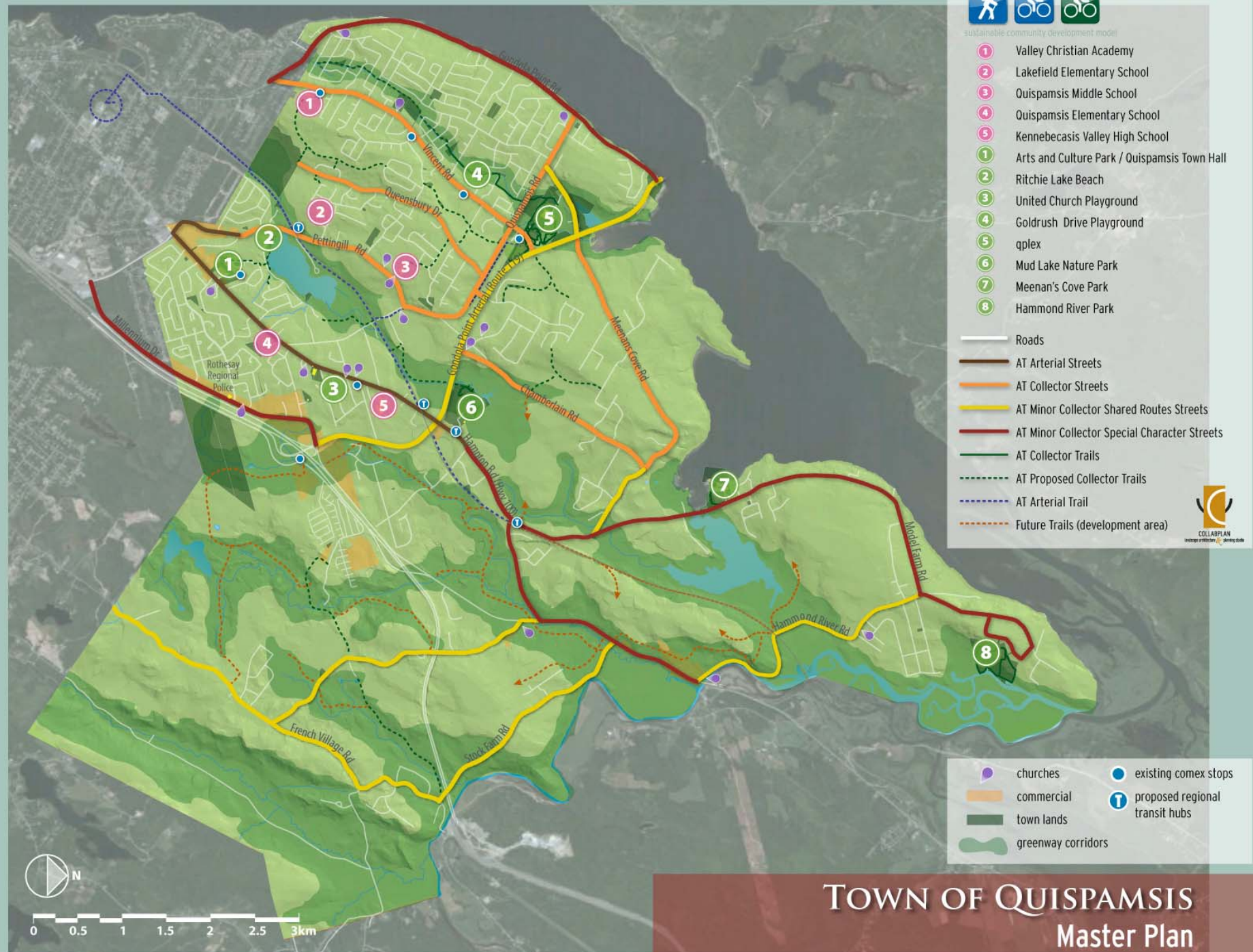
sustainable community development model

- 1 Valley Christian Academy
- 2 Lakefield Elementary School
- 3 Quispamsis Middle School
- 4 Quispamsis Elementary School
- 5 Kennebecasis Valley High School
- 1 Arts and Culture Park / Quispamsis Town Hall
- 2 Ritchie Lake Beach
- 3 United Church Playground
- 4 Goldrush Drive Playground
- 5 qplex
- 6 Mud Lake Nature Park
- 7 Meenan's Cove Park
- 8 Hammond River Park

- Roads
- AT Arterial Streets
- AT Collector Streets
- AT Minor Collector Shared Routes Streets
- AT Minor Collector Special Character Streets
- AT Collector Trails
- - - AT Proposed Collector Trails
- - - AT Arterial Trail
- - - Future Trails (development area)



- churches
- existing comex stops
- commercial
- town lands
- greenway corridors
- proposed regional transit hubs



# TOWN OF QUISPAMISIS Master Plan

Active Transportation Master Plan



### 3.0 The Networks

The network serves to link people to the important nodes identified during the consultation process. Each of these nodes represent an important civic address and are to be enhanced with the placement of AT signage and bike rack systems to promote the network and provide parking.

The Active Transportation network for Quispamsis is proposed as a hierarchal (Arterial, Collector and Local), and evolutionary system of streets and trails. The system will be the starting point where shared routes will be designated by type, and marked for this use.

The core idea of the network is “in-ward connectivity” to important nodes first, and linkages to both growing regions of Quispamsis and adjacent municipalities second. All of the routes are proposed based on their present setting with future plans to expand as demand for increased shared use grows. The following describes the corridor types. See ‘Appendix D’ for street and trail sectional details. Please note that the required right-of-ways for all corridors will be determined by the Town as implementation proceeds.

#### 3.1 Street Corridor Types

##### 3.1.1 The AT Arterial Street

This is the Hampton Road Corridor that presently functions as a commercial district street that bleeds into residential areas of the town. This street will be redeveloped in upcoming years inclusive of 4-lanes of traffic, 1.5m planted setbacks and 1.5m sidewalk (on both sides). This will improve the the corridor for

pedestrian use and with the application of shared-use signage and street marking, the cycling environment is improved.

As developing areas to the north of the Town are completed and increased cycling traffic demand must be met, a future expansion of the corridor to allow for the addition of two - 1.5m bike lanes (one in each direction) can replace the median strips. This would require that adjacent municipalities provide for bike lanes along this street corridor as well.

##### 3.1.2 The AT Collector Street

These are the interior streets that feed the nodes and AT Arterial. These corridors include Vincent, Pettingill, Quispamsis, Meenans Cove and Chamberlain Roads as well as Queensbury Drive.

These routes will expand to include two lanes of traffic, 1.5m planted setback and a 1.5m sidewalk. Shared route signage and sharrows identify the route as shared use.

As, and if, cycling demand increases within any of the collector corridors, the right of way should expand to include two 1.5m wide bike lanes with street redevelopment.

##### 3.1.3 The AT Minor Collector/Shared Route Street

Several streets identified on the plan are proposed as shared route corridors that function as minor collectors. The nature of these streets suggest that these corridors form various length connective linkages that have minimal edge development.

These corridors are proposed to retain the same dimensional qualities as existing; however, sharrows will be placed to TAC specification.

### 3.1.4 The AT Minor Collector/Special Character Street

These are areas where the street corridor passes through an area of special character and, therefore, requires special treatment. Millennium Drive, the north portion of the Hampton Road, as well as the Model Farm, Hammond River and Gondola Point Roads are identified as these routes.

The treatment for these routes includes the placement of shared route signage, street graphics and a 2.5m wide asphalt trail (1.5m from the street edge) in areas that are presently developed. Undeveloped areas should have the signage and street markings in initial phases;

however, the asphalt path should only be placed after edge development occurs.

The 2.5m wide asphalt trail should always be located to the opposite side of the "character element". For example, the trail should be placed on the opposite side of the Gondola Point Road from the water to prevent interruption of water views while driving. The Millennium Drive asphalt trail should be located on the opposite side of commercial and residential development with cross-street linkages as demonstrated on this page.

## 3.2 Trail Corridor Types

### 3.2.1 The AT Arterial Trail - The QR Line

Named as the Quispamsis-Rothesay or "QR" Line, this is a 2.5m wide multi-use asphalt trail that follows the Canadian National

(CN) Rail Line, over the town sanitary trunk sewer line. The sanitary right-of-way should not be extended for trail developing with the exception of amenity development (seating, planting, shade, bike racks).

Developing this trail involves meeting requirements as determined by CN for setback and elevation differentiation. These include a 15.25m setback from the centre-line of the rail line and placement of a 1.8m high fence or landscape and fence combination that creates an equal barrier.

As a rule expressed through policy, CN does not allow the placement of recreational infrastructure within its right-of-way; however, the location chosen for the multi-use trail is ideal given the large corridor width, limited CN use of the corridor and important location within the Town.

This trail is to be a primary recreational linkage between the qplex and the Rothesay Arena. This will involve a partnership between the Towns, the Provincial and Federal governments, as well as local user groups to demonstrate broad desire for this trail.

### 3.2.2 The AT Collector Trail

These are the 2.5m wide granular trails that extend throughout the community and provide interior linkages for recreation and transportation purposes.

These corridors will be placed within existing right-of-ways. Where new trails are required, a minimum 7.5m wide right-of-way should be established.



*Millennium Boulevard requires the placement of a 2.5-meter wide asphalt trail with cross walks where all residential streets abut to the boulevard.*

### 3.2.3 The Greenway Trail

Trails to be developed in expansion areas should be developed within the context of the greenway corridor to minimize any loss of land for development reasons, increase adjacent land values, and to bring people within natural corridors.

The corridor width for the greenway trail should include the legislated watercourse setback (where relevant), special vegetation, steep slopes, lands with special views and other special conservation attributes. Therefore, the greenway is the conservation corridor that the trail can be carefully placed within.



*Future trail connections under the Millennium Boulevard can utilize the example provided adjacent to the plex to illustrate how this can be completed.*

## 3.3 Special Projects

This network requires the planning, design and implementation of special projects to realize the master plan. The following provides an overview of these projects.

### 3.3.1 Route Signage

Signage is an important marketing and information tool. Well placed signage informs route users that routes in Quispamsis are for more than vehicles while the placement of the sign identifies routes.

For Quispamsis, route signage is developed for both trails and street corridors. The type and placement of the panels are as indicated in 'Appendix D.2'.

The signage types are:

- Route Signage: Indicates AT shared routes.

- Loop Signage: Indicates the Active Cycling Loops as shared routes within the north section of the Town.
- Trail Signage: Indicates trail entry points.
- QR Line Signage: Indicates entry and reassurance points for the Quispamsis/Rothesay Rail Line Trail.

### 3.3.2 Route Marking

The initial phases of the project only require the placement of sharrows on the street identified in this plan. Later stages of the project may include the construction of bike lanes on arterial routes. The sharrows are to be placed to TAC standards (see 'Appendix D' for details).

### 3.3.3 Trail Gateways

All trails should have well identified gateways where the trail meets the street. These should be designed on an individual basis and should include benches, shade, signage that identifies the trail and design measures to prevent direct flow onto the street. Also, where possible, gateways should include regional public transit (e.g.Comex) stops to ensure full integration of street, trail and public transit.

### 3.3.4 Gondola Point Arterial Underpass

As previously mentioned, future connections under the Gondola Point Arterial will be required for safety and connectivity reasons (where indicated on the master plan). The Vincent Road trail underpass provides ideal precedent for how this type of crossing should occur in Quispamsis.

These underpasses are significant projects that can only proceed as adjacent residential development occurs, and public demand increases. Also, these projects will require timing with

Provincial road enhancements (resurfacing, rebuilding, etc) to reduce the costs - i.e. the project is a joint development, and not only for the purpose of placing an underpass.

### 3.4 Growth Areas

Much of what will pay for this plan is tax revenue from future growth areas of the Town. Therefore, any plans for the growth of the Town should ensure that maximum revenue is received from existing and future development areas. This can be acquired in two ways.

First, the hierarchal infrastructure proposed in this plan form a structure that, when applied to expansion areas of the Town, will have real financial benefit. For example, home values on a greenway typically sell for higher values than those located away from green infrastructure.

Second, the infusion of AT infrastructure increases the attraction of the Town as a “lifestyle” community. This has value to both the sale of new homes as well as resales.

#### 3.4.1 Planning and Design

Although it is understood that growth areas should be planned and designed in association with all of the municipal and private variables, the principles of this plan must be included to ensure the described benefit. The Town should develop a Growth Area Master Plan for an area of the Town where growth is expected. This will provide a detailed example of how the AT structure forms a grid, and how this grid is incorporated into developing areas.

To accomplish this, the Town will need to establish its variables (greenway corridor type and size, municipal infrastructure) for consideration with the AT components. Together, the plan can dictate how the future of the Town will look and work. Thus, a carefully planned future with real benefit is possible.

## 4.0 Implementation Plan

### 4.1 Approach to Implementation

This project requires a five-year implementation plan that, when complete, infuses AT into Quispamsis. This is certainly possible for short-term projects/tasks that sets the stage for a lifestyle-based community (within the context of active transportation). Projects/tasks proposed outside of this scope are large-scale (such as the QR Line) or continually evolving projects that will require work into the future to ensure complete AT infusion.

Therefore, the approach to this implementation plan includes completing projects/tasks that begin to change community cultural attitudes toward transportation within the five-year timeframe while longer-term projects provide infrastructure that supports or results from the cultural change.

### 4.2 Implementation Steps

The following steps are organized relative to administrative, communications, street and trail project/task headings. Although the steps are proposed in a reasonable order, the implementation process will likely require modifications. This is expected and should not be viewed as varying from the intent of the plan. It is important to remember that the order of implementation is generally based on public prioritization of the projects and therefore, the general scope of the implementation plan should be retained.

Figure 4.0 (next page) illustrates the order of the following steps. Please note that implementation will require that several of the tasks will be worked on, and completed simultaneously (as illustrated on the figure).

### 4.2.1 Administrative Projects/Tasks

#### Project /Task One - Achieve a Project Mandate

This plan should be presented to Town Council to acquire implementation approval. Following this, the plan should be personally presented to elected representatives of all levels of government as well as the key community stakeholders. The presentation should include a copy of this plan as well as a CD with a copy of the final slide show. Therefore, the representatives and stakeholders will be aware of the intent of the plan as well as it's projects/tasks when called upon for participation.

#### Project /Task Two - Policy Update

The mandated implementation of this plan must appear in the Municipal Development Plan (MDP), the Zoning By-law, as well as the Subdivision By-law. Thus, staff can ensure that the intent of the plan is part of community evolution, and that the Town receives real benefit from this development form.

The following policy changes should be presented to the Planning Advisory Committee and incorporated into their respective plans. Please note that the wording below expresses the intent of policy changes. Planning representatives/officials may change the wording contingent on processes that includes modifications to other areas of the plans. The elements of the AT plan (trails, greenspace, street types) should be added to the MDP where planning staff feel most appropriate to support policy edits.

Figure 4.0 - Implementation Chart - Town of Quispamsis Active Transportation Plan

Project/Task	Year1	Year2	Year3	Year4	Year5
<b>Administrative</b>					
Project Mandate	█				
Policy Update	█				
Partnership Development & Staffing		█	█	█	
<b>Communications Program</b>					
Bike Rack Program	█	█	█	█	
Share-the-Road Program			█	█	█
School Safe Routes Program			█	█	█
Civic Address Improvements		█	█	█	
<b>Street Development</b>					
Shared Route Signage	█	█	█		
Street Surface Marking Program		█	█	█	
Street Improvement Planning		█	█	█	█
<b>Trail Development</b>					
Trail Signage	█	█	█		
Existing Trail Improvements			█	█	
New Trail Development - Saunders Brook		█	█	█	█
New Trail Development - Various			█	█	█
New Trail Planning - Greenway			█	█	
New Trail Development - qplex		█	█		
New Trail Development - Hammond River			█	█	
QR Line Planning		█	█		
Trail Amenity Placement			█	█	█

**Municipal Development Plan.** In general, the MDP supports the AT plan with minimal changes;

**Page 9 - Under Policies section 2.(B).1 - add:**

(g) Enhance the Town's transportation and recreation systems by encouraging an inclusive and hierarchal street development pattern as indicated in the 2010 Town of Quispamsis Active Transportation Plan.

**Page 11 - Under Land Use section 5.(a) - add:**

(6) To ensure street development patterns are in keeping with the inclusive and hierarchal network indicated in the 2010 Town of Quispamsis Active Transportation Plan.

**Page 18 - Under Lands for Public Purposes section 7 - add:**

(c) It is a proposal of Council to mandate and manage the identification of any and all lands to be deeded to the Town of Quispamsis for the purpose of Lands for Public Purposes.

(d) It is a proposal of Council to avoid the acceptance of cash-in-lieu within subdivision development unless all requirements of the Town of Quispamsis are met.

**Page 18 - Under Subdivision Design Standards section 9.**

**(A) (ii) - edit within brackets:**

Provision of pedestrian walkways between streets so that safe movement of pedestrians and bicycles can be encouraged along an integrated network of sidewalks and pathways between subdivisions and especially to community schools, parks and playgrounds (as indicated in the 2010 Town of Quispamsis Active Transportation Plan).

**Page 20. Under Commercial Development section 7.(B)**

**(1) (a) - edit within brackets:**

Encourage the consolidation and enhancement of the commercial development along Hampton Road (in a manner that creates an attractive and safe multi-modal environment as indicated in the 2010 Town of Quispamsis Active Transportation Plan).

**Page 26 - Under Recreation Proposals section 9.(C) (3)**

**(a) - edit within brackets:**

It is a proposal of Council to encourage and promote the establishment of (natural and street-based) trails that provide useful means of movement throughout the town (as indicated in the 2010 Town of Quispamsis Active Transportation Plan).

**Page 33 - Under Transportation Network section 12.(A)**

**(1) - edit within brackets:**

Provide and maintain a safe and efficient transportation network for vehicles, bicycles and pedestrians (within the hierarchal network as indicated in the 2010 Town of Quispamsis Active Transportation Plan).

**Zoning By-law.** The following changes are required to ensure the permitted use of AT infrastructure within various land uses;

**Page 78. Under MRC-INST Zone 22.(A)(1)(a)(v) - edit within brackets:**

a park (trail) or public garden.

**Page 79. Under PR Zone 23.(A)(1)(a)(ii) - edit within brackets:**

(ii) a park (,trail) or playground.

**Page 80. Under Conservation Area Zone 24.(A)(1)(b) - add:**

(v) a linear trail.

**Subdivision By-law.** The following changes are required to ensure that develop proceeds within the context of active transportation. It is important to remember that this by-law is an expression of the intent of the municipal development plan and that the inclusion of AT infrastructure and the hierarchal street network into the built environment will largely live within the MDP. Thus, the subdivision by-law requires modest modifications to ensure permitted use and spatial dimensions are ensured.

**Page 9. Under Standards for Lots, Blocks and other Parcels of Land 22.(F) - edit within brackets:**

(F) Pedestrian walkways, in a width deemed necessary by (Town Engineering Staff consulting the 2010 Town of Quispamsis Active Transportation Plan), shall be provided....

**Page 10. Under Land for Public Purposes 6.(F)(ii) - edit within brackets:**

(ii) a public, (trail), playground or other Town recreation purpose.

**Page 15. Under Street Network System B.(iii)(a)(4) - edit within brackets:**

(4) convenient access to the proposed subdivision and to lots within it, and circulation of vehicle traffic (, bicycles and pedestrians) to ensure the public safety...

### **Project /Task Three - Partnership Development & Staffing**

The Town should begin to work with both program and funding partners on the various aspects of this plan. This will include developing a partnership with the Rothesay Regional Police Force and School District 6 to begin the process of developing safe route plans for youth. This will also include with local business interests to place bike racks throughout the Town.

Prior to doing this, the Town should acquire funding from provincial and federal sources for a summer recreation student to develop the terms of reference for the programs prior to implementation. This work should continue for several years and evolve with maturity.

#### **4.2.2 Communications Program**

##### **Project /Task One - Bike Rack Program**

This plan provides a model bike rack system that is custom designed for Quispamsis. The Town should place these systems to specification at all civic addresses.

The Town should also select six important business addresses and provide the system, at no charge, to the business. Following this, the systems can be provided to interested businesses on a cost-share basis (the business buys the racks - the Town installs the system).

'Appendix D.3' provides a conceptual plan and general specifications for this rack system. Please note that a light system is included for areas where this may be required however, pricing is not included for this at this point.

##### **Project /Task Two - Share the Road Program**



One of the projects to be undertaken by the the program coordinator is a 'Share the Road Program'. Based on the programs review provided in this document, the coordinator should develop and deliver an exciting program that captures the imagination of residents and visitors by expressing Quispamsis' determination to encourage multi-modal use of street and trail systems.

#### **Project /Task Three - Safe School Routes Program**

A plan developed by the student, the police and the school district should be delivered in an exciting manner to students. It is important to remember that one of the primary purposes of implementing this AT plan is to encourage cultural change that sees future support and demand for multi-modal street and trail use. The youth are the starting point for this cultural change.

#### **Project /Task Four - Municipal Facility Improvements**

A clear demonstration of civic commitment to a program is the inclusion of upgrades to municipal facilities for the purpose of including the program. For this reason, residents chose the Town Hall and qplex as two important addresses for AT improvements.

The Town Hall area should have pedestrian and cycling improvements as well as the placement of bike racks throughout the site. The qplex should be addressed in the same manner.

This plan includes preliminary plans for both locations that can be improved upon by staff for implementation (see 'Appendix E').

### **4.2.3 Street Development**

#### **Project /Task One - Shared Route Signage**

This plan provides a custom designed sign panel that, when blended with TAC-based signage, will identify shared routes

throughout the Town (see next page for Streets Master Plan). At the same time, the placement of signage will promote the shared-use and multi-modal aspect of the street.

Various panels are proposed for varied location as per the master plan and signage concepts. These panels should be placed within the five-year implementation plan.

The design, layout and location of the street signage is to be determined annually as part of the budgeting process.

#### **Project /Task Two - Street Surface Marking**

Many of the streets identified in this plan will require the placement of sharrows (to specification). These should be placed within the same time period as route signage.

#### **Project /Task Three - Street Improvement Planning**

This plan provides street section diagrams for the various routes identified on the master plan. These should be provided to the Engineering and Works Department for inclusion in their street improvement planning. Thus, when an identified street is renovated, the section can be developed to meet the needs and desires of residents.



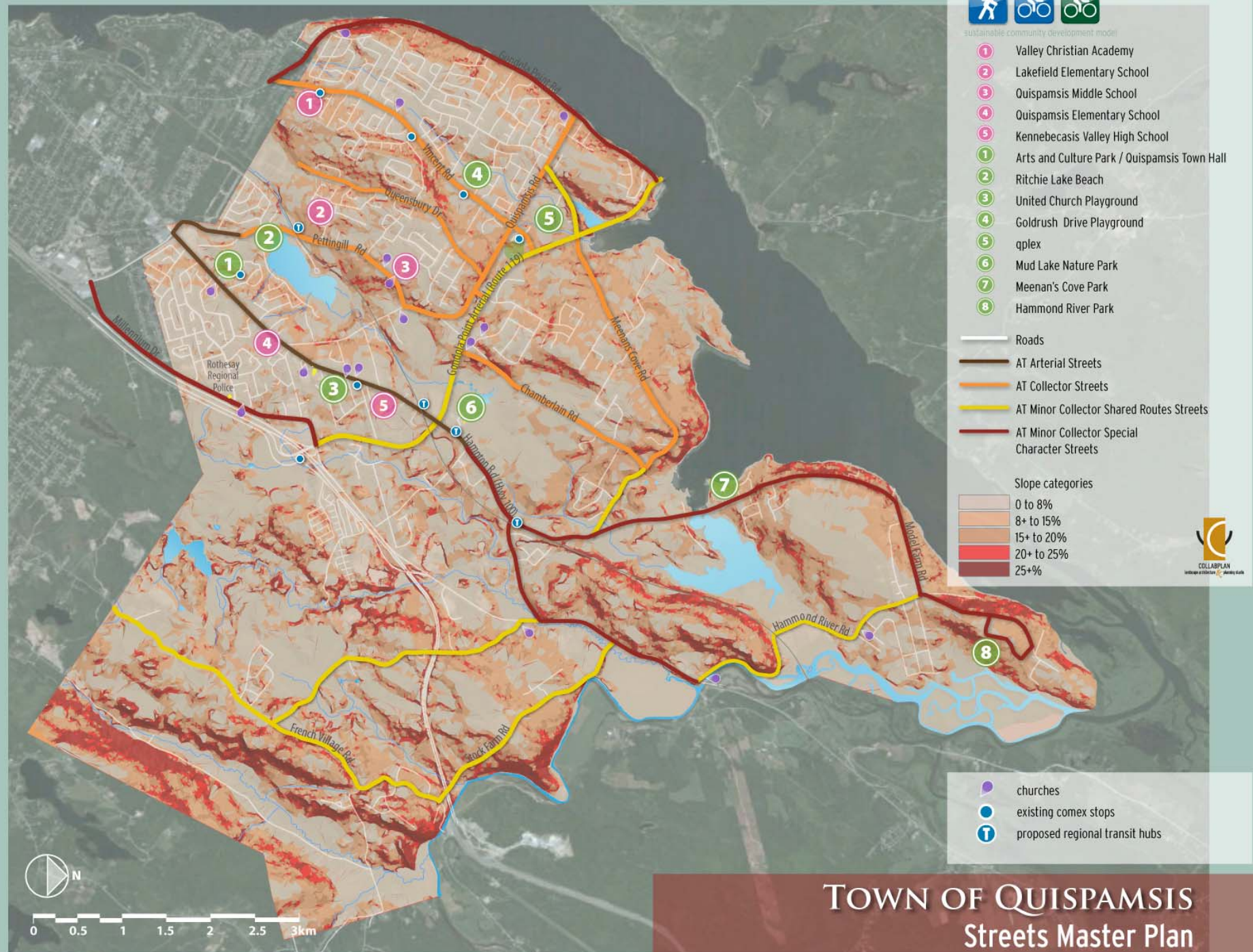
sustainable community development model

- 1 Valley Christian Academy
- 2 Lakefield Elementary School
- 3 Quispamsis Middle School
- 4 Quispamsis Elementary School
- 5 Kennebecasis Valley High School
- 1 Arts and Culture Park / Quispamsis Town Hall
- 2 Ritchie Lake Beach
- 3 United Church Playground
- 4 Goldrush Drive Playground
- 5 qplex
- 6 Mud Lake Nature Park
- 7 Meenan's Cove Park
- 8 Hammond River Park

- Roads
- AT Arterial Streets
- AT Collector Streets
- AT Minor Collector Shared Routes Streets
- AT Minor Collector Special Character Streets

- Slope categories
- 0 to 8%
  - 8+ to 15%
  - 15+ to 20%
  - 20+ to 25%
  - 25+%

- churches
- existing comex stops
- proposed regional transit hubs



# TOWN OF QUISPAMSIS Streets Master Plan

Active Transportation Master Plan

### 4.2.4 Trail Development

Please note that this section provides dimensional details for trail projects in Quispamsis; however, the Town may want to consider the dimensions provided in figure 4.2 when developing corridors.

	Minimum recommended overhead clearance* (m)	Minimum recommended width** (m)	Design speed (km/h)	Maximum grade (%)	Surfacing
Bicycling	2.5	3.0	30	8	Stone dust or asphalt
Hiking	2.5	2.0	5-8	No limit	Concrete, asphalt or stone dust
Horseback riding	3.5	4.0	7-10	10	Firm, unsurfaced
Snowshoeing	3.5	2.0	5-8	8	None needed
Cross-country skiing	3.5	3.5	20-25	5	None needed
Snow-mobiling	3.5	4.0	70 (90 in certain cases)	12 (25 on grades under 30 m)	None needed
ATV	3.5	4.0	50 (70 in certain cases)	8 (15 on grades under 30 m)	None needed

\*From the snow surface  
 \*\* Bidirectional trail

Figure 4.2 - Standard Specifications for Pathway Design,

#### Project /Task One - Trail Signage

Like the street signage, this plan includes custom designed trail signage, however, no TAC-based signage is required for trail systems.

This project/task requires the placement of signage within the trail system (see next page for Trails Master Plan). The first placements should identify the trail system from street corridors while future signage reassures the user of their placement on the system.

The design, layout and location of the trail signage is to be determined annually as part of the budgeting process.

#### Project /Task Two - Existing Trails Improvement

The trails along the Saunders Brook corridor as well as Mud Lake require upgrades for safety and comfort purposes. The Saunders Brook Trail should be widened to a 2.5m wide granular surface while the Mud Lake trails should be widened and resurfaced to a 1.5m wide granular surface. Also, Mud Lake requires floating boardwalk systems to replace degrading wood decking.

Although the budget (next section) provide preliminary budget estimates for this work, plans and detailed should be developed prior to commencing work on these projects.

#### Project /Task Three - New Trail Development - Saunders Brook

This plan proposes the extension of the Saunders Brook trail from the qplex to the south-west Town boundary. This corridor extends along a beautiful stream ravine and will make a wonderful extension of the present trail system while meeting public need/desire.

The Town should commission a detailed plan and cost estimates of this project within the next year to prepare for this project. This may include the work of a consultant or an internally-hired summer student.

#### Project /Task Four - New Trail Development - Various

This plan proposes the several locations for minor trail connections that link residents to various facilities throughout the town. The engineering department can be charged with the responsibility of completing these within the five year implementation time-frame.



sustainable community development model

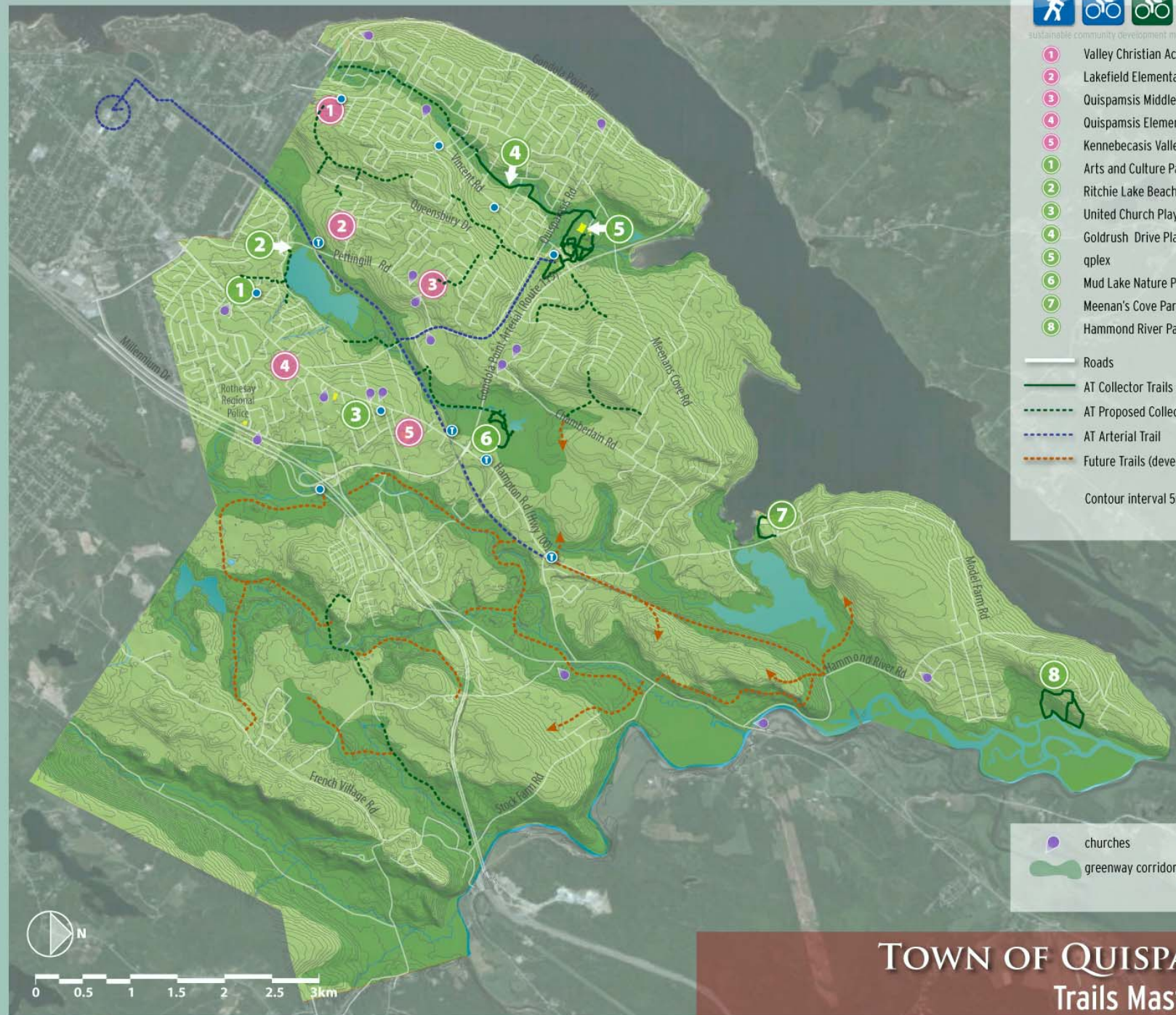
- 1 Valley Christian Academy
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- 2 Ritchie Lake Beach
- 3 United Church Playground
- 4 Goldrush Drive Playground
- 5 qplex
- 6 Mud Lake Nature Park
- 7 Meenan's Cove Park
- 8 Hammond River Park

- Roads
- AT Collector Trails
- - - AT Proposed Collector Trails
- - - AT Arterial Trail
- - - Future Trails (development area)

Contour interval 5m



- churches
- existing comex stops
- greenway corridor
- T proposed regional transit hubs



0 0.5 1 1.5 2 2.5 3km

Active Transportation Master Plan

# TOWN OF QUISPAMSIS Trails Master Plan

Areas of “various trail” that will not fall within the five-year implementation timeframe include the Gondola Point Arterial trail crossings. This will require growth within the future development area and planning/design by both the town of Quispamsis and the Province of New Brunswick. Thus, the Town should provide a copy of this plan to the Provincial Department of Transport for the purpose of letting the Department know that these projects are on the Town’s “radar”.

#### **Project /Task Five - New Trail Planning - Greenway**

This plan proposes a greenway system that requires inclusion in the planning and design process. The Town should charge a staff member with the preliminary detailing of this project for budgeting purposes. The policy changes will allow for implementation in association with subdivision work where required once this work is complete.

#### **Project /Task Six - New Trail Development - qplex**

This plan provides a concept plan for the upgrade of the trail system at the qplex. A detailed plan and cost estimates of this project are currently underway. This work should include the definition of gateways, route signage and trail upgrades to meet visitor needs.

#### **Project /Task Seven - New Trail Development - Hammond River**

The Hammond River Park was identified as an important AT network destination. This plan proposes a concept for how to develop this site inclusive of entry, parking, building and trail enhancements. Prior to proceeding with construction, the Town should commission detailed tender documents that are

developed with local trail users to ensure the best routes for both active and passive use are identified and developed.

#### **Project /Task Eight - The QR Line**

The QR Line has the opportunity to become one of the most powerful recreation facilities in Atlantic Canada. The resident-developed project proposes to link two significant recreational assets in two communities and should be considered an important and long-term project.

The Town should work with the Town of Rothesay to acquire funding for a detailed proposal of this project to the various partners (Province, CNR, Councils, user groups). Once funded, the designer should propose both physical development and programming opportunities.

Physical development opportunities should propose approaches to developing a multi-modal 2.5m wide corridor for the proposed length of the project. Programming opportunity include determining exciting ways to broaden public support and to promote the project to all partners. It is important to remember that this project is considered the most important aspect of this plan and should be taken seriously.

**Project /Task Nine - Trail Amenity Placement**

As an ongoing project, the Town should develop a palette of trail amenities that can be placed along AT corridors when requested by residents. These can include benches, garbage receptacles, shade trees, etc. The Town should retain an inventory of these items for placement when required.

**4.3 Phased Budget**

Figure 4.1, next page, provides a phased budget based on both the implementation plan and project requirements.

### Figure 4.1 - Implementation Chart - Town of Quispamsis Active Transportation Plan

Preliminary Budget Estimates - 5 Year Plan

CollabPlan Landscape Architecture & Planning Studio

Item	cost	unit	2011		2012		2013		2014		2016	
			Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
<b>AT Route Signage</b>												
Shared Route Panel	\$250	sign	225	\$56,250	80	\$20,000	30	\$7,500	15	\$3,750	0	\$0
Trail Route Panel	\$185	sign	50	\$9,250	10	\$1,850	10	\$1,850	5	\$925	50	\$9,250
				\$65,500		\$21,850		\$9,350		\$4,675		\$9,250
<b>Bike Rack Systems</b>												
Primary Bike Rack	\$275	loop	5	\$1,375	10	\$2,750	5	\$1,375	20	\$5,500		\$0
Secondary Rack Loop	\$185	loop	20	\$3,700	40	\$7,400	20	\$3,700	60	\$11,100		\$0
Base and Landscape	\$2,600	lump	5	\$13,000	10	\$26,000	5	\$13,000	10	\$26,000		\$0
Installation	\$250	lump	5	\$1,250	10	\$2,500	5	\$1,250	10	\$2,500		\$0
				\$19,325		\$38,650		\$19,325		\$45,100		\$0
<b>Trail Development</b>												
Trail Upgrades	\$18	lin.m.		\$0	500	\$9,000	500	\$9,000	250	\$4,500	250	\$4,500
Trail Development	\$35	lin.m.		\$0		\$0	500	\$17,500	375	\$13,125	375	\$13,125
Trail Gateways	\$1,500	per		\$0	4	\$6,000	4	\$6,000	3	\$4,500	5	\$7,500
Trail Stations	\$1,500	per		\$0		\$0	4	\$6,000	3	\$4,500	10	\$15,000
				\$0		\$15,000		\$38,500		\$26,625		\$40,125
<b>Miscellaneous</b>												
Education Programs		lump		\$0		\$5,000		\$5,000		\$5,000		\$5,000
Street Painting	\$1.25	lin.m.		\$0	5,000	\$6,250	10,000	\$12,500	15,000	\$18,750	25,000	\$31,250
Marketing Materials		lump		\$0		\$2,500		\$2,500		\$2,500		\$2,500
				\$0		\$13,750		\$20,000		\$26,250		\$38,750
<b>sub total</b>												
				\$84,825		\$89,250		\$87,175		\$102,650		\$88,125
design & mgt.				\$5,938		\$6,248		\$6,102		\$7,186		\$6,169
contingencies				\$8,169		\$8,595		\$8,395		\$9,885		\$8,486
<b>Annual Totals</b>				<b>\$98,931</b>		<b>\$104,092</b>		<b>\$101,672</b>		<b>\$119,721</b>		<b>\$102,780</b>

## Appendix A - Existing Conditions



## Pathway/Trail System - Existing Conditions

This information was gathered from a number of sources including background field data, trails mapping, aerial photos and discussions with town staff and area stakeholders. A summary of those who participated in the consultation process is below (not including town staff):

### Public Session

Jon Tracy, Kathleen Savage, Nita Driscoll, Scott Kidd, Amy Fawkes, Glen Bigney, Mark Woolsey, Brian Jensen, Brigitte Kelly, John Kelly, Lilli Julin, Liz Delusa, Peggy Woolsey, Stephen Forgeron, Wayne Arrowsmith, Yennah Hurley.

### Individual meetings:

Marci Webb and Steve Morris, Bikes & Beans  
 Bill Consolvio, Darlings Island Bike Shop  
 Phyllis Hart  
 Brian Gillis  
 Don Shaw, KV Old Boys

### Representatives from Special Interest Groups:

Gay Drescher and Phil Brodersen, KV Chamber of Commerce  
 Cindy Bishop and Charles Jensen, Town of Rothesay  
 Dean Mullins, KV Committee of Disabled  
 Stephen Evans, School District 6 Transportation  
 Francois Alexandre, CN-Business Development & Real Estate, Montreal

### School Workshops

Quispamsis Middle School Students, Suzanne LeBlanc Healey  
 Lakefield Elementary School Students, David Ripley  
 Quispamsis Elementary School Students, Janet Miller

The Town of Quispamsis has a variety of formal and informal existing pedestrian trails, many of which are located within Quispamsis municipal parks. These park trails are a well used, focal points in the community; however, they are disconnected from one another and from the various other informal trails around the Town. The existing conditions and general trail information of the major Town trails are summarized below. The trails range in difficulty from easy strolling pathways to moderately difficult hiking trails and vary in length and surface types; this will dictate its user suitability and difficulty.

### Hammond River Park Trail

Located in Hammond River Park in the north-east portion of the Town of Quispamsis the trail system is an extensive series of linked loops of varying length from 1km to 1.75km. The trail system winds through Acadian forest with moderate to steep grades and the trail surface material varies from groomed crushed gravel to compacted earth.

Trail Use	Trail length (approx.)	Trail width (+/-)	Clearing Width (+/-)	Trail Surface Material
Walking/ Hiking	4200 linear metres	1.0 m	2.0 m	gravel, dirt

### Mud Lake Trail

Mud Lake trail, located in the 10 hectare Mud Lake Nature Park on Route 119, is a combination of gravel and bark mulch trail, as well as a stretch of wood boardwalk that winds through the existing marshland. Mud Lake trail is moderately challenging with low to moderate grade changes.

Trail Use	Trail length (approx.)	Trail width (+/-)	Clearing Width (+/-)	Trail Surface Material
Walking/ Hiking	950 linear metres	1.25 m	2.5 m	gravel, bark mulch, wood boardwalk

**Matthew’s Brook & Saunder’s Brook Trail**

Centrally located, this trail system which begins/ends at the Quispamsis Recreation Centre, and winds through primarily residential neighborhoods, accommodates a variety of seasonal uses including running, hiking, cross, country skiing and snowshoeing. The trail links to a variety of amenities including the future qplex, Homestar Dog Park and trail, outdoor tennis courts and ballfields.

Trail Use	Trail length (approx.)	Trail width (+/-)	Clearing Width (+/-)	Trail Surface Material
Walking/ Hiking	4130 linear metres	2.0 m	4.0 m	gravel

**Art & Culture Park (Quispamsis Town Hall)**

Centrally located at the Quispamsis Town Hall, this looping asphalt pathway links to further walking/running paths in the surrounding area as well as adjacent commercial areas, community parks and playgrounds.

Trail Use	Trail length (approx.)	Trail width (+/-)	Clearing Width (+/-)	Trail Surface Material
Walking	345 linear metres	2.5 m	4.0 m	asphalt

**Community Course Loop**

Linked in to the pathways at the Quispamsis Town Hall, this looping asphalt and concrete course winds through adjacent residential areas, community parks and connects with the pathways at Ritchie Lake.

Trail Use	Trail length (approx.)	Trail width (+/-)	Clearing Width (+/-)	Trail Surface Material
Walking/ Running	8000 linear metres	1.5-2m	4.0 m	asphalt/ concrete

**Meenan’s Cove Trail**

Located in Meenan’s Cove Park, Meenan’s Cove Trail is a short 2m wide linear gravel trail leading to a variety of amenities including a public beach and beach house, boat launch, playground, and ball field.

**Homestar Dog Park Trail**

Located at Homestar Dog Park, this 2m wide, 630m long gravel trail circles the dog park and links up with the Saunder’s Brook and Matthew’s Brook trail via the Vincent Road underpass.

**Gondola Point Beach Trail**

Located at Gondola Point Beach this 1.5m wide, 150m asphalt trail links beach access from Gondola Point Road.

### Cedar Ridge Playground Trail

Located at Cedar Ridge Play Park this 230m long gravel trail is 1.5m wide and circles the playground area.

### Ritchie Lake Trail

Located at Ritchie Lake this gravel trail is 1.5m wide and connects Ritchie Lake beach to the adjacent parking area.

## Street Network - Existing Conditions

This information was gathered from a number of sources including background field data, roadway mapping, air photos and discussions with town staff.

The Town of Quispamsis covers an area of approximately 65 square kilometres and contained within a network of vehicular roadways that provide access and connectivity throughout the Town and to neighboring communities.

There are a variety of roadway types within Quispamsis; however, it is predominantly composed of local residential and rural roads which are integrated with larger highway thoroughfares.

The two major, high traffic routes: Route #1 (MacKay Highway) and Route #119 (Gondola Point Arterial Highway) are approximately 9 - 13m width asphalt roadway with 2 - 2.5m wide paved shoulder on either side. Route #1, which runs in a North-South direction links the Town of Quispamsis to the rest of Kennebecasis Valley and surrounding area including Rothesay,

Saint John and Sussex. Route #119 runs in an East-West direction and connects Route #1 to ferry access across the Kennebecasis River.

The existing local residential and rural roads range in width from 7 - 9m and have a shoulder width between 0.5 - 1.5m. The majority of streets have a 20m right-of-way. The following table (next page) identifies the key roadways to the AT plan and their general characteristics.

Several of the roads listed, including Gondola Point Road, have been modified to accommodate pedestrian and bicycle use in the form of painted shoulder lines and/or paved shoulders. In the Central Business District, (along Hampton Road and adjacent streets) and along the streets accessing the Quispamsis Middle School and Kennebecasis Valley High School, sidewalks are provided for pedestrian movement adjacent to their respective street.

In addition, Hampton Road, Vincent Road, Gondola Point Arterial and the Parkside Road are integrated with a commuter shuttle service (COMEX) to/from Saint John.

Road/Street Name	Road/Street Length (approx.)	Road Width (approx.)	Shoulder width (+/-)	Road Surface	Shoulder Surface	ROW width
Gondola Point Art.	5495m	9-13m	2-2.55m	Asphalt	Asphalt, Gravel	n/a
MacKay Highway	8150m	13.25m	2-2.55m	Asphalt	Asphalt	n/a
Hampton Road	8539m	12-16m	0.5-1.75m	Asphalt	Asphalt, Gravel	20m
Millennium Drive	2287m	7.35m	1.5-2m	Asphalt	Asphalt, Gravel	25m
Neck Road	1923m	8.5m	0.75m	Asphalt	Asphalt, Gravel	20m
Stock Farm Road	2775m	7.5-8m	0.75m	Asphalt	Gravel	20m
Model Farm Road	5660m	8.25m-8.5m	0.75m-1.4m	Asphalt	Gravel	20m
Chamberlain Road	2509m	8.6m	1.2-1.25m	Asphalt	Asphalt	20m
Gondola Point Road	4564m	7.5	1.2-1.25m	Asphalt	Asphalt, Gravel	20m
Meenan's Cove Road	4933m	8.5m	0.75-2m	Asphalt	Gravel	20m
Quispamsis Road	2888m	7.75m - 8.0m	0.75m-1.4m	Asphalt	Gravel	20m
Vincent Road	3695m	7.25m	1m-1.5m	Asphalt	Asphalt, Gravel	20m
Cambridge/Queensbury Drive	2565m	8.0m	1.2-1.25m	Asphalt	Gravel	20m
Cedar Ridge/Clarewood	1873m	7.25m	1.2-1.25m	Asphalt	Gravel	20m
Palmer Brook Road	2204m	9.0m	2.25m-2.5m	Asphalt	Asphalt, Gravel	20m
Elliot Road	3295m	7.25m	0.75m	Asphalt	Gravel	20m
Hammond River Road	3380m	7.0m	0.75m	Asphalt	Gravel	20m

## **Appendix B - Summary of Contextual Studies**

### Town of Quispamsis - Trails Master Plan, March 2003

The objective of the Trails Master Plan was to preserve the opportunity to have a trail network and aid the Town in selecting and utilizing Land for Public Purposes for the development of a trail system. The consultants did speak with neighboring communities to ensure a regional connectivity, not just a local community system.

An inventory of the Town's natural and major assets was undertaken; these were the close proximity to job opportunities in Saint John, the Town's location overlooking the Kennebecasis River Valley, its rugged terrain, natural rural environment, abundance of recreation facilities, expanding commercial facilities, and proximity to schools and community services.

Demographic research showed that pre-school and elementary age cohorts will remain fairly stable into 2016, however, there will be the need for facilities to accommodate the aging population in their 50s and older. This rising trend suggests a need for both active and passive recreation uses as the aging population is 'younger' than their parents were.

Development has spread geographically in the community, leading to an increased need for transportation. Bike and walking trails are seen as a good opportunity to curb the tendency for vehicular movement. Trails already exist at the Recreation Centre, Hammond River Park and Mud Lake Nature Park. Sidewalks and painted lines on rural roads also help to connect the community now. It is noted that both sidewalks and painted asphalt shoulders have increased active transportation. The Trails Master Plan encourages more integration of these elements to expand the existing network.

The 2003 Trails Master Plan states that the Town should ensure that land for the implementation of the proposed trail network as well as future recreation facilities be included in new subdivisions that are developed. Connectivity between neighbourhoods, key recreation facilities, existing trail facilities, schools of all levels, and other community facilities such as libraries, Town Hall, commercial areas and seniors facilities are all very important.

The rail line and the two major highways were highlighted as constraints to a contiguous trail network.

The Plan divided the Town into key regions, then identified each region's potential for trails, linkages and constraints. The recommended trails were then given a classification of either a footpath, intermediate level trail or multi-use trail according to the intensity and type of use. Priorities and implementation strategies were also discussed.

### Town of Quispamsis Municipal Plan Review 2006

#### Summary

According to the 2001 Census, Quispamsis boasts the largest pre-school (0-4 years old), elementary / junior high (5-14 years), and high school (15-19) age cohort of its neighbouring Rothesay and Saint John. Quispamsis' working age group (25-44 years old) was slightly below the provincial average at 29.52%. The middle age group (45-54) was considerable higher than Saint John at 17.74% (compared to 14.16%). This data indicates that there will be an increased in need for seniors and youth facilities into 2010.

The median family income in Quispamsis (\$67,709) is considerably higher than the provincial average (\$45,558) suggesting that families have more disposable income.

Some identified recreation issues in the review were that facilities were aging and required repair, the current ice surface is inadequate for demand, the trail system needs to be figured out, and the newer population is families with young children - there is concern that the current quality of service will be inadequate with the increased demand.

Other issues that surfaced in a public questionnaire included the need for a new multi-use facility and swimming pool, and that biking and walking trails would improve the Town's recreation opportunities. The need for trails were also duly noted by members of the Community Services Department.

### City of Saint John Trails and Bikeways Strategic Plan Summary

The City of Saint John's commissioned Trails and Bikeways Plan not only aims to address non-motorized transportation opportunities, but also general active mobility opportunities for its residents. Their vision is to facilitate and encourage human powered transportation and recreation opportunities such as walking, cycling, skate boarding, wheelchairs, rollerblading, snowshoeing and cross-country skiing through a comprehensive transportation network, via its urban/suburban sidewalks and trails; bike routes; and local trail systems.

The long term goal of the study is to facilitate and provide 'opportunities for active lifestyles and mobility options within the City' by connecting non-motorized trails and sidewalks that provide access to the City's key destinations.

The Plan's three key purposes were:

- to identify key recreational and active transportation corridors;
- to provide recommendations for implementation and development of the Saint John Trails and Bikeway network; and
- to provide direct input into the development of the Saint John Municipal process.

The Trails and Bikeways Plan was also guided by four principles:

- safety - both real and perceived;
- accessibility - a safe environment for all users, including wheelchairs, strollers and slow moving pedestrians;
- connectivity and mobility - an attempt to reconnect the pedestrian grid throughout the City; and
- aesthetics - the network should be a 'linear system of green space that draws people to and from various destinations'.

The Plan identified the City's key locations and elements and related those to existing active transportation infrastructure, trails, roadways and destinations. Existing and proposed trails were then categorized into Neighbourhood Routes, Community Routes, Citywide Corridors and Recreational Loops according to their use and intensity.

Design guidelines were developed as a template for the safety, aesthetics and continuity of the network. Design standards were also provided for trails, routes and bike lanes and how they integrate with roadways and intersection.

Key recommendations that came out of the report are listed below (next page):

- Conduct a comprehensive local trail master plan.
- Connect the University and Hospital to a trail network to reduce vehicular dependence in the area.
- Create partnerships to develop the Marsh Line Trail
- Establish a Recreation and Active Transportation Advisory Committee
- Designate a key person for the administration of implementation of Trails and Bikeways corridors and programs.
- Integrate Trails and Bikeways implementation and development into the municipal capital budget.
- Integrate Active Transportation and recreation into the Municipal Development Plan process.
- Allow a Land for Public Purposes park dedication for linear infrastructure such as trails.
- Integrate connectivity requirements into the Subdivision Bylaw.
- Add Bike Lane infringements to the Traffic Bylaw.
- Review the Skateboarding Bylaw.
- Integrate the Trails and Bikeways network with Public Transit.
- Implement the 2009 Bike Parking Plan for Uptown.
- Integrate the Trails and Bikeways plan with planned infrastructure improvements to reduce cost.
- Public washrooms are required along the network.
- Launch an education campaign.
- Provide mapping and wayfinding.

- Implement routine cycling infrastructure maintenance and cleaning program along paths.
- Maintain network in the winter.

### Rothesay Recreation Master Plan 2009 - Summary

The Recreation Master Plan identifies that recreation has become more leisure related and less competitive sport dominant and is identified as 'sports, games, crafts, arts, music, drama, travel, hobbies, intellectual pursuits, outdoor experiences and social activities' and can be solitary pursuits or involve social interaction. The report also notes that communities are often evaluated on 'their level of open spaces, availability of recreation facilities and leisure programs'; it states further that 'availability of good, multi-dimensional leisure and recreation opportunities enhances a community's ability to retain and attract residents'.

The Recreation Master Plan identifies basic principles as follows.

- Equal access to activities and facilities regardless of interest, age, sex, income, cultural background, housing environment or disability.
- Coordination with other community recreation opportunities to avoid duplication and encourage innovation.
- Development of leisure and recreation activities that are sustainable and within the resources of local communities and sponsoring organizations.
- Development of leisure and recreation activities that are accessible to entire community as a complement to other government and community programs, services and initiatives.



- Facilities that are adaptable to future requirements.
- Programs than meet residents' needs.
- Citizen involvement in the planning process at all stages.
- A continuous planning process, involving evaluation of the recommendations.

Key demographic and age related trends were identified that affect leisure habits and recreation needs. These include:

- an aging population with the largest cohort being baby boomers,
- a population that works longer hours and spends less time on leisure and recreation,
- a country with a good quality of life and health care system, hence we are living longer,
- the challenge for municipalities to be able to adapt and provide leisure opportunities for communities,
- the baby boom generation affecting recreation trends due to increased leisure time and increased disposable income,
- municipalities and recreation agencies exploring partnerships as a means to provide facilities and programs, and
- an increase in multi-use facilities to reach more clientele and be more responsive to programming needs.

Demographic studies show that Rothesay has a higher proportion of families than Saint John, as well as a higher median income; therefore more predisposition for leisure and recreational opportunity seekers. A change in local occupation was predicted for the area as well, which would have effects on income and family ages.

The Master Plan document reviews relevant background documents including the following.

The Rothesay 2002 Municipal Plan highlighted a shortage of linear trail systems, stated that the Town 'must support' its residents with leisure opportunities, and that the community hosts a relatively even distribution of recreational opportunities.

The Bylaw reviews noted a need for a 'recreation zone', and that there was a 10% allocation of subdivided parcels for Land for Public Purposes.

The 2004 Recreation Needs Analysis: Kennebecasis Valley document review determined that there was a need for additional recreational activity space, there was a lack of 'prime time' availability, and both large and small activity groups felt a pinch for available space.

The Recreation Service Provider consultations confirmed that there were not enough facilities available at certain times and locations for large and small groups.

A facility inventory and assessment concluded that several facilities require repair and improved maintenance.

A park and open space assessment determined that there were opportunities for expansion of the linear trail system along rail corridors and riverside trails, playgrounds were well used, but had some deficiencies and required repairs.

A public open house determined which recreation opportunities Rothesay residents were most interested in, from most important to least. These were a new multi-purpose facility, new

trails, a new rink and 'other'. Top priorities in the 'other' category included seniors facilities, miscellaneous, indoor pool, tennis courts, bike/walking lanes and a library.

An online survey concluded that the activities residents participated in were walking (86%), cycling (65.8%), gymnasiums (60%), parks / open spaces (46%). Baseball, softball, archery, racquetball and squash all ranked low.

When asked to rate the accessibility and programming of facilities, 83% of respondents said aquatic facilities were inadequate, 61% said walking and running tracks were inadequate, however 50% of respondent said soccer and rugby fields were in excellent condition.

Eighty-nine percent of respondents noted that a single complex with a variety of recreation uses would best suit the community, and 83% felt that the area lacked suitable outdoor trails. Teens and older adults were seen to be the most disadvantaged for recreation opportunities.

Key recommendations include:

- strengthening policies to require open space and trail connectivity in new developments,
- the acquisition of contiguous Land for Public Purposes for linear trail systems,
- linking existing trails together,
- developing off-road trail systems to support bike travel,
- participation within stakeholder groups / school district and municipality for recreation programming,

- funding for seniors activities,
- addressing over-looked user groups (seniors and adolescents),
- development of a 'recreation campus' / multi use facility,
- promoting ecotourism and education of potential wetlands,
- promoting sustainable transportation, and
- increased cooperation with service groups and organizations.

## **Appendix C - Promoting Safety**

The following section describes various youth based initiatives that the Town can draw upon to develop a custom or hybrid program for its purposes.

### Youth Programming - Walking

#### Walking School Bus

The Walking School Bus (WSB) is a great opportunity to get young children and youth active while traveling to and from school.

To organize a Walking School Bus, parents and schools work together to find families along the same route interested in participating. Ideally informal meetings are held to determine how many days per week the WSB would take place, and determine a schedule of adult volunteers. A maximum of three to four children per adult is recommended for safety, and there should ideally be an adult at the front and back of the bus.

Child and family surveys are helpful to determine if there are constraints, perceived safety issues, or real safety issues. Walk-a-bouts along the proposed routes are valuable tools to 'ground truth' results from the survey and to evaluate unanticipated issues that may arise, such as traffic, pedestrian, and cyclist counts, and bike rack assessment.

Pedestrian rules and safety procedures are reviewed prior to implementing the WSB, and again when new children join the route. The Rothesay Regional Police Force should be notified and encouraged to participate to let them know of the WSB and request additional 'eyes on the street' on these routes if possible.

Source: [www.saferoutestoschool.ca](http://www.saferoutestoschool.ca)

helpful resources:

- [www.kidsonthemove.ca](http://www.kidsonthemove.ca)
- [www.toolsofchange.com/en/case-studies/detail/97](http://www.toolsofchange.com/en/case-studies/detail/97)

#### iWalk (International Walk to School Month)

This program promotes awareness about how kids get to and from school. The program aimed to increase youth mobility, promote family cohesion and promote cleaner air quality. In 2009, forty countries participated in International Walk to School Month. For more information: [www.iwalktoschool.org](http://www.iwalktoschool.org)

#### Walking Tour of Canada

This is an on-line program offered through the Go For Green website. Students log the distance they walk to and from school into the database and the database in turn maps the distance on a country map to show the equivalent of how far across Canada they have walked.

#### Central School Bus Stations

Central school bus pick-up and drop-off points are established at designated locations which are a specific distance from a school (usually 500m - 1km) to increase physical activity levels. Volunteers / parents then supervise the walkers to the school.

#### School Travel Plan by Green Communities Canada

Based on ideas and existing programs from multiple countries around the world, the School Travel Plan is a community-based, comprehensive approach to improving travel-related issues at schools through such initiatives as decreasing vehicular traffic around schools and encouraging students and the surrounding community to use active transportation methods such as walking, biking and skateboarding.

## Youth Programming - Cycling

### Biking School Bus

The Biking School Bus uses the same principles as the Walking School Bus program but incorporates cycling as the mode of transportation. This Biking School bus targets slightly older children who are comfortable and familiar with residential street cycling.

### CAN-BIKE

CAN-BIKE was designed by the Canadian Cycling Association as a series of courses that pertain to aspects of cycling safety, and comfort on the road. It is oriented toward recreational and utilitarian riders that teaches a nationally standardized set of courses and skills.

Kids CAN-BIKE targets 9 to 13 year olds and provides 12 hours of in-class and on-bike instruction from steering, signaling, right and left turning, changing gears, braking and avoiding hazards. Children are taught to ride safely to and from school or local destinations on residential streets.

More information: [www.canbike.net/cca\\_pages/index.htm](http://www.canbike.net/cca_pages/index.htm)

### Bike Smarts

“Bike Smarts’ was a program initiated in Victoria, British Columbia at Lochside Elementary School and targeted seven to thirteen year olds. Participants received in-class instruction on riding safety and proper helmet fitting, and they participated in several outdoor cycling rides to practice riding skills. At the end of the six-week program, children were required to conduct both a written and ‘on-bike’ cycling test. The program was highlighted

by a 30km bicycle trip with associated festivities and a barbecue; to qualify for the field trip, participants had to have logged more than 100km on their bikes in the six-week program duration.

The biggest barrier to the program was not lack of interest by the children, but lack of family support arising from real and perceived safety concerns. These were mitigated by informing parents about safety, encouraging parents to participate and stressing safety regulations for bicycle riding.

Source: [www.toolsofchange.com/en/case-studies/detail/3](http://www.toolsofchange.com/en/case-studies/detail/3)

### Sprokids

Sprokids was initiated in 1990 to promote cycling among youth. The program teaches 55 bicycle skills over 4 program levels (ages 9 through 12), as well as how to maintain your bicycle, promotes environmental stewardship and addresses trail safety and trail building techniques. Sprokids can operate as an after school program, or during spring and summer breaks.

There is also a ‘train the trainer’ component, where graduated participants of the program, or parent, teachers, group leaders etc) can teach the younger members.

Source: [www.sprockids.com/about.html](http://www.sprockids.com/about.html)

### Bike It

Bike It is a UK initiative (through its Sustrans department) to educate children about bicycle safety, teach them the skills to ride a bike, and get them out and being active. Focussing on youth, this program has over 1000 Bike It officers that work with over 12,000 schools throughout the UK. Bike It’s goal is to

promote an active and healthy community while reducing environmental impacts of vehicular transportation.

Source: [www.sustrans.org.uk/what-we-do/bike-it](http://www.sustrans.org.uk/what-we-do/bike-it)

### Wiserider Cycling Safety Guide

The Wiserider program was initiated in Saskatchewan as a means to educate young children on bicycle safety and riding techniques. The idea is that getting young children active, safe and confident early in life will encourage them to stay active as they age. This program originated in Moncton in 2004. The City partnered with the RCMP to help deliver the program.

For more information: [www.cooperators.ca/static/pdf/en/wiserider\\_safety\\_guide.pdf](http://www.cooperators.ca/static/pdf/en/wiserider_safety_guide.pdf)

### Other youth bike programs

In Germany and the Netherlands every school provides children, by the age of 10, with extensive education on how to safely walk and bicycle. They are taught traffic signals and regulation, how to walk and bike defensively, anticipate dangerous situations and react appropriately. Throughout Germany, children in third and fourth grades are required to complete cycling courses, complete with an exam. The tests are conducted by real police officers in special 'traffic parks' with simulated streets, intersections, traffic signals and possible dangers. Bicycle checks and inspections are often made at schools as well.

### Ways cyclists can improve safety:

- follow the rules / the law - bicycles are considered vehicles, the same rules apply

- be predictable - ride in a straight line, signal turns, do shoulder checks frequently
- come to a complete stop at stop signs and red lights
- ride with caution around parked cars and visual obstacles
- be conspicuous - wear bright clothing, use lights and reflectors
- be aware - anticipate drivers moves, be cautious of potholes and other road obstacles
- seek out groups / clubs / bicycle organizations for safe riding tips, instruction and group rides if new to cycling or just getting back into it
- ride ready - make sure your bike is in sound working order
- carry ID, cell phone, emergency money as well as repair kits
- wear a helmet

### Ways motorists can improve bicycle safety:

- respect bicyclists legal right to be on the road, drive courteously and with tolerance
- obey the posted speed limit
- come to a complete stop at stop signs and red lights
- check over your shoulder for cyclists before making lane changes or turns
- maintain a safe distance between your vehicle and the bicyclist
- yield to pedestrians and cyclists in and entering crosswalks
- if you plan to turn right or pull into a parking spot shortly ahead of a bicycle in front of you, do not pass

- signal all turns and lane changes 30m in advance
- pass bicycles only if it is safe to do so; exercise patience

Source: Making Walking and Cycling Safer by John Pucher and Lewis Dijkstra in Transportation quarterly, Vol 54. No. 3, Summer 2000 (25-50). Copyright 2000 Eno Transportation Foundation, Inc., Washington, DC

### General Cycling Programs

#### CAN-BIKE

CAN-BIKE was designed by the Canadian Cycling Association as a series of courses that pertain to aspects of cycling safety, and comfort on the road. It is oriented toward recreational and utilitarian riders and teaches a nationally standardized set of courses and skills.

CAN-BIKE Adult Learn to Ride One targets 14+ year olds who can already ride safely on the roads, providing 3 hours of on-bike instruction relating to balance, starts, stops and turns.

CAN-BIKE Adult Learn to Ride Two targets 14+ year olds who are unsteady to ride on residential streets. Participants will learn to balance, start, stop, turn and change gears.

CAN-BIKE Rural Cycling targets 14+ year olds, teaching either 6 or 12 hours for those interested in rural cycling.

CAN-BIKE Two targets 14+ year olds through 18 hours of advanced skills to develop defensive cycling for commuters and recreational cyclists who already ride in traffic.

Source: [www.canbike.net/cca\\_pages/index.htm](http://www.canbike.net/cca_pages/index.htm)

### Sharing the Roads

Road conditions can be made safer for children by the following recommendations:

- reducing speed limits in residential areas to 30km/h and implementing traffic calming measures
- eliminating visual obstacles, especially at crossings
- incorporating bike lanes on collector and arterial roads

sources: [http://cst.uwinnipeg.ca/documents/Child\\_friendly.pdf](http://cst.uwinnipeg.ca/documents/Child_friendly.pdf)

## **Appendix D - Standard Details**

D.1 Standard Street Sections

D.2 Quispamsis Active Transportation Signage

D.3 Quispamsis Active Transportation Bike Rack System

D.4 Transportation Association of Canada Bicycle Route Signage

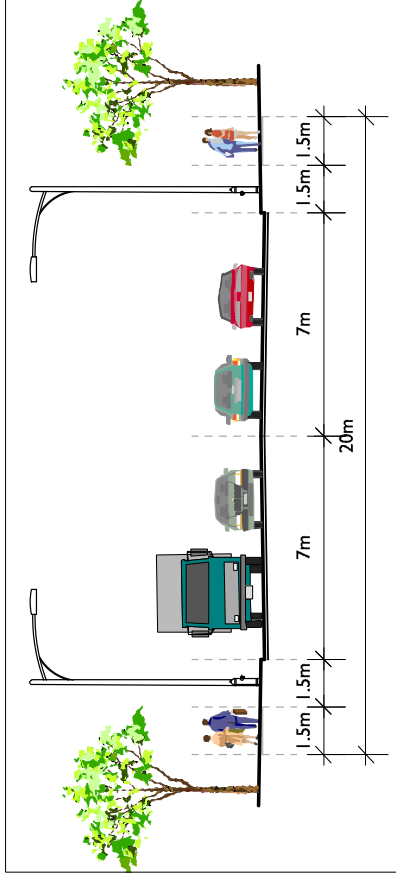
D.5 Street Marking

D.6 Intersection Details



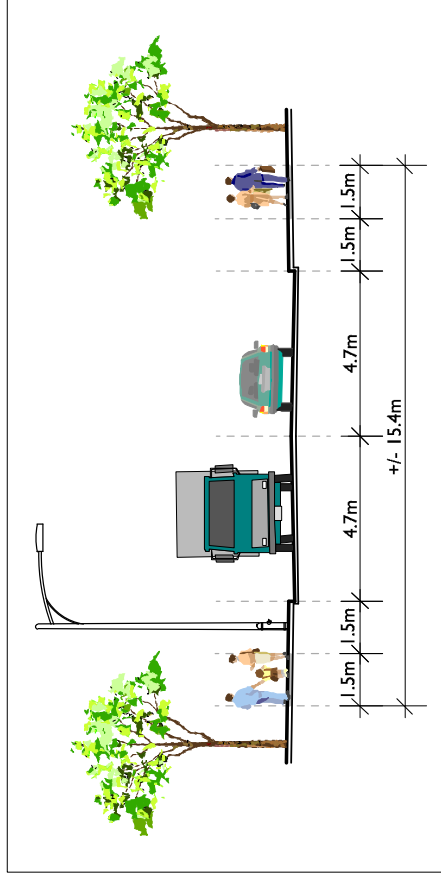
### Regional Arterial Street

Hampton Road  
Gondola Point Arterial Road



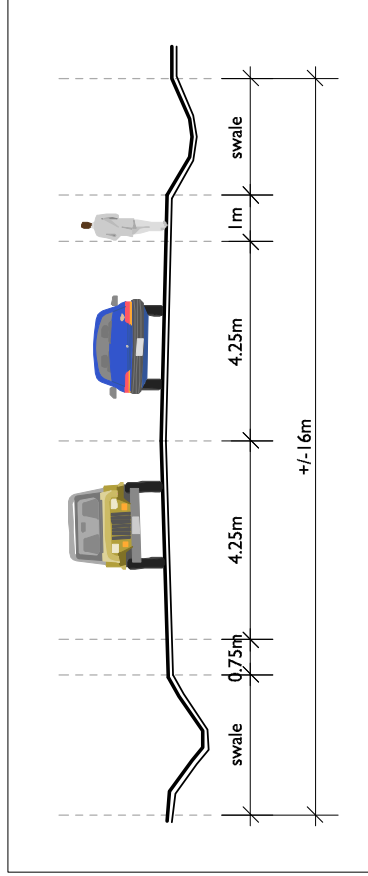
### Local Arterial Street

Vincent Road  
Pettingill Road  
Quispamsis Road  
Meenan's Cove Road  
Chamberlain Drive  
Queensbury Drive  
Gondola Boulevard



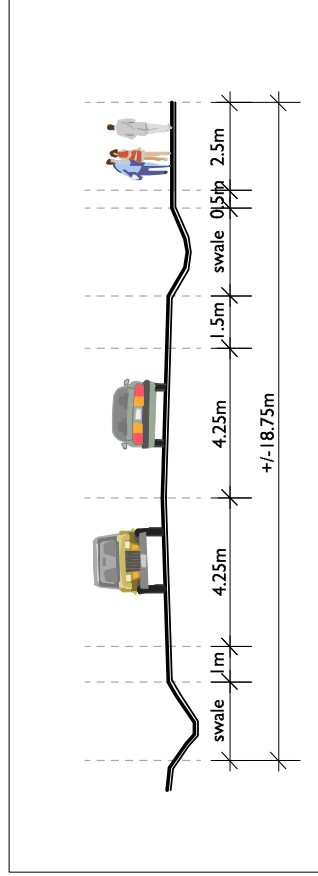
### AT Minor Collector/Shared Route

Hammond River Road  
Pettingill Road  
Quispamsis Road  
Elliot Road  
Stock Farm Road  
CNR Railine



### AT Minor Collector/Special Character Street

Hampton Road (northern portion)  
Millenium Drive  
Model Farm Road  
Hammond River Road  
Gondola Point Road



**FIGURE D.1**

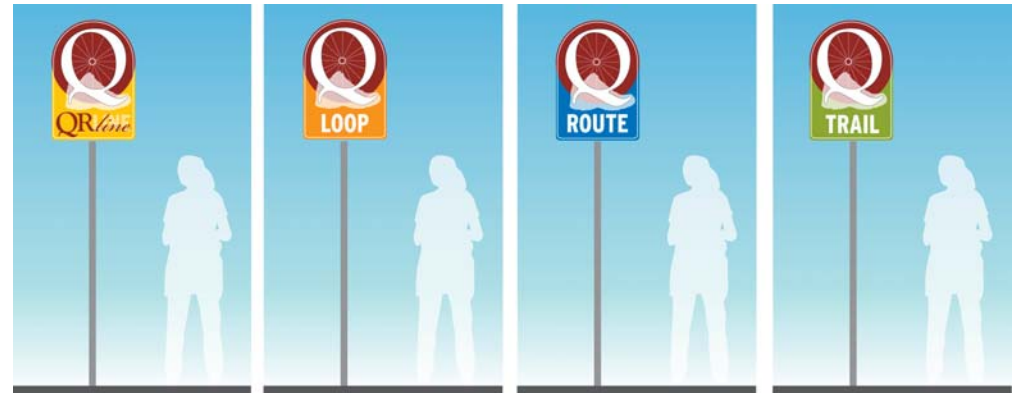
Prepared for: **TOWN OF QUISPAMISIS**  
Project: **ACTIVE TRANSPORTATION PLAN**

Scale: nts  
Date: Jan. 2011  
Drawn by: gmi

## D.2 Quispamsis Active Transportation Signage

### Active Transportation Signage

- 24" wide by 35.5" high single sided 1/8" aluminum sign panel
- full digital print, finished with anti-vandal coating
- mounted to telespar post (supplied and installed by others)



### D.3 Quispamsis Active Transportation Bike Rack System

#### Q Lamp

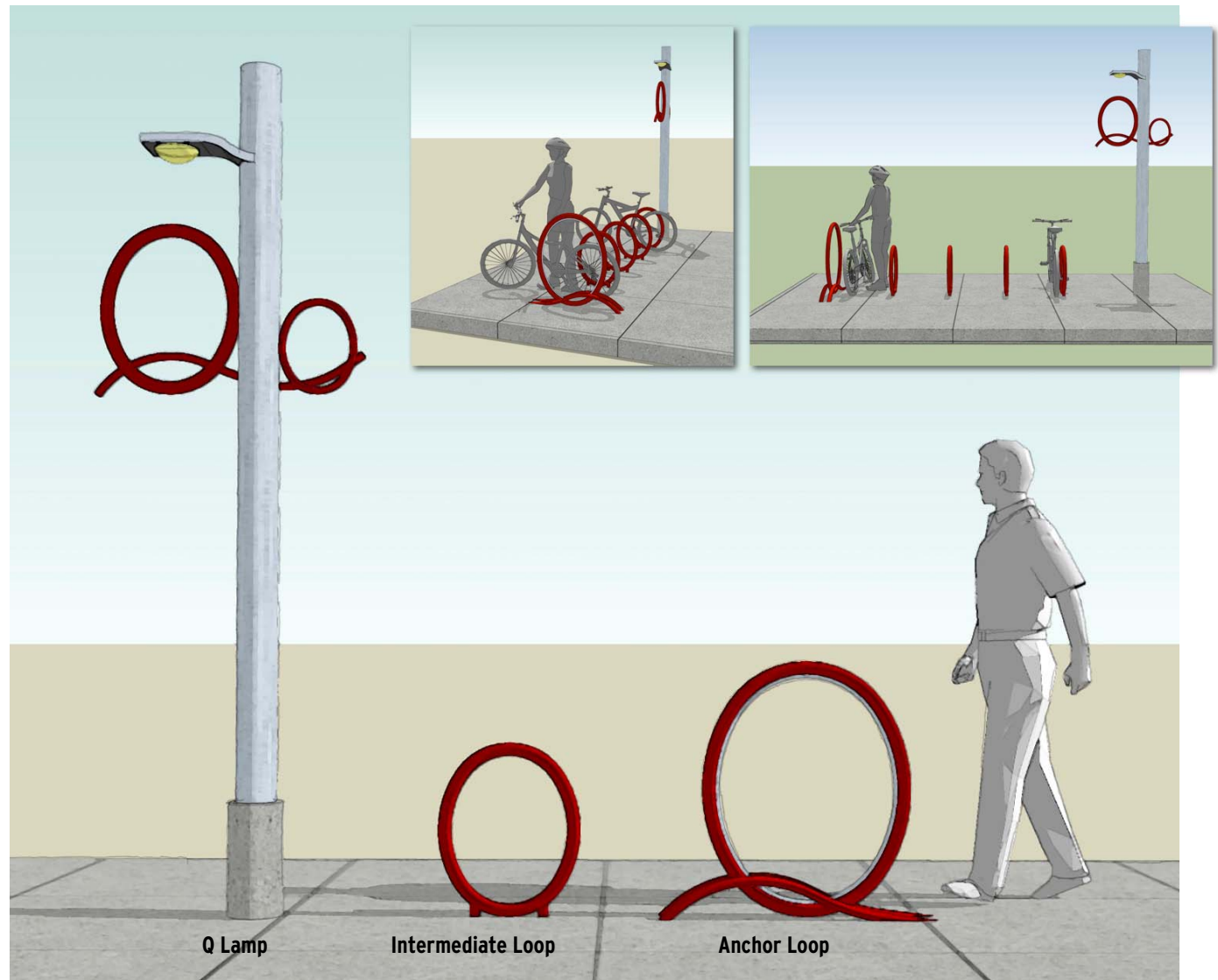
- photovoltaic lamp
- 1'-9" wide by 2'-0" tall primary steel oval and 1'-0" wide by 1'-3" tall secondary steel oval mounted to light standard
- 3'-3" wide curved steel base
- 1.3" diametre steel, 0.125" wall

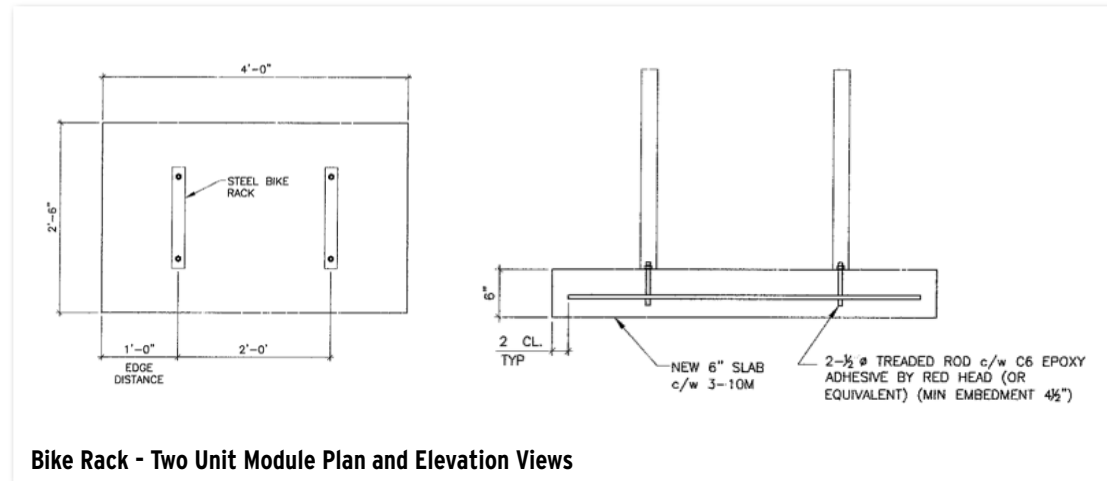
#### Intermediate Loop

- 1'-9" wide by 2'-0" high steel oval loop
- 1.3" diametre steel, 0.125" wall

#### Anchor Loop

- 2'-6" wide by 3'-6" high steel oval loop
- 3'-6" wide by 6" high steel curved bracket
- loop is sandwiched between two brackets
- 1.3" diametre steel, 0.125" wall





**Bike Rack - Two Unit Module Plan and Elevation Views**

**NOTES:**

FOR GROUPS OF 4 OR MORE RACKS, USE A COMBINATION OF 2 & 3 UNIT MODULES

**GENERAL**

ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL BUILDING CODE AND ALL REGULATIONS AS SET OUT BY LOCAL AUTHORITIES HAVING JURISDICTION, IN CASE OF CONFLICT OR DISCREPANCY, THE MORE STRINGENT REQUIREMENTS SHALL APPLY

**REINFORCED CONCRETE NOTES**

ALL CONCRETE WORK SHALL BE TO THE REQUIREMENTS OF CSA A23.1-04/A23.2-04/A23.3-04 EXCEPT AS SPECIFIED OR NOTED.

- MINIMUM COMPRESSIVE STRENGTH @ 28 DAYS
- 4000 PSI FOR FLOOR SLABS, SIDEWALKS AND ALL OTHER CONCRETE NOT SPECIFIED.
  - AIR CONTENT: 5% TO 8%
  - CONCRETE SLUMP: 3.2"
  - MAX. AGGREGATE: 3/4"
  - WATER CEMENT RATIO: 0.45

REINFORCING STEEL, EMBEDDED PARTS, ANCHOR BOLTS, DOWELS, WATER STOPS, ETC., SHALL BE SECURED IN POSITION PRIOR TO PLACING CONCRETE.

ALL EXPOSED CORNERS TO HAVE A MINIMUM CHAMFER OF 3/4" UNLESS NOTED OTHERWISE

**REINFORCING STEEL**

BARS - TO CAN/CSA-G30.18-M92 GRADE 60 ksi.

HOOKS ARE TO BE STANDARD UNLESS NOTED OTHERWISE

CONCRETE COVER FOR REINFORCEMENT: (TYPICAL UNLESS NOTED OTHERWISE)

- A) CONCRETE POURED AGAINST GROUND SHALL BE 3" MIN.
- B) 15M BARS OR SMALLER SHALL BE 1 1/2" MIN.

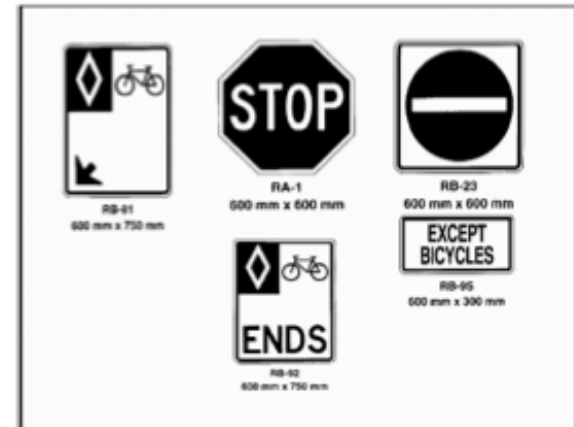
**FOUNDATION**

RACK BASES SHALL BE POURED ON SOUND, WELL-CONSOLIDATED WELL-DRAINED NON-EXPANSIVE IN-SITU MATERIALS.

### D.4 Transportation Association of Canada Bicycle Route Signage



Examples of Warning Signs (Source: Bikeway Traffic Control Guidelines for Canada, Transportation Association of Canada, 1998)

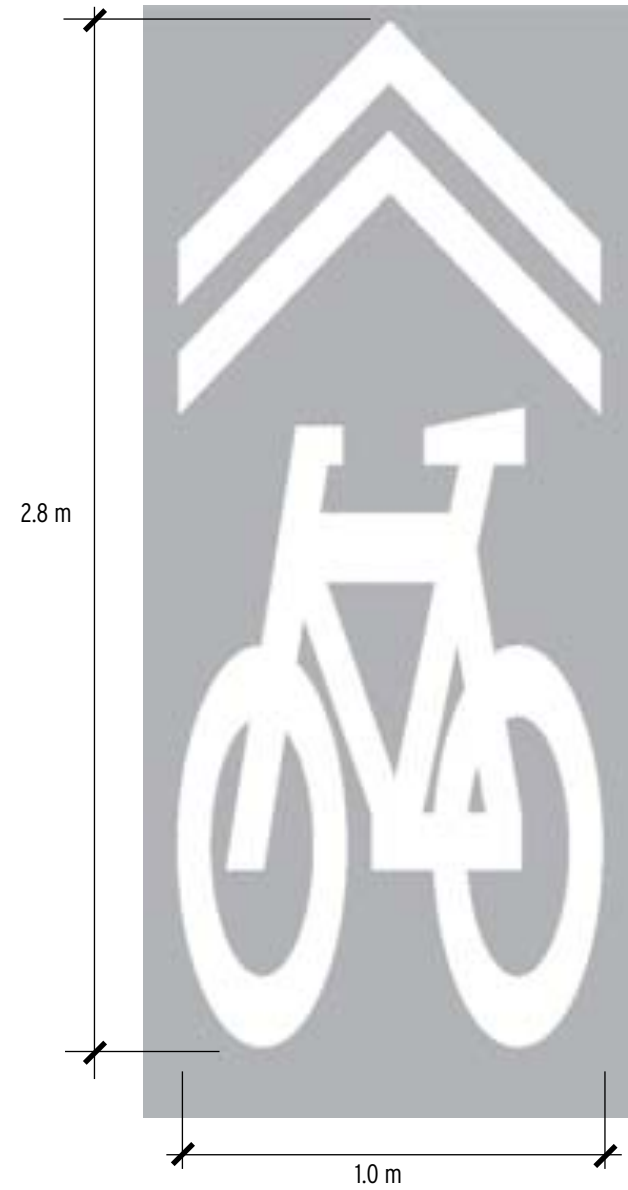


Example of Regulatory signs (Source: Bikeway Traffic Control Guidelines for Canada, Transportation Association of Canada, 1998)



Guide and Information Signs (Source: Bikeway Traffic Control Guidelines for Canada, Transportation Association of Canada, 1998)

### D.5 Street Marking - Sharrow



## D.6 Intersection Details

This section is provided as reference material for intersection issues that will like arise as the Town moves forward with implementation. The content focuses on speed reduction at intersection with pedestrian and cyclist use.

Several methods can be used to reduce speeds and visibilities at intersections. Reducing the curb radii is intended to slow turning vehicles and reduce pedestrian crossing distances. Intersection radii should accommodate design vehicles applicable to the street. (Figure 7) The smallest radius used in order to accommodate a passenger vehicle, is between 3 - 5m.

Curb extensions can also be used. Curb extensions create a reduction in roadway width on one or both streets and can be reduced to 6.0m for each direction. Curb extensions can also be located mid-block. (Figure 8) These features channel the flow of traffic making it more safe and predictable.

Raised pedestrian crosswalks and raised intersections are elements that are constructed at a higher elevation than the adjacent roadway. The purpose is to reduce vehicle speeds, improve pedestrian visibility and reduce pedestrian-vehicle conflicts. Textured crosswalks may also be used as a low cost alternative to the raised crosswalk or intersection. A textured crosswalk incorporates a texture or pattern that contrasts with the adjacent roadway in order to better define the crossing location for pedestrians and reduce pedestrian vehicular conflicts.

### Interventions between Intersections

Methods that can be employed to reduce speeds between intersections include speed humps, curb extensions and changing the axis of the traffic lanes which eliminates the vanishing point. Reducing the curb radii is intended to slow turning vehicles and reduce pedestrian crossing distances. Intersection radii should accommodate design vehicles applicable to the street. (Figure 7) The smallest radius used in order to accommodate a passenger vehicle, is between 3 - 5m.

Curb extensions can also be used. Curb extensions create a reduction in roadway width on one or both sides of the street. Curb extensions can also be located mid-block. (Figure 8) Although there are a number of traffic calming techniques, the specific area should be considered, and several general principle can be applied:

**Identify the real problem:** Often the perceived traffic problem is different from the real traffic problem. For example, residents may site traffic volume and speed as concerns however the real problem is either one or the other.

**Quantify the problem:** Data collection of existing conditions and uses can help to quantify a traffic problem - for example some are all-day problems while other may be at certain times of the day. Consider improvements to the arterial street network first

**Apply traffic calming measures on an area-wide basis:** In considering the traffic problem in one area, any potential effects on other streets must be considered. These effects may include traffic diverted to their streets, changes in turning movements or motorists that speed up after a traffic calming intervention, to 'make up time'.

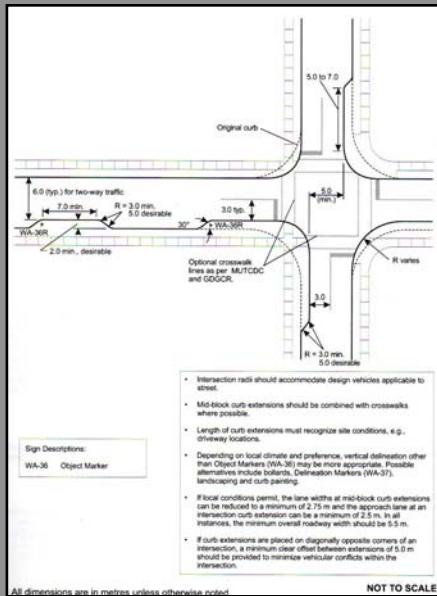


Figure 7 - Typical layout of curb extensions. Canadian Guide to Neighbourhood Traffic Calming , TAC 1998

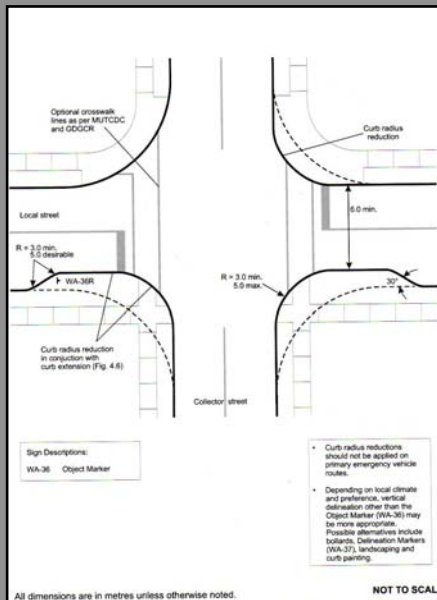


Figure 8 - Typical layout of curb radius reduction. Canadian Guide to Neighbourhood Traffic Calming , TAC 1998

Avoid restricting access and egress: Residents are generally in favour of traffic calming measures, however those do not unduly restrict access and egress out of their neighbourhood.

**Use self-enforcing measures:** Using techniques that do not require 24-hour presence or police enforcement are preferred such as speed humps instead of posted speed limits, or diverters instead of prohibition signs. Quality landscaping of the traffic calming measure can greatly enhance the area and increase the motorists awareness of their immediate environment.

**Do not impede non-motorized modes:** Traffic calming should consider and be designed to allow for pedestrian and cyclist ease of movement.

**Consider all services:** To include public transit, emergency services, and city maintenance services such as garbage and recycling pick up and snow clearing and removal.

**Monitor and follow-up:** Evaluating similar conditions in other cities or reviewing precedents to see if it can be applied to the particular circumstance is a practical method to begin before starting a traffic calming intervention. Conducting a short term or test period of six months or a year is also a good way to address the problem. Once the intervention has been implemented, conducting post intervention evaluations is an excellent method to gather information on the success or failure of the intervention. (Canadian Guide to Neighbourhood Traffic Calming , TAC 1998.)

**Green Systems**

The green systems include the network of park trails, and their respective greenway corridors and infrastructure. Quispamsis

has an opportunity to develop this within the context of existing stretches of continuous or in-continuous greenway. Future development areas can be built with the greenway as its primary structure.

**Off-street Routes**

A municipality's network of on-street bicycle routes can be complemented if not completed by a system of off-street routes. In most cases, these are routes that run through parks, along waterfronts, and through greenways (green corridors). They can also include routes running along operational rail corridors.

Off-street routes come in two basic varieties: shared-use paths or multi-use and bicycle-only paths. Shared-use paths can be subject to conflict between pedestrians and cyclists; if used by a large number of bicycle commuters, shared-use paths can become hazardous for pedestrians (FHWA, 2006).

The design of greenway trails should take into account the characteristics of the various activities to be accommodated and their geographic location. These features may influence the trail's design (trail width, overhead clearance, curves, and grades) and its physical characteristics (trail surface material, signage, and carrying capacity of the structures.)

Trails that follow a waterway or river side corridor should have a minimum setback of 15 - 30m from the watercourse depending on the provincial or local government required setbacks.

**Sidewalks**

Although previously mentioned, the sidewalk is presented in context with the elements of the shared-route system.

	Minimum recommended overhead clearance* (m)	Minimum recommended width** (m)	Design speed (km/h)	Maximum grade (%)	Surfacing
Bicycling	2.5	3.0	30	8	Stone dust or asphalt
Hiking	2.5	2.0	5-8	No limit	Concrete, asphalt or stone dust
Horseback riding	3.5	4.0	7-30	10	Firm, un surfaced
Snowshoeing	3.5	2.0	5-8	8	Note needed
Cross-country skiing	3.5	3.5	20-25	5	Note needed
Snowmobiling	3.5	4.0	70 (90 in certain cases)	12 (25 on grades under 30 m)	Note needed
ATV	3.5	4.0	50 (70 in certain cases)	8 (15 on grades under 30 m)	Note needed

\*From the snow surface  
\*\* Sidewalk trail

Technical Handbook of Bikeway Design, 2003



Sidewalks generally follow parallel to the street and are typically included in the roadway corridor. Designed for pedestrian use, sidewalks act as route connectors, or alternatives to trail pathways. They are generally 1.2 - 1.8m wide depending on the amount of pedestrian traffic and frequency of use.

Winter maintenance of pedestrian sidewalks is important in many Canadian cities and keeping sidewalks free from snow and ice in winter is a challenge to most, however, in addition to benefiting pedestrians in general, keeping sidewalks clear and ensuring a smooth transition at crossing points is also important to people in wheelchairs, using walkers or pushing strollers.

Priority should be given on clearing major pedestrian corridors first after a snowstorm. Areas would include places with higher pedestrian traffic, such as shopping and business districts, and walkways leading up to bus stops, bridges and overpasses.

## Appendix E - Conceptual Site Plans

- E.1 Hammond River Park Plan
- E.2 Town Hall Conceptual Development Plan
- E.3 QR Line Concept Plan

## E.1 Hammond River Park

COLLABPLAN.ca 73 Highfield Street Moncton NB 506.386.7938 COLLABPLAN.ca landscape architecture & planning studio



# Hammond River Park

## Conceptual Revitalization Plan



Conceptual Site Plan 4

- 1 SITE ENTRANCE**  
add new entry sign with view into revitalized parking areas. Entry sign to express the "western outpost style graphic applied to the site. This speaks to both location and character.
- 2 PARKING AREA RENOVATION**  
entry lane transitions to parking area where driving and drop-off loop surround parking area. renovation requires careful consideration to grade and drainage.  
  
edges of lot and lanes to have wood posts and beams within the western outpost character.
- 3 BUILDING ENTRY**  
revitalized building entry to include extended western outpost style false-roof as well as hitching posts for bikes (placed along trail and driving surface edges).
- 4 TRAIL ENHANCEMENT**  
limited park trail development to improve the mountain bike use of the facility. this will include one primary multi-use trail that extends around the park (in ring formation).



**Concept Version No. 2**  
for: The Town of Quispamsis  
by: CollabPlan  
January 2011



# E.2 Town Hall Conceptual Development Plan

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- 1 SITE ENTRANCE**  
revitalized town hall entry with walking paths, grass median, new entry columns and sign. entry sign would highlight upcoming town events and permanent area businesses.
- 2 BIKE PARKING AREA RENOVATION**  
installation of 'O' bike rack system at town hall entrance.
- 3 PARKING AND ACCESS RENOVATIONS**  
reconfigured parking lots to provide more spaces, new roadway access and associated parking through to the lower area of the site and skate park.
- 4 SKATE PARK**  
construction of a new skate park facility with elevated stunt components and depressed bowls to accommodate all levels and experience of skateboarders.

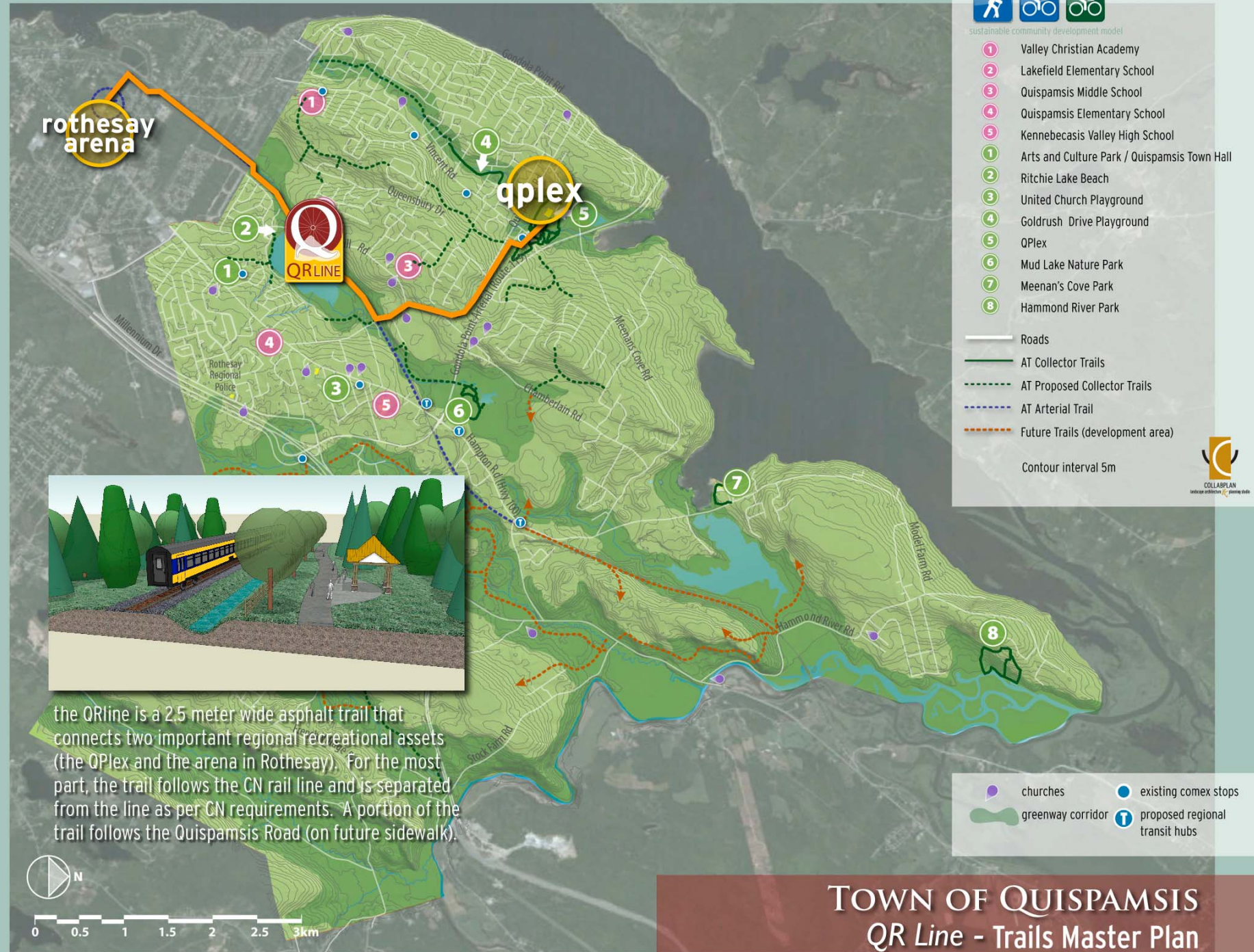
## Town Hall

Conceptual Revitalization Plan

**Concept Version No. 1**  
for: The Town of Quispamsis  
by: CollabPlan  
January 2011



# E.3 QR Line Concept Plan



sustainable community development model

- 1 Valley Christian Academy
- 2 Lakefield Elementary School
- 3 Quispamsis Middle School
- 4 Quispamsis Elementary School
- 5 Kennebecasis Valley High School
- 6 Arts and Culture Park / Quispamsis Town Hall
- 7 Ritchie Lake Beach
- 8 United Church Playground
- 9 Goldrush Drive Playground
- 10 QPlex
- 11 Mud Lake Nature Park
- 12 Meenan's Cove Park
- 13 Hammond River Park

— Roads  
 — AT Collector Trails  
 - - - AT Proposed Collector Trails  
 - - - AT Arterial Trail  
 - - - Future Trails (development area)

Contour interval 5m

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the QRline is a 2.5 meter wide asphalt trail that connects two important regional recreational assets (the QPlex and the arena in Rothesay). For the most part, the trail follows the CN rail line and is separated from the line as per CN requirements. A portion of the trail follows the Quispamsis Road (on future sidewalk).

- churches
- existing comex stops
- greenway corridor
- proposed regional transit hubs

## TOWN OF QUISPAMISIS QR Line - Trails Master Plan